

REPORT ON INTERNSHIP

CSE - 499 : Internship



Software Development On ASP.Net

Course code: CSE 499

Submitted to

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Submitted by

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Performed at

Orion Informatics Ltd.
House #32, Road #7, Dhanmondi, Dhaka



Submission date

8th December, 2016

Letter of Transmittal

Date: 8th December, 2016

Dr. Md. Nawab Yousuf Ali
Associate Professor
Computer Science & Engineering
East West University

Subject: Submission of internship report

Dear Sir,

It gives me immense pleasure to submit my report on Internship at Orion Informatics Ltd. In this report, I have tried to describe my experience, project works, and achievements and so on. All the works presented here are done with utmost sincerely and honestly.

As part of my internship, I have served in Orion Informatics Ltd for six months where I have not only gained real life work experience but understood the process of the department and its various aspects. This report includes a detail review of the office as well as the functionalities of the department. As a document of my effort during the internship periods I have conducted all the project works that I have done during my internship periods, specially their requirement, functionalities and technical specification.

Later on, I have come up with a number of recommendations that I hope would be useful to enhance their position in the market. If you have any further inquiry concerning any additional information I would be very pleased to clarify that.

Thank you.

Sincerely yours

.....

Pavel Parves Prince
Roll: 2012-2-60-014
Computer Science & Engineering
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Letter of Endorsement

Subject: Submission of internship report

This report will be submitted to the Computer Science and Engineering department of East West University as a part of internship program and will be presented to the internship defense committee for evaluation.

This letter is to certify that, all the information mentioned in this document is true and not confidential to the company. The project mentioned here have had successful involvement of Pavel Parves Prince, Computer Science and Engineering, East West University.

I wish his all the best and hope that he will lead a successful career.

Signature of Supervisors

.....

Shafqat Ahmed

Principal Software Architect

Orion Information Ltd.

.....

Md. Saiful Islam

Senior Software Engineer

Orion Information Ltd.

Letter of Acceptance

The project entitled “Software Development On ASP.Net “ submitted by Pavel Parves Prince (Id :2012-2-60-014) , to the department of Computer Science and Engineering , East West University, Dhaka, Bangladesh is accepted by the department in a partial fulfillment of requirements for the Award of Degree of Bachelor of Science in Computer Science and Engineering on December, 2016. .

Board of Examiner

Dr. Md. Nawab Yousuf Ali
Associate Professor
Department of Computer Science and Engineering
East West University

Dr. Md. Mozammel Huq Azad Khan
Professor and Chairperson
Department of Computer Science and Engineering
East West University

Acknowledgement

With the hearted gratefulness I would like to acknowledge the great almighty God's loyal help which is the most efficient tool for all kinds of achievements and researches of all time.

I am fortunate that I had the kind association as well as supervision of our honorable faculty **Dr. Md. Nawab Yousuf Ali**, Associate Professor, Computer Science and Engineering, East West University whose hearted and invaluable support with best concern and dedication acted as necessary resource and feedback to carry out my internship program and hence complete this report.

I would also like to thank at Orion Informatics Limited my supervisor **Shafqat Ahmed**, Principal Software Architect for being patient and supporting me throughout my six month internship program. My endless thanks go to my team leaders, **Md. Saiful Islam** and **Zakir Hossain** and team members, **Md. Shohel Rana** and **Md. Abdur Rahman**. They have all provided their precious time and effort to school for completing my projects me throughout my time at Orion. Their assistance for fulfilling my project especially in the authentication to domain was truly supportive.

My peers and colleagues at the office had also been very helpful; and they made my internship a more enjoyable and eventful one. I am very grateful to those people. Without them it was not possible to done the tasks successfully. I would like to thanks all the stuffs of Orion Informatics Limited to make my journey smooth.

I am also very grateful to senior IITians who works in Orion. My special thanks goes to **Md. Shafiuzzaman**, **Priyanka Mandal**, **Md. Mahedi Mahfuj** and **Md. Jamshed Khan** for helping and supporting me all the time during my intership period.

Thanks goes to **Md. Arafat Zaman** and **Md. Shariful Alam Chowdhury Sujan**, as they were my co-intern from IIT and helped me a lot in all sphere.

Executive Summary

The Industrial Attachment program fulfills part of the requirements in pursuing the degree of Computer Science Engineering in the Institute of East West University. This report serves to summaries of the activities and experiences gained with Orion Informatics Ltd in Development team as an intern.

I found myself rather lucky by getting the chance to work in such an environment that Orion Informatics Ltd provides. I got introduced to some of the new terms like flat hierarchy, open and paper free office. But the most amazing experience was to work in a friendly work environment.

During the intern period, I gained valuable knowledge about real time software. I had to do various kinds of task like study, analysis and development. For technical knowledge, I had studied lots of technical issue such as programming concept, project development and database management.

As I joined in Development team, I had to learn specific procedures and steps to develop a complete software product. I was assigned in a real life ongoing project. Working with this project, I have achieved a lots of learning about new technologies.

Keeping the coding apart, there were also a few more challenges. Some of them were technical and some were non-technical. Coming almost at the end of my internship, I discovered that, some of my communicative and management skills have been improved to a great extent.

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Chapter

1

Introduction

1.1 Preface

Internship is a beneficial procedure for students to link-up their academic experience with industry practices. It gives students an opportunity to sharpen their skills, gain expertise through work on advanced productions and be familiar with arduous real world environment.

Internship also provides any academic institution an opportunity to get up-to-date with new industry trend. As well as, industries get opportunity from Internship program to earn the idea about the research and development fields of the academia. In a word, internship establishes relation between academic institutions and industries.

I feel proud of being a student of Computer Science & Engineering (CSE), East West University because it provides this worthy opportunity to me within the bachelor program. Orion Informatics Ltd is one of the leading software company in Bangladesh, cordially accepted me as an intern and gave me chance to utilize my theoretical knowledge in real world environment. I joined Orion Informatics Ltd as an intern 1st May, 2016 and successful completed this program on 31st October, 2016

1.2 Origin of the Report

The report has been prepared as a fulfillment of a partial requirement of the internship program. I have tried my best to complete this report with my knowledge and amazing experience. I also try to present my technical skills and non-technical skills what I gained as an intern

1.3 Objective

The outcome of my internship is presented in this report and this report is prepared as a requirement of the internship program. The primary objective of this report is to present an overall description of the internship program at Orion Informatics Ltd. It describes the jobs performed in the organization as well as the experiences, findings and professional and personal skill development working in this company.

1.4 Methodology

I have presented different kinds of information in this report which I gathered during internship period and collected from any written document such as Internet or from another person. Most of the information is collected from web sites, articles, Orion employees and some journals. Information included in this report are classified into two categories, primary data source and secondary data source.

Primary data sources are,

- ❖ Direct inspection through the internship time
- ❖ Conversation with my team members and other employees

- ❖ Participation in different in-house activities
- ❖ Observing others jobs

Secondary data sources are,

- ❖ Website of Orion Informatics Ltd
- ❖ Website of Clients
- ❖ Internet

1.5 Scope

An insight of the experience that I gained and the challenges that I faced in my working place are provided by this report. It also provides an idea about how I adapt with the professional environment. A short description about the working environment is added to this report. My daily work schedule is also included to give an explicit view about the life at Orion Informatics Ltd. Overall, I try to give a brief description of Orion Informatics Ltd so that teachers and students can able to know effortlessly about the organization.

If internship is gathering skills, then projects are the main way of gathering them. I have worked on a real life project, named Wiz NG. I gained immense knowledge and experience when I worked on this project.

1.6 Limitation

There are some limitations in this report. All the contents cannot be shared outside the office. I only worked on a particular project and I was here for a short time. I describe in this report what I learnt from this company and what feedbacks I got from my team members and co-workers, so all the data given in this report may not be perfect.

Moreover, gathering data from office's employees was also a tough job. It was quite hard to get time from them in the busy business hours.

1.7 Overview of the Report

In this report, I have discussed about internship office and the task performed during the internship period in Orion Informatics Ltd.

First chapter describes the objective of the report, the methodology of collecting data, scope and limitation of this report.

Second chapter discusses about Orion Informatics Limited's background, mission and vision, team and expertise, services and products, software development methodology and process. It also gives an overview of the organization.

Third chapter explains details of my workplace that is its environment and facilities. My viewpoint about Orion is also described in this chapter.

Fourth chapter discusses my contributions in Orion.

Fifth chapter describes the challenges I faced at the internship period.

Sixth chapter demonstrates how much professionalism I could achieve after internship.

Seven chapter describes my assessment about myself

The last chapter gives a conclusion of this document.

1.8 Conclusion

In this chapter, I have completed introductory part of my report. I have discussed about the purpose of the report, methodology, scope and limitation and definition of some used term in the report which will provide a clear view to the reader of this report about the purpose of this report.

In next chapter, I describe the profile of the company.

Chapter

2

Company Profile

2.1 Background of Orion Informatics Limited

Orion Informatics Ltd which is a global solution provider is one of the leader software firm in Bangladesh. It has over 20 years of industry experience. First, Orion was “Onirban Informatics Ltd” which was established in 1996 and it was an unregistered company. It became registered software company of Bangladesh in January, 2004 and renamed as “Orion Informatics Ltd” [1]. Following strategies are followed by Orion in order to achieve their goals [2]:

- Provide cost-effective solutions across a number of industry verticals
- Provide proven and mature process based upon industry best practices
- Assign dedicated professionals focused on client requirements and concerns
- Maintain transparency of execution, thereby minimizing execution risk

From 2001 PCI Corporation, USA was the only respective client of Onirban. Later, Wolters Kluwer, USA bought PCI Corporation and became the main client of Onirban. At present, Orion Informatics is used as main offshore development house of Wolters Kluwer (WK). Wolters Kluwer is a market leading global information Service Provider Company. Wolters Kluwer enables legal, tax, finance, and healthcare professionals to be more effective and efficient. They provide information, software, and services that deliver vital insights, intelligent tools, and the guidance of subject-matter experts. Orion Informatics Ltd mainly works on the banking software sector of Wolters Kluwer. Employees of Orion are included in the employee list of Wolters Kluwer.

2.2 Mission and Vision

In order to outline where the company sees itself in future and its fundamental purpose, Orion has a well-defined vision and mission statement.

2.2.1 Mission

A mission statement is a statement about the purpose of a company. The mission statement of Orion is to

- Stay as premier provider of mission-critical software services to the customers in the world.
- Make their business faster and reliable.
- Work under the values of honesty and integrity.

2.2.2 Vision

Vision is different from a mission statement in that the mission is the cause and the vision is the effect. The vision is to be a values-based global organization, providing cost effective solutions to the highest standards of excellence.

2.3 Services and Industry Verticals

Orion offers one stop software development and quality assurance services. Its services cover the entire gamut of the software development lifecycle – requirements gathering, architecture and design, coding, quality assurance and implementation [2].

Working with diverse global corporations for more than a decade, Orion has acquired domain expertise and best practice knowledge in a number of industry sectors. It has learnt from practical engagements and has evolved into a mature organization capable of handling complex business applications.

Most of the project of Orion is only bank loan management. Different projects act differently. The services of Orion can be figure out below:

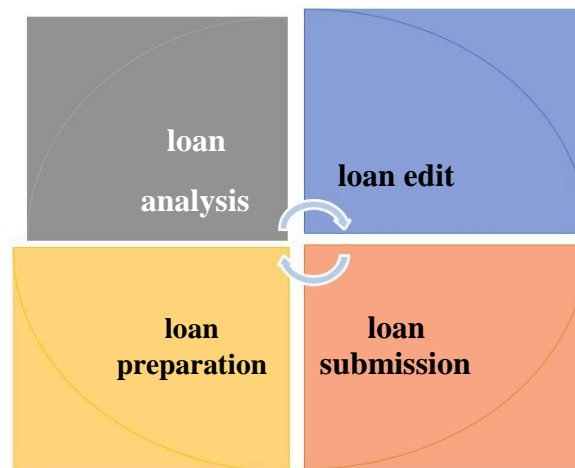


Figure 1: Services of Orion

Industry verticals of Orion are [2]:

- Banking and Financial services
- Small Business Accounting
- Geographic Information Systems
- Clinic Management Systems
- Consumer Edutainment Software
- Document and Content Management Systems
- Retail Web Sites
- Sales Force Automation Systems
- Executive Information Systems
- Web Based Training
- Mapping and Digitizing
- Hedge Fund Management Software
- B2B Exchanges

2.4 Orion's Team and Expertise

Team spirit is a vital thing to an organization's growth. Any company can only be successful as a brand if it is first successful as a team. This company constantly emphasizes on customer's satisfaction with innovative the quality product. Orion team's thorough understanding of the

Communication Technology gives our client community a leading edge in this rapidly changing industry. Masters in their respective fields of expertise, each one has considerable awareness about communications applications.

The key success factors of this company are:

- Motivation and Dedication
- Strong Team Bonding
- High Quality
- Clear Positive Image
- Honesty and Liability

With strong expertise in Communication Technology and services, Orion's workforce consists of top individuals with technology background.

Orion provides new application development as well as legacy software maintenance services. Their current skill-set includes [3]:

- Web Services
- Simple Object Access Protocol (SOAP)
- .NET / C# / VB.Net
- Java / Enterprise JavaBeans / Servlets / JavaServer Pages
- Visual Basic / ActiveX / COM+ / Active Server Pages
- SQL Server / Oracle / Foxpro / DB2 / MS Analysis Services
- SQL Server Reporting Services / Crystal Reports
- Multimedia Authoring (Flash/Director)
- Web Design (HTML/DHTML, JavaScript, VBScript, iQuery, Angular JS, HTML5, CSS3)
- ASP.NET MVC
- Web API
- Geographic Information Systems (including Digitization and Mapping)

2.5 Software Development Methodology

Orion's Development Methodology is based upon recommended best practices from Rational Unified Process and Microsoft Solutions Framework. They practice a milestone based iterative development model [3]. Software Development Life Cycle has the following phases:

Project Planning Phase: During planning phase, Use Case and Activity diagrams are created along with supporting Functional Specifications.

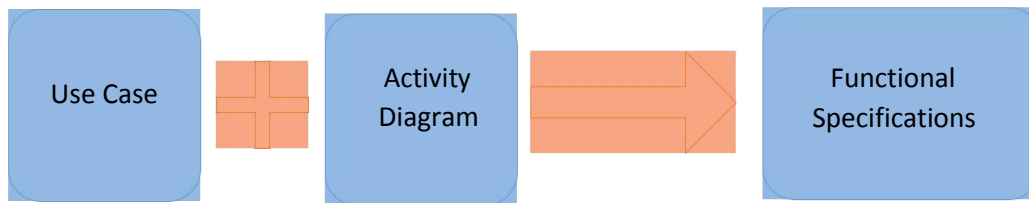


Figure 2: Planning phase of Software Development Life Cycle

Design Phase: During design phase, business diagrams and documents are translated into technical class and Sequence diagrams by architects.

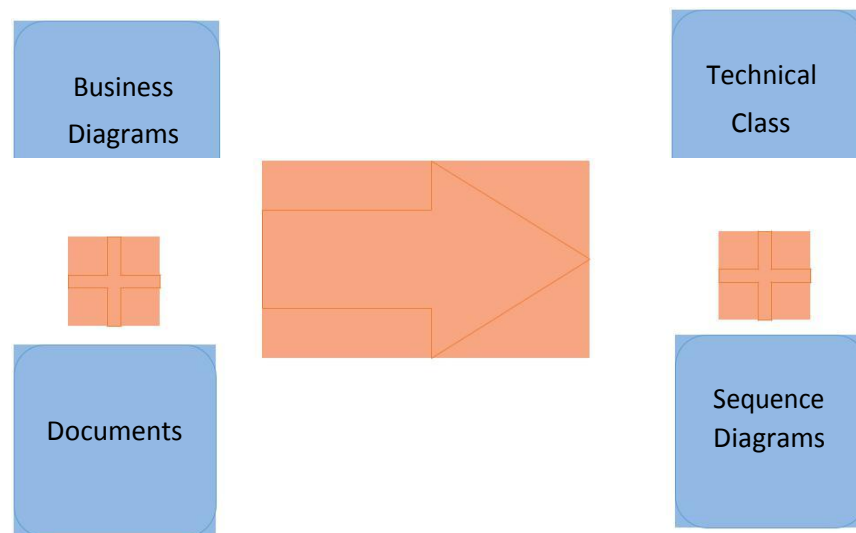


Figure 3: Design phase of Software Development Life Cycle

Implementation Phase: During implementation phase, frequent builds are made and distributed to stakeholders for review.

Stabilization Phase: During stabilization phase, quality assurance and development teams work closely to achieve progressively shorter Zero Bug Bounce periods.

Release Management Phase: During release management phase, cross-functional teams work together with the clients to ensure successful implementation.

2.6 Software Development Process

Different Software Company follows different software development process. Orion strictly follows agile software development process. It has a group of software development methods based on iterative and incremental development, where requirements and solutions evolve through collaboration between self-organizing, cross-functional teams. Orion's highest priority is to satisfy the customer early and continuous delivery of valuable software. Orion welcomes changing requirements, even late in development.

Scrum is an agile software development method, are followed by Orion because of its simplicity and flexibility. It is suited for projects with rapidly changing or highly emergent requirements. Backlog is development action of scrum process and a prioritized list of project requirements or features that provide business value for the customer. Items can be added to the backlog at any time and product manager assesses the backlog and updates prioritized as required.

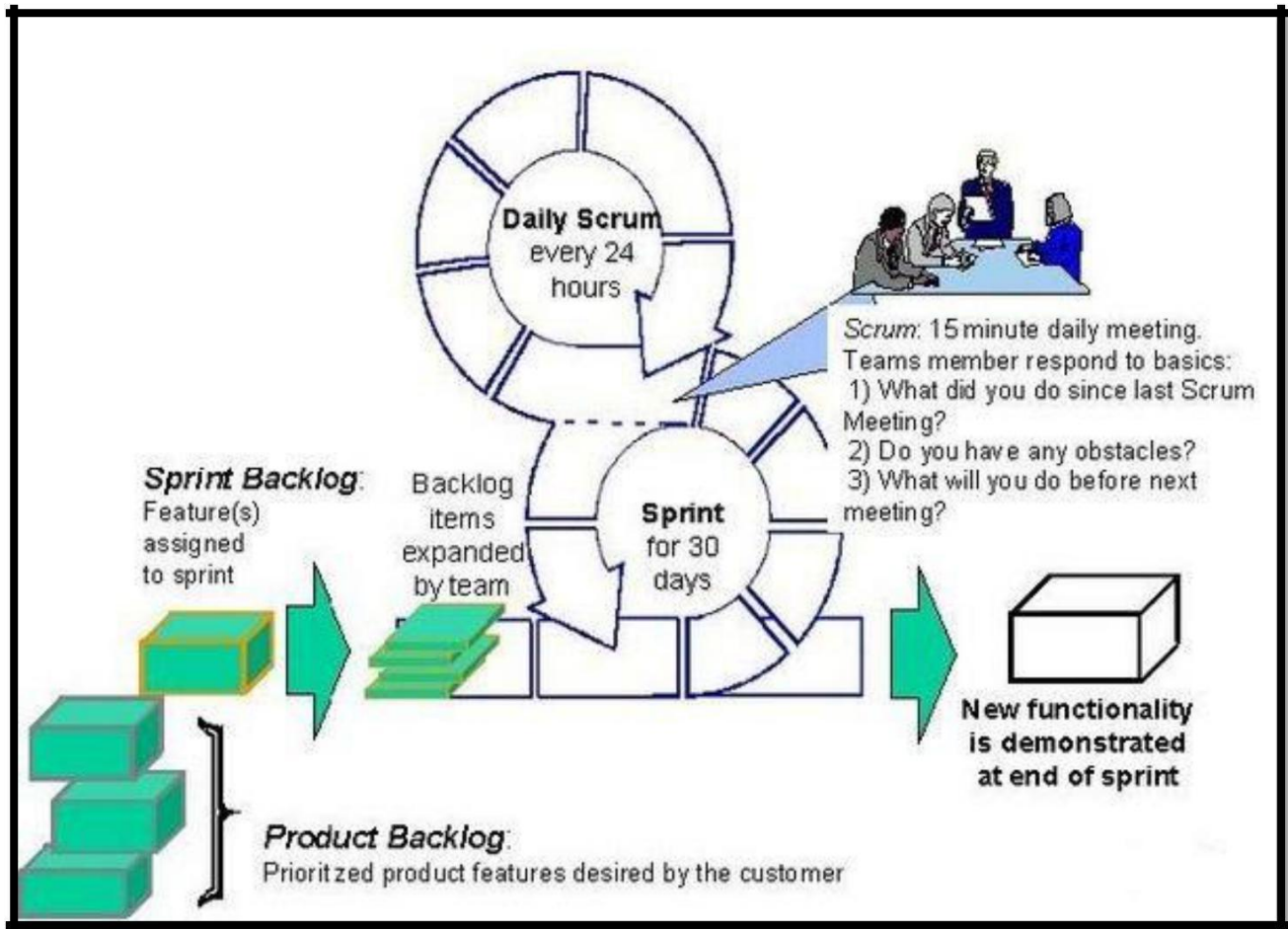


Figure 4: Scrum software development process

Scrum software development progresses via a series of iterations called sprints, which has a time-box. A time-box has been allocated to accomplish some task. Normally, every sprint in Orion lasts from one to four weeks that is, 30 days. Each sprint begins with a planning meeting and concludes with a review. Changes are not introduced during the sprint. Hence, the sprint allows team members to work in a short-term, but stable environment.

Scrum meetings are short meetings held daily by the Scrum team. Scrum meeting has conducted in Orion at 12.30 PM. The duration of each meeting is only 15 minutes. The team leader leads the meeting and assesses the responses from each members. Scrum meeting helps the tea to uncover potential problems as early as possible. Three key questions are asked and answered by all team members:

1. What did we do since the last team meeting?
2. What obstacles are we encountering?
3. What do we plan to accomplish by the next team meeting?

2.7 Products and Solutions

In today's world, the organizations depend heavily on technology to keep business operations connected, drive revenue and support ever growing customer demands. Undoubtedly, Information Technology is the key to manage technology and it spans wide variety of areas that include but are not limited to things such as computer software, information systems, programming languages, database management systems and networking. Keeping these in minds Orion provides an impressive tally of solutions and products. They are:

1. CRA Wiz
2. HMDA Wiz
3. Wiz Sentinel
4. BBE
5. AML

2.7.1 CRA Wiz

CRA (Community Reinvestment Act) Wiz is the oldest product of Orion. CRA Wiz is an automated compliance software solution that speeds the preparation of data for CRA reviews that scrubs and corrects data, and reports and tracks the results, allowing you to take full charge of the review process [4].

CRA Wiz applies a wide range of fully customizable automation technologies to your CRA reporting process—from guaranteed accurate geocoding to flexible reporting to intelligent analysis. It is specially designed to speed up your preparation of data for CRA reviews, scrubs and corrects data and reports the results. CRA Wiz is designed to give a total CRA compliance program that fits any institution's services and market [5].

CRA Wiz offers:

- Accurately prepare and submit data. It includes compliance-grade geocoding, editing, assessment area delineation and all the necessary submission tools to comply with CRA reporting requirements.
- Be organized for next exam. It provides ones with the necessary data sets and reporting tools to anticipate examiner findings and satisfy performance requirements.
- Create custom reports to help communicate CRA activity. It gives one executive reports and maps for maximum flexibility in report generation and process automation.
- Do real-time auditing. Browser-based data entry and editing provide real-time updating of all CRA data. The solution includes more than a hundred pre-programmed reports to help ones analyze, monitor and audit performance.

CRA Wiz modules:

- Data Prep Module provides functionality that allows Importing, editing and preparing data for submission.
- Analysis Module provides access to various analysis reports using out of the box templates.
- Geocoder standardizes and geocodes address data

2.7.2 HMDA Wiz

HMDA (Home Mortgage Disclosure Act) Wiz is an easy-to-use, web-based tool for HMDA management and reporting. HMDA wiz gives more robust reporting and data preparation functionality but at a cost that still fits the budget.

HMDA Wiz includes everything one need to import, collect and edit data, create data scrubbing detail and summaries, and submit reports. Since not all institutions, have the same compliance needs, you can combine HMDA Wiz products and Wiz services into a fully customized compliance solution [6].

If one do not have the time or internal resources to manage HMDA compliance, HMDA Wiz and outsourced Wiz Services can be combined to fit the institution's exact requirements and budget.

HMDA Wiz offers:

- Accurately prepare and submit data. It includes compliance-grade geocoding, editing, assessment area delineation and all necessary tools to comply with HMDA reporting requirements.
- Create custom reports to help communicate lending activity. The solution has pre-programmed reports to help you analyze, monitor and audit performance. The optional Executive Dashboard lets you design and execute custom reports.
- Do real-time auditing. Browser-based data entry and editing allows real-time auditing of all your HMDA data.

HMDA Wiz modules:

- Enterprise-wide HMDA management.
- Compliance-grade geocoder standardizes and geocodes address data.
- Importing and exporting Wizard lets you perform powerful data manipulation in an easy step-by-step format.
- HMDA pricing component lets you monitor your rates against relevant treasury rates from within the compliance system easily and provide monthly treasury rate updates.
- Automated front-end HMDA management integrates directly with your LOS reducing the risk of non-compliance.

2.7.3 Wiz Sentinel

Wiz Sentinel is a web-based solution that analyzes loans, either in real time at the point of sale or in batch for post-closing audit, to determine potential violations of prohibited lending practices. It compares user-entered loan parameters with your loan program information, HUD fees, and federal, state and municipal compliance regulations [7].

Wiz Sentinel automatically reviews every loan against anti-predatory lending laws to make sure that all loans are compliant prior to funding. Since it is fully automated, the solution increases your productivity and lowers overall compliance costs.

Wiz Sentinel offers:

- Manage ones portfolio for predatory lending and ratings agencies, flag loans for profit and protection, and validate loan policies, fees and APR calculation.
- Screen entire portfolios of loans for predatory lending compliance, and view management summary reports that display aggregate results. These screening capabilities also help one pass Wall Street rating agency compliance reviews.
- Ensure ones protection by flagging high-cost loans before he close or acquire them on the secondary market.
- Increase the quality of one’s loan portfolio by identifying problems before loans are closed or acquired in the secondary market.
- Seamlessly integrate into ones LOS system or delivered with a browser interface.
- Outsource all or any part of one’s anti-predatory lending compliance.

Wiz Sentinel modules:

- Federal (HOEPA status), state and local high cost tests
- Truth-In-Lending (TIL) validation
- APR calculation
- Tangible net benefit assessment
- Configurable investor test
- Texas cash-out 3% limit validation
- State usury laws/State legislation module

2.7.4 BBE

Browser Based Editing (BBE) is a browser based add-on to CRA Wiz designed to facilitate the entry, review, correction and qualification of institution data stored in CRA Wiz.

It consists of two key modules:

1. Mortgage and Small Business for submission data entry and scrubbing and Community
2. Development (CD) for qualifying and support CD lending, investments and services.

2.7.5 AML

Due to sharp increases in regulatory enforcement today, including cease-and-desist orders and record fines, it is now a top priority for one’s financial organization to comply with regulations like the Bank Secrecy Act (BSA) and USA PATRIOT Act [8].

Anti-Money Laundering (AML) solution delivers the combined power of profiling and transactional analysis to one’s BSA/AML compliance program. Its enhanced suspicious activity detection technology is designed to mesh seamlessly with the platforms. The program's included

case management and automated SAR creation and filing tools also help one to efficiently and effectively fight money laundering in his institution.

Advantages of AML:

- Time efficiency: Eliminates time consuming, inefficient manual processes
- Resources efficiency: Increases the effectiveness of your program and staff
- Risk reduction: Significantly decreases your overall BSA/ AML compliance risk.

2.8 Address and Contact Information of Orion

The address and contact information of Orion Informatics Ltd is given below [9]:

<i>Address and Contact Information of Orion</i>	
<i>Address</i>	House # 32, Road # 7, Dhanmondi, Dhaka - 1205
<i>Telephone</i>	+88029116144
<i>Email</i>	info@onirban.net
<i>Website</i>	www.orion-informatics.com

Figure 5: Address and Contact Information of Orion

2.9 Conclusion

Orion is one of leading software firm in Bangladesh. At present Orion do not have any local project. So they are not very willing to advertise themselves in the local market though they have a strong worldwide market through WK. Their 100% revenue comes from export. So growth of this company totally depends on market value of WK.

I provide a details of my workplace, its environment, culture and my viewpoint about Orion in the next chapter.

Chapter

3

Company Profile

3.1 Brief Account

After my joining at Orion as intern, first few days I was not assigned any task, I just observed the company and the company gave me an opportunity for accustomed to the Orion environment.

There were some new terms that I came to know by working at Orion. Actually these terms define the environment of the office. Orion ensures a good working environment which is helpful for the employee to perform their best.

3.2 SWOT Analysis of Orion

A SWOT analysis focuses on Strengths, Weaknesses, Opportunities and Threats. The purpose of performing a SWOT is to reveal positive forces that work together and potential problems that need to be recognized and possibly addressed. I have made a SWOT analysis of Orion from my experiences of my internship period.

<p>S – <i>Strengths</i></p> <p>Customer loyalty Product reputation Easy to use software Highest quality assurance Very helpful environment for working Low rate of employee turnover</p>	<p>W – <i>Weaknesses</i></p> <p>Lack of formal structure Incompatibility with different OS High price Do not have any existing local project Fully dependent on WK</p>
<p>O – <i>Opportunities</i></p> <p>A developing market such as internet Highly expandable market Product demand</p>	<p>T – <i>Threats</i></p> <p>Not have much recognition in local market Only one client 100% revenue depends on export</p>

Figure 6: SWOT Analysis of Orion

3.3 Office Environment

Orion has a great environment. A good environment makes employees more productive. In six month of my internship I realized that an environment is very helpful to perform best. The overall environment of Orion is very appreciable.

3.3.1 Working hour

In Orion from Sunday to Thursday is considered as working day and the hours between 12.00PM to 9.00PM are considered as working hours. But the company provides a flexible working hours for its employees. Anyone can come or leave office before or after schedule time.

3.3.2 Virtual Office

Orion allows virtual office for its employees and it is really helpful for the employees. If anyone feel unwell or have any important task in house, they can join office from house or anywhere they want. In the current political situation of Bangladesh, I think it is a great advantage of employees.

3.3.3 Dress Code

There is no specific dress code for employees. But that does not mean that someone can arrive at the office by wearing something which is not that decent. Most of the employees come to the office by having a business casual get up.

3.3.4 Flat Hierarchy

All members of Orion are treated equally. Although every employee have different designation, they behave same. There is no specific seat arrangement at Orion. One employee can swap his/her seat with other. Even there is no different between employee and intern, all are equal.

3.3.5 Organized

Orion is a well-organized. Orion provides a paper free office for their employees. All the stuffs are provided their own laptops or computers. Before starting a sprint every employee gives their PTO plan and every sprint maintains strictly. Every employee have done their task regularly and update their working hour into the timesheet.

3.3.6 Responsibility

Every member of Orion has own responsibilities. Tasks are assigned to a person and he/she have to do all the tasks successfully within time. Also he has to update what have he done regular to his supervisor. If anyone make a mistake then it has his responsibility to recovered it.

3.3.7 Flexibility

Orion provides flexibility to employees. It provides flexible working hour. Anyone may get flexibility for his important works. Also Orion offers a better flexibility for the students to work besides their study.

3.3.8 Co-operation

An excellent co-operative environment exists at Orion. Most employees are very willing to help others. I think if they are not that much cooperative, it would be hard for me to complete my internship in this company.

3.3.9 Friendly

Orion maintains a friendly environment. A friendly environment rather than a formal environment makes employees more productive. Friendly communication and understanding between highly experienced and resourceful employees that help everybody to develop their skill and productivity Along with that having an office full of green plants creates an eco-friendly and most certainly a fresh and healthier office environment for the employees.

3.3.10 Inspiration

Everybody get inspiration for their achievement. Orion gives an inspiration award to employee end of the year. If I did a task complete, my team leader always appreciated me. If I did something wrong and got upset also then they inspired me to do it correctly.

3.4 Facilities

Orion provides enough facilities to its employees. It provides highly configured development computer for each employee. It also provides high speed internet for every employee. Orion also enriched study materials that help employees to learn more.

3.4.1 Non-refundable Facilities

Lunch and Snacks

Orion provides lunch and snacks to its employees. There is a kitchen and a cook in this company. There is a variance in food every day and all food like home made. There is manager for maintaining the lunch and snacks. Also there is tea available all the time which is really healthy for developers.

Prayer Room

There is a room dedicated for saying prayer.

3.4.2 Recreational Facilities

Indoor Games

At the evening time, employees play table tennis for their entertainment and refreshment. Besides, they also play computer game such as COD, 8 ball pool in free time.

3.4.3 Miscellaneous

Birthday Celebration

Orion celebrates birthday of every employee with birthday cakes. Office throws a surprise party and wishes the birthday him/her by cutting a birthday cake.

Fresher's Treat and farewell treat

When a group of fresher is recruited at Orion, they throw a party for everyone at lunch time. It becomes a great lunch by fresher at office. When someone leaves office for go to abroad, they also throw a treat at office before leaving the office.

Achievement Celebration

Employee of Orion throws a treat not only his/her own achievement but also his family's achievement. They never forget to share their weal and woe because of its homely feelings. For example, one of my teammate, Mukid Khandakar gave us a lunch party because of having a new baby. Employee of Orion also throw party because of their promotion.

Successful Sprint Celebration

A party is thrown by team lead after successfully completing sprint. I also got this kind of party. My team leader, Md. Saiful Islam thrown a lunch party for our team.

Parties

Lots of parties are held over the year including film watching, tea party.

Tour

Every year Orion has arranged an abroad tour for its employees so that the intimacy of the employees has increased. Office bears the maximum cost and employees have to give a silly amount of money.

3.5 Internship at Orion

Orion takes interns from IIT every year(generally). It has a long tradition of providing the facility of internship program. I joined Orion without any formal interview or examination. Orion warmly welcomed me in their team.

After my joining as an intern, I was assigned to a real life project named "Wiz NG". It is fully based on jQuery, JavaScript, ASP.NET, C# and SQL server. In that project, my supervisor was Md. Saiful Islam, Senior Software Engineer, Orion Informatics Ltd.

3.5.1 My First Day at Orion

The first day at Orion is a memorable day for me. I was nervous about how the company would be, what would be the culture of the company, how they would behave with me. I was told to go to office at 1.00 pm and I went there before this time. When I reached in the company, one of the senior IITian, Jamshed Khan met with me and talked with me. Then, another senior IITian, Mehedi Mahfuz come to near me and welcomed me. I felt a little bit easy after I met with them. When I was seated in the discussion room, suddenly one person entered into the room and told us hello with a smile. He was Shafqat Ahmed, Principle Software Architect, Orion Informatics Ltd. Such a smiling face removed most of my confusion and nervousness but something still remained. He went through my Curriculum Vitae and talked with me about several issue. I thought he would ask a lot of question to me. But he only asked some simple. Then he showed me every room of the company and my seat. He also introduced me to other employees and all of the employees said hello to me with a smiling face.

3.5.2 Facilities provided to interns

Orion provides all facilities to intern. Orion provides laptop to intern. I have enjoyed high speed internet. They also provide me a locker to keep my things. I have my own seat. I had lunch and snacks without paying. I can also take leaves for my academics activities or any other important personal task. They did not discriminate between intern and employee. They also allowed interns to enjoying free time by playing game.

3.5.3 Evaluation of an intern

Intern also has to go through an evaluation. Supervisors and team members evaluate intern for their communication skill, technical skill, analytical ability and quality of work. This evaluation is really helpful for the future career of interns.

3.6 My Viewpoint

When I first day went to office, I was very nervous because I did not know well how it is. After then I found everything I expected as an intern. Orion always treated me like a member of their family. I have never feel that I am an intern. Every member of Orion helped me when I need help. Even when I faced a problem, they willingly helped me and encouraged me. They are very friendly and cooperative.

In Orion, I got acquainted with newer and demanding technologies which will help me in the long run. My programming skills are also highly improved. Problem solving aspects has also enriched extensively. Nonetheless, Orion has brought me into light and paved my way to success in this world of technology and innovations.

The overall environment of Orion is really helpful for interns to begin their new professional life. Finally I want to say that the internship program of Orion is really world class.

3.7 Conclusion

In my internship period, I have gone through an excellent work environment. I have observed practical implementation of some professional buzzwords. I honestly want to say that the environment of the company is so much friendly and joyful. Next, I discuss my contributions in this company as an intern.

Chapter

4

My Involvements

4.1 Introduction

From the beginning of my internship I was assigned in a real life ongoing project. The name of the project is HMDA Wiz NG. It is a new implementation of HMDA Wiz project. I have worked on one new module of Wiz NG and it is File Management module. I have implemented some features of this module of File Management module and also worked on some other module.

Though I have worked at development team, I need to work for quality assurance team because of the functionality test which I did. Now close to at the end of my Internship at Orion, I want to share my daily activities, development work and other activities at Orion Informatics Limited.

4.2 HMDA Wiz

HMDA Wiz solution provides everything needs to import, collect and edit data, create data scrubbing detail and summaries, and submit reports. Easily the solution can be used and it is quickly to implement and always accurate.

Financial institutions of USA including federal bank uses HMDA-Wiz to maintain and annually disclose data about home purchases, home purchase pre-approvals, home improvement and refinance applications.

The requirements and implementation is huge of this project. The project is started before 10 years ago as far I know. In the implementation perspective, the solution of the HMDA wiz consisted with 43 projects, a large amount of web services, three windows services, huge number of dll, huge stored procedure, SQL and Databases are also used in this project. For deploying this project, four PowerShell scripts must need to run. The debugging is very difficult when the project is run from the deployment phase. For debugging, the project needs to attach a process.

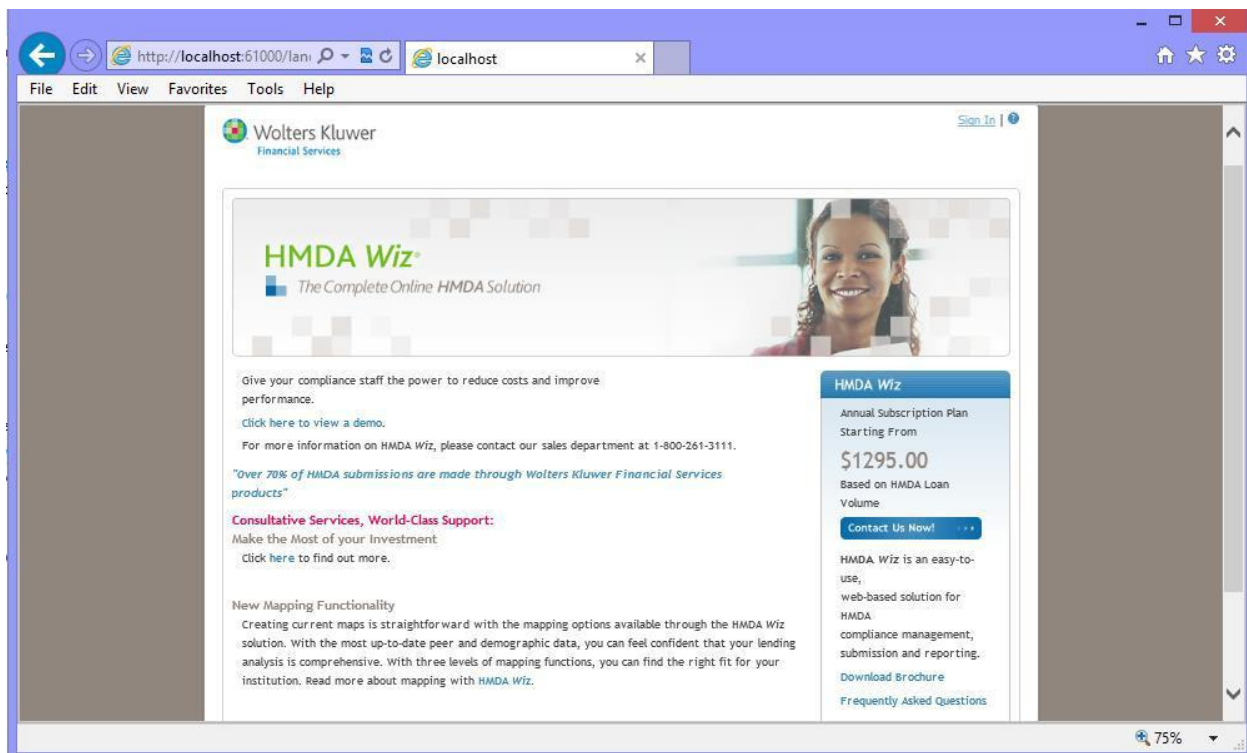


Figure 9: Home Page of HMDA Wiz

4.2.1 Features of HMDA Wiz

- Enterprise-wide HMDA management
- Compliance-grade Geocoding
- Importing and Exporting
- Data Preparation and Submission
- Data Analysis Reports
- HMDA Pricing
- Automated front-end HMDA management

4.2.2 Modules of HMDA Wiz

- ✚ Dashboard: It is used for showing some report graphical representation.
- ✚ Create Areas: Institution can create applicable area by using this module.
- ✚ Edit: In edit module, the Grid View window/frame allows the user to view multiple records at a time stacked on top of each other in a grid view format.
- ✚ Import Wizard: It provides easy step by step format to import a Loan Application Register (LAR).
- ✚ Report: It prepares different types of report.
- ✚ Map: It provides map of applicable area.
- ✚ Data Files: Data files module exist all the imported LAR file name within a grid. Here, a drop down list had populated which contains several functions such as Synchronize with map, edit the LAR, Batch file creation, and delete the specified LAR.
- ✚ Submission Package: It provides the list of selected LAR
- ✚ Submission Wizard: In this module all the imported LAR exist which are imported and added using submission Wizard module.
- ✚ Saved Areas: It provides the list of selected LAR.

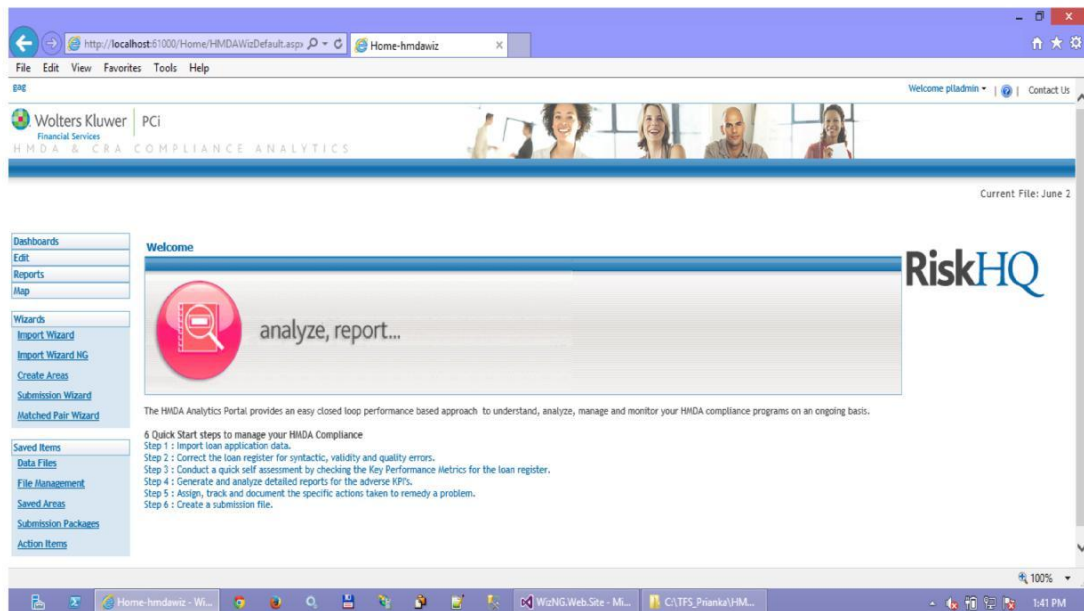


Figure 10: Modules of HMDA Wiz

4.2.3 Tools

- Team Foundation Server
- Source Code Comparing Tools
- SQL Server 2012 Management Studio
- SQL Code Guard
- Visual Studio 2013
- Total Commander

4.3 HMDA Wiz NG

HMDA Wiz NG (Next Generation) contains all functionalities of HMDA wiz and reproduces using new technology. In previous, HMDA Wiz project was built in SharePoint environment. SharePoint removing task is done in 2014. After the conversion between SharePoint to ASP.NET, currently it is converted from ASP.NET to Next Generation programming model which will completely base on Angular JS, HTML5, CSS3.

All functionalities of CRA wiz will be also integrated with Wiz NG project. Now one of the new module 'File Management' is implemented in Wiz NG project. I am working on this module.

4.3.1 File Management Module

I involved at the middle of the implementation of File Management module. This module is not completed yet but many features have done already. I also implemented some features of this module.

File Management is look and feel like Windows explorer. In left side, there is an tree view of folders and in the right pane, details view of folders are shown. When click on a file or a folder, different context menu will appeared. User can perform many functionalities such as create folder, copy, cut, paste, delete and refresh by clicking on the options of context menu.

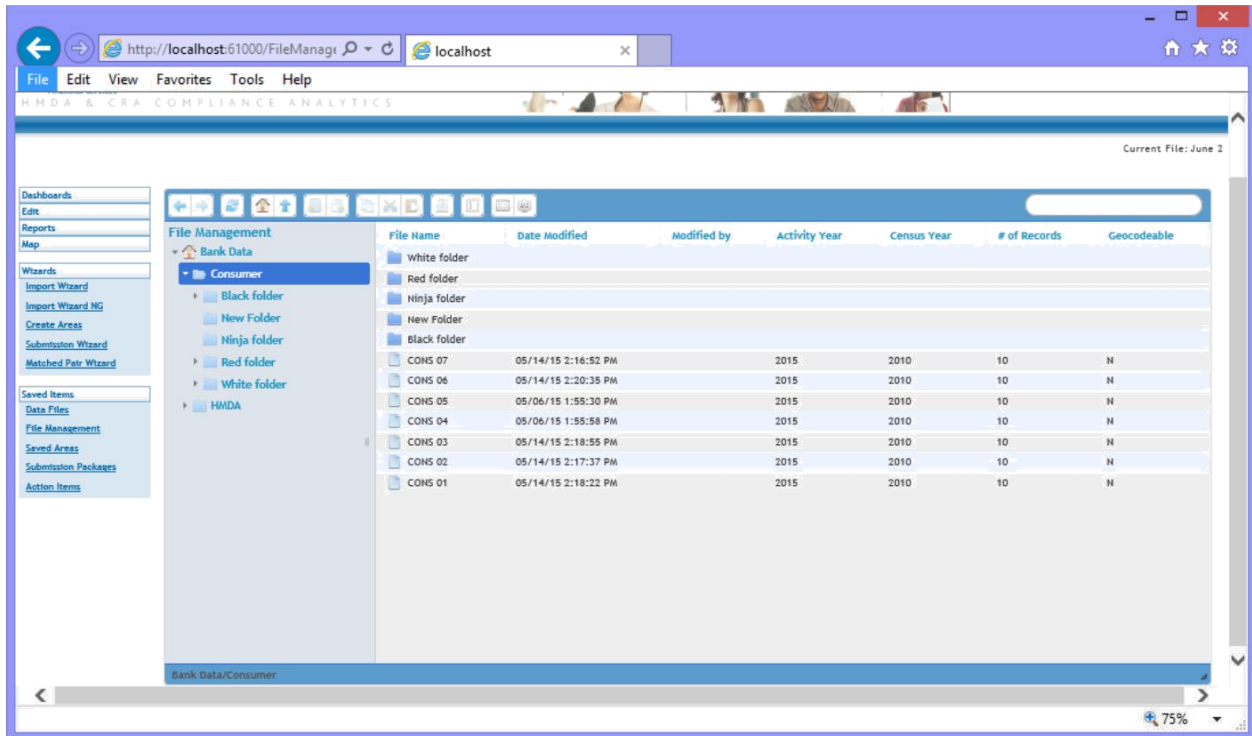


Figure 11: File Management module of Wiz NG

4.4 My Works

During my internship period, I have done four types of tasks. They are Implementation, Bug Fixing, Testing and R&D.

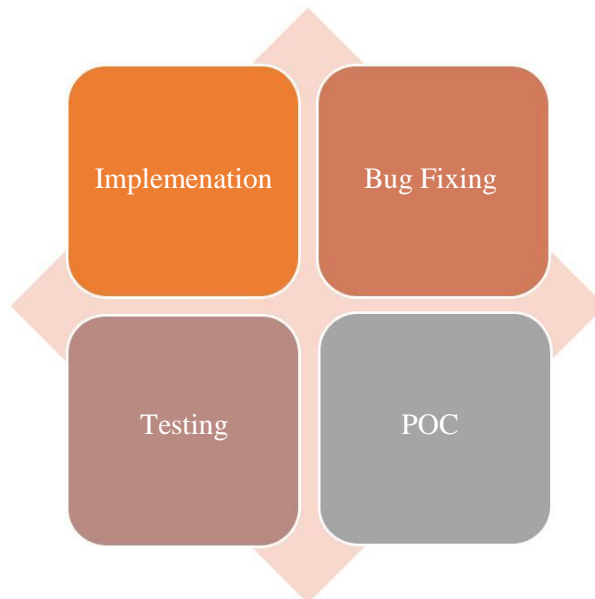


Figure 12: Types of tasks

Sometimes, I faced some problem but it was quite interesting. Here is a short description of my works with months:

Month	Activities
May	<ol style="list-style-type: none"> 1. Ramp-up on business logic 2. Testing existing System 3. Learn auto deployment process
June	<ol style="list-style-type: none"> 1. Optimize configuration files in Wiz NG
July	<ol style="list-style-type: none"> 1. Display 'File Management' as the header 2. Update all textual reference 'Mortgage' to 'HMDA' and 'Data File' to 'File Management' 3. Development Testing and Bug Fixing
August	<ol style="list-style-type: none"> 1. POC for how to map HMDA wiz files to new file type folders in File Management 2. Deployment, Testing and Bug Fixing
September	<ol style="list-style-type: none"> 1. Implement 'Set as Current LAR' options 2. POC on PreEmptive. 3. Deployment, Testing and Bug Fixing
October	<ol style="list-style-type: none"> 1. POC for Live Streaming 2. Azure Media Server, YouTube, XSplit Broadcaster

Table 1: My activities during Internship period

From the first week of my internship, I needed to entry my total working time into a timesheet. Actually total working time of every employee of Orion is total 40 hours in a week. The timesheet is given below:

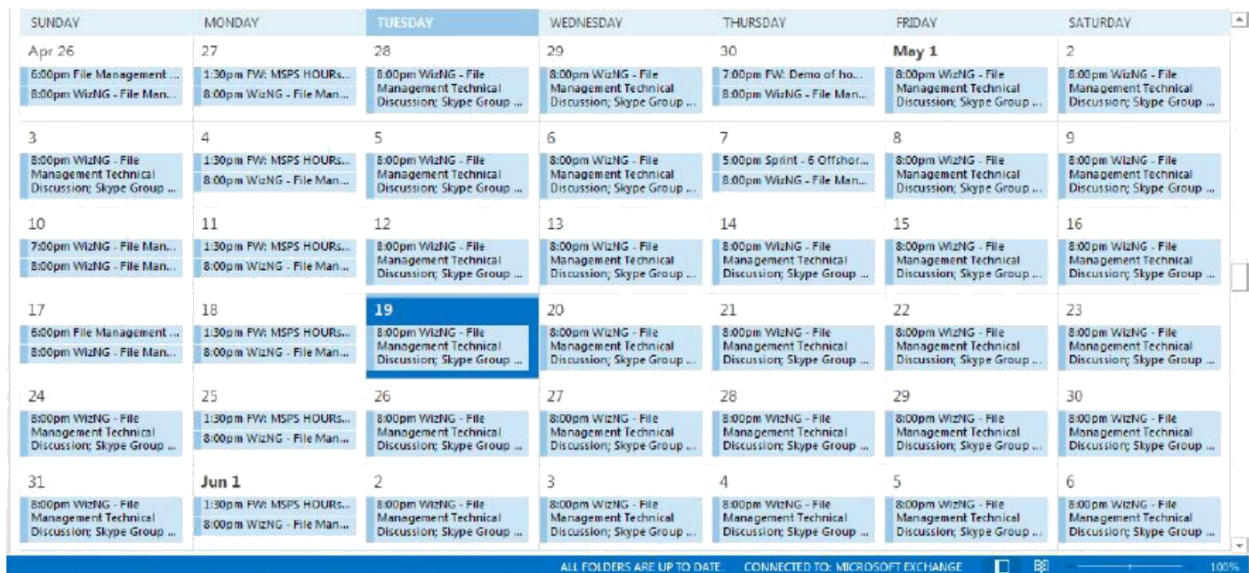


Figure 13: Week's Timesheet

During my ramp-up session, Shafqat Ahmed opened an account for me in WK and I got access in TFS and my assigned project. Then I got latest of my assigned project and tested its system. It was really a difficult task to understand all of the functionalities of this project.

After completing ramp-up session, tasks were assigned to me by my team leader, Saiful Islam. Then when I went to TFS, I could see work items that are assigned to me.

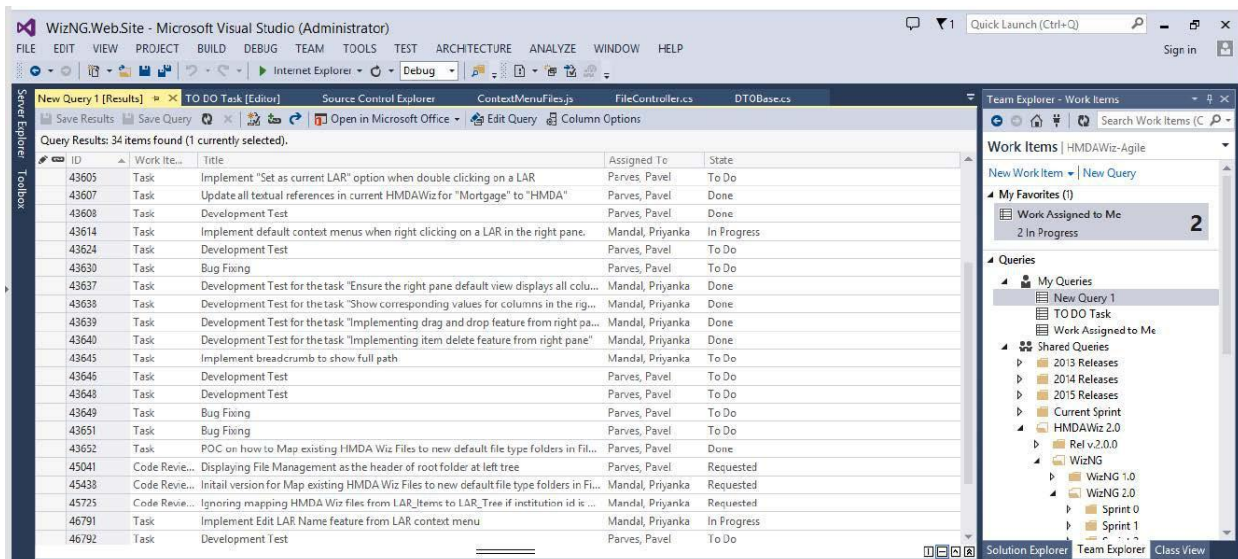


Figure 14: Work Assigned to me in TFS

Firstly the state of those tasks were 'To Do'. When I was working on a task I marked it as 'In Progress' and marked as 'Done' after completed the task. After completing any task, I always sent a code review to onshore team leader who leads our team from WK. There was also a fixed time

frame and I needed to complete those task in that time frame. Every day I updated time that I spent for any task.

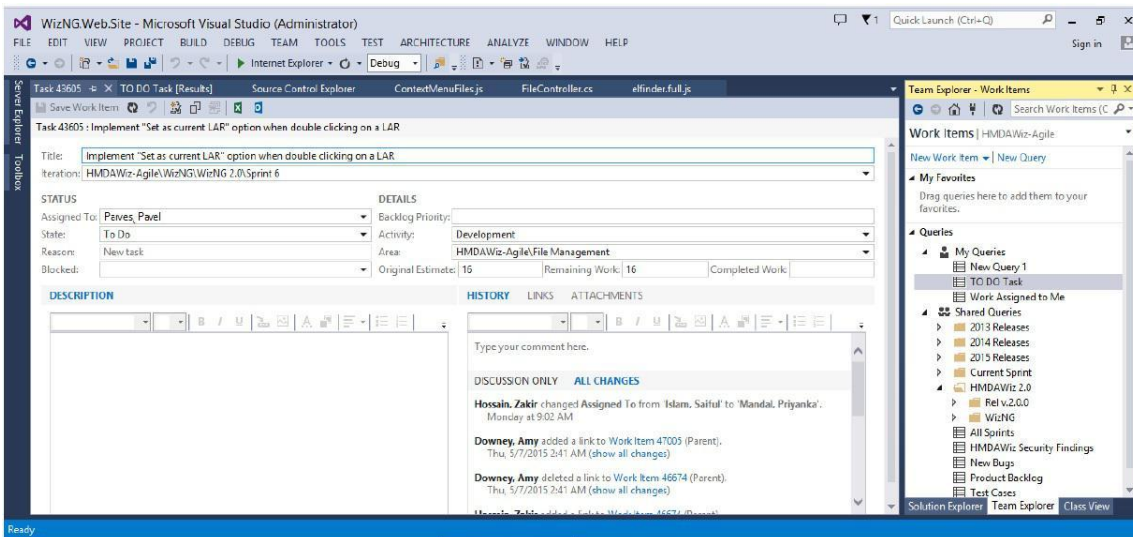


Figure 15: Updating Work items in TFS

I would like to share my daily activities, development work and other activities at Orion Informatics Limited in details. All of my activities and experiences at Internship period are illustrated below.

4.4.1 Auto Deployment Procedure

The auto deployment is very difficult procedure to learn for beginners. I had to learn this procedure for testing my project.

At first it is needed to get latest the project from Team foundation Server. After doing get latest four solution, I have to build two services, Web Services and App Services and publish two project named App Site and Web Site. It took 3-5 minutes for building and publishing this project. Then for making a package, one PowerShell script are needed to run. After creating a package, four PowerShell scripts are used for completing the deployment procedure. First PowerShell script is built for creating the main project then within that project database, app and web project need to run and this is possible running three PowerShell script. After all those successfully completion Internet Information Service need to restart and now the project is ready for run in 61000 port.

4.4.2 Development Tasks

I developed many tasks for File Management module.

- ✚ I implemented a SQL script for mapping HMDA wiz files to new file type folders in File Management.

- ✦ I also implemented some scripts, functions and stored procedures in SQL Server for our module.
- ✦ I implemented default context menu when right clicking on a files in file management module. I used jQuery for implementing this. I also implemented two options of this context menu which are 'Set as Current LAR' and 'Edit LAR Name'. For 'Set as Current LAR' options, I used jQuery, stored procedures and wrote some code in C# language. For 'Edit LAR Name', I used jQuery, stored procedures and C#.
- ✦ I also implemented many small functionalities for File Management module.

4.4.3 Development Testing

Though development testing is very simple, but it is quite dangerous. If I make a mistake during testing, then I have to take the responsibility.

I have always done development tests after my implementation. I tested it before delivery because I wanted to ensure that my implementation is working well and there is no possibility of raising bugs.

I have also done development testing after any check-in that are done by my team members. If I found any issues during testing, I informed it quickly to my team lead and the developer who implemented this. I always made a document for those issues and mailed it to my team so that they can aware of it.

4.4.4 Bug fixing

Sometimes bug are raised after QA testing. I also fixed some of those bugs. For example, after the first QA testing of File Management module, a bug was raised that 'File Management' title is missing from File Management window. This task was assign to me and I appended a HTML element to show this title. Besides, there was also bugs I observed when I did development testing. If it was simple bug and I had no any other task in that time, I resolved those bugs. I also fixed bugs of my works.

4.4.5 Other Involvements

I have also done some other tasks.

- ✦ **Optimize configuration files in Wiz NG**

There was many unused configuration files in Wiz NG. I identified them and removed them and also made a report about removing them.

- ✦ **Textual update**

1. Change all textual reference for 'Mortgage' to 'HMDA'
2. Change all textual reference for 'Data files' to 'File Management'

For those tasks, I used total commander tool to find the word and then I updated it by going to the code.

POC

I did a POC for how to map HMDA wiz files to new file type folders in File Management. I also involved when our team worked on POC of File Management.

I did a POC on PreEmptive.

I did a POC on Live streaming.

Dynamic table creation

I created a dynamic table for File management prototype using jQuery, HTML5, CSS and JavaScript

Reporting

Before start working on File Management module in Wiz NG, I made a document how File Management module works in CRA Wiz because we need to implement all functionalities in our File Management module that CRA Wiz File Management have.

I tested the project and made report to the team if I found any bugs. Again, when I tested the project after any team member fixed any bug, I had to report him that the bug was solved.

4.5 Conclusion

It was my first time to working on a real life project and I tried my best to complete all of tasks that are assigned to me. Sometimes, I also faced many challenges and I tried to overcome those challenges. The challenges I faced is described in the next chapter.

Chapter

5

Challenges I Faced

5.1 Preamble

The journey of internship was not simple. There were many obstacles, new technologies that I have to handle, new environment that I have to adapt and new culture that I have to maintain. I was like a fish that put into a new aquarium and I had to take challenges to survive in that environment.

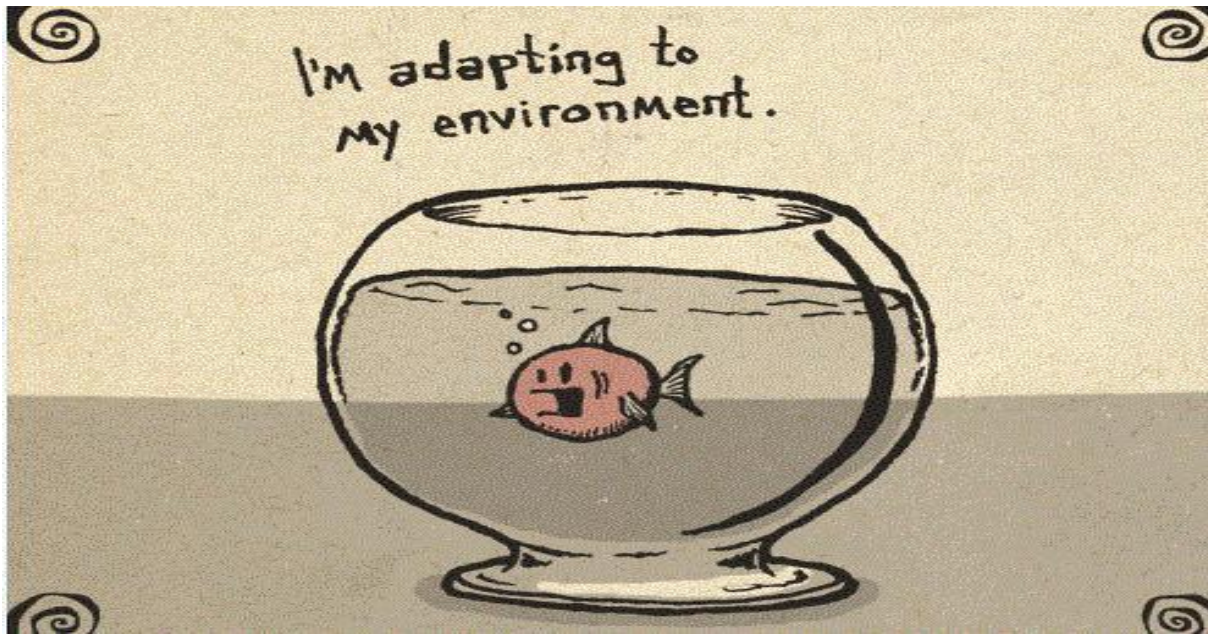


Figure 16: Adapting with Environment

5.2 Professional Environment

Although internship is a part of our study, the environment of intern company and our classroom setting has a huge different. It is not that easy to adapt a professional environment. I have to maintain some code of conducts that was different from the academia. The professional environment is not as normal as I expected. Professionalism, one of key code helped me a lot to adapt with professional environment and also environment of Orion was quite friendly. The people around me was also very friendly.

5.3 Giant Project

From the beginning of my internship at Orion, I was involved in a real life giant project. They gave me same responsibility as a developer take. I was a little nervous of take that responsibility. I was not fear about the work load because I had to go through a heavy work load at my daily work. I was afraid if I make a mistake. But I have that much courage to take it as a challenge. It gave an opportunity to learn more and work like a software engineer.

5.4 Coding Practice

Orion's Development Methodology is based upon recommended best practices from Rational Unified Process and Microsoft Solutions Framework. Their coding practice maintains a standard. Every developer needs to get used to this practice. So first week of my internship I needed to

participate some sessions that gave me a proper knowledge about their coding practice. I was also supplied some documents that was also helpful. Surprisingly, I found that this coding practice is not unknown to me. We learnt this at academia though we did not implement it much. So, I did not have to work much to get used to this. Some special norms like if anyone changes a single line he or she has to put his name, date and reason of change also integrated by Orion. I also have to careful about those norms.

5.5 Meeting with Timeline

During our academic projects we have to follow a specific timeline for completing the project. During the projects of my internship there were timelines too but this time the intensity of meeting the timeline is much higher. It exerts a great amount of pressure when the deadlines start nearing. Moreover one also knows that a request for deadline extension may not leave a good impression. So finishing the projects by maintaining their timelines was a real challenge of my internship program.

5.6 Technical Challenges

In Orion I have to handle with many technologies. First I was little nervous. I had to work with ASP.NET, C#, JavaScript, jQuery and SQL server. But I overcame this challenge with my knowledge about Object Oriented Programming and Google is also the savior for me in this sort of technological arena of expertise.

5.7 User Requirements

User requirement changes rapidly. So it was also a challenges for me to cope with that changes. This challenge gives me opportunity to learn how to interact with client.

I worked in 'File Management' module which is a new feature of Wiz NG project. Every day when I read the 'File Management Requirements Specification Document', I noticed that it became changed.

5.8 Working with TFS

Working with TFS is not only interesting but also fearful. Anyone who interact with it newly has to be very careful enough during check-in and check-out source code, otherwise it may cause errors and full team has to suffer from it. So, one need to be patient when working with TFS. I was very careful from my first day of working with TFS. But one or two times I had to roll back my changes and it was a learning for me.

5.9 Working with Team

I had worked with team in IIT but working with team in a company is different from it. In company, the member of team has huge experience compared to me. I was a little developer of my team. I tried my best to cooperate with my team and my team was cordially accepted me and cooperated with me.

5.10 Team meeting

We have a team meeting every day. This meeting happens over Skype. Firstly I only joined the meeting and only answered the question I was asked. But my team leader always inspired me and appreciated me to talk more and make decision. Day by day, I overcame this challenge. The team meeting schedule in outlook is given below:

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Apr 26 6:00pm File Management ... 8:00pm WizNG - File Man...	27 1:30pm FW: MSPS HOURS... 8:00pm WizNG - File Man...	28 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	29 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	30 7:00pm FW: Demo of ho... 8:00pm WizNG - File Man...	May 1 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	2 8:00pm WizNG - File Management Technical Discussion; Skype Group ...
3 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	4 1:30pm FW: MSPS HOURS... 8:00pm WizNG - File Man...	5 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	6 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	7 5:00pm Sprint - 6 Offshor... 8:00pm WizNG - File Man...	8 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	9 8:00pm WizNG - File Management Technical Discussion; Skype Group ...
10 7:00pm WizNG - File Man... 8:00pm WizNG - File Man...	11 1:30pm FW: MSPS HOURS... 8:00pm WizNG - File Man...	12 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	13 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	14 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	15 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	16 8:00pm WizNG - File Management Technical Discussion; Skype Group ...
17 8:00pm File Management ... 8:00pm WizNG - File Man...	18 1:30pm FW: MSPS HOURS... 8:00pm WizNG - File Man...	19 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	20 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	21 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	22 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	23 8:00pm WizNG - File Management Technical Discussion; Skype Group ...
24 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	25 1:30pm FW: MSPS HOURS... 8:00pm WizNG - File Man...	26 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	27 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	28 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	29 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	30 8:00pm WizNG - File Management Technical Discussion; Skype Group ...
31 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	Jun 1 1:30pm FW: MSPS HOURS... 8:00pm WizNG - File Man...	2 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	3 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	4 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	5 8:00pm WizNG - File Management Technical Discussion; Skype Group ...	6 8:00pm WizNG - File Management Technical Discussion; Skype Group ...

Figure 17: Meeting Schedule in Outlook

Besides, I have also presented other some of meetings like project demonstration, sprint planning.

5.11 Conclusion

Challenges gives us a chance to prove ourselves. After taking challenges, I realized it changed me direction of thinking. Now I do not get afraid to take any challenges. I think that challenge gives me opportunity and I should accept it.

Chapter

6

Technical Growth

6.1 Introduction

An internship is the first opportunity to apply the skills and knowledge in real life field that I have learned from class room. Without the real-world experience, I am not capable to know how to translate theory into practice. Employers prefer candidates, who have experience, because it takes time to become accustomed to a professional role. It is crucial for me that I will use my internship experience to hone the career-related skills.

In this section, I discuss about my improvement by leaning more professionalism from the professional people.

6.2 Technical skills

This internship has provided me a wonderful opportunity to acquire various technological skills. Though it may take some more time to master those skills, at this moment I am confident to apply them in any of my projects. Google helped me a lot to gain those skills. Some of the significant technical aspects that I have handled during the internship are listed below.

6.2.1 ASP.NET

ASP.NET is a free web framework for building web sites, apps and services with HTML, CSS and JavaScript. ASP.NET is a server-side Web application framework designed for Web development to produce dynamic Web pages. It was developed by Microsoft to allow programmers to build dynamic web sites, web applications and web services. We used ASP.NET framework for Wiz NG project.



Figure 18: ASP.NET Logo

ASP.NET MVC is a part of the ASP.NET Web application framework. An MVC Application is designed and implemented using the following three attributes:

Model: The model contains the core information for an application. This includes the data and validation rules as well as data access and aggregation logic.

View: The view encapsulates the presentation of the application, and in ASP.NET this is typically the HTML markup.

Controller: The controller contains the control-flow logic. It interacts with the Model and Views to control the flow of information and execution of the application.

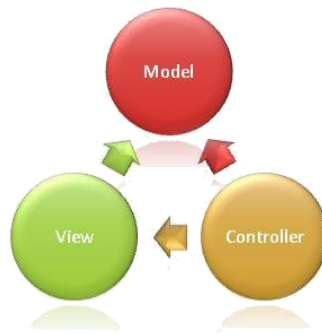


Figure 19: ASP.NET MVC

We used ASP.NET MVC framework for ‘File Management’ module of Wiz NG project. We used ASP.NET MVC framework within pure ASP.NET project using Areas.

6.2.2 JavaScript

A dynamic computer programming language which defines the behavior of the program is known as JavaScript. JavaScript (JS) is an interpreted computer programming language. It was originally implemented as part of web browsers so that client-side scripts could interact with the user, control the browser, communicate asynchronously, and alter the document content that was displayed. JavaScript is a lightweight, interpreted, object-oriented language with first-class functions, mostly known as scripting language for Web pages.



Figure 20: JavaScript Logo

6.2.3 SonarQube

SonarQube is an open platform to manage code quality. SonarQube has got a very efficient way of navigating, a balance between high-level view, dashboard, TimeMachine and defect hunting tools. This enables to quickly uncover projects and / or components that are in Technical Debt to establish action plans. More than 20 programming languages are covered through plugins including Java, C#, C/C++, PL/SQL, Cobol.



Figure 21: SonarQube Logo

6.2.4 jQuery

jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers. With a combination of versatility and extensibility, jQuery has changed the way that millions of people write JavaScript [10].



Figure 22: jQuery Logo

jQuery is used for “File Management” module of Wiz NG project. Since I worked on that module, I also used jQuery for doing my tasks. In the recent sprint, I have done all of my assigned tasks using jQuery.

6.2.5 Microsoft Visual Studio 2013

Microsoft Visual Studio is an integrated development environment (IDE) from Microsoft. It is used to develop computer programs for Microsoft Windows, as well as web sites, web applications and web services. Visual Studio uses Microsoft software development platforms such as Windows API, Windows Forms, Windows Presentation Foundation, Windows Store and Microsoft Silverlight.

Visual Studio supports different programming languages and allows the code editor and debugger to support nearly any programming language, provided a language-specific service exists. Built-in languages include C, C++ and C++/CLI, VB.NET (via Visual Basic .NET), C# (via Visual C#), and F#.

Microsoft Visual Studio is used for Wiz NG project to work with ASP.NET because no other IDE is not as suitable as it.



Figure 23: Microsoft Visual Studio Logo

6.2.6 SQL Server 2012

Microsoft SQL Server 2012 is a relational database management system (RDBMS) designed for the enterprise environment. SQL Server 2012 comprises a set of programming extensions to enhance the Structured Query Language (SQL), a standard interactive and programming language for getting information from and updating a database.

At the beginning, I did not know well about SQL Server but for the project purpose I had to learn how to work with it. Now, I can use it very well. Even, I wrote many SQL script, functions and stored procedure in SQL Server.



Figure 24: SQL Server Logo

6.2.7 Stored Procedure

A stored procedure is a group of SQL statements that has been created and stored in the database. Stored procedure will accept input parameters so that a single procedure can be used over the network by several clients using different input data. Stored procedure will reduce network traffic and increase the performance.

Advantages of using stored procedures are:

- A. Stored procedure allows modular programming
- B. Stored Procedure allows faster execution
- C. Stored Procedure can reduce network traffic

D. Stored procedures provide better security to data

Sample of creating store procedure:

```
USE dbtest;
GO
CREATE PROCEDURE test_display
AS
SELECT FirstName, LastName FROM tb_test;
GO
EXEC test_display;

GO
DROP PROCEDURE test_display;
GO
```

Figure 25: Sample of creating Stored Procedure

6.2.8 Web Service

A Web service is a method of communication between two electronic devices over a network. It is a software function provided at a network address over the Web with the service *always on* as in the concept of utility computing.

Web service is the backbone of Wiz NG project. I had to work with web service.

6.2.9 Virtual Machine

A virtual machine (VM) is a software implementation of a computing environment in which an operating system can be installed and run. The virtual machine typically emulates a physical computing environment, but requests for CPU, memory, hard disk, network and other hardware resources are managed by a virtualization layer which translates these requests to the underlying physical hardware.

In my official computer I used four VM. One VM is for CRA Wiz project and three VMs are for Wiz NG project. Every day when I went to office and opened my computer, my first duty was to open a virtual machine.

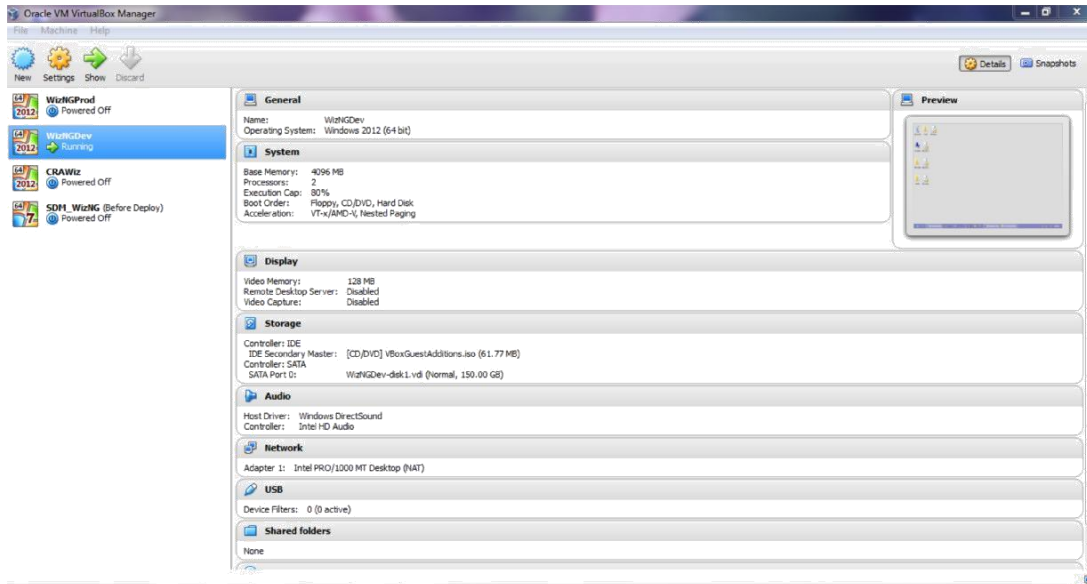


Figure 26: Virtual Machine

6.2.10 Total Commander

Total Commander is an impressive tool with lots of functionalities. It is used for compare, search, change file format, cut, copy, paste etc. When I used it I felt that it makes my life very easy by doing many complex tasks easily.

6.2.11 Araxis Merge

I used Araxis Merge to compare to files or folders and merge them. I also used this tool to merge code.

6.2.12 Team Foundation Server

Before going to Orion I had no idea about Team Foundation Server (TFS). But now every day I have done a lots of work using this tool. It is a great tool that makes developer's life very easy. Using this tool I have done the following tasks:

- Get latest version of code
- Get any specific version of code
- Check in code which I modified
- Compare server version with local version
- Check my work items
- Make change in work items such as update time, mark a task as In progress or Done
- View the change set history
- Request the senior developers for code review

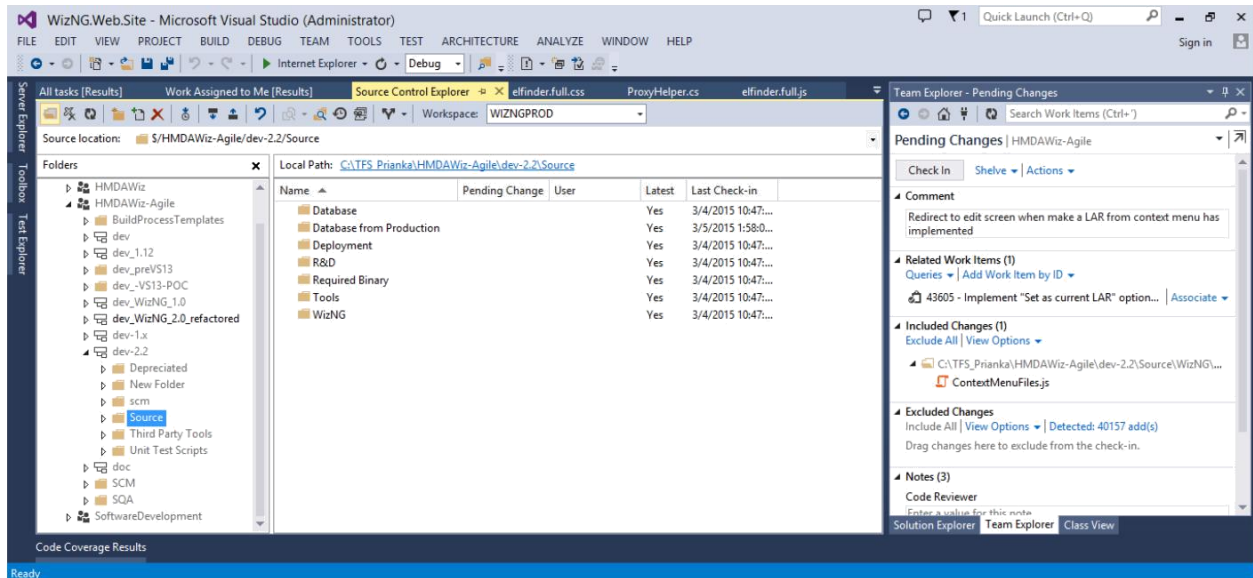


Figure 27: Check-in in TFS

6.2.13 SQL Code Guard

SQL Code Guard is a free solution for SQL Server that provides fast and comprehensive static analysis for T-SQL code, shows code complexity and objects dependencies.

I used this tool because it helped me to understand code better. When I wrote scripts, functions or store procedures in SQL Server, I analyzed the code using this tool and tried to remove all complexities from the code.

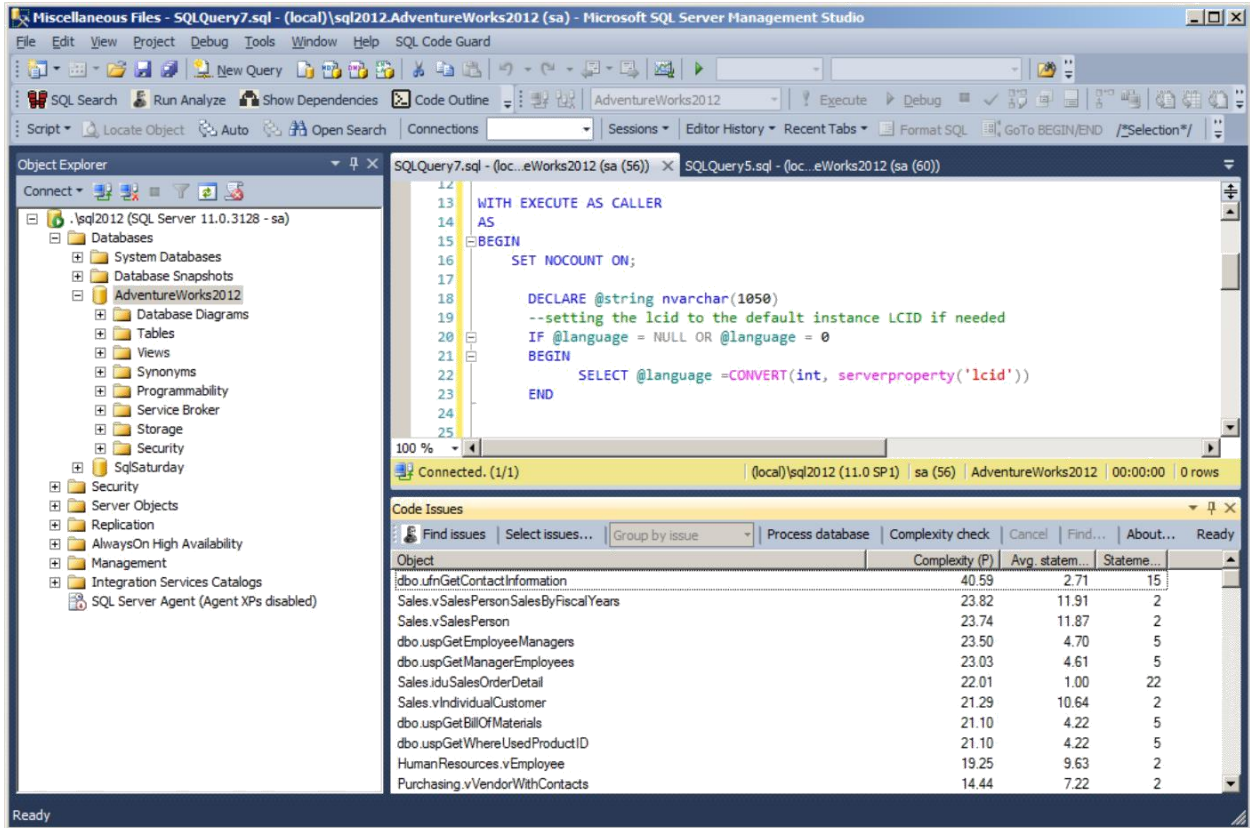


Figure 28: Using SQL Code Guard

6.2.14 Fiddler

Fiddler is an HTTP debugging proxy server application which captures HTTP and HTTPS traffic and logs it for the user to review. I used Fiddler when I need to see the HTTP requests.

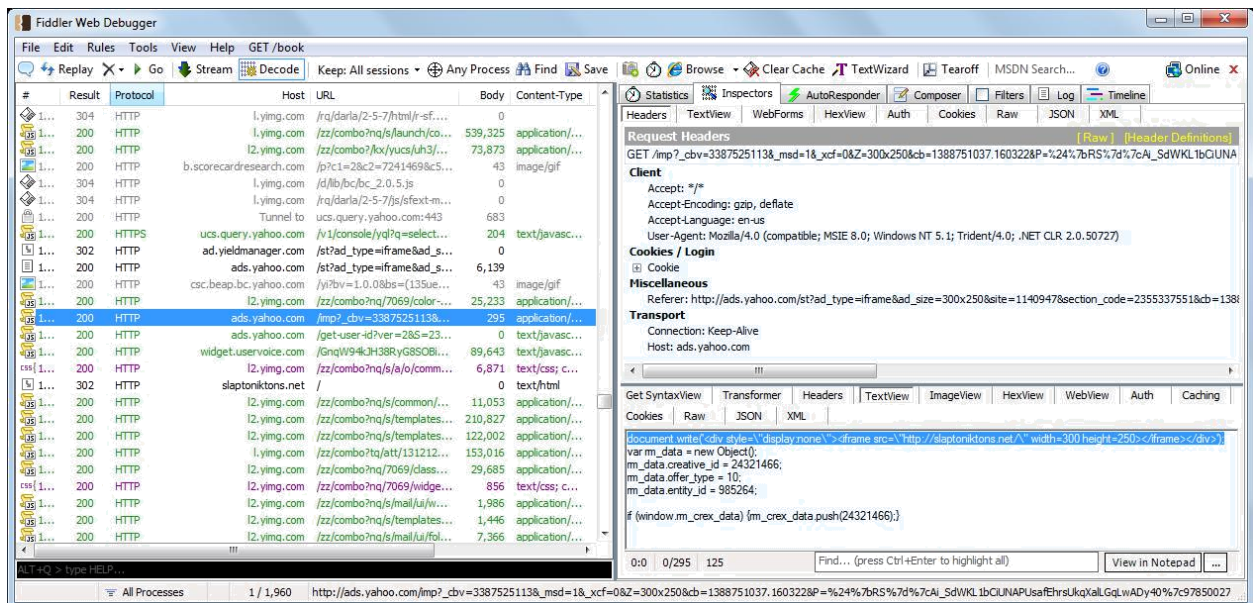


Figure 29: Using Fiddler

6.3 Communicational skills

If someone has a good communication skills, she/he will have a better chance to succeed. For the students, internships provide the best chance of improving their communication skills. I had my chance and I had tried my best to enhance my communication skills. The skills that I think have really improved are discussed here.

6.3.1 Presentation

First one month of my internship, my supervisor suggested me to learn about some new technologies. Every day he asked what I learned and I presented my learning. In order to deliver a nice presentation I had to practice more and more which eventually increased by presentation skill to a great extent.

6.3.2 Information gathering

Information gathering is a vital communication skill especially for a person who want to be a software engineer. The quality of our requirement engineering will heavily depend on how much information can we gather from a normal communication. As developing the web applications, I had to improve my information gathering skills because if I had failed to understand the requirement properly, it would take much longer to complete the project.

6.3.3 Listening

Listening may sometime appears to me sound boring but there is no alternative of becoming a good listener to understand the product. The meetings that I have undertaken during my internship were very much helpful in increasing my patience of listening to others. At the beginning of my internship, it was frequently occurred that when my supervisor talked to me something, before completing his speech I interfered there for presenting my speech. But now I think, through my internship I am capable for enhancing my listening power.

6.3.4 Talking

Sometimes I needed to talk about my work. When I faced a problem, I went to my team leader to talk about this problem. Firstly I was silent during my team meeting. But my team leader always inspired me to talk about the discussion topic. Day by day, I tried to discuss in the meeting and talked more with them. If I did not understand something, I continuously questioned them until my confusion was not clear. It also improved my communication skills.

6.3.5 Management skills

Management is another skill that I gained from my internship. I was lucky because I got the chance of managing something during my internship. There was always a scope of managing myself to increase my management capabilities.

Time management is the process of organizing and planning how much time one spend on specific activities. At the beginning of any sprint, I need to tell my team how much time I need to do any assigned work. Sometimes, when I was busy with my own tasks someone from my team to do something, I did not say no and I had to do it. By this, I learnt how to manage time and it was a great lesson for me.

I also have to plan for doing any task. Before doing any task, I have planned how to do it. Sometimes, I do more than one task at a specific time. In that moment, I have planned and managed my schedule to complete all of those tasks.

6.4 Problem solving skills

From my internship I also learnt how to solve problem easily. My analytical and critical thinking help me to solve problem which I faced. For solving problem I follow the basic steps of problem solving process. These steps are:

1. Identify and define the problem
2. Analyse the problem
3. Identify possible solutions
4. Select and plan the solution
5. Implement the solution
6. Evaluate the solution

The following figure illustrates the problem solving process:



Figure 30: Problem Solving Process

6.5 Teamwork skills

In Orion I worked with a team from the first day of my joining. So, I also achieved teamwork skills. My team members are also very helpful and friendly. By working with team, I was able to know how to plan and manage a task, how to manage time, and how to run a meeting. I was able to share my idea and receive feedback from my teammates. Teamwork helped me to communicate well with all team members.

I think everyone needs the following skills for working with a team and I also gained those skills by working with a team:

1. Openness
2. Trust and self-disclosure
3. Dependability
4. Patience
5. Support
6. Respect

I think passing a huge amount of time with other members through team work, I have improved my quality of teamwork skill and I think it will help me in my later life. The following figure demonstrates the teamwork:



Figure 31: Team work

6.6 Conclusion

I have gathered lots of experience and learning during my internship period. Involvement on real life projects taught me how to handle and cope with a very large project, how to manage everything easily, how to maintain project timeline and schedule, how to develop a complete project etc. This whole journey also taught me to be passionate, hard-working, rational, dependable, punctual, intelligent, cordial, enthusiastic, arduous and confident. So I think that my overall progress during my internship period was noteworthy and praiseworthy and it will play a key role throughout my whole life. In the next chapter, I explain my nontechnical growth during internship period.

Chapter

7

Nontechnical Growth

7.1 Preamble

In my internship period, I achieved some nontechnical behavior along with professional behavior. I would like to mention those behavior which is not only needed for maintaining professionalism but also needed for leading a person's whole life.

I also made a SWOT analysis of myself before and after the internship. I want to reflect the impact of internship in my study life.

7.2 Self-Assessment

I have enriched myself with lots of nontechnical skills. In this section I assess my achievement as an intern.

7.2.1 Attitude

When I joined to the company as an intern, I was afraid of new environment of Internship Company where I will go to continue my six months internship period. I was also much frightened that how much my theoretical knowledge help me to cope with real life work. I was working on a real life using up-to-date technology and as a fresher, I have no working experience about this type work and technology, so it was hard and challenging for me to adapt with this technology background.

Although I was struggling first, I was very passionate to learn this new professional environment and technology. In spite of the fact that it is constantly troublesome to learn new things yet I feel that I was ready to match me up with these difficulties. Inchmeal my confidence level grows up and my attitude reflects it. I have always tried to comprehend this new technologies and complete work assigned to me. I have also done extra activities, share my ideas with my team in team meeting and always tried to be contributed. After that, I have enhanced my positive attitude and be a proactive individual in my team.

7.2.2 Ability to learn

I am constantly earnest to take in the important tools and new technologies that were needed to overcome the implementation challenges and complete the allot undertakings. As an intern, I have learned countless number of new thing and new technologies which were begun a lots of background study.

I got heaps of experience by working on my assigning works which were entirely unexpected for me. Working on real life project I have learnt how to take sense just reading the requirements specifications.

7.2.3 Dependability

Dependability is a valuable quality in the workplace. Usually, because of risk any anterior software company do not want to involve their interns into their real life projects. But I was assigned on a real life projects very from the beginning and day by day, they involved me into core tasks of this project. It may reflects that I am quite dependable for them.

From the first day of my internship, I tried to show my dependability to my supervisor and all of my team member. By showing my dependability, I try to make it easier to establish stronger workplace relationships because my supervisors see me as a consistent performer.

7.2.4 Initiative

Initiative is one of the most vital characteristics for any employee. In Orion, everybody works in a team and every team member has to maintain their responsibilities. There is also no culture to push anybody to do their responsibilities. So, I have also had responsibilities and I have maintained them. I have tried to do it with my 100% efforts. When I faced any problem I tried to solve it myself and take the initiatives for it as my best. If I found any issue in any module, I informed my team lead as early as I can. Sometimes I made a report about issues I found. Here is an example:



Figure 32: Error report

I have always tried to perfectly implement the delegated tasks. I also try to do something extra all the time. I try to learn and grow by challenging myself. It gives me the knowledge and confidence to show more initiative in upcoming tasks.

7.2.5 Quality and Quantity of Work

Quality of work defines product quality and product quality brings reputation for every company. So quality of work is an important thing for every company and their employee. I was directly involved in a real life project and always tried to give my best quality in this work. I have followed best practices, standard documentation, structured coding development and formal reporting according to everyday task list. I have always maintained project planning and project timeline for completing my tasks properly. I always tried to maintain highest quality of work throughout my internship at Orion.

From the very beginning, I was assigned to a real life project named “Wiz NG” and I have worked on a new module “File Management” of this project. I had to do a lots of task using JavaScript, jQuery, ASP.NET, C# and SQL server. Besides this I have also done some POC. I tried to done

all assigned tasks in time. I have never cross the time limit they gave for doing a task and admittedly, I completed every task using time as short as possible.

7.2.6 Relations with Others

Orion is like a family and every member of this family is very cooperate and friendly. At first I was a little worried about my new company and its employees. But after sometime I was so much surprised how much friendly they are. When I faced any problem, I frankly discussed it with my colleagues. They also tried to help me as their best. Especially my team leader and other team members always helped me and I have a close relationship with them. Gradually I became a member of this family.

Whenever we were free we used to discuss each and everything of each other. In this company every employee's birthday party used to be celebrated with birthday cake. My birthday also celebrated with friendly and cheerfulness and it was really a memorable day for me. Sometimes, I was going out for fresh air with my colleagues. In a word, all members of Orion are like friends to me. It was really good feeling to work with experienced and talented persons.

7.2.7 Maturity-Poise

Although IIT taught me to make self-confidence by giving proper guidance and direction, at the beginning of my internship I was a little bit confused about me. But gradually I recovered this lacking. After few times later I saw that my maturity level is growing very high and I have been confident about myself that if I asked to do anything, I will succeed.

Working on a real time big project helped me quite maturity poise and confident. Involvement on this giant project also taught me how to handle and cope up with big project, how to manage everything easily, how to maintain project timeline and schedule. My maturity-poise also helped my supervisor to easily involve me into project.

7.2.8 Judgment

Judgment is one of most impotent characteristics of any employee. It creates gradually rather than suddenly. It is a quality that builds up gradually with gathering experience. It helps to take appropriate decision at appropriate time which will be helpful for any company to maintain commitments with clients.

I have tried my best to develop my skill on judgment. I have to take decision on how I implement the logic, how can I improve performance, how I maintain coding quality etc. Sometimes I answered my superior's queries with my own judgment. These entire things helped me a lot to grow judgment quality.

7.2.9 Attendance & Punctuality

Punctuality is an important component of dependability in the workplace. I always tried to maintain the office time very strictly. Every day I used to go office at just time and left the office after finishing time. I also admitted that I never took advantage of virtual office because I thought I can communicate well with my team members in office. Whenever there was any possibility of late or absence then I have informed it to my team with a formal mail or phone call. I need to entry my time in a time-sheet.

Punctuality not only refers to come office timely but also refers to deliver product in time. I always delivered my task before schedule time. I have tried to best use my office time for my best productivity. I hope that this punctuality and regularity will give me inspiration in my future life.

7.2.10 Overall Analysis

I tried to perform as worthy student of IIT in this internship period. In this 5 month I have become a trusted body to my team and they find me to be dependable and relay on me. I have gathered lots of experience. I had lots of responsibilities and successfully completed them. I always tried to be unique in performance. I think that I progressed a lot and this progress made me confident and will help me in my future life.

7.3 SWOT Analysis of Myself

SWOT analysis is a useful technique for understanding our Strengths and Weakness, and for identifying both the Opportunities open to us and the Threats we face.

I made a SWOT analysis of myself before going to internship. It was:

<p>S – <i>Strengths</i></p> <p>Punctuality Curiosity Patience Analytical Ability Working well in team</p>	<p>W – <i>Weaknesses</i></p> <p>Nervousness Lack of decision making ability Lack of business oriented approach Lack of experience</p>
<p>O – <i>Opportunities</i></p> <p>Be a potential software engineer Be a dependable employee Be a potential problem solver Perform best on team works</p>	<p>T – <i>Threats</i></p> <p>Afraid of accepting challenges Work with business oriented complex project will be tough</p>

Figure 34: SWOT Analysis of myself (Before Internship)

At the end of my internship period I have made another SWOT analysis of myself that shows my improvements. It is:

<p>S – <i>Strengths</i></p> <p>Punctuality Curiosity Patience Analytical Ability Working well in team Self confidence Decision making ability Business oriented approach</p>	<p>W – <i>Weaknesses</i></p> <p>Lack of patience in crisis situation Lack of experience</p>
<p>O – <i>Opportunities</i></p> <p>Be a potential software engineer Be a dependable employee Be a potential problem solver Perform best on team works Ready to take challenges</p>	<p>T – <i>Threats</i></p> <p>Lack of patience in crisis situation may lead to mistakes</p>

Figure 35: SWOT Analysis of myself (After internship)

7.4 Conclusion

The internship has changed my direction of thinking, approach of working and strategies of problem solving. I feel full utilization of this period may provide lots of confidence to a student. The learnings of this period such as regularity, punctuality, analytical ability and ability of judgments will favor me in my future carrier a lot.

Chapter

8

Conclusion & Recommendation

8.1 Conclusion and Future Recommendation

The six month of Internship was a time of experimentation. Internship in an intermediate period of academic calendar is exceptional from the perspective of our country. From that point of view this is a matter of glory that during internship I have passed the best academic period in my life by experiencing the real world technology. It is a matter of grandeur that what I read yesterday at book is now available to me. Moreover, gathering a vast knowledge about how the real world works can help me to prepare myself for upcoming working life for me.

I would like to convey my thanks to Computer Science & Engineering, East West University for providing me an opportunity to gain idea of the competitive environment in the professional field. It has certainly lifted my software development skills in terms of design and coding. I now look forward to facing the upcoming challenges of the world.

Orion Informatics Ltd is a leading software company in Bangladesh with their innovative and reputed products. So it was a great opportunity for me to complete my internship period as an effective member at development of Orion. Concerning the assigned project work I had, it was interesting to implement something else that I was taught in my four years bachelor program. It was interesting to me in different points of views. It was real pleasure to work in office with corporate culture.

Moreover, working in a team and friendly official environment made me learn different things. Even though that was something new for me, I was able to change me with this. Different tools and technologies, experienced human resources, large range of business domain, innovative products, inspirational and motivating higher authority and friendly environment was the most significant factors to learn professionalism, positive attitude, winning mentality, self-initiative, team strength etc.

In a word, this internship was a great experience to me. And I hope that this experience will give me inspiration and instruction to build up me better future.

8.2 Recommendation

Before going to Orion Informatics Ltd, I did not know what fortunate means to be. But I am well aware of it now. In Orion, I got so overwhelming support from my colleagues that I can never forget. For that, I would like to express my whole-hearted gratitude to **Dr. Md. Nawab Yousuf Ali** sir for believing in me and thinking me eligible for Orion. But everyone may not be lucky like me. So I have a strong suggestion for them that it is you who has to cope with the office environment and its culture.

I have another simple suggestion for my beloved younger brothers and sisters that one should practice to submit everyday updates to his/her supervisor. This will help him/her a lot while preparing this document and in the long run as well.

Chapter

9

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Glossary of the Report

AML – Anti-Money Laundering

CRA – Community Reinvestment Act

FFIEC – Federal Financial Institutions Examination

Council HMDA – Home Mortgage Disclosure Act

LAR – Loan Application Register

MSMQ – Microsoft Message Queuing

NG – Next Generation

POC – Proof of Concept

R&D – Research and Development

SQL – Structured Query Language

TFS – Team Foundation Server

WK – Wolters Kluwer