

Annexure-I

CSE441: - INDUSTRY INTERNSHIP PROJECT

EPAM SYSTEMS

A Training Report

**Submitted in partial fulfilment of the requirements for the award of degree of
Bachelor of Technology
Computer Science and Engineering
(AUTOMATION TESTING)**

LOVELY PROFESSIONAL UNIVERSITY PHAGWARA, PUNJAB



**L OVELY
P ROFESSIONAL
U NIVERSITY**

Submitted by:-

Name of the Student:- Gajjala Neeraj Kumar

Registration number:- 11904448

Signature of the student:- Neeraj

Submitted to:-

Name of the supervisor:- Sakshi

Student Declaration

To whom so ever it may concern

I, **Gajjala Neeraj Kumar, 11904448**, hereby declare that the work done by me on “**AUTOMATION TESTING WITH JAVA**” and done a project on “**INSTAGRAM-AUTOMATION**” From 15th Jan-2023 to Present, under the supervision of (**Assistant Professor**) **Sakshi**, Lovely professional University, is a record of original work for the partial fulfilment of the requirements for the award of the degree Computer Science and Engineering.

Name: Gajjala Neeraj Kumar

(11904448)

Dated: 28/04/2022

Annexure-IX (c): Declaration by the supervisors

To whom so ever it may concern

This is to certify that **Neeraj Kumar (11904448)** from Lovely Professional University, Phagwara, Punjab, has worked as a trainee in **EPAM SYSTEMS** on "**AUTOMATION TESTING WITH JAVA**" from **15th Jan,2023 to 28/04/2023**. It is further stated that the work carried out by the student is a record of original work to the best of my knowledge for the partial-fulfillment of the requirements for the award of the B-TECH, Computer Science and Engineering.

Name of External Supervisor
Sakshi Takkar

Designation of the External Supervisor

Signature of the external Supervisor

Name of Internal Supervisor

Designation of the Internal Supervisor

Signature of the Internal Supervisor

Dated: 28/04/2022

Dated:

ACKNOWLEDGEMENT

I would also like to thank my classmates and teammates who made the internship experience full of joy and learning and help me gain the necessary skills which are required for essential and mutual growth. First, we would like to take this opportunity to thank the **LOVELY PROFESSIONAL UNIVERSITY** for having summer training as a part of the CSE degree. The accomplishment of this project otherwise would have been painstaking endeavour, for lack of staunch and sincere support of the **School of Computer Science, LPU**. The incessant and undeterred succours extended by the members of the department facilitated the job to the great extent. If this goes unnoticed and unacknowledged it would be selfishness.

Many people have influenced the shape and content of this project, and many supported me throughout. I express my sincere gratitude to **Sakshi Takkar(Assistant Professor)** who was available for help whenever I required, their guidance, gentle persuasion and active support has made it possible to complete this project.

I also owe my thanks to my respondents who gave their great contributions in getting my questionnaires fulfilled. I have immensely benefited from my interactions with my friends, and I acknowledge their contributions to my learning.

EXCLUSIVE SUMMERY

Automation Testing with Java is a training program provided by EPAM, a global provider of software engineering and IT consulting services. The program is designed to help software testers learn how to automate software testing using the Java programming language.

The training covers various automation testing tools and frameworks such as Selenium WebDriver, TestNG, and Maven. The program is suitable for beginners as well as experienced testers who want to enhance their skills in automation testing.

During the training, participants will learn how to create and run test scripts using Java programming language, how to use various automation testing frameworks, and how to integrate automation testing into the software development life cycle. They will also learn best practices for automation testing and how to identify and fix common issues that may arise during automation testing.

The program is delivered through a combination of theoretical lectures and hands-on practical exercises. Participants will have access to a range of resources such as online tutorials, code samples, and real-life projects to help them apply what they have learned in the training.

By completing the Automation Testing with Java program, participants will gain practical skills in automation testing using Java programming language, which is widely used in the industry. They will be able to create robust and reliable test scripts that can be easily integrated into software development processes, saving time and reducing the risk of errors.

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INTRODUCTION TO COMPANY

About Epam Systems:

EPAM Systems is a software engineering and IT consultation company. EPAM provides engineering services for the development of digital platforms, software, and products (physical and digital). In addition to engineering and product development services, they offer a range of business services including consultancy on brand development and marketing, organization, platform and product strategies, enterprise and operations tech, and data and AI support. They work in a wide range of business sectors including media, entertainment, and telecom; finance, business information; retail and distribution; software and high-tech; travel and hospitality; life sciences; healthcare; energy and utilities; automotive and manufacturing; and insurance.

Since 1993, EPAM Systems, Inc. (NYSE: EPAM) has leveraged its advanced software engineering heritage to become the foremost global digital transformation services provider – leading the industry in digital and physical product development and digital platform engineering services. Through its innovative strategy; integrated advisory, consulting, and design capabilities; and unique ‘Engineering DNA,’ EPAM’s globally deployed hybrid teams help make the future real for clients and communities around the world by powering better enterprise, education, and health platforms that connect people, optimize experiences, and improve people’s lives. In 2021, EPAM was added to the S&P 500 and included in the list of Forbes Global 2000 companies.

E pam has offices in the USA, Canada, and Mexico, as well as many European and Asian countries. The company includes brands Epam Continuum, Telescope AI, infoNgen. Epam employees over 50,000 people and has locations in over forty countries.

In 2002, EPAM was ranked publicly for the first time as a fast-growing company by Deloitte & Touche. In the same year, the company became the first Russian player on the London Stock Exchange.

In 2012, EPAM was listed on New York Stock Exchange under the moniker EPAM, becoming the first company from Belarus on NYSE.

In 2004, EPAM acquired Fathom Technology, a software development services company based in Budapest, Hungary, expanding its offshore services beyond North America. In 2006, EPAM secured an equity investment from Siguler Guff to fund its competitive growth plans.

In 2006, EPAM acquired VDI, a software development services company with delivery centres in Russia, which expanded the company’s presence in the CIS region. That year, EPAM CEO Arcady Dobkin was named one of the Top 25 Most Influential Consultants of the Year by *Consulting Magazine*.

In late 2012, EPAM made two acquisitions – Thought Corp, which expanded its service offerings in Agile, business intelligence and mobile, and Empathy Lab, which established a digital engagement practice focusing on customer experience, design and eCommerce.

EPAM made two acquisitions in 2018 to expand its service offerings: Continuum (now EPAM Continuum) and TH_NK to add consulting capabilities and develop its digital and service design practices. Also that year, EPAM launched InfoNgen®, a text analytics and sentiment analysis enterprise software product that uses artificial intelligence.

The company also productized Telescope AI®, an artificial intelligence-based platform for IT operations and workforce management, which won a 2019 Big Innovation Award presented by the Business Intelligence Group.

In 2019, EPAM joined the Blockchain in Transport Alliance (BITA). That year, the company launched EPAM Continuum, its service for business, experience and technology consulting.

The company also launched EPAM Solutions Hub, a catalogue of its software products, accelerators and open source platforms. As part of its Solutions Hub launch, EPAM also released the Open Source Contributor Index (OSCI), a tool that ranks the top open-source contributors by a commercial organization.

In August 2021, EPAM expanded its presence in Latin America through the acquisition of Colombia-based S4N, a software development services firm specializing in the design and development of modern software products and enterprise platforms.

In July 2021, EPAM acquired CORE SE, a professional service provider specializing in IT strategy and technology-driven transformations, to further expand its Western European footprint in the DACH region.

In May 2021, EPAM acquired Just-BI, a Netherlands-based consultancy specializing in SAP/S4HANA and enterprise data and analytics program management.

EPAM acquired Israel-based cybersecurity services provider White-Hat Ltd. in May 2021.

In April 2021, EPAM acquired PolSource, a Salesforce Consulting Partner with more than 350 Salesforce specialists across the Americas and Europe.

In December 2021, EPAM joined the S & P 500 American market index.

In May 2021, EPAM Systems ranked 1,804 on the Forbes Global 2000 list.

In 2022, EPAM announced several strategic acquisitions and investments, including a majority stake in U.S. software firm Contin and a minority stake in U.K. AI-driven data analytics firm Noodle.io

EPAM began focusing on its expansion in Europe and other countries. This included the acquisition of Fathom Technology in 2004. They continued their European expansion, acquiring Russian software company VDI in 2006 and Spline Software the following year. EPAM acquired B2Bits Corp and Plus Micro in 2008, followed by Rodmon Systems in 2009. At this point, they had steadily been gaining new customers including Coca Cola, and Google, Inc. In 2012, EPAM went live on the NYSE and acquired companies Thought Corp and Empathy Lab. By 2013, the company employed over 13,000 people with locations in seventeen countries.

EPAM Systems, Inc. is headquartered in Newtown, Pennsylvania, United States. However, the company was founded in Minsk, Belarus, in 1993 by Arkadiy Dobkin, who is the current CEO of the company.

EPAM has since expanded globally and has offices in over 35 countries around the world, including locations in North America, Europe, Asia, and Australia. The company employs over 47,000 professionals worldwide and has become a leading provider of software engineering and IT consulting services.



CHAIRMAN&PRESIDENT OF EPAM

Arkadiy Dobkin



CHIEF FINANCIAL OFFICER

Jason Peterson

COMPANY'S VISION & MISSION

EPAM's vision is to be the most respected and sought-after digital transformation partner in the world. Its mission is to help clients harness the power of digital technology and transform their businesses through innovative software engineering and IT consulting services.

EPAM's mission is to help clients harness the power of digital technology and transform their businesses through innovative software engineering and IT consulting services. The company aims to provide its clients with the best digital solutions that will help them achieve their goals, increase productivity, and drive business growth.

EPAM strives to achieve its mission by focusing on the following:

1. Engineering excellence: EPAM is committed to delivering high-quality solutions that meet the needs of its clients. The company believes that excellence in engineering is the foundation for building innovative, scalable, and reliable digital solutions.
2. Agile methodologies: EPAM embraces agile methodologies in its software development processes to ensure that projects are delivered on time, within budget, and with high quality.
3. Customer-centricity: EPAM puts its clients at the center of everything it does. The company believes that understanding its clients' business needs and goals is essential to delivering solutions that drive business value.
4. Innovation: EPAM is dedicated to staying at the forefront of digital innovation. The company invests in research and development to identify emerging technologies and trends that can help its clients stay ahead of the competition.

In summary, EPAM Systems' vision and mission statement reflect their dedication to providing innovative solutions, delivering exceptional service, fostering a diverse and inclusive culture, and continuously improving their work. They are committed to helping their clients succeed and building long-term partnerships based on trust and collaboration.

EPAM SYSTEM'S CORE VALUES:

EPAM Systems' core values are Excellence, Collaboration, Respect, Innovation, and Customer Centricity. Let me explain each one of them:

1. Excellence: EPAM is committed to delivering excellence in everything it does. The company aims to achieve excellence in engineering, project management, and customer service to ensure that its clients receive the best solutions possible. This core value is reflected in the company's focus on quality, continuous improvement, and professional development.
2. Collaboration: Collaboration is an essential part of EPAM's culture. The company believes that teamwork and cooperation are necessary to achieve the best results for clients. EPAM fosters a collaborative work environment that encourages open communication, knowledge sharing, and mutual support.
3. Respect: Respect is a fundamental value at EPAM. The company respects its clients, employees, partners, and the communities in which it operates. EPAM is committed to creating a diverse, inclusive, and respectful workplace where everyone feels valued and heard.
4. Innovation: EPAM is dedicated to innovation and creativity. The company is constantly exploring new technologies, methods, and ideas to deliver innovative solutions that meet the evolving needs of its clients. EPAM encourages its employees to be innovative and to think outside the box to come up with new and creative solutions.
5. Customer Centricity: EPAM puts its clients at the center of everything it does. The company believes that understanding its clients' needs and goals is essential to delivering solutions that drive business value. EPAM is committed to providing exceptional customer service, building long-term relationships with its clients, and delivering solutions that meet their specific requirements.

In summary, EPAM's core values are Excellence, Collaboration, Respect, Innovation, and Customer Centricity. These values guide the company's actions, decisions, and interactions with clients, employees, and stakeholders, and help to ensure that EPAM continues to be a leading provider of digital transformation solutions.

ORIGIN AND GROWTH OF THE COMPANY:

EPAM Systems is a global technology and software engineering company that provides a wide range of IT solutions and services to clients worldwide. The company's success is built on a foundation of strong core values that guide its operations and shape its culture. Here is the EPAM Systems Company Core Values statement:

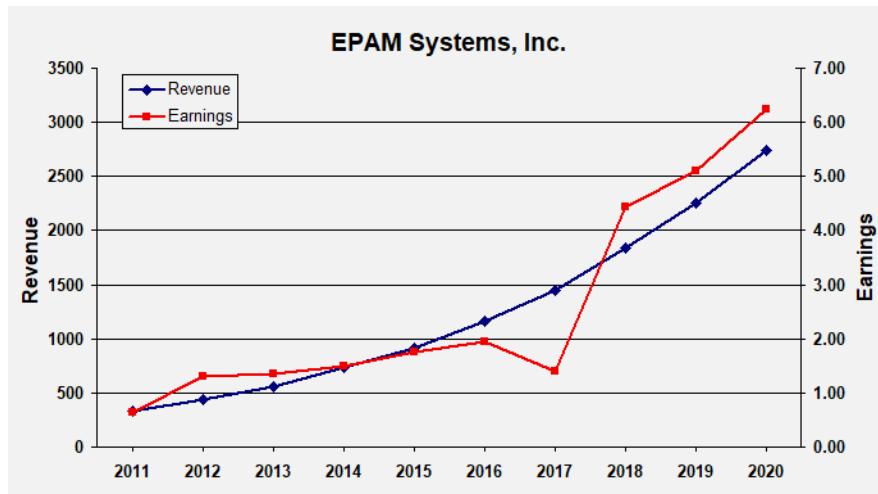
- 1. Strive for excellence:** We are committed to delivering exceptional quality and value to our clients through continuous improvement, innovation, and an unwavering focus on excellence.
- 2. Respect and care:** We treat our clients, employees, and partners with respect, fairness, and empathy, and we strive to create a work environment that is safe, diverse, and inclusive.
- 3. Collaborate and communicate:** We believe that teamwork and communication are essential for success, and we encourage open, honest, and constructive dialogue to foster trust, respect, and collaboration among our team members.

4. Take ownership: We take ownership of our work and hold ourselves accountable for delivering results that meet or exceed our clients' expectations.

5. Be proactive: We anticipate and respond to our clients' needs quickly and efficiently, and we take a proactive approach to solving problems and delivering solutions that drive business success.

6. Embrace change: We embrace change as an opportunity for growth and innovation, and we are constantly adapting to new technologies, markets, and business models to stay ahead of the curve.

7. Act with integrity: We act with honesty, integrity, and transparency in all our business dealings, and we strive to build strong, lasting relationships based on trust and mutual respect.



EPAM's growth has been fueled by its focus on providing high-quality software engineering services to its clients. The company has expanded its service offerings to include digital platform engineering, product development, and digital and product design.

EPAM has also expanded its geographic footprint, opening development centers in countries around the world, including Hungary, Russia, Ukraine, and India. Today, EPAM has over 43,000 employees across 35 countries.

EPAM's growth has been driven by a number of factors, including its focus on delivering high-quality, innovative solutions to its clients. The company has built a reputation for excellence in the industry, and has consistently been recognized for its work in digital transformation and software development.

In addition to its focus on delivering value to clients, EPAM has also expanded its global footprint through strategic acquisitions and partnerships. In recent years, the company has made several key acquisitions, including Dextrys, a software development firm based in China, and Ricston, a UK-based integration services provider.

EPAM has also been successful in attracting and retaining top talent in the industry. The company has a strong culture of innovation and collaboration, and has invested heavily in its workforce, providing employees with training and development opportunities to ensure they stay at the forefront of the industry.

EPAM's financial performance has been strong, with revenues increasing from \$869 million in 2016 to \$2.66 billion in 2020. The company's net income has also steadily increased, from \$98 million in 2016 to \$390 million in 2020.

Overall, EPAM Systems' growth can be attributed to its commitment to delivering value to clients, investing in technology and talent, and expanding its global footprint through strategic acquisitions and partnerships. The company's focus on innovation and collaboration has allowed it to stay ahead of the curve in an ever-evolving industry, and its strong financial performance is a testament to its success.

VARIOUS DEPARTMENTS AND THEIR FUNCTIONALITIES IN EPAM:

EPAM has various departments and functions that work together to deliver software engineering and IT consulting services to its clients. Here are some of the main departments and their functions:

1. Delivery Department: This department is responsible for delivering software engineering and IT consulting services to EPAM's clients. It includes software developers, quality assurance engineers, project managers, business analysts, and other professionals who work together to design, develop, test, and deploy software solutions.
2. Sales and Business Development Department: This department is responsible for identifying new business opportunities and building relationships with existing and potential clients. It includes sales representatives, account managers, and business development managers who work to understand client needs and propose solutions that meet their requirements.
3. Marketing Department: This department is responsible for promoting EPAM's brand and services to clients, partners, and the wider industry. It includes marketing professionals who create and execute marketing campaigns, develop marketing collateral, and manage EPAM's online presence and social media channels.
4. Human Resources Department: This department is responsible for managing EPAM's human resources functions, including recruitment, employee development, benefits administration, and employee relations. It includes HR professionals who work to attract and retain top talent and provide a positive work environment for EPAM's employees.
5. Finance Department: This department is responsible for managing EPAM's financial operations, including budgeting, forecasting, accounting, and financial reporting. It includes finance professionals who work to ensure that EPAM is financially healthy and profitable.
6. Legal Department: This department is responsible for managing EPAM's legal affairs, including contract negotiation, intellectual property protection, and regulatory compliance. It includes legal professionals who work to ensure that EPAM operates within the law and protects its legal interests.

These departments work together to support EPAM's mission and provide the best possible services to its clients.

Here are a few more departments that are commonly found in large organization EPAM:

1. Operations Department: This department is responsible for managing the day-to-day operations of EPAM's business, including facilities management, procurement, and supply chain management.
2. IT Department: This department is responsible for managing EPAM's technology infrastructure, including hardware, software, and networking systems. It includes IT professionals who work to ensure that EPAM's technology is up-to-date, secure, and reliable.
3. Design Department: This department is responsible for creating visual designs and user interfaces for EPAM's software solutions. It includes graphic designers, UX/UI designers, and other creative professionals who work to ensure that EPAM's software is aesthetically pleasing and easy to use.
4. Consulting Department: This department is responsible for providing strategic consulting services to EPAM's clients. It includes consultants who work to understand client business objectives and provide guidance on how to achieve them through technology solutions.
5. Quality Assurance Department: This department is responsible for ensuring that EPAM's software solutions meet the highest standards of quality and performance. It includes QA engineers who test software to identify defects and ensure that it meets client requirements and industry standards.
6. Data Science Department: This department is responsible for analyzing and interpreting data to inform business decisions and drive innovation. It includes data scientists and analysts who work to extract insights from data and develop predictive models to support business operations.
7. Training and Development: This department is responsible for creating and implementing training programs to help EPAM employees develop their skills and advance in their careers. It includes trainers, instructional designers, and other professionals who work to ensure that EPAM employees are equipped with the knowledge and skills they need to succeed.
8. Project Management Office (PMO): This department is responsible for overseeing the management of all client projects at EPAM. It includes project managers, program managers, and other professionals who work to ensure that projects are delivered on time, within budget, and to the satisfaction of clients.
9. Cybersecurity: This department is responsible for managing EPAM's cybersecurity operations, including threat detection, incident response, and compliance with industry regulations. It includes cybersecurity professionals who work to ensure that EPAM's technology systems are secure and protected from cyber threats.

INTRODUCTION TO PROJECT

Throughout the period of the internship, we learned a lot of skills. Every skill that we learned or gained have different scopes and each skill plays a vital role in our lives. The scope of some skills that we learned are:

- Problem Solving
- Team Work
- Time Management Skills
- Co-Ordination With Team
- Communication Skills
- Technical Skills
- Interpersonal Skills

Training Undertaken:

AUTOMATION TESTING:

Automation testing is a process of using software tools to execute test cases and compare the actual results with the expected results. It involves writing test scripts or using record-and-playback tools to automate the repetitive and time-consuming tasks involved in software testing. Automation testing can be used for various types of software testing, such as unit testing, integration testing, functional testing, performance testing, and regression testing. Some of the benefits of automation testing include:

Objectives Of the Work Undertaken:

1. **Faster and More Efficient Testing:** Automation testing can help to speed up the testing process by executing tests much faster than manual testing. It can also reduce the effort required for repetitive tests, allowing testers to focus on more complex testing scenarios.
 2. **Improved Test Coverage:** Automation testing can help to improve test coverage by executing many tests in a short period of time. This can help to identify defects that may have been missed in manual testing.
 3. **Increased Accuracy:** Automation testing can reduce the risk of human error, which can be a major source of defects in manual testing.
 4. **Reusability of Test Scripts:** Automation test scripts can be reused multiple times, which can help to save time and effort in future testing cycles.
 5. **Cost Savings:** Although automation testing may require an initial investment in software tools and infrastructure, it can help to save costs in the long run by reducing the need for manual testing and improving the quality of the software.
- Overall, automation testing can be a powerful tool for improving the efficiency, accuracy, and effectiveness of software testing.

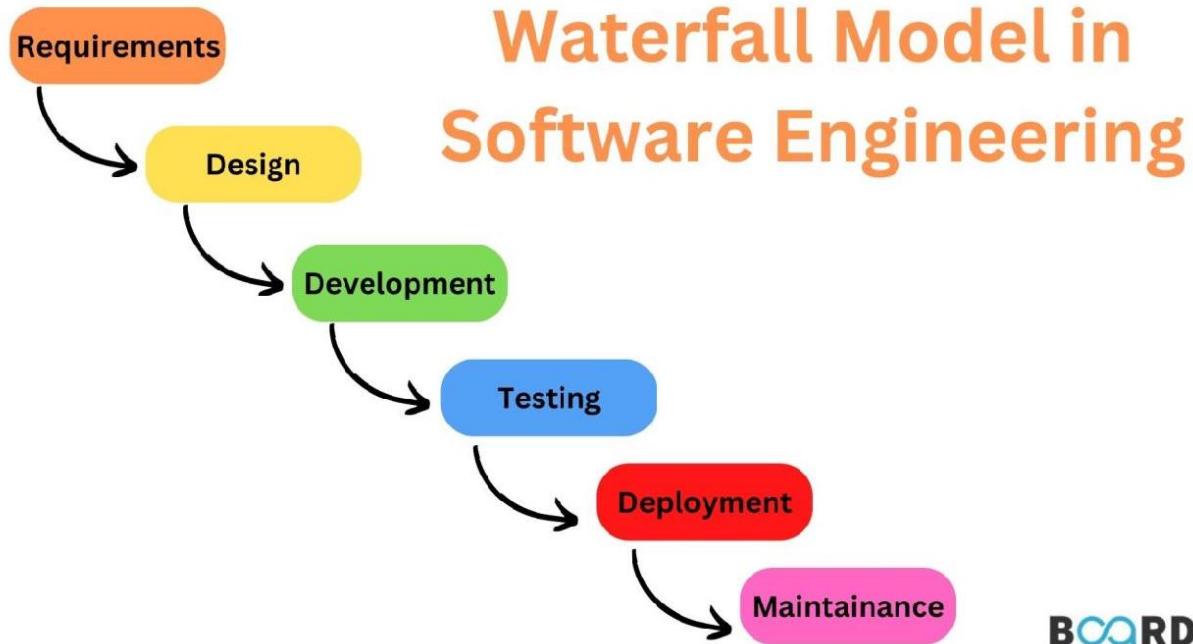
TECHNOLOGIES LEARNT DURING INTERNSHIP

Software Development Methodologies

Software development methodologies are systematic approaches to developing software products. These approaches aim to improve the quality and efficiency of the software development process. Some popular software development methodologies are:

Waterfall Model: This is a linear approach where development flows sequentially from one phase to another, like a waterfall. This methodology is useful for small and simple projects with well-defined requirements.

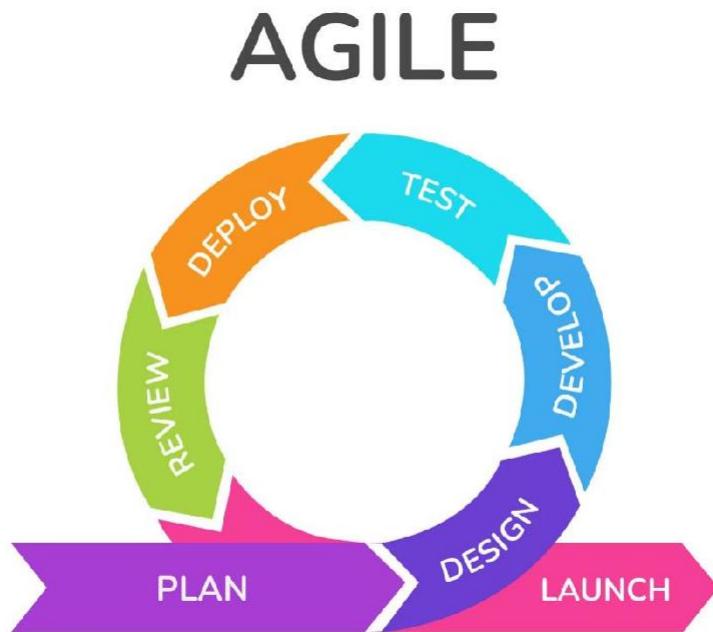
It consists of distinct phases, including requirements gathering, design, implementation, testing, and maintenance, with each phase being completed before moving on to the next one.



Agile Model: This approach encourages flexible and iterative development with frequent testing and customer feedback. Agile is useful for larger and more complex projects, where requirements evolve over time.

Agile methodology involves breaking down the development/testing process into smaller segments called sprints, which typically last one to four weeks.

These sprints aim to deliver working software that meets the customer's needs and can be tested and improved upon in subsequent sprints.



Scrum: This is an Agile framework. Scrum teams work in sprints, typically of two to four weeks, and aim to deliver a working product increment after each sprint. Scrum emphasizes collaborative teamwork, continuous improvement and customer satisfaction.

Kanban: This is another Agile methodology that focuses on continuous delivery. Kanban teams use visual boards to manage work in progress and limit team workloads. Kanban is useful for optimizing workflow and minimizing delays.

Behavior-driven development (BDD): is an Agile software development methodology in which an application is documented and designed around the behavior a user expects to experience when interacting with it.

Version Control with GIT:

Git is a free and open-source version control system that is widely used for software development projects. It is designed to allow developers to efficiently and easily manage changes to their code and collaborate with other members of their team.

Git uses a distributed model, which means that instead of having a central repository that everyone works from, every user has a complete copy of the repository on their local machine. This allows them to work independently of other users and makes it easy to merge changes when necessary. Git also provides tools for branching, merging, and resolving conflicts, which are crucial for managing complex projects with multiple developers.

Overall, Git is an essential tool for modern software development, as it allows teams of developers to work efficiently, collaborate effectively, and maintain control over their code.

To push files from local to remote repo:-

```
git init  
git add README.md  
git commit -m "first commit"  
git branch -M main  
git remote add origin https://github.com/Neerajkumargnk/GM.git  
git push -u origin main
```

And some other commands we used are:-

```
git reset  
git status  
git rm  
git log,  
git show  
git tag  
git branch  
git checkout,  
git merge,  
git remote,  
git push  
git pull  
git stash
```

Version control concept: Understanding the basics of version control, its benefits, and its various types.

Download, install and configure GIT: Installing GIT on your local machine and configuring it with your user details and preferences.

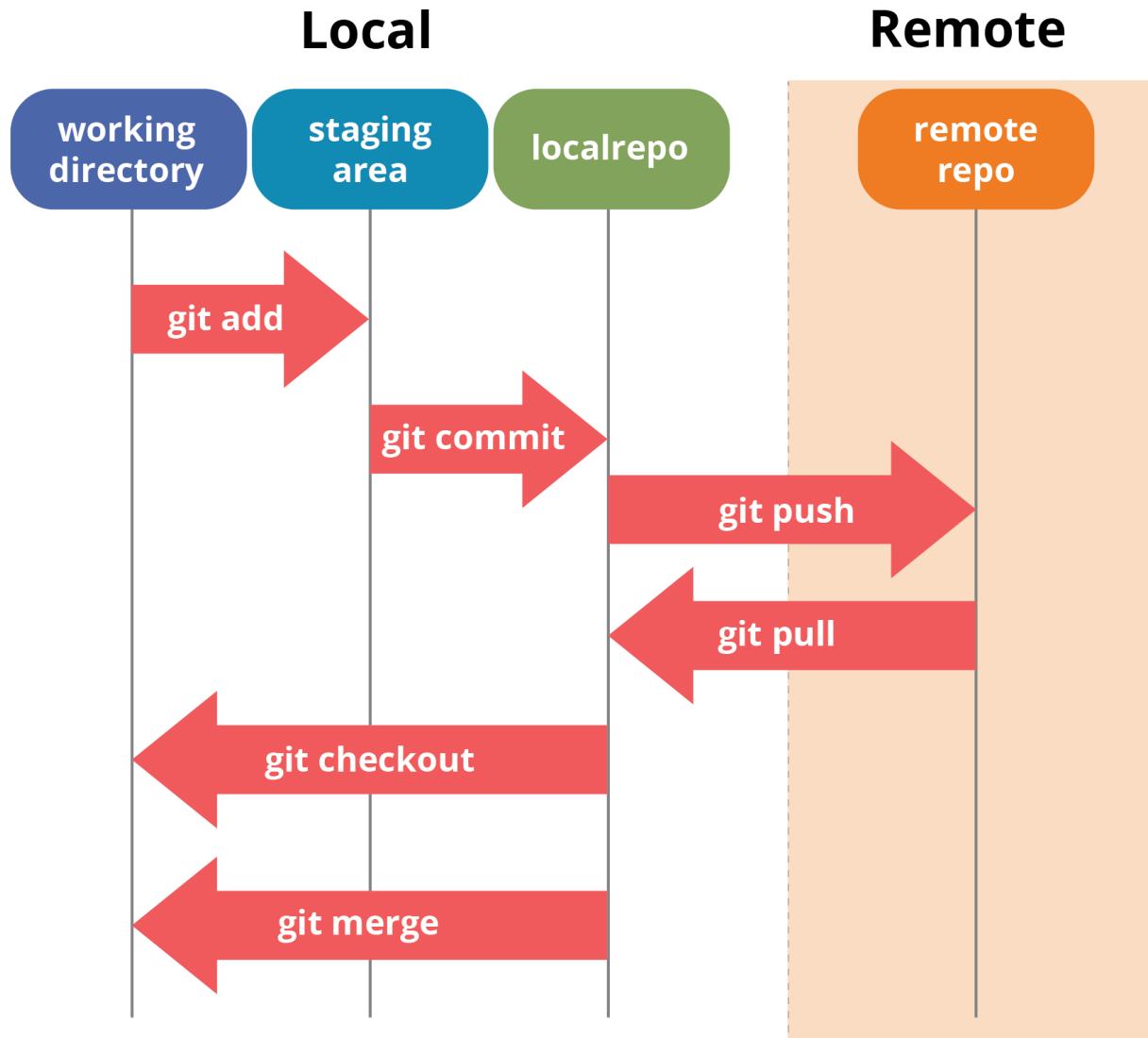
GitHub: Introduction to GitHub, a web-based hosting service for version control, and its features such as repositories, issues, and pull requests.

Git graphical tools: Overview of graphical user interfaces (GUI) and Integrated Development Environments (IDEs) that can be used to work with Git.

Git internals: Understanding the inner workings of Git, including how Git stores and manages versions of files, branches, commits, and merges.

Undoing changes: How to undo changes made to files or the repository using Git commands such as revert, reset, and checkout.

Branching and merge: Creating and managing branches in Git, and merging changes from one branch to another



Software Testing Life Cycle (STLC)

The procedure of software testing is also known as STLC (Software Testing Life Cycle) which includes phases of the testing process. The testing process is executed in a well-planned and systematic manner. All activities are done to improve the quality of the software product.

Requirement Analysis: In this phase, the testing team reviews the requirements of the software to identify the scope of the testing and to understand the user's expectations.

Test Planning: In this phase, the testing team develops a detailed test plan based on the requirements analysis. The test plan defines the testing approach, the test environment, the test scenarios, and the test cases.

Test Design: In this phase, the testing team creates test cases based on the test plan. The test cases are designed to validate the software's functionality, usability, and performance.

Test Execution: In this phase, the testing team executes the test cases in the test environment. The test results are recorded and analyzed.

Defect Tracking: In this phase, the testing team tracks and manages the defects identified during the testing process. The defects are reported to the development team for correction.

Test Reporting: In this phase, the testing team prepares a test report that includes the testing process, the test results, and the defects found during testing. The report is used to provide feedback to the development team and stakeholders.

Test Closure: In this phase, the testing team evaluates the testing process and documents the lessons learned. The testing team also provides recommendations for future testing projects. The STLC helps to ensure that the software meets the user's expectations and that it is reliable and error-free. By following the STLC, testing teams can improve the quality of the software and reduce the risk of defects and failures.

The scope of automation testing work can vary depending on the specific project and the needs of the organization. However, some common areas of scope for automation testing work are:

- 1. Test planning and design:** Automation testing work can include the planning and design of test cases, test suites, and test scenarios that will be automated.
- 2. Test automation tool selection:** The automation testing work can involve selecting the appropriate automation tool(s) for the specific project, considering factors such as cost, features, ease of use, and compatibility with the application under test.
- 3. Test script development:** The automation testing work can involve developing and scripting automated test cases using the selected automation tool(s).
- 4. Test script maintenance:** The automation testing work can involve maintaining the

automated test scripts, including updating them as needed to accommodate changes in the application under test.

5. Test execution and reporting: The automation testing work can involve executing the automated test scripts, monitoring the results, and generating test reports that provide insight into the quality of the application under test.

6. Integration with other testing activities: The automation testing work can be integrated with other testing activities, such as manual testing, performance testing, and security testing, to provide a comprehensive testing approach.

Role and Profile:

I have been working in this project as a Automation Tester Intern.

Introduction to the Core Java:-

Data Types:-

Primitive data types:

The primitive data types include boolean, char, byte, short, int, long, float and double.

Non-primitive data types:

The non-primitive data types include Classes, Interfaces, and Arrays.

Conditions and Loops:-

Decision Making statements:-

If, else statements and switch statement

Loop statements:-

do while loop while loop for loop for-each loop

Jump statements:- break and continue statements

Arrays:-

Normally, an array is a collection of similar type of elements which has contiguous memory location. Java array is an object which contains elements of a similar data type.

Additionally, The elements of an array are stored in a contiguous memory location. It is a data structure where we store similar elements. We can store only a fixed set of elements in a Java array. Array in Java is index-based, the first element of the array is stored at the 0th index, 2nd element is stored on 1st index and so on.

Introduction to OOP:-

OOPs (Object-Oriented Programming System)

Object means a real-world entity such as a pen, chair, table, computer, watch, etc.

Object-Oriented Programming is a methodology or paradigm to design a program using classes and objects. It simplifies software development and maintenance by providing some concepts:

Object Class
Inheritance
Polymorphism
Abstraction
Encapsulation

Strings:-

In Java, string is basically an object that represents sequence of char values. An array of characters works same as Java string.

For example:

```
char[] ch={'j','a','v','a','t','p','o','i','n','t'};  
String s=new String(ch);  
Is same as :- String s="javatpoint";
```

Java String class provides a lot of methods to perform operations on strings such as compare(), concat(), equals(), split(), length(), replace(), compareTo(), intern(), substring() etc.

Exceptions:-

The Exception Handling in Java is one of the powerful mechanism to handle the runtime errors so that the normal flow of the application can be maintained.

TECHNOLOGIES LEARNT

Selenium:

It is an automation tester using Selenium, there are several technologies that you can use to generate reports on your test results. Some of these technologies include:

Selenium is a popular open-source tool for automating web browsers, which is commonly used for testing web applications. It provides a framework for writing automated tests in a variety of programming languages, such as Java, Python, Ruby, and C#, among others.

When it comes to reporting in Selenium, there are several ways to generate reports to track and analyse test results. Here are some of the most popular methods:

TestNG:

TestNG is a testing framework for the Java programming language that is designed to make it easy to write and run tests. It provides a number of features, such as test configuration, test grouping, test dependencies, and parallel execution, that make it a popular choice for developers and testers.

TestNG stands for "Test Next Generation" and was created as an alternative to the JUnit testing framework. TestNG has a more flexible and powerful test configuration system, which allows you to configure tests in XML files or through annotations in your Java code.

Jenkins:

Jenkins is an open-source automation server that helps to automate various tasks related to building, testing, and deploying software applications. It is a popular tool for continuous integration and continuous delivery (CI/CD) pipelines.

Jenkins can be used to build and test software projects continuously, allowing developers to catch and fix bugs quickly. It can also automate the deployment process, allowing teams to release software updates more frequently and with greater confidence.

Report NG:

Report NG is a reporting plugin for the TestNG testing framework in Java. It generates HTML reports for TestNG tests, providing detailed information about the tests that have been executed, including the pass/fail status of each test, the time taken to execute each test, and any associated log files.

Report NG provides an easy-to-read and attractive report format that includes a summary of test results, detailed information about each test method, and charts and graphs to help visualize the results. It can also be configured to include custom information and formatting, such as logos or custom CSS styles.

Maven:

Maven is a build automation tool primarily used for Java projects. It provides a framework for managing project dependencies, building and packaging software, and generating project documentation. Maven uses a Project Object Model (POM) file to describe a project's configuration, including its dependencies, build process, and project structure.

Maven simplifies the build process by providing a standardized way to manage project dependencies and build targets. It can download and manage project dependencies from various sources, including remote repositories, local repositories, and other Maven projects. Maven also provides a standard directory structure for Java projects, making it easy to create and maintain consistent project layouts.

Test Rail:

TestRail is a web-based test management tool used by software development teams to manage and organize software testing efforts. It provides a centralized platform for creating,

organizing, and executing test cases, as well as tracking testing progress and generating reports.

TestRail supports a wide range of test case formats, including manual, exploratory, and automated tests. It also allows teams to organize their tests into test suites and test runs, making it easier to manage large testing efforts. Additionally, TestRail provides integrations with popular automation frameworks like Selenium and JUnit, making it easy to track automated test results.

TestRail's reporting features allow teams to generate real-time reports on testing progress, including test case status, test run progress, and overall project status. This can help teams identify bottlenecks and areas of the project that require more attention.

Jira Software:

Jira software is a popular project management tool used by software development teams to plan, track, and manage their projects.

It provides teams with features such as issue tracking, agile project management, and customizable workflows to streamline their development processes.

Jira software allows for collaboration between team members, enabling them to work together on tasks and share information easily.

It also provides teams with detailed reports and analytics that allow them to evaluate progress and identify areas for improvement.

Additionally, Jira software integrates with other tools, such as Slack and GitHub, making it even more valuable to development teams.

Overall, Jira software is an essential tool for any software development team looking to streamline their workflow, improve collaboration, and drive results.

Selenium Web driver:

Selenium WebDriver is a popular open-source tool used for automating web browsers. It provides a programming interface to control and interact with web pages using a wide range of programming languages such as Java, Python, C#, Ruby, and more.

Selenium WebDriver allows developers to simulate user interactions with a web page, such as clicking buttons, entering text, selecting options, and more. This makes it useful for automating repetitive testing tasks, such as functional testing, regression testing, and integration testing. It can also be used for web scraping and web application monitoring.

Selenium WebDriver works by sending commands to a web browser's native driver, such as Chrome Driver, Edge Driver, or Safari Driver, which then executes those commands on the web page. This allows WebDriver to interact with web pages just as a user would, making it a powerful tool for testing and automation.

Advantages of Selenium WebDriver:

1. Cross-browser testing: Selenium WebDriver supports cross-browser testing, which makes it easy to test web applications on different browsers.
2. Multiple programming languages: Selenium WebDriver supports multiple programming languages, which makes it easy to write test scripts in the language of your choice.
3. Powerful APIs: Selenium WebDriver provides a powerful set of APIs that can be used to interact with web elements.
4. Suitable for complex testing: Selenium WebDriver is suitable for complex testing scenarios.

Disadvantages of Selenium Web Driver:

While Selenium WebDriver is a powerful and widely used tool for automating web browser interactions, there are some potential disadvantages to consider,

1. Browser compatibility issues: Since WebDriver relies on browser-specific drivers to interact with web pages, it may encounter compatibility issues with certain browser versions or configurations. This can cause issues with test automation, as tests may pass on some browsers but fail on others.
2. Maintenance overhead: As web applications change and evolve over time, WebDriver scripts may need to be updated to keep up with these changes. This can require significant time and effort to maintain a large test suite, especially if the web application undergoes frequent changes.
3. Lack of support for non-web interfaces: While WebDriver is great for testing web applications, it doesn't provide support for other types of interfaces, such as desktop applications or mobile apps. This can limit its usefulness in certain contexts where multiple types of interfaces need to be tested.

WE ALSO LEARNT ABOUT API TESTING AND DIFFERENT API TESTING TOOLS:

API Testing:

API testing refers to the process of testing the application programming interfaces (APIs) that are used to communicate between different software systems.

API testing involves testing the inputs and outputs of the API, as well as the functionality, reliability, and performance of the API. This can be done using various tools and frameworks such as Postman, Swagger, SoapUI, and JMeter.

The main objective of API testing is to ensure that the API functions as expected and that it can handle all types of requests and responses. It is also important to test the API's security and authentication mechanisms to ensure that sensitive data is protected.

API testing can be performed manually or through automated testing. Automated testing is often preferred as it can save time and reduce the risk of human error. However, manual testing may be necessary for certain types of testing such as exploratory testing.

Overall, API testing is a critical component of software testing and helps to ensure that software systems are functioning as intended and that they can communicate with other systems effectively.

DIFFERENT TYPES OF API TESTING:

There are several types of API testing that can be performed depending on the specific requirements of the API and the testing objectives. Here are some of the most common types of API testing:

- **Functional testing:** This type of testing is focused on ensuring that the API functions as expected and meets the specified requirements. Functional testing involves testing the inputs and outputs of the API, as well as testing the functionality of each API endpoint.
- **Performance testing:** Performance testing is used to determine how well the API performs under different load conditions. This type of testing involves measuring the response time of the API, the throughput, and the resource utilization.
- **Security testing:** Security testing is focused on identifying vulnerabilities in the API's security mechanisms, such as authentication and authorization. This type of testing involves testing for common security issues such as SQL injection, cross-site scripting (XSS), and cross-site request forgery (CSRF).
- **Integration testing:** Integration testing is used to ensure that the API can communicate with other systems and services as expected. This type of testing involves testing the API's ability to handle different types of requests and responses, and to integrate with different types of systems and services.

- **Usability testing:** Usability testing is focused on ensuring that the API is user-friendly and easy to use. This type of testing involves testing the API's documentation, error messages, and user interface.
- **Regression testing:** Regression testing is used to ensure that changes to the API do not break existing functionality. This type of testing involves testing the API after each change or update to ensure that all existing functionality is still working as expected.

these types of API testing are designed to ensure that the API is reliable, secure, and performs as expected under various conditions.

Postman:

Postman is a popular API development and testing tool that allows developers to design, test, and debug APIs quickly and easily. It provides a user-friendly interface for making HTTP requests, sending JSON/XML payloads, and testing response data. Postman can be used for both manual and automated API testing and supports a variety of testing techniques such as functional testing, integration testing, and performance testing.

We can perform operations using postman:

- GET
- POST
- PUT
- PATCH
- DELETE

BENEFITS OF POSTMAN:

Postman offers several benefits to developers and testers working with APIs. Some of the key benefits of Postman are:

1. Improved productivity: Postman's user-friendly interface and intuitive features make it easy to create, test, and manage API requests, reducing the time and effort required to perform API testing.
2. Consistency: Postman's ability to save and organize collections of requests ensures that API tests are consistent and can be easily repeated.
3. Automation: Postman's collection runner and Newman CLI enable automation of API testing, allowing developers to save time and reduce the risk of errors.
4. Collaboration: Postman's ability to share collections and test results allows teams to work together more effectively and share knowledge and resources.

5. Debugging: Postman's built-in console and logging features help developers to debug API requests and responses more easily, reducing the time and effort required to identify and fix errors.
6. Mock servers: Postman's mock server feature allows developers to simulate APIs that are still under development, enabling testing and development of other applications that depend on the API.
7. Integration: Postman can be integrated with other tools and services, such as continuous integration (CI) tools, making it easier to incorporate API testing into a broader software development process.
8. Environments: Postman allows you to set up multiple environments for your APIs, making it easy to test and switch between different environments such as development, staging, and production.
9. Security: Postman provides security features such as OAuth 2.0 authentication, SSL certificate verification, and request signing, ensuring that your API is secure and protected from unauthorized access.
10. Performance: Postman allows you to test API performance by measuring response times, request rates, and other metrics, helping you optimize your API for maximum performance.

Overall, Postman offers numerous benefits that can help developers and testers work more efficiently, collaborate more effectively, and ensure the quality and reliability of APIs.

TYPES OF MANUAL TESTING

- Black Box Testing
- White Box Testing
- Grey Box Testing

Black Box Testing

Black box testing is a testing technique used in software development and quality assurance. In black box testing, the tester does not have any knowledge of the internal workings of the system being tested. Instead, the tester only interacts with the system through its user interface or API and tests the system's functionality based on the input and output.

The main benefits of black box testing are:

1. Objectivity: Since the tester is not aware of the internal workings of the system, black box testing allows for an objective evaluation of the system's functionality.

2. Focus on user perspective: Black box testing helps ensure that the system is tested from the user's perspective, ensuring that the system meets the user's requirements.
3. Increased coverage: Black box testing allows for a comprehensive testing approach, covering all possible input combinations and scenarios, ensuring that the system functions as expected.
4. Independent testing: Black box testing can be done by testers who do not have programming knowledge, making it easier for non-technical testers to perform testing.
5. Better quality: Black box testing helps uncover defects that may not be detected by other testing techniques, improving the overall quality of the system.

White Box Testing

White box testing is a testing technique used in software development and quality assurance. In white box testing, the tester has knowledge of the internal workings of the system being tested, including the code, architecture, and design.

The main benefits of white box testing are:

1. Thoroughness: White box testing allows for a thorough evaluation of the system's functionality, ensuring that all parts of the system are tested.
2. Early detection of defects: White box testing can uncover defects in the early stages of development, allowing for quicker resolution and reducing the cost of fixing defects later.
3. Improved code quality: White box testing can identify areas of the code that need improvement, resulting in better code quality and fewer defects.
4. Security: White box testing can help identify vulnerabilities in the system's security, allowing for timely resolution of security issues.
5. Performance: White box testing can help identify performance bottlenecks in the system, allowing for optimization and improvement of the system's performance.

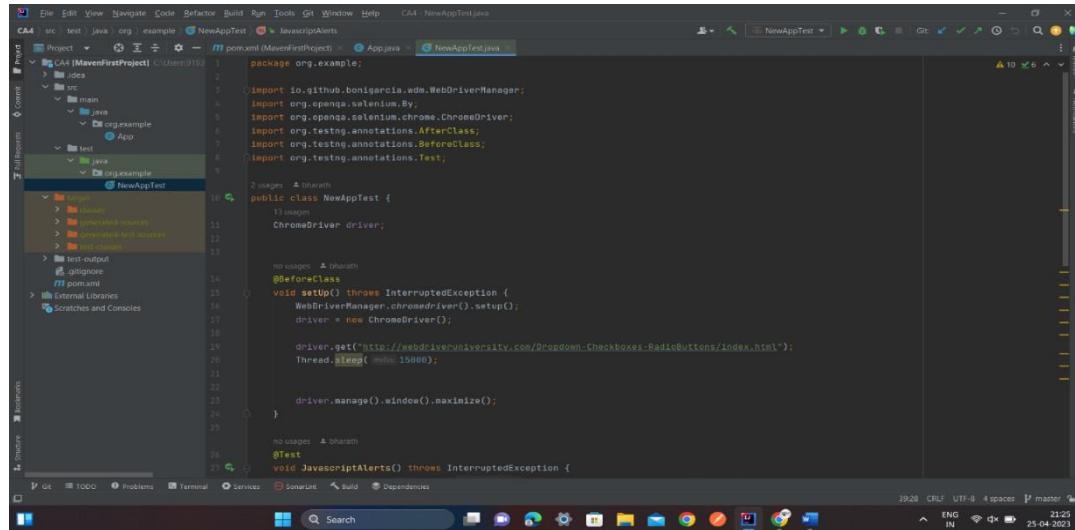
Grey Box Testing

Grey box testing is a testing technique that combines elements of both black box testing and white box testing. In grey box testing, the tester has partial knowledge of the internal workings of the system being tested, such as the code or architecture, but not complete knowledge.

The main benefits of grey box testing are:

1. Efficient testing: Grey box testing is more efficient than white box testing as it focuses only on the critical parts of the system that need testing, based on the partial knowledge of the system.
2. Objectivity: Grey box testing allows for an objective evaluation of the system's functionality, similar to black box testing, while also benefiting from some level of knowledge of the system's internal workings.
3. Early detection of defects: Grey box testing can uncover defects in the early stages of development, similar to white box testing, allowing for quicker resolution and reducing the cost of fixing defects later.
4. Better code coverage: Grey box testing provides better code coverage than black box testing, as the tester has partial knowledge of the system's internal workings.
5. Improved testing quality: Grey box testing can improve the quality of the testing by providing more accurate inputs and outputs and uncovering defects that may not be detected by black box testing alone.
6. Improved testing accuracy: Grey box testing can improve the accuracy of testing by allowing the tester to design test cases that consider the internal logic of the system being tested.
7. Better identification of defects: Grey box testing can help identify defects that may be missed by black box testing, such as defects related to data structures or algorithms.
8. More efficient debugging: Grey box testing can make debugging more efficient by providing more information about the internal workings of the system, enabling the tester to isolate the source of defects more quickly.

WE ALSO HAVE DONE SOME ASSIGNMENTS DURING TRAINING PERIOD:



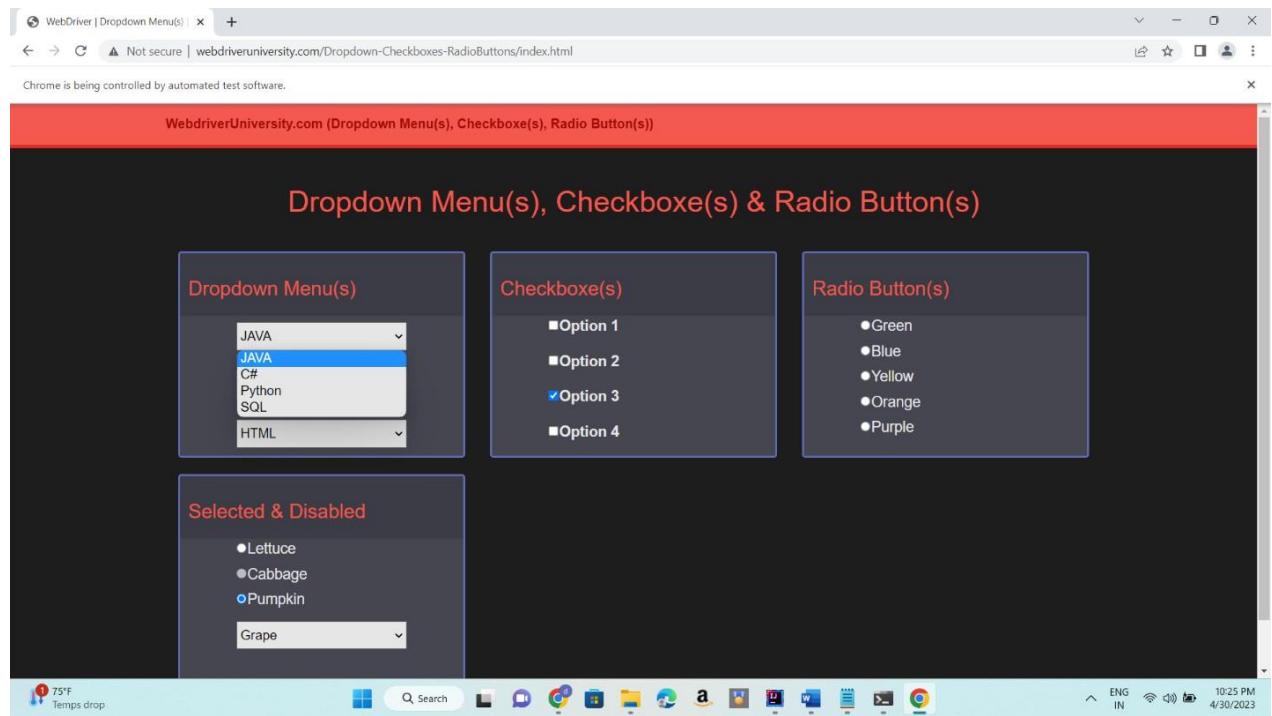
The screenshot shows the C44 IDE interface with the following details:

- Project Structure:** MavenFirstProject > src > main > org.example > App > test > org.example > NewAppTest.
- Code Editor:** The file NewAppTest.java is open, displaying Java code for Selenium WebDriver automation. The code includes imports for WebDriverManager, WebDriver, ChromeDriver, and various annotations like @Test, @BeforeClass, and @AfterClass.
- Code Content:**

```

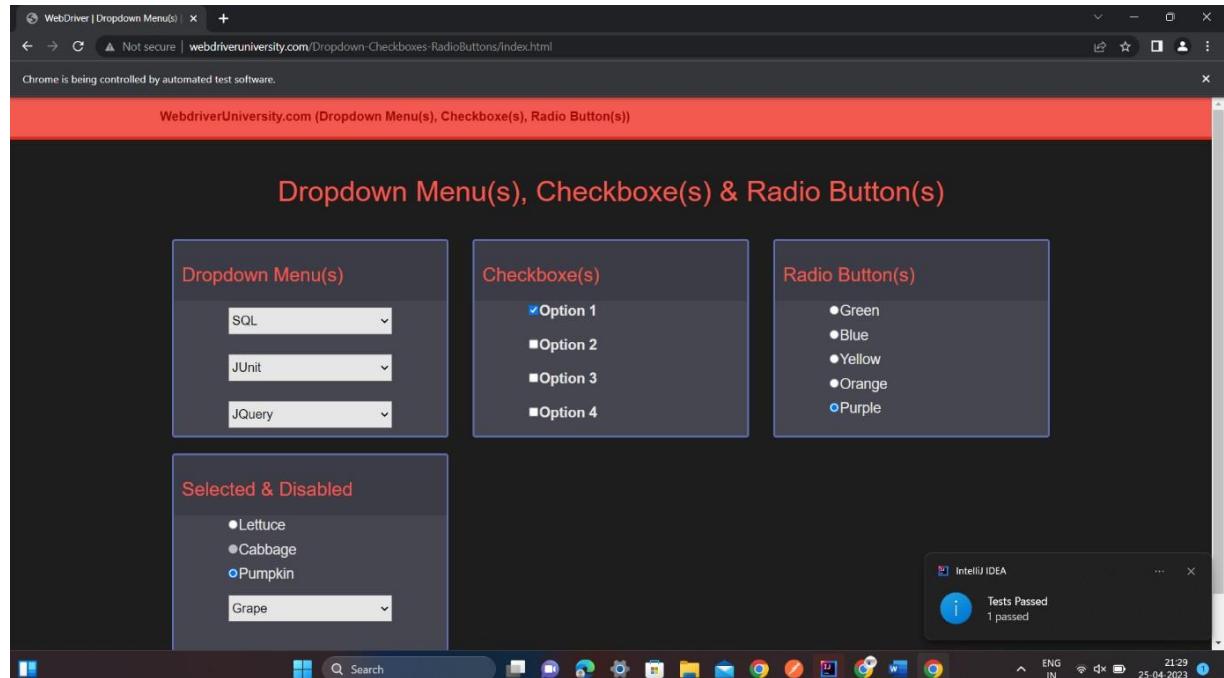
1 package org.example;
2
3 import io.github.bonigarcia.wdm.WebDriverManager;
4 import org.openqa.selenium.By;
5 import org.openqa.selenium.chrome.ChromeDriver;
6 import org.testng.annotations.AfterClass;
7 import org.testng.annotations.BeforeClass;
8 import org.testng.annotations.Test;
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11 import static org.junit.Assert.*;
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14 @Test
15 void setup() throws InterruptedException {
16     WebDriverManager.chromedriver().setup();
17     driver = new ChromeDriver();
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19     driver.get("http://webdriveruniversity.com/Dropdown-Checkboxes-RadioButtons/index.html");
20     Thread.sleep( min: 15000 );
21
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23     driver.manage().window().maximize();
24 }
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28 @Test
29 void JavascriptAlerts() throws InterruptedException {
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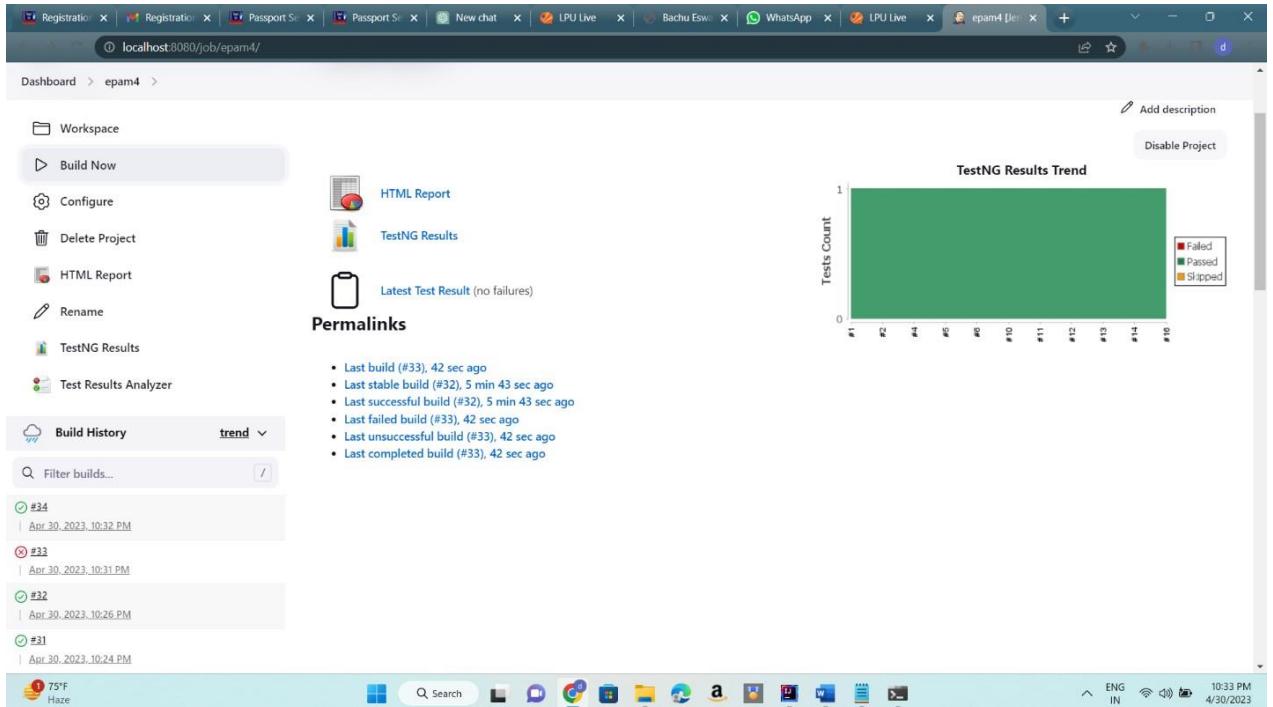
(Fig-3)

In fig3 we can see the automatically testing the website.



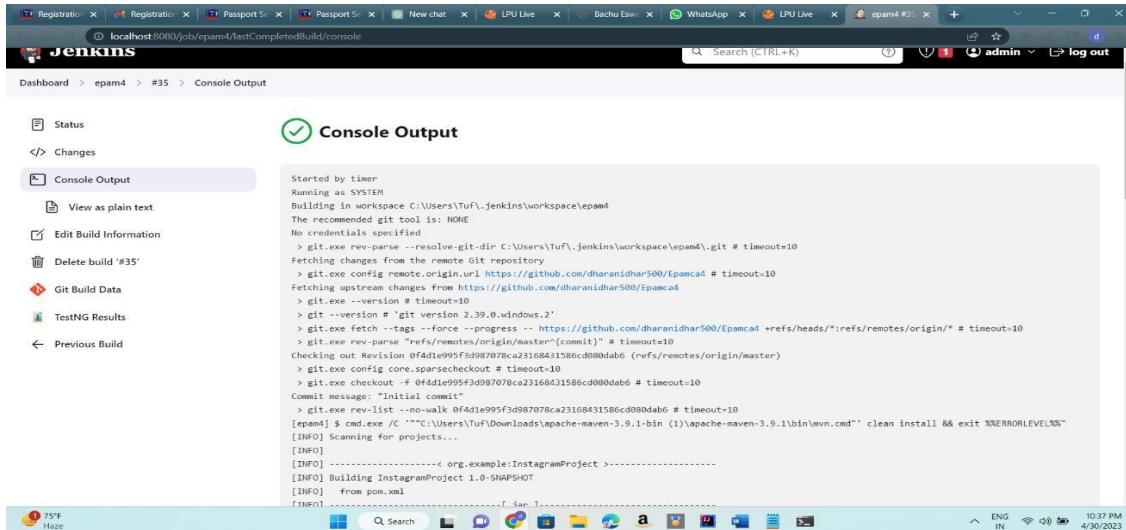
(Fig-4)

In fig4 we can see the output after automation testing.



(Fig-5)

In fig5 we can see the automation testing done through the Jenkins automation software tool.



(Fig-6)

In fig6 we can see the output in jenkins software for <http://webdriveruniversity.com/Dropdown-Checkboxes-RadioButtons/index.html> website

CHAPTER2

INTRODUCTION TO PROJECT

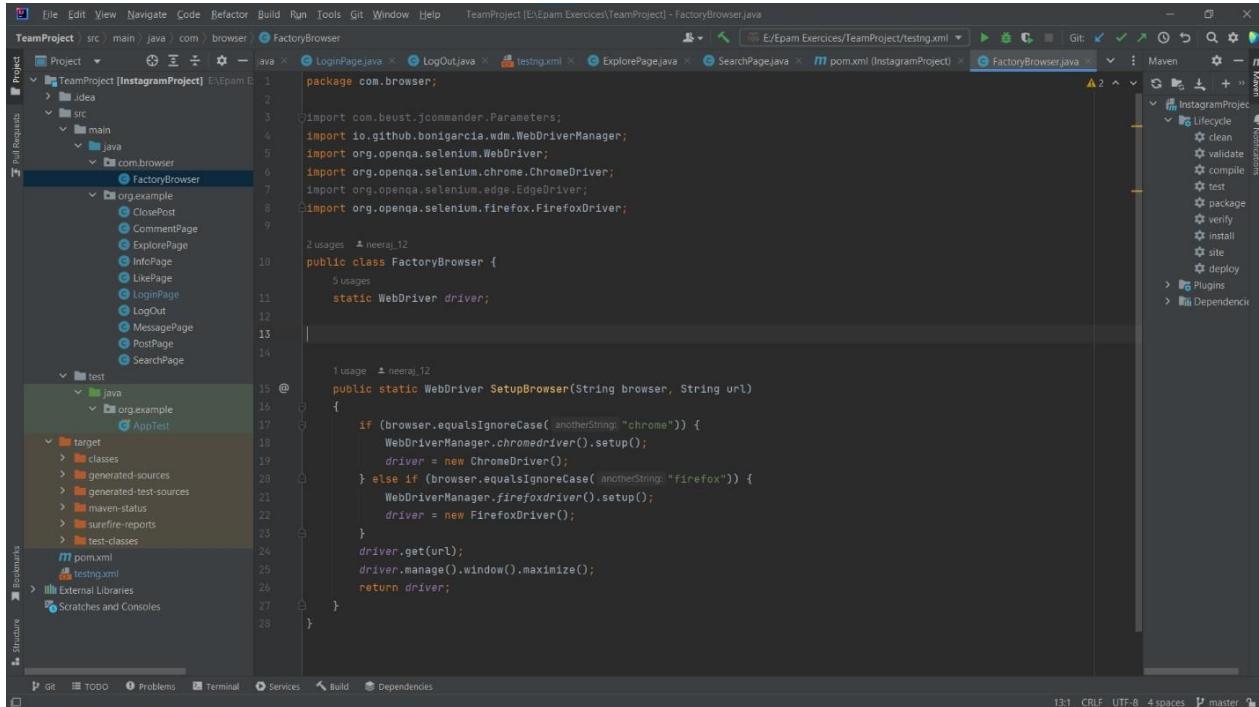
About Projects we have Done during the Internship

We have done two projects.

1. Group project
2. Individual project

1. Group Project

Testing the user interface (UI) of **Instagram** using **automation testing** involves creating automated test scripts that simulate user actions and interactions with the Instagram application. This can be done using Selenium WebDriver and Java.



```
package com.browser;

import com.beust.jcommander.Parameters;
import io.github.bonigarcia.wdm.WebDriverManager;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.chrome.ChromeDriver;
import org.openqa.selenium.edge.EdgeDriver;
import org.openqa.selenium.firefox.FirefoxDriver;

public class FactoryBrowser {

    static WebDriver driver;

    public static WebDriver SetupBrowser(String browser, String url) {
        if (browser.equalsIgnoreCase("chrome")) {
            WebDriverManager.chromedriver().setup();
            driver = new ChromeDriver();
        } else if (browser.equalsIgnoreCase("firefox")) {
            WebDriverManager.firefoxdriver().setup();
            driver = new FirefoxDriver();
        }
        driver.get(url);
        driver.manage().window().maximize();
        return driver;
    }
}
```

Some examples of UI tests that we performed using automation testing on Instagram include:

Screenshot of the IntelliJ IDEA IDE showing the code editor, project structure, and browser preview.

Code Editor:

```

TeamProject src main java org example SearchPage.java
17
18     @FindBy(className = "aavy")
19     WebElement content;
20
21     @FindBy(partialLinkText = "lpuuniversity")
22     WebElement clickonContent;
23
24     @FindBy(xpath = "//div[@class='acls_aaco_aacw_aadd_aade']")
25     WebElement follow;
26
27     no usages ▾ neeraj_12
28     public SearchPage(WebDriver driver) { this.driver = driver; }
29
30     usage ▾ neeraj_12
31     public void SearchContent() throws InterruptedException {
32         home.click();
33         Thread.sleep( millis: 3000 );
34         search.click();
35         Thread.sleep( millis: 3000 );
36         content.sendKeys( _keyToSend: "lpu" );
37         Thread.sleep( millis: 3000 );
38         clickonContent.click();
39         Thread.sleep( millis: 3000 );
40     }
41
42     usage ▾ neeraj_12
43     public void Follow() throws InterruptedException {
44         follow.click();
45         Thread.sleep( millis: 4000 );
46     }

```

Project Structure:

- TeamProject [InstagramProject] (E:\Epam Exercises\TeamProject)
- src
 - main
 - java
 - com.browser
 - FactoryBrowser
 - org.example
 - ClosePost
 - CommentPage
 - ExplorePage
 - InfoPage
 - LikedPage
 - LoginPage
 - Logout
 - MessagePage
 - PostPage
 - SearchPage
- test
 - java
 - org.example
 - AppTest

- target
- classes
- generated-sources
- generated-test-sources
- maven-status
- surefire-reports
- test-classes
- pom.xml
- testing.xml
- External Libraries
- Scratches and Consoles

Browsers:

Instagram - chrome://newtab/

Instagram.com

Chrome is being controlled by automated test software.

Mobile Device Preview:

Instagram Login Screen:

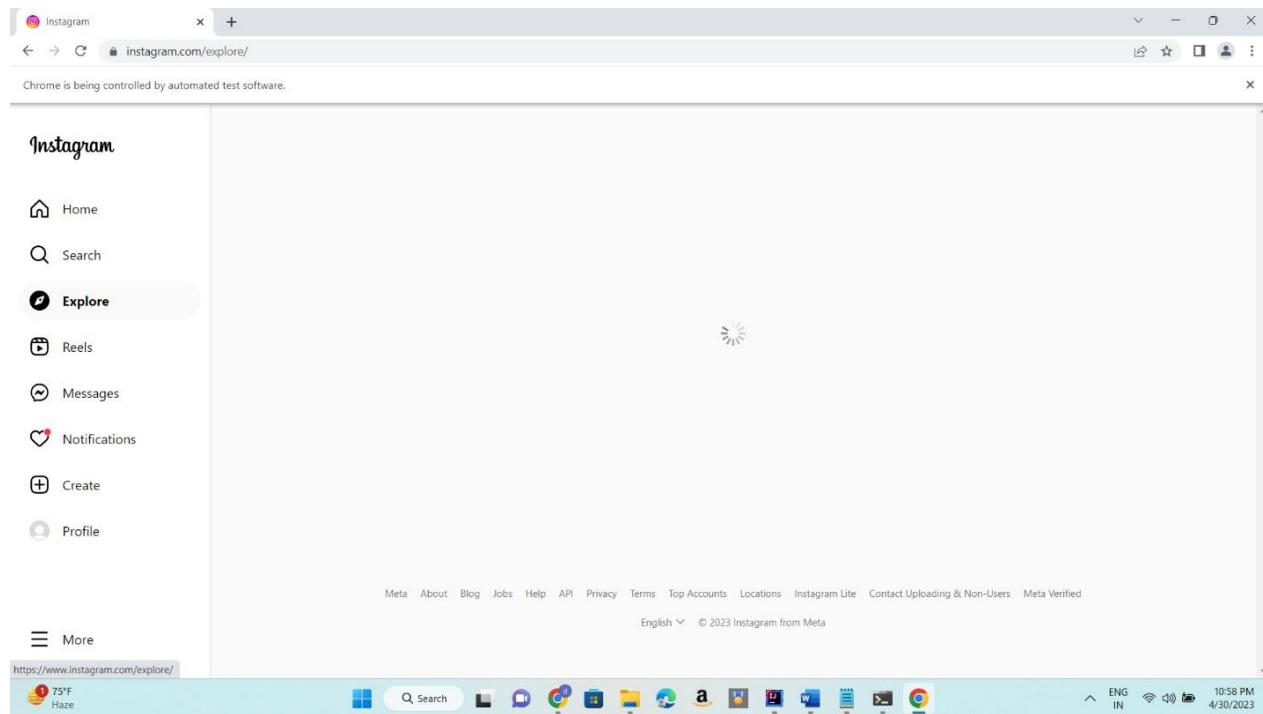
Bottom Navigation Bar:

Meta About Blog Jobs Help API Privacy Terms Top Accounts Locations Instagram Lite Contact Uploading & Non-Users Meta Verified

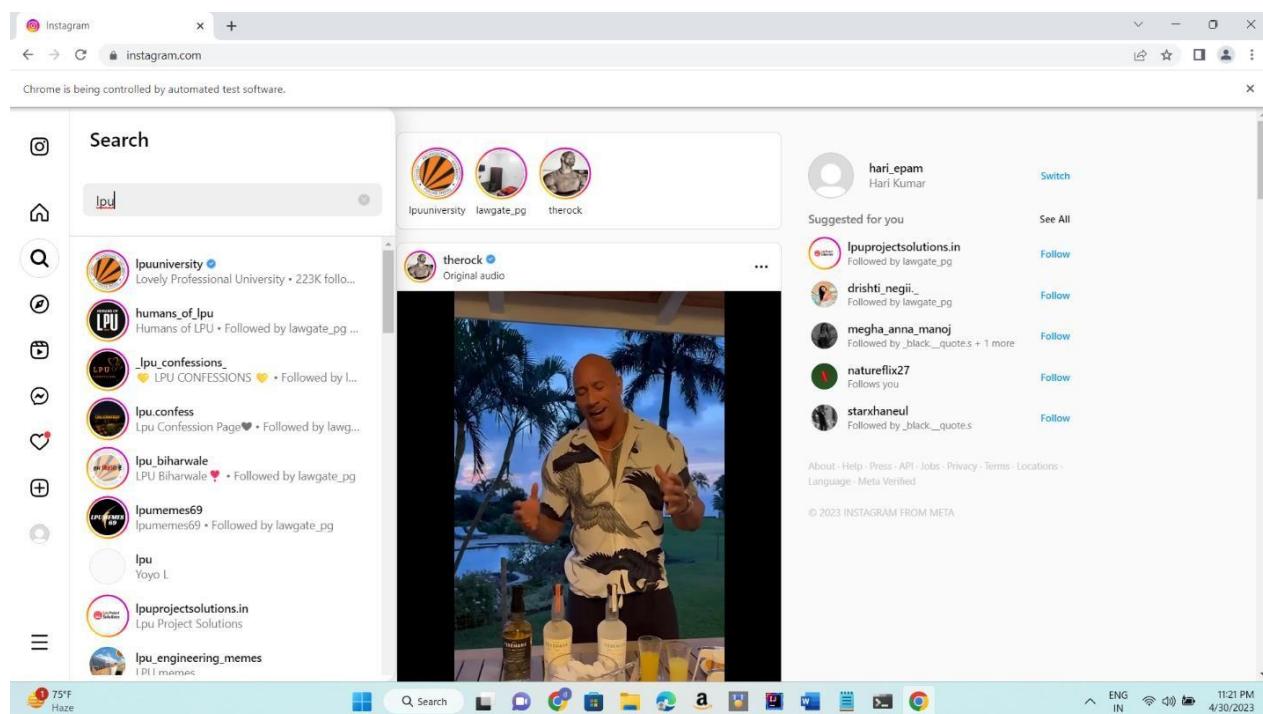
75°F Haze

ENG IN 10:54 PM 4/30/2023

UI Testing1:Login Testing : Verify that the user can login to Instagram using valid credentials.



UI Testing2:Explore Page Testing: Testing the explore page



UI Testing3:Testing the search option and sending the keys lpu and selecting lpu official page.

```

package org.example;

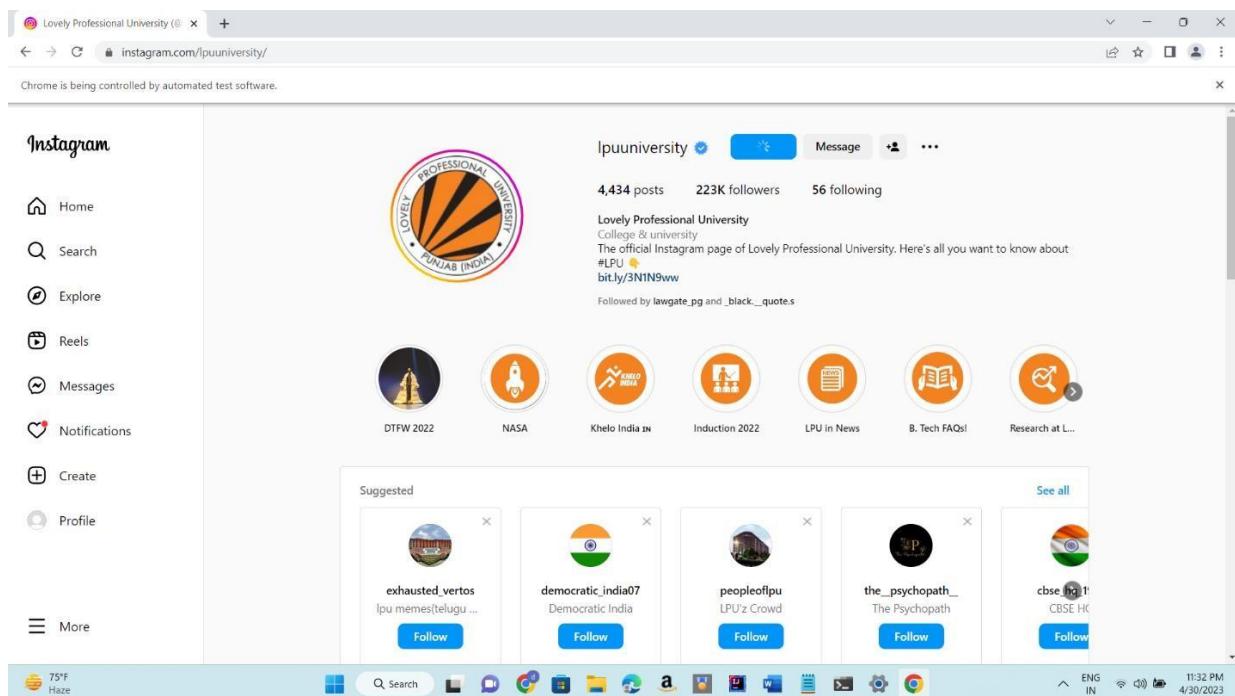
import org.openqa.selenium.By;
import org.openqa.selenium.WebDriver;
import org.openqa.selenium.WebElement;
import org.openqa.selenium.support.FindBy;
import org.openqa.selenium.support.ui.WebDriverWait;
import org.testng.Assert;
import org.testng.annotations.Test;

public class LoginPage {
    WebDriver driver;
    WebDriverWait uname;
    WebElement uname;
    WebElement pname;
    WebElement loginButton;

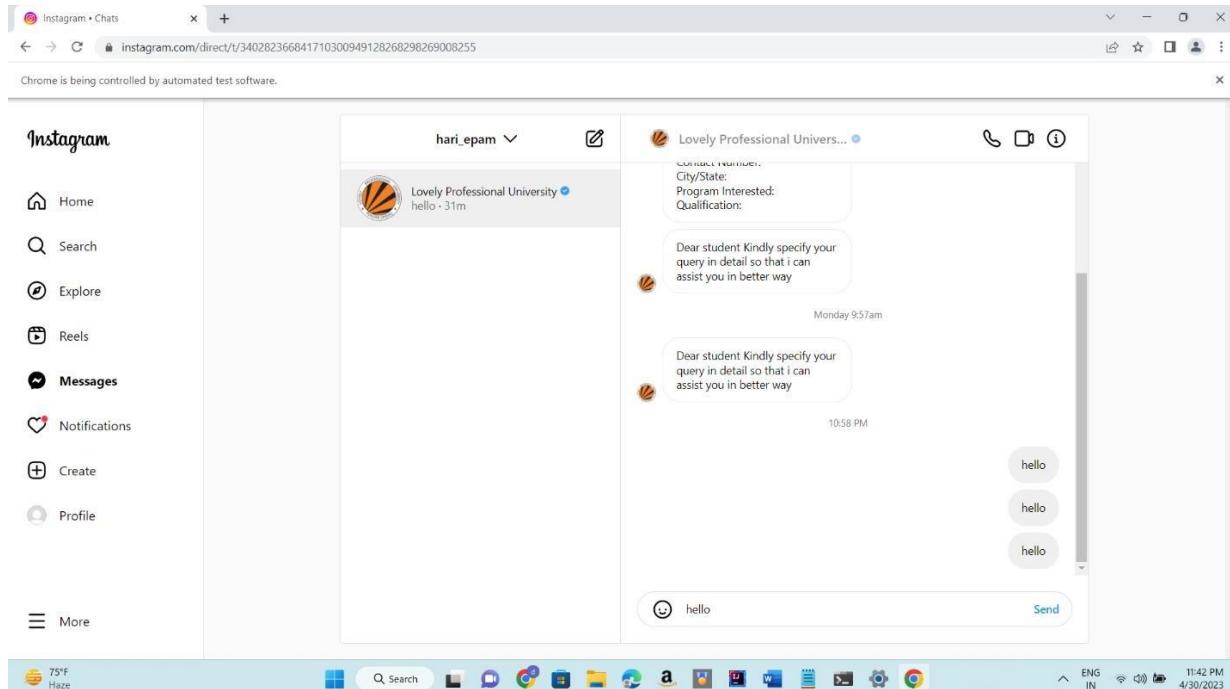
    public LoginPage(WebDriver driver) {
        this.driver = driver;
        uname.click();
        Thread.sleep(2000);
        pname.sendKeys(password);
        pname.click();
        Thread.sleep(2000);
        loginButton.click();
    }

    public void loginWebsite(String username, String password) throws InterruptedException {
        uname.sendKeys(username);
        uname.click();
        Thread.sleep(2000);
        pname.sendKeys(password);
        pname.click();
        Thread.sleep(2000);
        loginButton.click();
    }
}

```



UI testing 4: Testing the follow button in lpu official page and click on the follow button.



UI Testing5:Testing the message button and sending the message to official lpu id.



UI Testing6: Testing the post in lpu official id and like that post

```

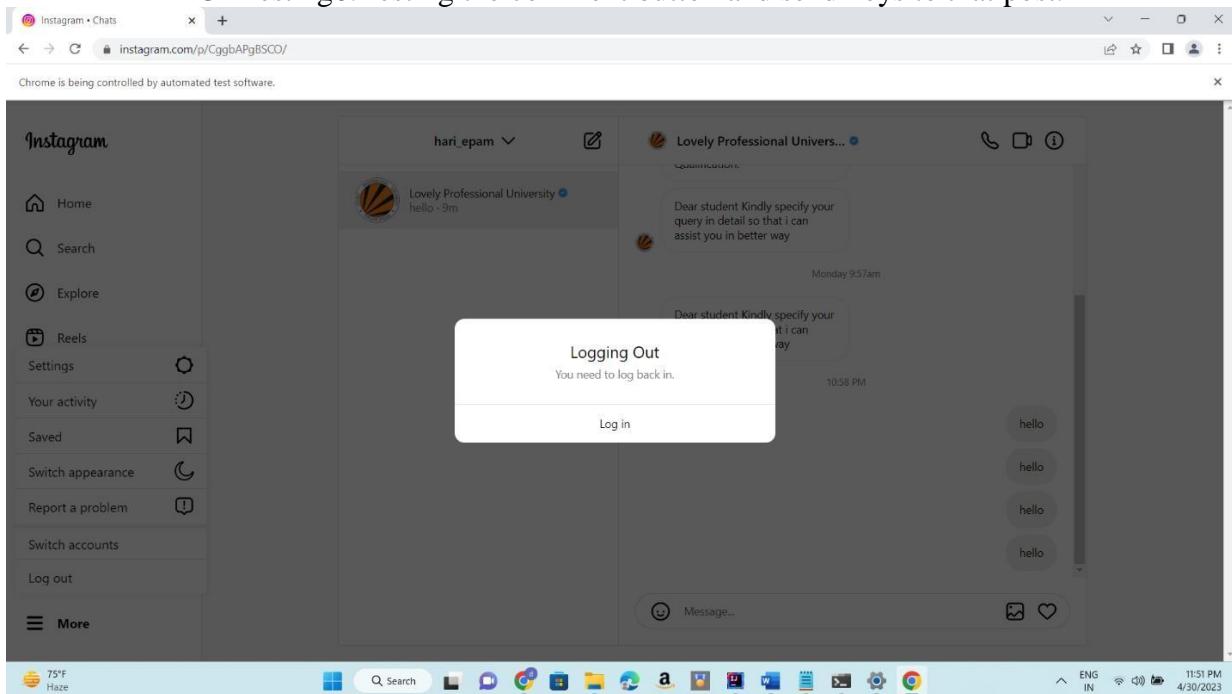
TeamProject [InstagramProject] E:\Epam Exercises\TeamProject - AppTest.java
File Edit View Navigate Code Refactor Build Run Tools Git Window Help TeamProject [E:\Epam Exercises\TeamProject] - AppTest.java
Project src test java org example AppTest
  TeamProject [InstagramProject]
    src
      main
        java
          com.browser
            FactoryBrowser
          org.example
            ClosePost
            CommentPage
            ExplorePage
            InfoPage
            LikePage
            LoginPage
            Logout
            MessagePage
            PostPage
            SearchPage
        test
          java
            org.example
              AppTest
                target
                  classes
                  generated-sources
                  generated-test-sources
                  maven-status
                  surefire-reports
                  test-classes
        pom.xml
        testing.xml
      External Libraries
      Scratches and Consoles
  Maven
    InstagramProject
      Lifecycle
        clean
        validate
        compile
        test
        package
        verify
        install
        site
        deploy
    Plugins
    Dependencies
  Pull Requests
  Bookmarks
  Structure
  Git TODO Problems Terminal Services
  9:14 CRLF UTF-8 4 spaces master

```

The screenshot shows the IntelliJ IDEA interface with the code editor open. The file `AppTest.java` contains several test methods for different Instagram features:

- `ExploreButton()`: Tests the explore content.
- `SearchButton()`: Tests the search functionality.
- `MessageButton()`: Tests the message button.
- `postButton()`: Tests the post button.

UI Testing6:Testing the comment button and send keys to that post.



UI Testing7:Testing the logout button and click on the log out.

```

    public void loginWebsite(String username, String password) throws InterruptedException {
        uname.sendKeys(username);
        uname.click();
        Thread.sleep(2000);
        pname.sendKeys(password);
    }

```

“All testcase’s Passed”

Executed through Jenkins:-

The screenshot of html report of TestNG.

Method	Status
Comment	Passed
ExploreButton	Passed
InfoButton	Passed
LoginVerification	Passed
MessageButton	Passed
SearchButton	Passed
closeButton	Passed
lkComm	Passed
more	Passed
postButton	Passed

The screenshot shows a Jenkins dashboard titled "Test Result Graph [Jenkins]". The main content is a "Test Results Analyzer" table with the following data:

Chart	Package/Class/Testmethod	Passed	Transitions	2	1
	org.example	100% (100%)	0	PASSED	PASSED
	AppTest	100% (100%)	0	PASSED	PASSED
	Comment	100% (100%)	0	PASSED	PASSED
	ExploreButton	100% (100%)	0	PASSED	PASSED
	InfoButton	100% (100%)	0	PASSED	PASSED
	LoginVerification	100% (100%)	0	PASSED	PASSED
	MessageButton	100% (100%)	0	PASSED	PASSED
	SearchButton	100% (100%)	0	PASSED	PASSED
	close	100% (100%)	0	PASSED	PASSED
	closeButton	100% (100%)	0	PASSED	PASSED
	likComm	100% (100%)	0	PASSED	PASSED
	more	100% (100%)	0	PASSED	PASSED
	postButton	100% (100%)	0	PASSED	PASSED

Below the table, a section titled "Top 10 Most Broken Tests" displays the message: "There are no failing tests".

2. INDIVIDUAL PROJECT

In Individual Project, we have used a Selenium WebDriver, framework, and Page Object concepts.

Performed a task on <https://pastebin.com/> (on this website)

```

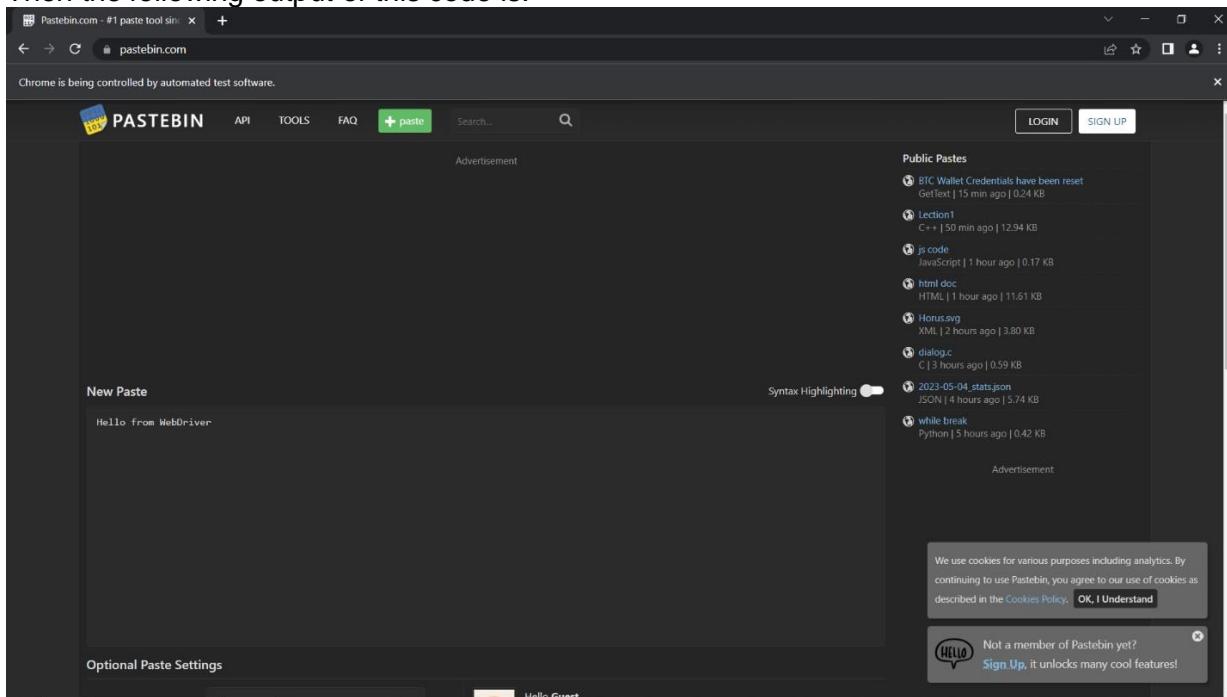
package org.example;
import java.util.List;
public class Pagebin_Project {
    WebDriver driver;
    By code = By.id("postform-text");
    By paste_expire = By.id("select2-postform-expiration-container");
    By expire = By.xpath("//span[@class= 'select2-results']//ul/li[3]");
    By title = By.id("postform-name");
    By button = By.xpath("//button[text() = 'Create New Paste']");
    public Pagebin_Project(WebDriver driver) { this.driver = driver; }
    public void NewPaste() { driver.findElement(code).sendKeys(KeysToSend("Hello from WebDriver")); }
    public void paste_Expiration() { driver.findElement(paste_expire).click(); }
    public void expireTime() { driver.findElement(expire).click(); }
    public void pasteName() { driver.findElement(title).sendKeys(KeysToSend("helloworld")); }
}
  
```

```

package org.example;
import ...;
public class Pagebin_Project_Test {
    WebDriver driver;
    public void loginverification() throws InterruptedException {
        WebDriverManager.chromedriver().setup();
        driver = new ChromeDriver();
        driver.get("https://pastebin.com/");
        driver.manage().window().maximize();
        Pagebin_Project page = new Pagebin_Project(driver);
        page.NewPaste();
        Thread.sleep( 2000 );
        JavascriptExecutor js2 = (JavascriptExecutor) driver;
        js2.executeScript( "window.scrollBy(0,700)", "" );
        Thread.sleep( 2000 );
        page.paste_Expiration();
        Thread.sleep( 2000 );
        page.expireTime();
        Thread.sleep( 2000 );
        page.pasteName();
        Thread.sleep( 2000 );
    }
}

```

The above pictures are the code of the website (<https://pastebin.com/>)
Then the following output of this code is:-



Pastebin.com - #1 paste tool since 2002

← → 🔍 pastebin.com

Chrome is being controlled by automated test software.

PASTE **BIN**

Category: None

Tags:

Syntax Highlighting: None

Paste Expiration: Never

Paste Exposure: Never

Folder: Burn after read

10 Minutes

1 Hour

1 Day

1 Week

2 Weeks

2 Weeks Burn after read NEW

POST

Paste Name / Title:

Create New Paste

Sign Up or Login

Sign in with Facebook

Sign in with Twitter

Sign in with Google

Advertisement

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Ad

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Pastebin.com - #1 paste tool since 2002

← → 🔍 pastebin.com

Chrome is being controlled by automated test software.

PASTE **BIN**

Category: None

Tags:

Syntax Highlighting: None

Paste Expiration: 10 Minutes

Paste Exposure: Public

Folder:

Password NEW: Disabled

Burn after read NEW

helloworld

Create New Paste

Sign Up or Login

Sign in with Facebook

Sign in with Twitter

Sign in with Google

Advertisement

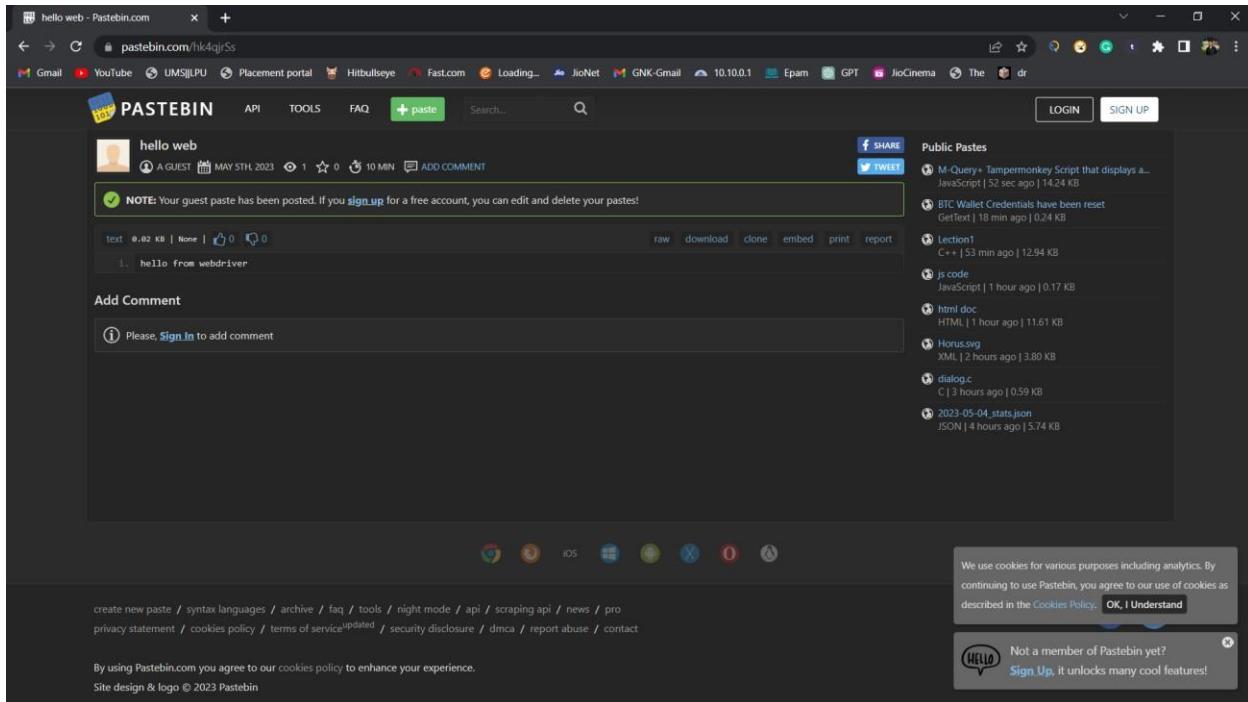
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Module-2B

Hurt Me Plenty: -

In module 2-b, we have used a Selenium WebDriver, framework, and Page Object concepts.

Performed a task on <https://cloud.google.com/> (on this website)

```

package org.example;
import ...;

public class Google_Price_Calculate_App {
    public Google_Price_Calculate_App(WebDriver driver) {
        this.driver=driver;
        PageFactory.initElements(driver, this);
    }

    @FindBy(xpath = "html[1]/body[1]/md-content[1]/md-card[1]/div[1]/md-card-content[1]/div[2]/div[1]/md-card[1]/md-card-content[1]")
    WebElement instance_Field;
    @FindBy(xpath="//iframe[contains(@name,'goog_'))")
    WebElement new_Frame;
    public void Number_Of_Instances_Field(String NumberOfInstances) {
        driver.switchTo().frame(new_Frame);
        driver.switchTo().frame(nameOf: "myFrame");
        instance_Field.sendKeys(NumberOfInstances);
    }

    @FindBy(xpath = "//button[@class='devsite-snackbar-action']")
    WebElement cookies_Ok_Btn;
    no usages ▲ neeraj_12
}

```

```

File Edit View Navigate Code Refactor Build Run Tools Git Window Help Individual Project (C:\Users\DELL\Music\Individual Project) - Google_Price_Cal_Test
Individual Project > test > java > org > example > Google_Price_Cal_Test
Project pom.xml (mavenproject) C:\Users\DELL
src
  main
    java
      org.example
        Google_Price_Calculate_App
        Pagebin_Project
    test
      java
        org.example
          Google_Price_Cal_Test
          Pagebin_Project_Test
target
  pom.xml
  testing.xml
External Libraries
Scratches and Consoles

driver.manage().window().maximize();
obj.Number_Of_Instances_Field(NumberOfInstances: "4");
obj.Select_Series();
Thread.sleep( millis 5000);
obj.Select_Machine_type();
Thread.sleep( millis 5000);
obj.Add_Gpus_CheckBox();
obj.Select_Type_Of_Gpus();
obj.Select_Number_Of_Gpus();
obj.Select_Local_Ssd();
obj.Select_Data_Center_Location();
obj.Select_Committed_Usage();
obj.Push_Add_To_Estimate();
//Data Store from Object

VM_Of_Class = obj.Get_Vm_Class_Data().getText();
region=obj.Get_Location().getText();
S_S_D = obj.Get_Ssd_Data().getText();
No_of_Instance = obj.Get_Instance_Type().getText();
Time_Taken = obj.Get_Commitment().getText();
Cost_of_USD = obj.Get_Cost().getText();

no usages ▾ neeraj.12
@test
public void check_Data_is_correct()
{
    Assert.assertEquals(VM_Of_Class, expected: "Provisioning model: Regular");
    Assert.assertEquals(region, expected: "Region: Frankfurt");
    Assert.assertEquals(S_S_D, expected: "Local SSD: 2x375 GiB\n" + "Committed Use Discount applied");
    Assert.assertEquals(No_of_Instance, expected: "Instance type: n1-standard-8\n" + "Committed Use Discount applied");
    Assert.assertEquals(Time_Taken, expected: "Commitment term: 1 Year");
    Assert.assertEquals(Cost_of_USD, expected: "Total Estimated Cost: USD 1,081.20 per 1 month");
}

Test class name 'Google_Price_Cal_Test' doesn't match regex '[A-Z][A-Za-z\d]*Test([a-zA-Z][A-Za-z\d]*[Tt]\d*)?IT(Case)' 13:14 CRLF UTF-8 4 spaces master

```



```

File Edit View Navigate Code Refactor Build Run Tools Git Window Help Individual Project (C:\Users\DELL\Music\Individual Project) - testing.xml
Individual Project > testing.xml
Project pom.xml (mavenproject) C:\Users\DELL
src
  main
    java
      org.example
        Google_Price_Calculate_App
        Pagebin_Project
    test
      java
        org.example
          Google_Price_Cal_Test
          Pagebin_Project_Test
target
  pom.xml
  testing.xml
External Libraries
Scratches and Consoles

<xsl version="1.0" encoding="UTF-8">
<!DOCTYPE suite SYSTEM "http://testng.org/testng-1.0.dtd">
<suite name="All Test Suite">
<test verbose="2" preserve-order="true"
      name=":Individual Project/src/test/java/Calculator/PasteBin.java">
  <classes>
    <class name="org.example.Pagebin_Project_Test">
      <methods>
        <include name="loginverification"/>
      </methods>
    </class>
  </classes>
</test>
<test verbose="2" preserve-order="true" name="Test1">
  <parameter name="browser" value="chrome"/><parameter>
  <parameter name="Url" value="https://cloud.google.com/products/calculator"/><parameter>
  <classes>
    <class name="org.example.Google_Price_Cal_Test">
      <methods><include name="checkInformationInVmClassString"/>
      <include name="check_Data_is_correct"/>
    </methods>
  </class>
  </classes>
</test>
<test verbose="2" preserve-order="true" name="Test2">
  <parameter name="browser" value="firefox"/><parameter>
  <parameter name="Url" value="https://cloud.google.com/products/calculator"/><parameter>
  <classes>
    <class name="org.example.Google_Price_Cal_Test">
      <methods><include name="checkInformationInVmClassString"/>
      <include name="check_Data_is_correct"/>
    </methods>
  </class>
  </classes>
</test>

```

This is TestNG xml page, Created to run the test classes of both module 2a and 2b. Two parameters were given one is browser (chrome, Firefox) and another is URL Browser-chrome and Firefox, URL- link of the website Then the output of this code is:-

The screenshot shows the Google Cloud Pricing Calculator interface. At the top, there's a navigation bar with links for Overview, Solutions, Products, Pricing, and Resources. A search bar and language selection are also present. Below the navigation is a banner for the Google Cloud Pricing Calculator, which includes a search bar and a large blue 'Estimate' button. The main content area is titled 'Instances' and contains several dropdown menus and input fields for configuring cloud instances. These include fields for 'Number of instances' (set to 4), 'Operating System / Software' (Free: Debian, CentOS, CoreOS, Ubuntu or BYOL (Bring Your Own License)), 'Provisioning model' (Regular), 'Machine Family' (N1, N2, E2), and 'Machine type' (n1-standard-8). There are also sections for 'Threads per core' (2 threads per core), 'Boot disk type' (Balanced persistent disk), and 'Boot disk size (GiB)'. At the bottom of the configuration section, there are three checkboxes: 'Enable Confidential VM service', 'Add Sustained Use Discounts' (which is checked), and 'Add GPUs'.

Google Cloud Pricing Calculator cloud.google.com/products/calculator

Chrome is being controlled by automated test software.

Google Cloud Overview Solutions Products Pricing Resources

Machine Family: General purpose
Series: N1
Machine type: n1-standard-8 (vCPUs: 8, RAM: 30GB)
Threads per core: 2 threads per core
Boot disk type: Balanced persistent disk
Boot disk size (GiB):
 Enable Confidential VM service.
 Add Sustained Use Discounts.
 Add GPUs.
GPU type: NVIDIA Tesla V100
Number of GPUs:
 Enable Virtual Workstation (NVIDIA GRID).

Google Cloud Pricing Calculator <https://cloud.google.com/products/calculator>

Google Cloud Overview Solutions Products Pricing Resources

Machine Family: General purpose
Series: N1
Machine type: n1-standard-8 (vCPUs: 8, RAM: 30GB)
Threads per core: 2 threads per core
Boot disk type: Balanced persistent disk
Boot disk size (GiB):
 Enable Confidential VM service.
 Add Sustained Use Discounts.
 Add GPUs.
GPU type: NVIDIA Tesla V100
Number of GPUs:
 Enable Virtual Workstation (NVIDIA GRID).
Local SSD:

The screenshot shows the Google Cloud Pricing Calculator interface. On the left, there's a sidebar with 'Google Cloud' navigation links: Overview, Solutions, Products, Pricing, and Resources. The main area has a search bar at the top. Below it, there's a section for 'Instances' with various configuration fields: Number of instances (4), Region (Frankfurt), Operating System / Software (Free: Debian, CentOS, CoreOS, Ubuntu or BYOL), Provisioning model (Regular), Machine Family (General purpose), Series (E2), Machine type (e2-standard-2 (vCPUs: 2, RAM: 8GB)), Threads per core (2 threads per core), Boot disk type (Balanced persistent disk), and Boot disk size (/GiB). To the right, there's a summary panel for 'Compute Engine' showing 4 instances, a total of 2,920 hours per month, and a monthly cost of USD 1,081.20. It also includes a 'Total Estimated Cost: USD 1,081.20 per 1 month' and a currency dropdown set to USD - US Dollar.

MODULE-3

The screenshot shows the Jenkins Test Result Graph interface. The left sidebar includes links for Status, Changes, Workspace, Build Now, Configure, Delete Project, HTML Report, Rename, and Test Results Analyzer (which is selected). The main area displays a chart of test results for an 'Individual Project'. The chart shows 10 tests: org.example, Google_Price_Cal_Test, checkInformationInVmClassString, check_Data_is_correct, driverclose, openbrowser, Pagebin_Project_Test, and loginverification. All tests are marked as 'PASSED' with 100% success rates and 0 transitions. Below the chart, a section titled 'Top 10 Most Broken Tests' shows a message: 'There are no failing tests'. At the bottom, there's a 'Build History' section with a single entry from '04-May-2023, 3:52 pm' and a 'Build Status' section.

Screenshot of a web browser showing Jenkins Test Results Analyzer and a separate Jenkins dashboard.

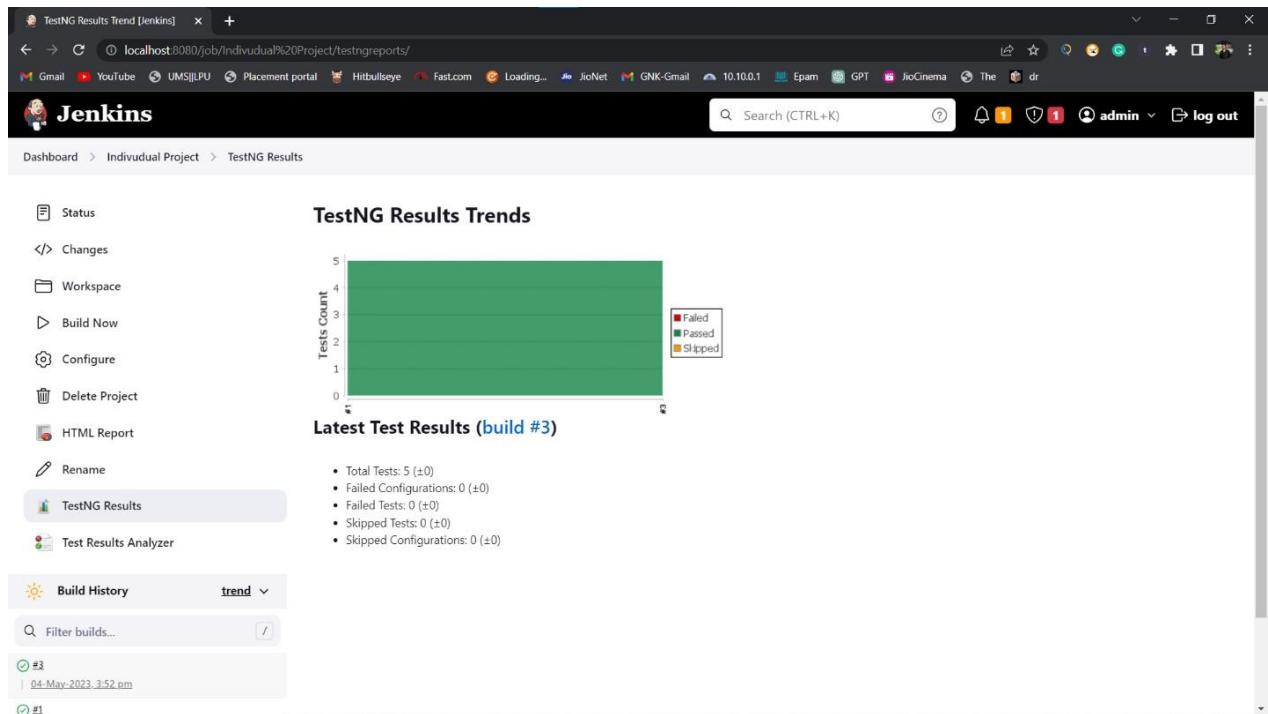
Test Results Analyzer (Top Window):

- Header:** Back to Epam-Final-Project index, 1 suite, Test results, Switch Retro Theme.
- Left Sidebar (Info):**
 - C:\Users\Tuf\jenkins\workspace\Eepam-Final-Project\testng.xml
 - 3 tests
 - 0 groups
 - Times
 - Reporter output
 - Ignored methods
 - Chronological view
- Results Section:**
 - 5 methods, 5 passed
 - Passed methods (hide):
 - checkInformationInVmClassString
 - checkInformationInVmClassString
 - check_Data_is_correct
 - check_Data_is_correct
 - loginverification

Jenkins Dashboard (Bottom Window):

- Header:** Rain showers, 75°F, 10:56 PM, 5/4/2023.
- Left Sidebar:**
 - Status
 - Changes
 - Workspace
 - Build Now
 - Configure
 - Delete Project
 - HTML Report
 - Rename
 - TestNG Results
 - Test Results Analyzer (selected)
- Central Content:**
 - Test Result Graph [Jenkins]:** localhost:8080/job/Individual%20Project/test_results_analyzer/
 - Table:** Options, Download Test (CSV), Search: Test/Class/Package, Expand All, Collapse All.
 - Test Results:**

Chart	Package/Class/Testmethod	Passed	Transitions	1
<input type="checkbox"/>	<input checked="" type="radio"/> org.example	100% (100%)	0	PASSED
<input type="checkbox"/>	<input checked="" type="radio"/> Google_Price_Cal_Test	100% (100%)	0	PASSED
<input type="checkbox"/>	checkInformationInVmClassString	100% (100%)	0	PASSED
<input type="checkbox"/>	check_Data_is_correct	100% (100%)	0	PASSED
<input type="checkbox"/>	driverclose	100% (100%)	0	PASSED
<input type="checkbox"/>	openbrowser	100% (100%)	0	PASSED
<input type="checkbox"/>	<input checked="" type="radio"/> Pagebin_Project_Test	100% (100%)	0	PASSED
<input type="checkbox"/>	loginverification	100% (100%)	0	PASSED
 - Build History:** trend, There are no failing tests, Filter builds..., 03-May-2023, 11:31 pm, Atom feed for all, Atom feed for failures.
 - Build Status:** Build Status



Now, check the output that all test cases are passed in 2a and 2b module of 3rd module.
All individuals tasks are completed.

CONCLUSION

In conclusion, this project on Instagram website automation testing with Selenium and Java provides a detailed overview of several key technologies and methodologies used in software development and testing. The project covers software development methodologies such as Waterfall, Agile, Scrum, Kanban, extreme programming, test-driven development, and behavior-driven development. It also provides an overview of version control with GIT, software testing, Java basics, data and analytics, clean code, cloud computing, and automation frameworks.

By completing this project, learners will have a solid understanding of the concepts and tools used in software development and testing. They will also gain hands-on experience with technologies such as Selenium WebDriver, TestNG, Rest Assured, and Jenkins, which are widely used in the industry. This project is a valuable resource for anyone looking to learn about software development and testing and will provide a strong foundation for further learning and exploration in this field.