# Final Report

**Student Name:** Sagar Kokku

**Job Role:** Java Developer

1. **Project Overview**:

SUPPLY CHAIN MANAGEMENT PROJECT

* I am currently working on a software Development Project that involves building a web application for a customer. The project is divided into three phases, and I am part of a team of 15 members. We are responsible for building the entire system from scratch.
* As a team member on the supply chain management project, I have been responsible for various tasks including coding, testing, debugging, implementing, and documenting moderately complex programs using Java/J2EE, JSP, Spring, and Hibernate technologies. I have collaborated with other team members to design and develop software modules that facilitate supply chain management processes such as inventory tracking, order fulfillment, and logistics management. I have also contributed to the testing and quality assurance efforts by developing and executing test plans, identifying and resolving defects, and documenting test results. Additionally, I have participated in code reviews and provided feedback to other team members to ensure that our code is efficient, scalable, and maintainable..
  + Expertise in developing client-side and server-side/middle-tier components using Java/J2EE design patterns and frameworks like Spring Boot, Micro Services, AOP, Webservices, Hibernate, JDBC, JPA, JSP, POJO’s, JSON, and Multithreading.
  + Proficient in AGILE and SCRUM methodologies, and Test-Driven Development.
* • Incorporating Spry and Scrum approaches in the insurance business processes can enhance collaboration and communication between teams, increase flexibility in responding to changing market conditions and customer needs, and streamline the development process to deliver software applications more rapidly and efficiently. For instance, an insurance company can utilize Coordinated and Scrum methodologies to develop a customized insurance quoting software application that can be tailored to the specific needs of the company and its customers, while allowing for quick changes and improvements based on feedback and market conditions.
* Proficient in implementing various frameworks such as Spring, Spring Boot, and utilizing ORM frameworks like Hibernate. Skilled in producing and consuming various web services, including SOAP and RESTful, using tools like SOAP UI. Additionally, experienced in developing microservices using Eureka Server and the Spring Boot framework. Worked extensively with Java/J2EE 1.7/1.8, including utilizing Collections.

**About the Project:**

The project aims to improve the supply chain management process by establishing a set of rules and regulations to ensure that customers and supply chain partners comply with industry standards and regulations, with a focus on the insurance sector. The Supply Chain Management and Legal Solution program consists of two groups of users: internal and external. Internal users include legal teams, franchises, licensing departments, transaction services, and customer delivery teams. External users consist of customers such as issuers, acquirers, processors, merchants, and third-party service providers. By utilizing this program, the internal users can efficiently manage and monitor the supply chain while the external users can adhere to the industry standards and regulations for a smooth and compliant operation.

The steps involved in developing the Module are:

* The supply chain management module involves the following steps:
* Developing a home page that displays relevant information and notifications to customers.
* Implementing access control to ensure that only authorized customers can access the web pages.
* Setting up a fraud detection system that can detect any suspicious transactions in a customer's account. If a fraud is detected, a PDF questionnaire will be sent to the customer.
* Notifying the customer about the sent document and prompting them to fill and submit it. Once the customer submits the document, the application will validate the answers provided by the customer.

**Possible Methodologies**

The supply chain management project is being developed using the agile methodology which focuses on customer satisfaction by rapidly delivering useful software and welcoming changing requirements, even late in development. Working software is delivered frequently for each sprint, with close daily cooperation between business people and developers. The project is built around motivated modules that are trusted, and face-to-face conversation is considered the best form of communication. The team is self-organized and adapts regularly to changing circumstances, with continuous attention to technical challenges and good design. The agile techniques being used in this project are focused on continuously delivering value-added services to the client and maintaining a continuous connection with the client with an emphasis on communication among team members.

In addition, the project is being developed using various methodologies such as Agile, Scrum, SDLC, and Waterfall. JUnit is being used as the testing tool, while database servers such as Oracle 8i/9i/10g/11g, DB2, SQL Server 2000/2005/2008, MySQL, IBM Cloudant, and MongoDB are being used to store data. The project also uses CI/CD tools like Jenkins and SonarQube for continuous integration and deployment, and version control tools such as SVN, GitHub, and GitLab. Finally, Maven is being used as the build tool for this project.

1. The project is built on the following technology stack: Spring Core, JSP, Oracle, SQL, TestNG, Clearcase, CSS, Oracle Database, SOAP, RUP, and Maven.

Agile methodology was followed in the project, which involves continuous interaction and collaboration among team members and stakeholders to deliver value-added services. Weekly sprints and stand-up meetings were conducted to ensure iterative development and timely delivery of the project.

1. Angular was used in the project, and module-wide routing was implemented using the router module. Different forms were created using both data-driven and template-driven approaches in Angular.
2. Collaborated in developing Angular Components, Services, and Filters while also contributing to the creation of unit test and integration test cases using Jasmine and Karma testing frameworks. In line with the Agile methodology, emphasis was placed on maintaining clear visibility into project progress and objectives both in the short-term and long-term.
3. **Famous agile methodologies are** Agile, Scrum, SDLC, Waterfall

**Data Overview:**

The supply chain management software project includes a dataset available on Kaggle, which consists of five attributes - Title, Text, Subject, Date, and Label. These attributes are used to tackle fake news. The Title attribute contains the news heading, while the Text attribute contains the details about the news. The Label attribute conveys whether the news is true or fake. The Subject attribute contains the category in which the news belongs to, such as political, left or right-wing. The Date attribute contains the date of the article published. In addition, the insurance agency has guaranteeing rules based on actuarial data and statistical models that assess the likelihood of losses for a particular risk. Market trends and conditions are also considered while creating statements and limiting policies.

MARKET ANALYSIS

The Market Analysis is a crucial aspect of supply chain management that provides a comprehensive understanding of the industry and the market potential for your business objectives. It involves identifying the ideal customer based on your business strategy and defining the target market through detailed market sizing and description.

To achieve this, key elements such as geographic location, demographics, buyer characteristics, and needs of the target market are identified and analyzed. This information is then used to assess the market value, which is calculated by multiplying the number of potential customers by the average revenue for your product or service.

In addition, the Market Analysis involves a competitor analysis to identify direct competitors and their offerings. This allows for a comparison of how your product or service will solve the needs of the target market more effectively. Overall, the Market Analysis is critical in developing effective supply chain management strategies that maximize profitability and minimize risks.

– **Insights**:

* Understanding and managing the supply chain is critical for businesses to ensure efficient and effective operations. It involves the coordination and management of the flow of goods, services, and information from suppliers to customers.
* One key aspect of supply chain management is inventory management. This involves balancing the costs of holding inventory with the costs of stockouts. Proper inventory management can help reduce waste, increase efficiency, and improve customer satisfaction.
* Another important aspect is logistics management, which includes the transportation, warehousing, and distribution of goods. Logistics managers must consider factors such as cost, speed, reliability, and sustainability when making decisions about transportation modes and routes.
* Supply chain risk management is also essential. Risks can arise from a variety of sources, such as natural disasters, supplier bankruptcy, or geopolitical tensions. Mitigating these risks requires proactive planning and contingency strategies.
* In recent years, there has been a growing focus on sustainability in supply chain management. This includes reducing carbon emissions, promoting ethical labor practices, and minimizing waste throughout the supply chain.
* Effective communication and collaboration with suppliers and customers is also critical for successful supply chain management. This includes sharing information about demand forecasts, production schedules, and quality control standards.
* Technological advancements, such as the use of blockchain and artificial intelligence, are also transforming supply chain management. These tools can provide greater transparency, traceability, and efficiency in the supply chain.

**Testing**

* In supply chain management software testing, it is important to ensure the quality of the code through various types of testing, such as unit tests, functional tests, and integration tests. Test cases should be written for each of these types of tests.
* To assess the quality of the code, tools like SonarQube can be used to analyze code quality and identify any potential issues or vulnerabilities.
* Once the initial testing is completed, the code should be pushed to a branch in the team's repository using the assigned ticket number. From there, the code should undergo a build process to check if it is working properly in the development environment.
* If the build is successful, team members should review the code to ensure it meets the necessary requirements and standards.

**Progress on the Project:**

To address the issue with the database, I worked closely with the database team to identify the root cause of the listener issue and resolve it. I also collaborated with the team responsible for managing live data to ensure that accurate data is available for testing purposes.

In addition, I used debugging techniques to identify the cause of the bugs that were raised during the merge process. I worked with my team members to fix the bugs and tested the updated code thoroughly before pushing it to the stage development database.

Throughout the project, I have been using agile methodologies like Scrum to ensure that the team is on track and the project is progressing as planned. Regular sprint reviews and retrospectives have helped us identify areas for improvement and make adjustments as necessary.

Overall, my experience working on this software project has highlighted the importance of effective communication, collaboration, and testing in ensuring the success of a supply chain management project.

For supply chain management software projects, it is important to manage the supply chain process effectively to minimize risks, reduce costs, and improve efficiency. This includes capturing, managing, and executing trades of financial instruments like equities, mutual funds, and options for advisors on behalf of their clients. The software should support block trading with advisory account and account level trading, making it easier for advisors to manage their clients' portfolios.

Customers may also have the option to customize their coverage, limits, and deductibles to generate a custom quote. If no underwriting issues are encountered, the consumer can choose to buy the policy online and enter the rest of the information needed to produce a full application and bind the policy, including payment options. This saves time and capital and results in good output for the company.

After the work is done, it is important to have a retrospective call between the team members and scrum manager to discuss the challenges faced during the project. If the challenges are correctable, the scrum manager and team manager will work together to make sure they do not occur in the upcoming sprints. One of the remarks that may come up during the call is the importance of checking team members' work before assigning it to someone else. This can help avoid surprises and reduce the risk of work spilling over into the next iteration.