Report

Submittal Form

Abstract

Preface

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**Introduction**

(-Typically begins with background information that will put your project(s) into proper context which makes it easier for the reader to appreciate the reasons for your activities, solutions and recommendations  
-Your reader will know what project(s) you completed, the problems you encountered and why a solution was important)

MS

SRTPA

SOAP

The aim of the project was to rewrite the SOAP Listener process in Java. The current code base is in Perl. The SOAP Listener listens to a port on the server where clients send messages. Following this, the messages are validated and the information is extracted which is further sent to an adapter for further processing and storing in the database.

There are several advantages of having a Java based project over Perl. These include:

     1. Enhanced monitoring, alerts and metrics generation

     2. Use widely supported infrastructure and open source libraries

     3. Utilize the benefits of powerful machines

     4. Better time to market, testing infrastructure and less risk prone

The Perl code base was written a long time ago and has minimal documentation. This made it quite difficult to find out what are the actual requirements of the Listener. The new Java SOAP Listener was, therefore, supposed to be well documented with readily available information and properly organized code structure to make the service easy to maintain and extend.

*“My role is that of a Junior Java Programmer/Analyst. I will be acting as a developer in this project – coding the Java SOAP Listener. Besides this, I will be doing requirements analysis and testing the actual code along with deployment of the developed SOAP Listener. Furthermore, I will be documenting all the phases throughout the lifecycle of the project. “*

Literature Review:

( -Provide an overview of work relevant to your project(s) that has been accomplished previously  
-Shed light on the issues you discuss and support your work with scientific references  
-Inadequate use of reliable scientific references may indicate that you have not researched or studied the topic sufficiently  
-While literature review of classic works adds weight, it is vital that more current recognized research and studies are adequately reviewed and referenced to make your Final Report up-to-date  
-Make sure that you use the IEEE Editorial Style Manual when making references to the research and studies cited in your Final Report  
-It is preferable to use journal or conference papers and textbook sources. However, the use of online sources may be relevant.)

**Discussion:**

( -You can proceed with the discussion chronologically (what steps you completed) or by function (what things you did)  
-The level of detail you provide will depend on the sophistication of the problem or situation  
-You should consider the way in which your employer will utilize your Final Report. This is crucial to tailoring your discussion of your solution to be maximally useful.)

The tasks that I was supposed to do as a part of SDLC (Software Development Life Cycle) to keep track of the progress of the project included: Requirements Analysis, Test Plan, Designing, Coding, Testing, Documentation, Deployment and Release. The requirements analysis phase required me to study the Perl file, extract the functionalities of the SOAP Listener from the file, study the tests built for the project to dig further into the functionalities, document the functionalities extracted and get them approved from the owner and the testing team. The next phase, Test plan, was about documenting the testing scope and activities. Designing would match the requirements to components, interfaces and behaviors. Coding phase involved the actual developments work whose output would be the Java SOAP Listener. This gives the input for the testing phase. Finally, documentation was to be done for the complete Listener, followed by Deployment and Release of the SOAP Listener. This would verify that the Java solution is the exact same replica of the Perl program.

The first task I did in my internship was to install all the required software for working with my team under Institutional Securities Technology. Following this, I was introduced to Leela which provides real-time view of the application management system that enables users to remotely control and monitor applications. Leela provides a continuous view of the real-time monitoring of the applications, and allows the user to control, inspect and failover applications and hosts. After being introduced to my project – rewrite the SOAP Listener process from Perl to Java, I did the SRTPA (Staged Real Time Products Adapter) project environment setup (Install, configure and build the project) project with which the SOAP Listener is supposed to work. I installed, configured and built the SRTPA project. I understood the workflow and documented the SRTPA project so that it is easy to work with the SOAP Listener as the Listener is meant to be operated with SRTPA. This task spanned a few days. In the meanwhile, I studied some financial terms to better understand the firm operations. Furthermore, I experimented on some database queries that are meant for the project setup.

Since my project was old and the information for its setup was outdated and had obsolete documentation, I wrote the documentation for its setup. In addition to this, I have been writing a documentation page for our team Jargons. Furthermore, I understood the SRTPA workflow and made a flowchart for the same. Apart from this, I studied Linux and Git commands to better work with the project. I also learnt about Kerberos, a Firm standard authentication mechanism for internal applications.

The next task was to understand Jira and make Jiras to indicate my tasks and track the progress of my project. Jiras are about creating stories and allotting time for each of the phases of the project. I created Jiras for tracking my progress throughout the project work period. Each phase of the project was depicted as a Jira story and time was allotted for each task. This ensured that I completed my tasks and delivered the documents for each phase on a timely basis. Following this, I, along with my supervisor, did a work breakdown for the project – the steps to complete the project - Requirements Analysis, Test Plan, Designing, Coding, Testing, Documentation, Deployment and Release.

With this began the first phase of the SDLC for the project – Requirements Analysis. The steps to be followed for the requirements analysis included: Identify the clients and stakeholders who will be affected by the project. These included both the internal and the external clients of the firm. The internal clients involved the Quality Analysis team and other teams that obtained their data with the help of SOAP service. It involved eliciting, analyzing and recording the requirements. For this, I went through the Perl tutorial to understand the basic syntax and operations. Following this, I analyzed the Perl Script for SOAP Listener and understood all the functionalities of the Listener so that the functionality of the Java SOAP Listener remains the same as that of the Perl script for the Listener. Obtaining and going through the tests for the Listener to gather all the requirements to develop the Listener was another task. I also established communication with the QA team, product owner and the existing testing team working on the project for gathering as much information as possible to begin working on the project. Recording of the requirements was done in the form of a Requirements Document. Generating documentation has been an important activity I grasped during the work.

The requirements document provided the checklist of the tasks that I need to carry out for completing the project. The document provided a means of contract between me and the product owner as I had the document approved from the product owner before moving onto the next step. \*\*\*\*\*\*\*\*\*\*

I studied about Test Plan to further the task of development of the SOAP Listener. Furthermore, I analyzed Spring boot that is to be used in the development of the project. I completed studying the server-side programming models. Since my project was old and the information for its setup was outdated and had obsolete documentation, I wrote the documentation for its setup. In addition to this, I have been writing a documentation page for our team Jargons. Furthermore, I understood the design of the SOAP Listener to help capture the detailed functionalities. Apart from this, I studied Jenkins tool. It is a continuous integration (CI) and continuous delivery (CD) solution that ensures that all merged code is always in a production-ready state.

The next task was to understand Jetty and Tomcat to make a decision as to which servlet container to use in order to host the Soap service. Following this, I, along with my supervisor, did the midterm evaluation for the internship. I went through the Perl script to understand the detailed design of the project so as to implement the replica in Java. With this began the second phase of the Software Development Life Cycle (SDLC) for the project – Design. The expected output for this phase is a Design Document. I also established communication with the QA team, product owner and the existing testing team working on the project.

Following this, the main phase of coding started where the actual implementation is to take place. I understood and studied various tutorials for the implementation. The tools like Spring boot, CXF, yaml are to be configured into the project.

The project was an aid to progress towards the following job performance objectives:

* Understand and document the requirements.
* Deliver a bug free, well designed, coded, tested and documented implementation.
* Clearly communicate issues and status with other team members.
* Ability to meet deadlines consistently.
* Deliver quality code.
* Document everything that I analyze, develop and work on.
* Attend regular team meetings and prepare status reports to improve communication amongst team members.
* Follow a strategic plan for the project and deliver the required documents for each of the SDLC phases.

Further, the project helped meet the following Professional and Personal expectations:

* Demonstrate ability to work in a team.
* Demonstrate pro-activeness, self-motivation.
* Learn and apply new skills.
* Learn how software development process works in a large organization.
* Familiarize myself with the required new technology.
* Gain upward feedback from team members to extract what can be improved further.
* Improve my presentation skills.
* Gain a more in-depth perspective of how departments within the company are run, network, and increasing my performance metrics.
* Improve my communication skills, confidence, get along with others, embrace empathy, stop procrastinating, and make better decisions.

The project helped me work improve several technical and non-technical skills. It not only improved my coding skills, but helped gain good familiarity with various tools and technologies like: Java, Jenkins, Junit, Watchtower, MQ, etc. Furthermore, I gained the knowledge of SDLC along with Jira, Jenkins, Git, Gradle, etc. while working on the project. A good knowledge of LINUX’s commands was also acquired while working on the project. Apart from this, I learnt about Morgan Stanley business and built a network of professional contacts. In general, I focused on improving Communication, Leadership, Research, Organization and planning, Problem solving and Time management skills. Nonetheless, I demonstrated leadership skills by taking ownership of the project, from requirements gathering to design, coding, testing and deployment. I learnt how to manage my times and delivery timelines by using Jiras and communicating to the rest of the team by means of skype conversations, emails and Scrum meetings. I also communicated with other stakeholders, thereby learning the subtle aspects of human interactions between developers, product owners, quality assurance team and dev ops. I had the opportunity to improve my oral presentation skills by presenting my project in front of the management at the end of my internship. I also came up with clean, simple and robust solutions to the problems I had to solve, thereby gaining meaningful experience in that area.

**Conclusion:**

*The tasks that I was supposed to do as a part of SDLC (Software Development Life Cycle) to keep track of the progress of the project included: Requirements Analysis, Test Plan, Designing, Coding, Testing, Documentation, Deployment and Release. The requirements analysis phase required me to study the Perl file, extract the functionalities of the SOAP Listener from the file, study the tests built for the project to dig further into the functionalities, document the functionalities extracted and get them approved from the owner and the testing team. The next phase, Test plan, was about documenting the testing scope and activities. Designing would match the requirements to components, interfaces and behaviors. Coding phase involved the actual developments work whose output would be the Java SOAP Listener. This gives the input for the testing phase. Finally, documentation was to be done for the complete Listener, followed by Deployment and Release of the SOAP Listener. This would verify that the Java solution is the exact same replica of the Perl program.*