Industrial Internship Report on

"Banking Information System"

Prepared by

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-: Organization Name :-
Upskill Campus and UniConverge Technologies Pvt. Ltd.

Internship Duration - 1 June 2023 to 15 July 2023 (6 Weeks)

Date of Submission – 14 July 2023

Executive Summary
This report provides details of the Industrial Internship provided by upskill Campus and The IoT Academy in collaboration with Industrial Partner UniConverge Technologies Pvt Ltd (UCT). This internship was focused on a project/problem statement provided by UCT. We had to finish the project including the report in 6 weeks' time. I have developed a prototype of a ***'Banking Information System'*** in Core Java that **provides a working preview of the key functionalities of a real banking system. The prototype should demonstrate the core features and flow of the system, showcasing its functionality and usability.** This internship gave me a very good opportunity to get exposure to Industrial problems and design/implement solution for that. It was an overall great experience to have this internship.

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1 Preface

SUMMARY

Objective

This project provides a working preview of the key functionalities of a real banking system. The prototype should demonstrate the core features and flow of the system, showcasing its functionality and usability.

Overview

Import various packages which provides functionalities like ArrayList, date and Exception. Then declare all the variables, Classes and Methods which is required for project. Implement all the key functionalities and require modules which are mentioned on Portal. Handle wrong input and use exception handling mechanism. Add validation for inputs using regex.

Learn following things:

- History of Java
- Interesting facts about Java
- Requirements to run java program
- Which Editor used for the java program
- How to execute Java Program
- Program Structure of Java
- Compiler & Interpreter
- String Builder Class
- JIT
- What are the mandatory tools and skills required for a full stack developer?
- Interface
- Abstract Class
- Method Overloading
- Success ladder to Corporate World

Key findings

- How to distribute work
- How to save time
- How to use time properly
- Got more knowledge about Core Java

Methodology

When user starts the Baking Information System, User will register itself and then he can register their other accounts also or login with existing accounts. When user get login successfully, then user navigate with different banking operations. Create a list array of register accounts, so that all the register accounts are available in array list and in the given session.

Tools –: Notepad (Editor) & JDK | JRE

To run Project-:

1. At first, check that Java is installed in your system and the path is properly set
2. Open the notepad and write a Java program into it.
3. Save the Java program by using the **class name** followed by **.java** extension.
4. Open a command prompt window and go to the directory where you saved the java program (MyJavaProgram.java). Assume it's C:\.
5. Type 'javac MyJavaProgram.java' and press enter to compile your code. If there are no errors in your code, the command prompt will take you to the next line (Assumption: The path variable is set).
6. Now, type ' java MyJavaProgram ' to run your program.
7. You will be able to see the result printed on the window.

ACKNOWLEDGEMENT

The free Summer Internship Program opportunity in 'Core Java' Domain I got with **USC/UCT** was a great opportunity for learning and professional carrer development. Therefore, I consider myself as a very lucky individual as I got a chance to be a part of it. The time I spent as an Intern from **1 June 2023 to 15 July 2022** was a memorable one for me as helped me to discover my potential. The successful completion of this training mark the beginning of an ever- going learning experience of converting ideas, concepts and technical knowledge into real life, practical system.

First of all, I would like to thanks to founder**, Mr. Kaushlendra Singh Sisodia**, for giving us this opportunity to work and chance to learn in this esteemed organization. This industrial training was a quite a learning experience for me at each and every step. At the same time, it has given me confidence to work in professional setup. I feel the experience gained during the task will lead to gain the bright prospect in the future.

With the deep sense of gratitude, I express my sincere thanks to our Co-Ordinator of Upskill Camps **Mr. Apurv and Backend support team** who have given their valuable time and provide response as well as help, also something despite having their busy schedule and allowing me to carry out my task at their esteemed organization. Also thanking him for his active support and continuous help without which it would have been difficult for me to complete this training.

Thus, the time in USC/UCT is very audacious and supportive to my career through, which I have gained valuable work experience that will help definitely makes a favorable impression on me as a prospective future employer.

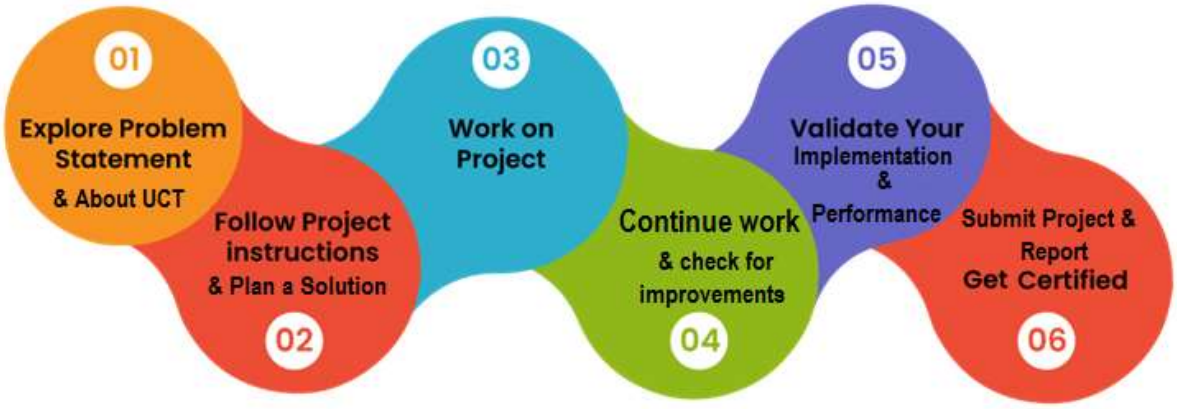
I perceive as this opportunity as a big milestone in my career development. I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement, in order to attain desired career objectives. Hope to continue cooperation with all of you in the future.

ABSTRACT

Industrial training is an important phase of a student life. A well planned, properly executed and evaluated industrial training helps a lot in developing a professional attitude. It develops an awareness of industrial approach to problem solving, based on a broad understanding of concepts and mode of operation of organization.

I was assigned to do Core Java Internship Project by choosing one topic from various problem statements. During a period of 6 weeks training at USC/UCT, most of the technical knowledge that has been gained in Core Java project of 'Banking Information System'. Various Java Concepts has been understood during this training.

How Program was planned



The aim and motivation of this industrial training is to receive discipline, skills, teamwork, which will help me, as a student in the field of Computer, to develop a responsiveness of the self-disciplinary nature of problems in information. Throughout this industrial training, I have been learned Core Java language that required for the tasks, and able to implement what I have learnt for the past year as a Diploma in Computer Engineering student in K. J. Somaiya Polytechnic.

2 Introduction

2.1 About UniConverge Technologies Pvt Ltd

A company established in 2013 and working in Digital Transformation domain and providing Industrial solutions with prime focus on sustainability and RoI.

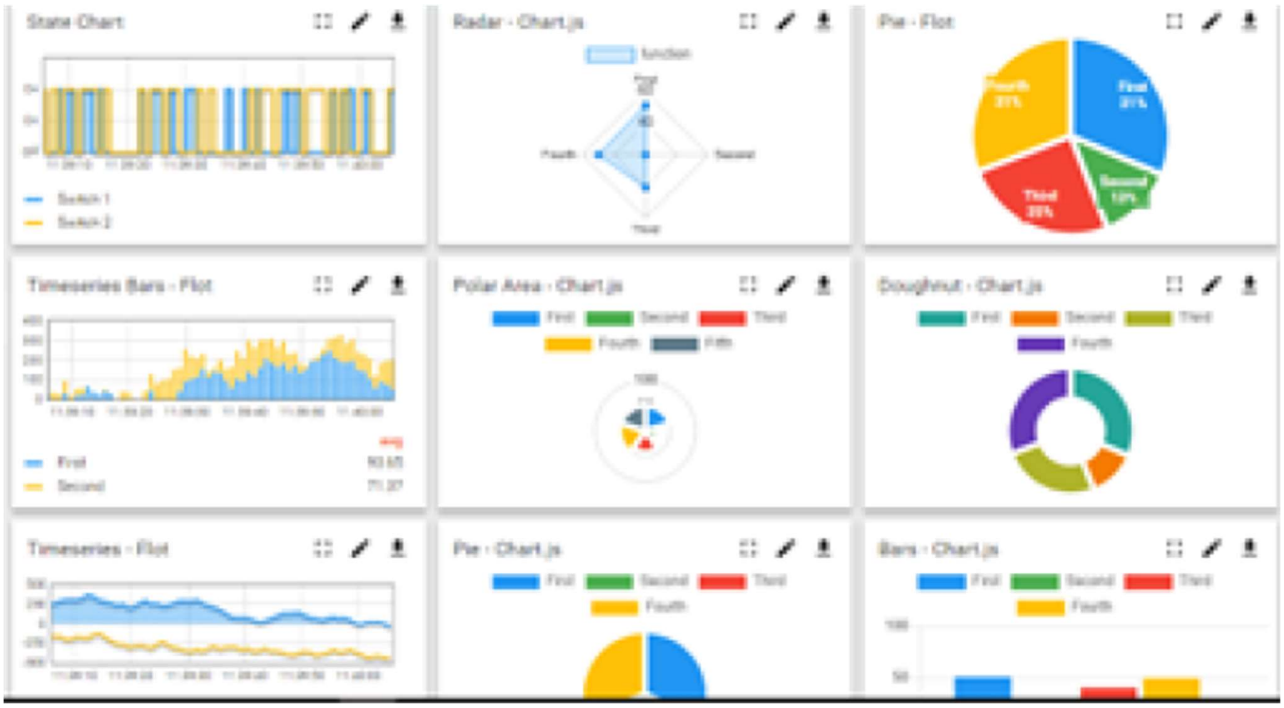
For developing its products and solutions it is leveraging various **Cutting Edge Technologies e.g. Internet of Things (IoT), Cyber Security, Cloud computing (AWS, Azure), Machine Learning, Communication Technologies (4G/5G/LoRaWAN), Java Full Stack, Python, Front end** etc.

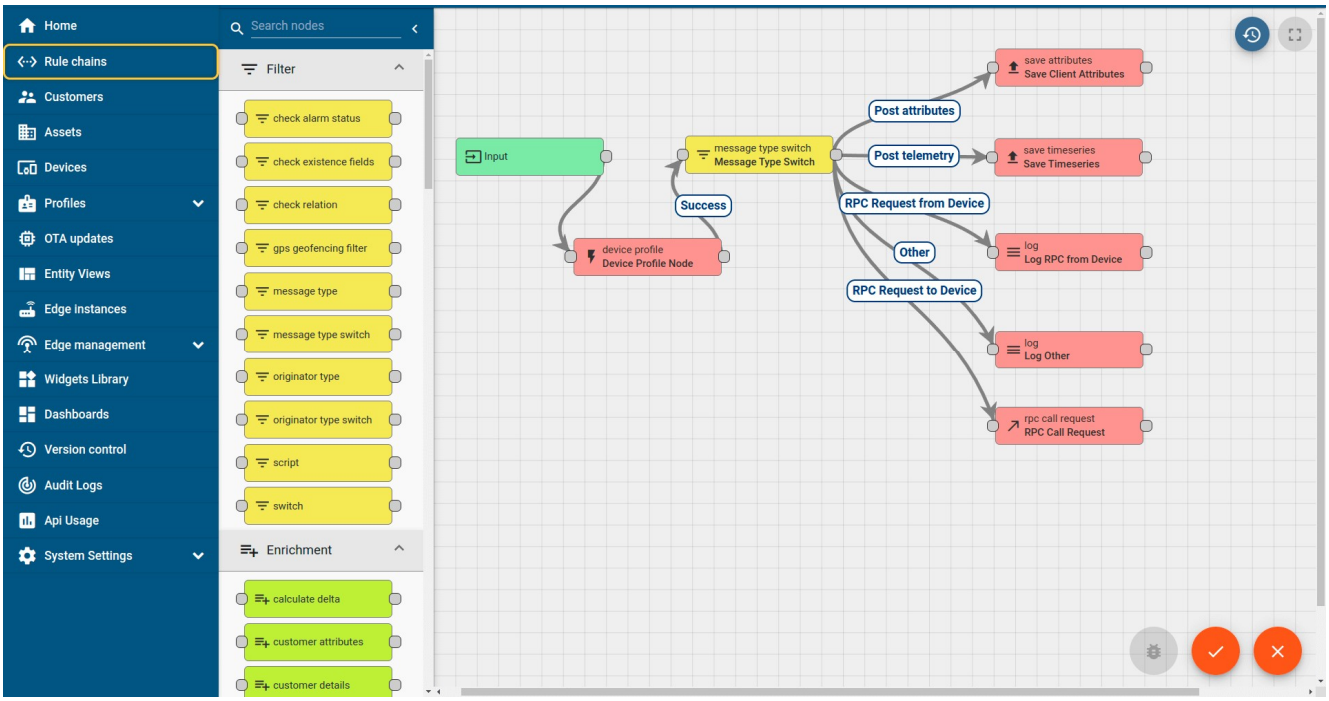
i. UCT IoT Platform (uct Insight)

UCT Insight is an IOT platform designed for quick deployment of IOT applications on the same time providing valuable “insight” for your process/business. It has been built in Java for backend and ReactJS for Front end. It has support for MySQL and various NoSql Databases.

- It enables device connectivity via industry standard IoT protocols - MQTT, CoAP, HTTP, Modbus TCP, OPC UA
- It supports both cloud and on-premises deployments.

It has features to
• Build Your own dashboard
• Analytics and Reporting
• Alert and Notification
• Integration with third party application (Power BI, SAP, ERP)
• Rule Engine





ii. Smart Factory Platform (FACTORY WATCH)

Factory watch is a platform for smart factory needs.

It provides Users/ Factory

- with a scalable solution for their Production and asset monitoring
- OEE and predictive maintenance solution scaling up to digital twin for your assets.
- to unleased the true potential of the data that their machines are generating and helps to identify the KPIs and also improve them.
- A modular architecture that allows users to choose the service that they what to start and then can scale to more complex solutions as per their demands.

Its unique SaaS model helps users to save time, cost and money.

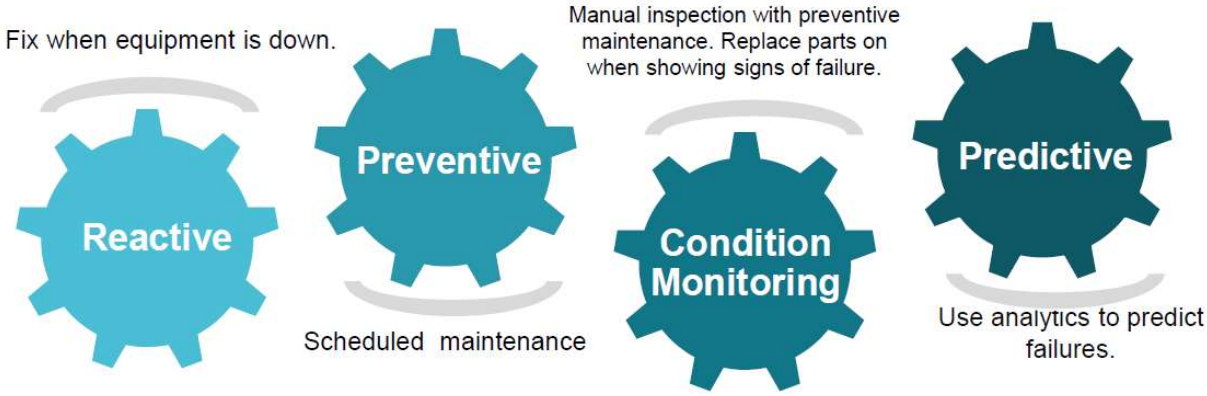
Machine	Operator	Work Order ID	Job ID	Job Performance	Job Progress		Output		Rejection	Time (mins)				Job Status	End Customer
					Start Time	End Time	Planned	Actual		Setup	Pred	Downtime	Idle		
CNC_S7_81	Operator 1	WO0405200001	4168	58%	10:30 AM		55	41	0	80	215	0	45	In Progress	i
CNC_S7_81	Operator 1	WO0405200001	4168	58%	10:30 AM		55	41	0	80	215	0	45	In Progress	i

iii. LoRaWAN™ based Solution

UCT is one of the early adopters of LoRAWAN teschnology and providing solution in Agritech, Smart cities, Industrial Monitoring, Smart Street Light, Smart Water/ Gas/ Electricity metering solutions etc.

iv. Predictive Maintenance

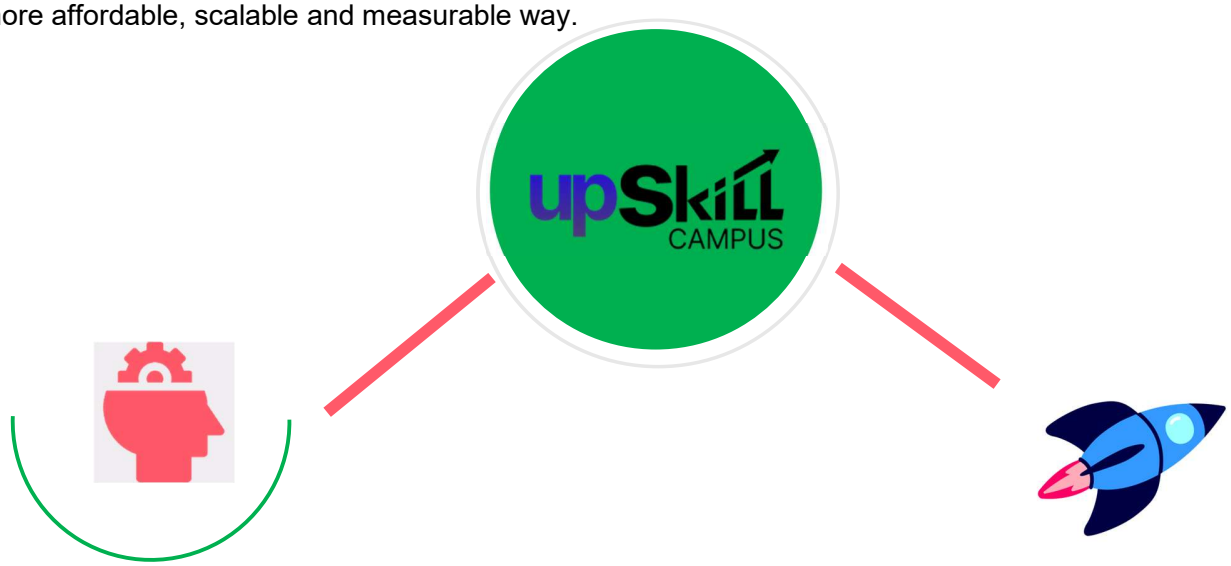
UCT is providing Industrial Machine health monitoring and Predictive maintenance solution leveraging Embedded system, Industrial IoT and Machine Learning Technologies by finding Remaining useful life time of various Machines used in production process.



2.2 About upskill Campus (USC)

upskill Campus along with The IoT Academy and in association with Uniconverge technologies has facilitated the smooth execution of the complete internship process.

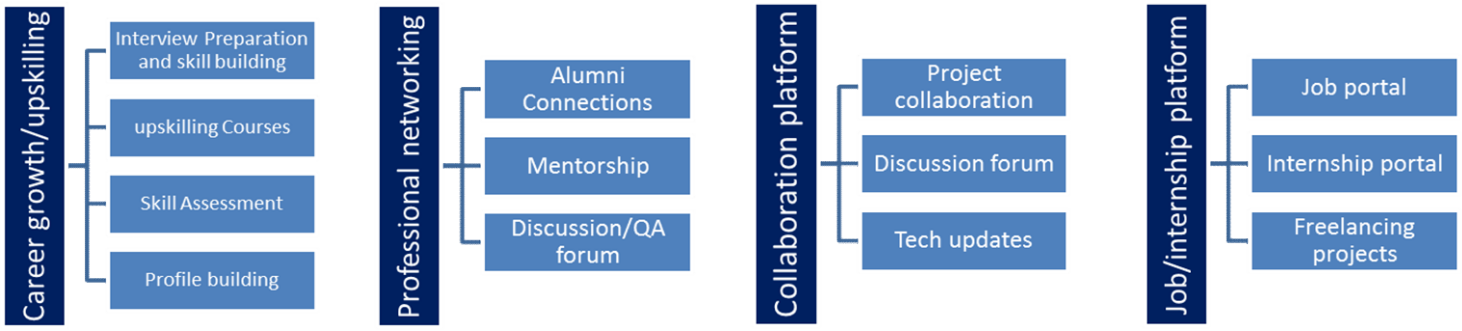
USC is a career development platform that delivers **personalized executive coaching** in a more affordable, scalable and measurable way.



Seeing need of upskilling in self paced manner along-with additional support services e.g. Internship, projects, interaction with Industry experts, Career growth Services

upSkill Campus aiming to upskill 1 million learners in next 5 year

https://www.upskillcampus.com/



2.3 The IoT Academy

The IoT academy is EdTech Division of UCT that is running long executive certification programs in collaboration with EICT Academy, IITK, IITR and IITG in multiple domains.

2.4 Objectives of this Internship program

The objective for this internship program was to

- ☛ get practical experience of working in the industry.
- ☛ to solve real world problems.
- ☛ to have improved job prospects.
- ☛ to have Improved understanding of our field and its applications.
- ☛ to have Personal growth like better communication and problem solving.

2.5 Reference

[1] https://www.w3schools.com/java/java_regex.asp

[2] https://www.youtube.com/watch?v=qZJDTrhWUmE&t=328s

[3] https://learn.upskillcampus.com/s/courses/644122eee4b0f11fbe0f6241/take

2.6 Glossary

Terms	Acronym
Prototype	an early version of a product from which future versions are developed
Module	a distinct assembly of components that can be easily added, removed or replaced in a larger system
GUI	Graphical user interface
Regex	It is a format known as regular expressions which is a sequence of characters that specifies a match pattern in text
Exception	an event, which occurs during the execution of a program, that disrupts the normal flow of the program's instructions.

3 Problem Statement

In the assigned problem statement of 'Banking Information System'

Following Key Functionality are included in this Prototype:

1. User Registration
2. Account Management – Update account, View account and Track Balance
3. Deposit and Withdrawal
4. Fund Transfer
5. Account Statements of transaction history
6. Develop a basic login system with password authentication and protection to ensure secure access to user accounts.
7. Implement Error Handling mechanism and display relevant error messages to users.
8. User-Friendly Interface: Users can easily navigate through the system's user interface, perform banking operations, and view relevant information.
9. Store data temporarily during the prototype session.

Work during Internship

- Deciding topic from various problem statement and study about requirements of selected project topic
- Construct all mentioned modules
- Implement basic error handling mechanisms to handle common exceptions
- Attended quizzes regarding Core java

4 Existing and Proposed solution

Value Addition:

- Hide Password and achieve password protection while login and register.
- Validate user details and Avoid wrong input.

Sr. No.	Challenges or Limitations	Solutions
1.	Confusion about whether the project is consoled based or GUI based	By messaging Upskill campus and hence known about the “Banking Information System” project is Console based
2.	Problem in register many accounts and use one object for all of them	Create a list array of register accounts, so that all the register accounts are available in the given session
3.	Confusion about How to return back to menu after wrong input in switch case	By deriving switch case in ‘While loop’
4.	Confusion about various ‘Regex’ format	Learn about how to define name, phone no, email format
5.	Difficulty in handling Input Mismatch Exception	Use ‘while loop’ with Try- Catch error handling Mechanism

4.1 Code submission

https://github.com/Swarangi24/Upskill-Campus/blob/main/Code_BankingInformationSystem_SwarangiShirsekar_USC_UCT.java

Screenshots

https://github.com/Swarangi24/Upskill-Campus/blob/main/ScreenShots_BankingInformationSystem_SwarangiShirsekar_USC_UCT

4.2 Report submission – Final Internship Report

https://github.com/Swarangi24/Upskill-Campus/blob/main/BankingInformationSystem_SwarangiShirsekar_USC_UCT

5 Proposed Design/ Model

5.1 High Level Diagram (if applicable)

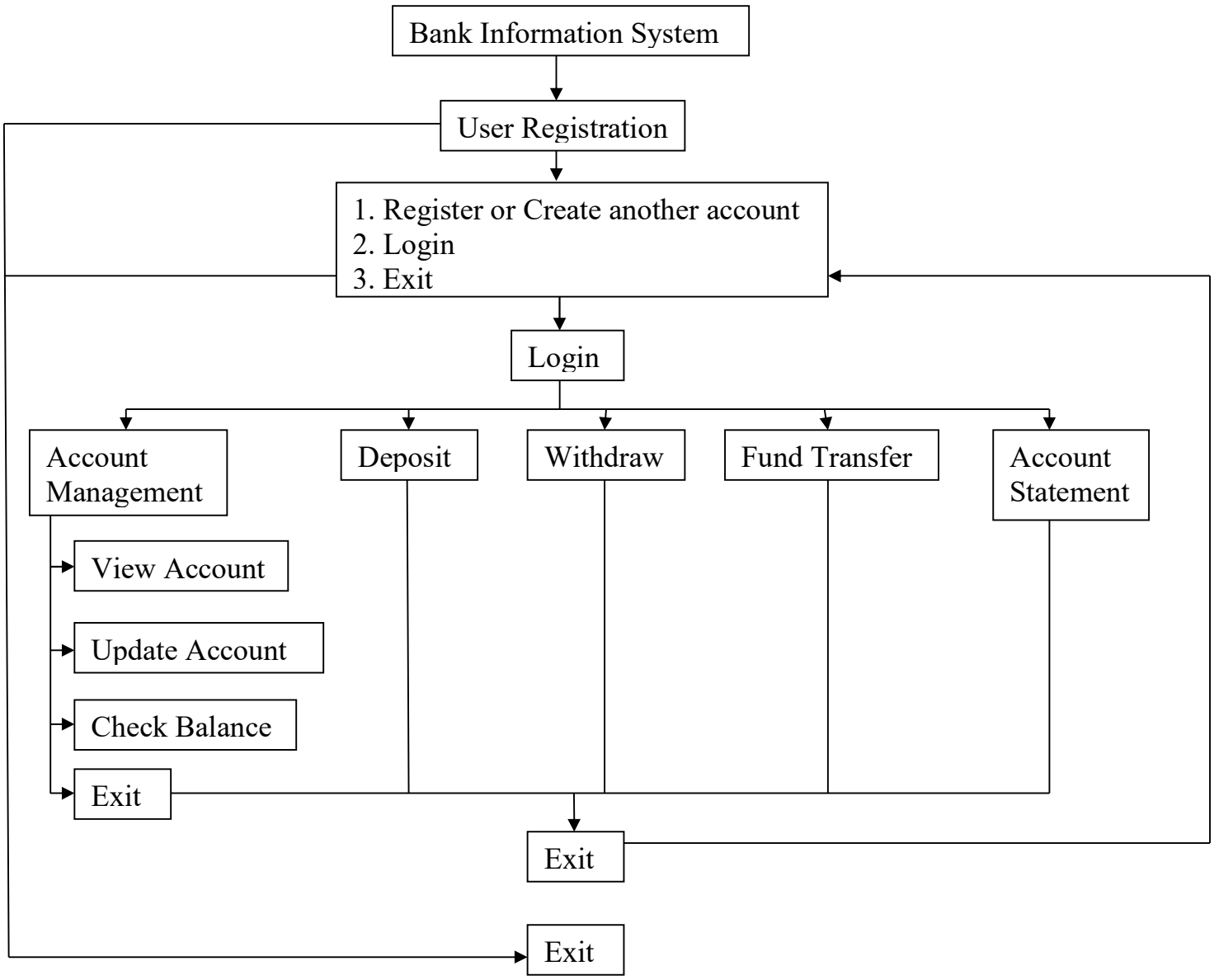
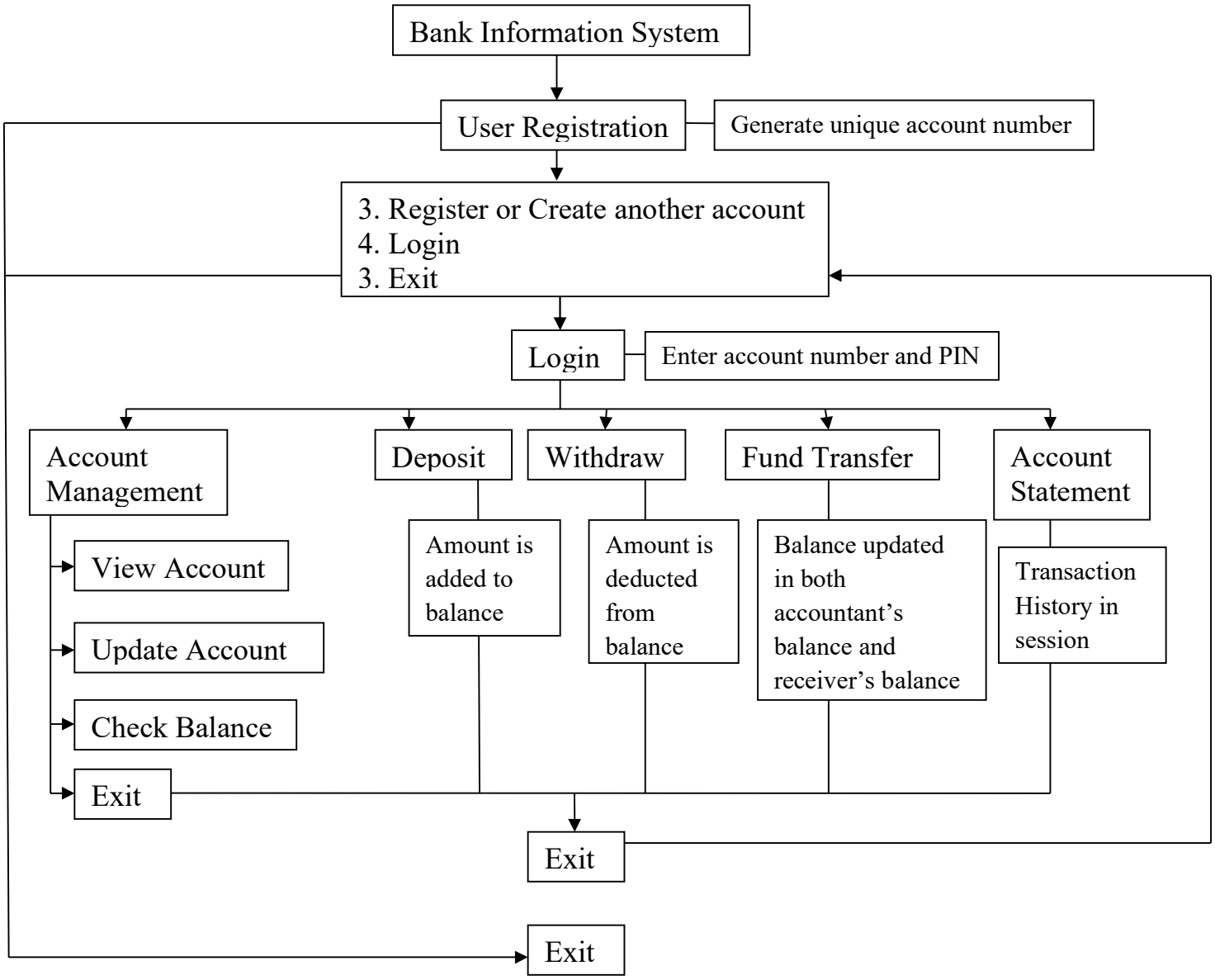


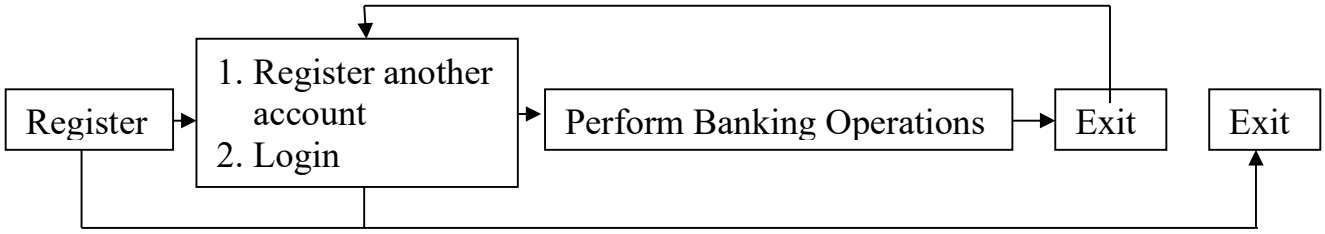
Figure 1: HIGH LEVEL DIAGRAM OF THE SYSTEM

5.2 Low Level Diagram (if applicable)



5.3 Interfaces (if applicable)

Block Diagram of Bank Information System-:



6 Performance Test

Why performance testing work is meant and important for Real industries, instead of being just academic project?

It is important for businesses to have effective mobile and web applications and websites. Any website that loads within 3 seconds of clicking seems to gratify users more than anything that loads within 7 seconds, but anything longer than that increases the likelihood that a user will leave the website. More significantly, any efforts to improve the functionality of the program, application, or website are likely to increase SEO traffic, improve conversion rates, and shorten wait times. This means that working with a performance testing organization is a crucial step that testers and developers must take when they need to produce meaningful solutions for business.

According to a statistic released by Windows, there are 669,000 apps in the Microsoft Store, 2,800,000 in the Google Play Store, and roughly 2,300,000 in the Apple App Store. The report claims that only the best-performing apps stand out in the market and draw users, despite the enormous numbers illustrating the number of identical goods available to fulfil a similar purpose.

E-commerce

E-commerce-based application tops the list of pain points to work on – Cybersecurity, Price competition, Order fulfillment, customer satisfaction, and 'Performance Issue' needs to be handled with care.
As we can see, most e-commerce websites rely on images, videos, and other media to help potential buyers decide. When this amount of information comes on the webpage, it leads to poor performance if not handled well at the front or back end or server layer by using application and software technology.

Poor performance of websites and mobile applications frustrates end-users and puts a dent in organizational expenditure. When consumers have spent a significant time researching and comparing a product in the market. In the present scenario, a good brand is expected to have a fully-functioning website with accurate information. It should provide an exclusive webpage along with trusted payment gateways swiftly.

EdTech

The market is wide open for education after the COVID -19 pandemic, where we can see the learning portal is more in the market. In terms of that, everyone delivers not only good learning stuff but also excellent performance application. Speed up education and skill learning is edtech with resilient application technology.

Insurance

An industry where users manage risk and make future calculations by making capital reserves. For insurance-based applications, it becomes critical to have a top-notch- CX (Customer Experience), simplified business logic for end-users, Omnichannel applications, web security, real-time quoting, claim management, and good performance to manage all web things on time with quality.

Health care

Procures users' information and provides services and products to them on the same portal to serve better. This is the next big industry we have on our list of most demand for high-performing applications and software to simplify the entire process of healthcare services for good experience accessing the application for a long time. The market for mHealth apps, which include everything from appointment scheduling to brief report sharing, health data maintenance, and pharmacy apps. Overall, the industry relies on seamless apps that can handle all workloads and user needs due to the desire for better healthcare outcomes.

Telecom

Telecom applications enable communication with proper security, remote working and many more through various platforms, including telephone, video conferencing, broadcasting, television media, instant messaging, emails, etc. Numerous telecom apps and platforms, including retailer apps, mobile wallets, CRM apps, customer support apps, etc., make it simple for customers and businesses to engage, share information, and conduct transactions. To provide a fantastic CX and safeguard their brand's reputation, telecom firms must make sure their apps load quickly and operate flawlessly amid changing user loads and shifting network circumstances.

Banking/Finance/ BFSI/FinTech

Finance and banking directly indicate monetary terms. Banking/Finance industry challenges come with authentication, security, Omnichannel customer service, Usability, Complexity and ambiguity, payment issues, etc.

Because they enable users to complete transactions with a single click, banking and finance apps have ingrained themselves into everyday life. Banking apps have simplified customers' life by enabling on-the-go bill payment, money transfers, ticket booking, insurance purchases, etc. Banking apps should run as expected during busy hours to reduce the likelihood of a server crash, app crash, stuck payment issues, etc. Businesses may provide clients with a flawless online banking experience through high-performing banking apps.

In terms of performance, we need to be more concerned about these areas, so performance should not be a challenge for any application if we serve our end-users, sustain them in the market, and become a top player. Introducing a slow-moving, poorly developed technology to the users could cause any organization to fall behind since every industry nowadays needs to stay up with the fast-paced activities. Here performance testing is the only viable option to meet the need for high-performance apps to keep up with the pace.

Performance testing benefits for businesses

1. Improves load time (Load balancing)

2. Quick error identification (Runtime error)

3. Enhanced customer experience (Quick delivery)

4. No Bottlenecks

5. Additional Scalability

The ability of an application or piece of software to accommodate changing loads is known as scalability. Additionally, the application's load-bearing capability is improved for various test scenarios, system configurations, and user actions by the performance testing services focused on scalability.

6. Faster Testing (Speed Optimization) – The shift-left strategy of most enterprises today is complemented by performance testing combined with agile testing, enabling quicker development and reliable findings.

7. **Better Response Time** aims to eliminate lags that can impair outcomes and the user experience.

How those constraints were taken care in your design?

When you change one project constraint, it will often impact the others. For instance, if a budget decreases, project managers will need to adjust the design of resources and timeline. Consider all constraints to ensure that projects are successful. The triple constraint triangle is one of the best examples. When scope increases, so must cost and time to balance it. In this scenario, if these constraints are not balanced, the project will cost more, take longer, and decrease in quality

“On the market, there will always be some expectations. Managers should always be prepared to make accurate assessments at the start of a project. They should also be able to identify how and whether any adjustments made along the journey will affect the quality of the final product,” explains Max Hauer, Founder and CEO of Goflow.

When you exceed constraints, the project manager should determine the cause and decide whether or not the project should continue in its current form. Often, they will implement changes to avoid exceeding other constraints or exceeding any one constraint too much. This is why project managers should always build emergency funds into budgets and account for lead and lag time. By doing so, they can patch small holes before they become large ones.

“Balancing is admittedly tricky,” says Molly Beran, an experienced project manager and Founder of Projects By Molly, LLC. Project manager need to tried to figure out which constraints work together and which ones compete. For example, you may have a budget constraint of not spending over a certain dollar amount, but you also have a time constraint of getting a project done in four weeks. If you have too much work and need more resources within those four weeks, it can be hard to meet both the budget and the time constraint.

1. Define the problem - what challenge are you trying to solve? This could be reducing time-to-market or increasing designer productivity.
2. Identify and list the constraints related to problem like budget, resources, time, technical, etc.
3. Determine which limitations or constraints are most consequential and prioritize accordingly.
4. Meet with appropriate experts, team members, and stakeholders to brainstorm solutions. Create a list of possibilities.

5. Consider the pros and cons of each idea and Evaluate the solution by determining which has the highest feasibility with the most significant potential impact.
6. Select the solution you believe will deliver the best results and put plans in place to implement it.
7. Test and iterate: create KPIs to measure your solution's effectiveness and tweak them over time to optimize the results. Don't be afraid to abandon poor-performing ideas and iterate on new ones.

How Constraints can be identified? e.g., memory, MIPS (speed, operations per second), accuracy, durability, power consumption etc.

The requirement for constraints in project comes down to timing closure, successfully interfacing to high performance I/O, and achieving successful compilations of your project. Since FPGA design is very open to interpretation, and no two compilations are the same, the compiler works to identify the best routing for the design you have created inside the FPGA given known timing requirements for the specific project. Adding constraints allows the compiler to understand where it should be "extra" careful when routing signals, or where it should ignore timing on asynchronous timing paths, or how it should interpret different design techniques that you choose to use. All of this adds up to creating a successful FPGA design which is functional and meets application requirements.

Ideally, you will be able to identify constraints that you will need as you begin creating your design. For a first-time user, this may be difficult to do without some understanding of why constraints are a requirement for the project. Not using constraints could lead to failing compilations even though the design has no need for changes. Even more dangerous, a lack of constraints could lead to a compilation passing compilation, but not meet timing required to ensure functional operation. It is best to avoid this situation by fully understanding the requirement for constraints and forming them correctly in your project.

how identified constraints can impact your design?

In order to identify project constraints, you have to identify boundaries in your project. These can be elements like your budget, timeline, resource, cost or quality standards.

Foundational project documents, such as your project charter, will provide insight into some of the initial constraints. They describe what your customers want, roughly how much they are willing to spend, and how long they are willing to wait. While these documents may define the initial expectations, project managers should expand those boundaries once they learn more about the project. Agreements, including contracts, internal service agreements, policies, regulations, and standards, are another source for identifying and understanding project constraints. Stakeholders, which include customers, the project team, senior leadership, or the general public, might also provide us with essential constraints.

Project constraints are limitations or risks that can affect your project's quality. They set the tone for your project and these constraints throughout your project's life cycle. A project constraint in project management is anything that restricts a project's scope. It threatens a project's speed and quality and can cause it to run over budget. While there are many possible constraints, the most common is referred to as the triple constraint. Don't let environment constraints impact your velocity. Create, manage, and use synthetic test data on the fly. Take advantage of integrated mock services (service virtualization) and Test data that are simple to create, use, and share, which are part of the platform and part of your workflow. There is nothing additional to license, integrate, or manage.

The Triple Constraints of Project Management serve as a model for constraints that come with project management. These three constraints are:

According to the Triple Constraints of Project Management, the project's costs, time, and scope all impact its success. A project manager can maintain control of the triple constraints by balancing these three constraints via tradeoffs.

While the Triple Constraints of Project Management is essential to any successful project, it does not define its success. Projects comprise several components, far more than the three that comprise the Triple Constraint. To better reflect the most crucial elements of a project. The triangle model also allows project managers to calculate the impact of external factors and influences on one or more 'legs.'

What are recommendations to handle constraints?

These are some of the best practices for managing project constraints, according to experts:

1. Be Flexible
2. Transparent communication between project team members
3. Balance workload
4. Understand each Constraints clearly
5. Create a Process for Approaching Constraints and balance them
6. Document, reviewed and periodically analyze constraints
7. Monitor and track constraints throughout the project life-cycle.
8. Check validity and alternative for addressing constraints
9. Create and maintaining up-to-date Project Budget, which resource planning, cost estimation, budgeting and cost control
10. Create a Project Schedule
11. Create a Risk Management Plan for potential project risk and resource-leveling plan.
12. Identify tradeoff and Understand Constraints
13. Manage Your Resources
14. Stick to Your Project Plan
15. knows about the priorities and objectives of the project.
16. Deliver projects within time and budget And Achieving customer satisfaction
17. Make informed decisions using real-time business intelligence
18. Control project quality by regularly monitoring your project plan and processes.
19. Plan and strategize each phase of the project means organize and list the functions in detail. costs at each step.
20. tracking time spent on a task and the progress made in your project. planning an accurate schedule and then monitoring and controlling the schedule to make sure your actual time aligns with your time management plan.
21. Create work breakdown structure (WBS) to identify each task and deliverable in the project.
22. Use Software for above management practices.

6.1 Test Plan/ Test Cases

A **Test Plan** is a detailed document that describes the test strategy, scope, process, preconditions, expected output, approach, objectives, schedule, estimation, deliverables, and resources (HR, Hardware and Software) required to perform testing for a software product. Test Plan helps us determine the effort needed to validate the quality of the application under test. The test plan serves as a blueprint to conduct software testing activities as a defined process, which is minutely monitored and controlled by the test manager.

Use test plans in Test Management 1.0 to plan how to test your feature or application-:

A test plan is a detailed document which describes software testing areas and activities. A test plan includes one or more test cases of planned activities in an appropriate sequence and can also specify a test environment. Test plans are used to assign test cases to testers and to monitor the progress of the tests. You can view the list of test plans by navigating to **Test Management** > **Test Execution** > **Test Plans**. This list shows the current test plans, along with the percentage of the test cases completed and the status of the test cases. It is a defined process that is fully monitored and controlled by the testing manager. The test plan is prepared by the Test Lead (60%), Test Manager(20%), and by the test engineer(20%).

The test case is defined as a group of conditions under which a tester determines whether a software application is working as per the customer's requirements or not. Test case designing includes preconditions, case name, input conditions, and expected result. A test case is a first level action and derived from test scenarios.

It is an in-details document that contains all possible inputs (positive as well as negative) and the navigation steps, which are used for the test execution process. Writing of test cases is a one-time attempt that can be used in the future at the time of regression testing.

Test case helps the tester in defect reporting by linking defect with test case ID. Detailed test case documentation works as a full proof guard for the testing team because if developer missed something, then it can be caught during execution of these full-proof test cases. Skip 10s

To write the test case, we must have the requirements to derive the inputs, and the test scenarios must be written so that we do not miss out on any features for testing. Then we should have the test case template to maintain the uniformity, or every test engineer follows the same approach to prepare the test document.

6.2 Test Procedure

The performance testing cannot be done manually since:

- We need a lot of resources, and it became a costlier approach.
- And the accuracy cannot maintain when we track response time manually.

Because testers can conduct performance testing with different types of metrics with different organizations, the process can vary greatly. However, a generic process may look like this:

Step 1: Identify the Testing Environment and performance scenarios

This includes test and production environments, as well as testing tools. Understanding the details of the hardware, software and network configurations helps find possible performance issues, as well as aid in creating better tests.

Step 2: Identify and define Performance Metrics and criteria

In addition to the general performance metrics such as response time, throughput and constraints, it is also important to identify the performance success criteria. Oftentimes, there may not be a wide enough variety of performance benchmarks that you can identify. You can find similar applications which are already successful in order to set performance goals.

Step 3: Plan and Design Performance Tests

Identify a number of key scenarios by taking into account user variability, test data, and plan performance. This is required to simulate, test and build a variety of use cases, test scripts and outline what metrics will be gathered according to test scenarios. Then implement test design. Install the tools in the Test Engineer machine and access the test server and run the tool.

Step 4: Configure the Test Environment

Arrange all the necessary testing tools and monitoring resources to prepare the testing environment before execution. And distribute the load according to the "Usage Pattern" or mention the duration and stability.

Step 5: Implement the Test Design

Design all the performance tests according to your performance criteria and metrics.

Step 6: Run the Tests

Execute and run the performance tests. Also, capture and monitor all the test data that is generated.

Step 7: Analyze, Tune and Retest

After every performance test, analyze the resulting test data whether they meets criteria or not to finding and fine tune the test again to see an increase or decrease in performance. Run the tests again using the same or different parameters and share it with the project team.

Step 8: Identify the Bottleneck

After that, we will identify the bottleneck (bug or performance issue). And the bottleneck could occur because of these aspects like the problem in code, hardware issue (hard disk, RAM Processor), network issues, and the software issue (operating system). And after finding the bottleneck, we will perform tuning (fix or adjustment) to resolve this bottleneck.

Step 9: Re-run test

Once we fix the bottlenecks, re-run the test scripts and checks the result whether it meets the required goal or not.

Organizations should find testing tools that can best automate their performance testing process. In addition, do not make changes to the testing environments between tests.

6.3 Performance Outcome

The term “performance test” describes any test that conducts experiments on a system chiefly to spot limitations and errors, using different ranges of values considered as benchmarks for acceptance or rejection.

A performance testing results report is crucial for knowing the areas of defects and improvements in the software. Performance testers are responsible for reporting credible information about the applications and systems they run tests on, and in doing so, must use an effective approach.

Any wrong or misleading information about the website’s readiness or system application could spell doom on so many fronts for the company, financially, socially (brand reputation), and possibly, the viability of the company. A performance testing results report template is an essential tool in collecting precise, infallible, and valuable metrics for further analysis.

7 My learnings

In Industrial Training, I worked in Core Java Domain and Create a project of ‘Banking Information System’. And I conclude my learnings-:

- Gain technical knowledge of Core Java.
- Learn Various Java concepts like ArrayList, StringBuilder class and different Regex format, etc.
- Various trick to handle exceptions using loops
- Get efficient in using Decision and Looping Control structure
- known about Success ladder to corporate world
- Also known about Mandatory skills and tools require for a full stack developer

, which helps in Career Growth in terms of practical and real-life experience.

8 Future work scope

- Provide 6-months free internship for students and provide stipend based on their work and excellence.
- Provide free learning Material for new learners so that they can complete their project based on that.