**GOVT. POLYTECHNIC FOR WOMEN**

**LOWER SHIV NAGAR , JAMMU-J&K**



**Session-MAY-JUNE 2024**

**VI Semester**

**DEPARTMENT OF COMPUTER ENGINEERING**

**CERTIFICATE**

# This is to verify that student of VI Semester Computer Engineering Department Have successfully completed the minor project work entitled “**Quiz Application with Authentication** ” for the fulfilment of Three years Diploma in Computer Engineering of J&K STATE BOARD OF TECHNICAL EDUCATION.

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**HOD PROJECT GUIDE**

**GOVT. POLYTECHNIC FOR WOMEN**

LOWER SHIV NAGAR JAMMU-J&K

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**Session-NOV\_DEC 2023**

**VI Semester**

**DEPARTMENT OF COMPUTER ENGINEERING**

**MAJOR PROJECT**

**QUIZ APPLICATION WITH AUTHENTICATION**

**PROJECT GUIDE:- SUBMITTED BY:-**

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# Last but not least, I owe my overwhelming gratitude to other supporting staff during the course of this project for giving me the constant support and motivation to continue with this evidence.

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INTRODUCTION

In the modern digital era, web applications and software systems have become integral to various aspects of daily life, providing users with interactive and engaging experiences. This final year project focuses on the development of a robust application utilizing Java, Maven, and MySQL technologies, with additional functionalities encompassing user registration, authentication through OTP (One Time Password), and comprehensive administrative controls.

The application features a login and registration system where users can securely register and authenticate using OTP verification, ensuring a high level of security and reliability. Users are provided with a dynamic and engaging interface, designed using Java Swing and AWT (Abstract Window Toolkit), which allows them to participate in a quiz game. This interactive quiz game not only offers an entertaining user experience but also serves as an educational tool, enhancing users' knowledge in various domains.

On the administrative side, the application offers robust features enabling administrators to manage and monitor user activities efficiently. Admins can access detailed reports of each user's performance, including their quiz scores and participation history. Furthermore, the system supports the exportation of user scores and details into new Excel files, facilitating easy data analysis and record-keeping.

**Purpose of the project**:  
The purpose of this project is to develop a Java-based application with Maven and MySQL integration, offering secure user authentication via OTP, interactive quiz functionality for users, and comprehensive administrative features for monitoring user activity and exporting data for analysis.

**Current and Proposed System:**  
**Current System:**  
This our own idea does have any current System like this .   
**Proposal System:**  
Our approach will involve utilizing Java for backend development, Maven for project management, and MySQL for database management. We will adopt an agile development methodology, breaking down the project into manageable sprints to ensure regular feedback and iteration.

**Glossary:**

|  |  |
| --- | --- |
| **TERM** | **Used for** |
| JAVA | **Frontend of Application with the Swing and AWT** |
| **MAVEN** | Working as a Middleware and Dependency use in the Project |
| **MySQL** | Database |

**Scope of the project:** The scope of this project extends beyond its initial features to incorporate additional functionalities aimed at enhancing user experience and fostering community engagement. In addition to the existing components such as login, registration with OTP, quiz game, and admin dashboard, the project will include features like multi-factor authentication, gamification elements for user engagement, and integration with third-party APIs for expanded functionality. Furthermore, the project will be open-source, hosted on GitHub, inviting contributions from developers worldwide to improve and expand its capabilities. This collaborative approach will not only enrich the project but also cultivate a vibrant community around it, driving continuous innovation and improvement.

**Advantages:**

Here are the detailed advantages of the proposed project:

1. \*\*GitHub Open Source Project:\*\*

- Hosting the project on GitHub as an open-source repository provides numerous benefits:

- Collaboration: Allows developers worldwide to contribute, share ideas, and collaborate on improving the project.

- Transparency: Enhances transparency by providing visibility into the project's codebase, development progress, and discussions.

- Community Engagement: Fosters a vibrant community around the project, facilitating knowledge sharing and fostering innovation.

- Version Control: Utilizes Git for version control, enabling efficient management of project changes and updates.

2. \*\*Innovative Java Implementation:\*\*

- Introduces new ideas and innovative solutions within the Java ecosystem, showcasing the versatility and adaptability of Java technology.

- Demonstrates cutting-edge techniques and best practices in Java programming, contributing to the advancement of the Java development community.

3. \*\*User-Friendly GUI (Graphical User Interface):\*\*

- Prioritizes user experience by designing an intuitive and visually appealing graphical interface using Java Swing and AWT libraries.

- Enhances usability and accessibility, making the application more engaging and easier to navigate for users of all skill levels.

4. \*\*Auto-Generated Excel Sheets:\*\*

- Implements functionality to automatically generate Excel sheets containing user data, scores, and other relevant information.

- Streamlines data management and reporting processes, saving time and effort for administrators and users alike.

- Enables seamless integration with external tools and systems for further analysis and processing of data.

5. \*\*OTP Authentication:\*\*

- Incorporates OTP (One Time Password) authentication for user registration and login, enhancing security and mitigating the risk of unauthorized access.

- Provides an additional layer of protection against password-related vulnerabilities, ensuring robust user authentication mechanisms.

6. \*\*Quiz System:\*\*

- Introduces a dynamic and engaging quiz system for users to participate in, offering entertainment and educational value.

- Enhances user interaction and retention, driving user engagement and promoting active participation within the application.

7. \*\*Database Support (MySQL):\*\*

- Utilizes MySQL database management system to store and manage user data, quiz questions, scores, and other application-related information.

- Ensures data integrity, scalability, and reliability, providing a robust foundation for the application's backend functionality.

8. \*\*Maven Dependencies:\*\*

- Manages project dependencies and build processes efficiently using Maven, simplifying project configuration and management.

- Facilitates collaboration and ensures consistency across development environments, enhancing project scalability and maintainability.

In summary, the proposed project offers a multitude of advantages, ranging from its open-source nature on GitHub to its innovative Java implementation, user-friendly GUI, auto-generated Excel sheets, OTP authentication, quiz system, database support, and Maven-based project management. These advantages collectively contribute to the project's success, fostering collaboration, innovation, and user satisfaction.

**REQUIREMENTS**  
 **Software Requirements:**

* Java Development Kit JDK-18 or later.
* Maven should be installed.
* MySQL should be installed.
* Operating system: Any Windows version.

**Hardware Requirements:**

* Processor: Intel Pentium IV or above
* Ram: 512G or more
* Hard Disk: 40 GB or more

**SYSTEM DESIGN**

System design is the solution to the creation of a new system. This phase is composed of several systems. This phase focuses on the detailed implementation of the feasible system. Its emphasis on translating design specifications to performance specification. System design has two phases of development logical and physical design. During logical design phase the analyst describes inputs (sources), out puts (destinations), databases (data sources) and procedures (data flows) all in a format that meats the uses requirements. The analyst also specifies the user needs and at a level that Virtually determines the information flow into and out of the system and the data resources. Here the logical design is done through data flow diagrams and database design. The physical design is followed by physical design or coding. Physical design produces the working system by defining the design specifications, which tell the programmers exactly what the candidate system must do. The programmers write the necessary programs that accept input from the user, perform necessary processing on accepted data through call and produce the required report on a hard copy or display it on the screen.

**HOMEPAGE**  
The home page of a website is the first page that a user perceives upon entering the website URL at the browser address area. The entire website depends on how the home page is designed which forms the platform for Vowing other web forms. In short, a home page forms the abstract of the entire website.

**LINKS&WEBPAGES**  
Through the home page a number of other web pages can be linked. Each link gives an elaborated detail about itself with adequate lists .

**TESTING**  
 **SYSTEM TESTING**  
Testing is a set activity that can be planned and conducted systematically. Testing begins at the module level and work towards the integration of entire computers-based system. Nothing is complete without testing, as it is Val success of the system.  
  
**Testing Objectives:**  
There are several rules that can serve as testing objectives, they are :

1.Testing is a process of executing a program with the intent of finding an error  
2. A good test case is one that has high probability of finding an undiscovered error.  
3. A successful test is one that uncovers an undiscovered error.  
  
If testing is conducted successfully according to the objectives as stated above, it would uncover errors in the software. Also testing demonstrates that software functions appear to the working according to the specification, that performance requirements appear to have been met.

There are three ways to test a program  
1. For Correctness  
2. For Implementation efficiency  
3. For Computational Complexity.  
  
Tests for correctness are supposed to verify that a program does exactly what it was designed to do. This is much more difficult than it may at first appear, especially for large programs. Tests for implementation efficiency attempt to find ways to make a correct program faster or use less storage. It is a code-refining process, which reexamines the implementation phase of algorithm development.  
  
The following ideas should be a part of any testing plan:  
  
1. Preventive Measures  
2. Spot checks  
3. Testing all parts of the program  
4. Test Data  
5. Looking for trouble  
6. Time for testing  
7. Re Testing  
2. Integrated Testing  
3. Final/ System testing  
  
**UNIT TESTING**  
As this system was partially GUI based WINDOWS application, the following were tested in this phase  
1. Each File tested.

2. Back button tested.

3. Next Button tested .  
**INTEGRATION TESTING**  
Test data should be prepared carefully since the data only determines the efficiency and accuracy of the system. Artificial data are prepared solely for testing. Every program validates the input data.  
  
**VALIDATION TESTING**  
In this, all the Code Modules were tested individually one after the other. The following  
were tested in all the modules  
1. Loop testing  
2. Boundary Value analysis  
3. Equivalence Partitioning Testing

**DIAGRAM REPRESENTATION OF THE DATA**

**WEB PAGE TO INDEX**

**START**

DATA

HTML 1

DEPARTMENT 1

DEPARTMENT n…

DEPARTMENT 2

**HTML**

**CSS**

**INDEX PAGE**

**PROJECT FOLDER**

**Js**

HTML n

**DATA LINK TO WEB PAGE**

SEMESTER n...

SEMESTER 2

SEMESTER 1

HTML SEM n...

HTML SEM2

HTML SEM1

DATA

DEPARTMENT 1

DEPARTMENT 2

DEPARTMENT 4

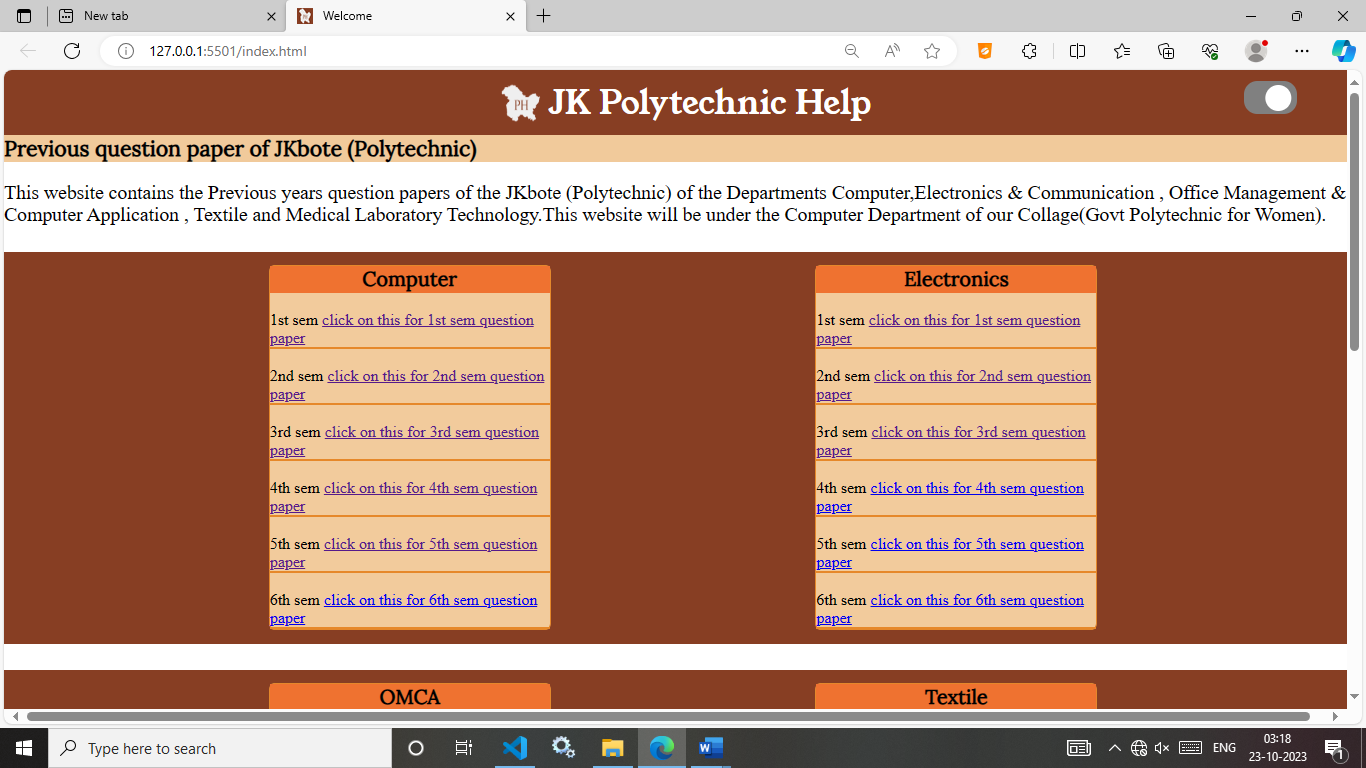
DEPARTMENT 5

DEPARTMENT 3

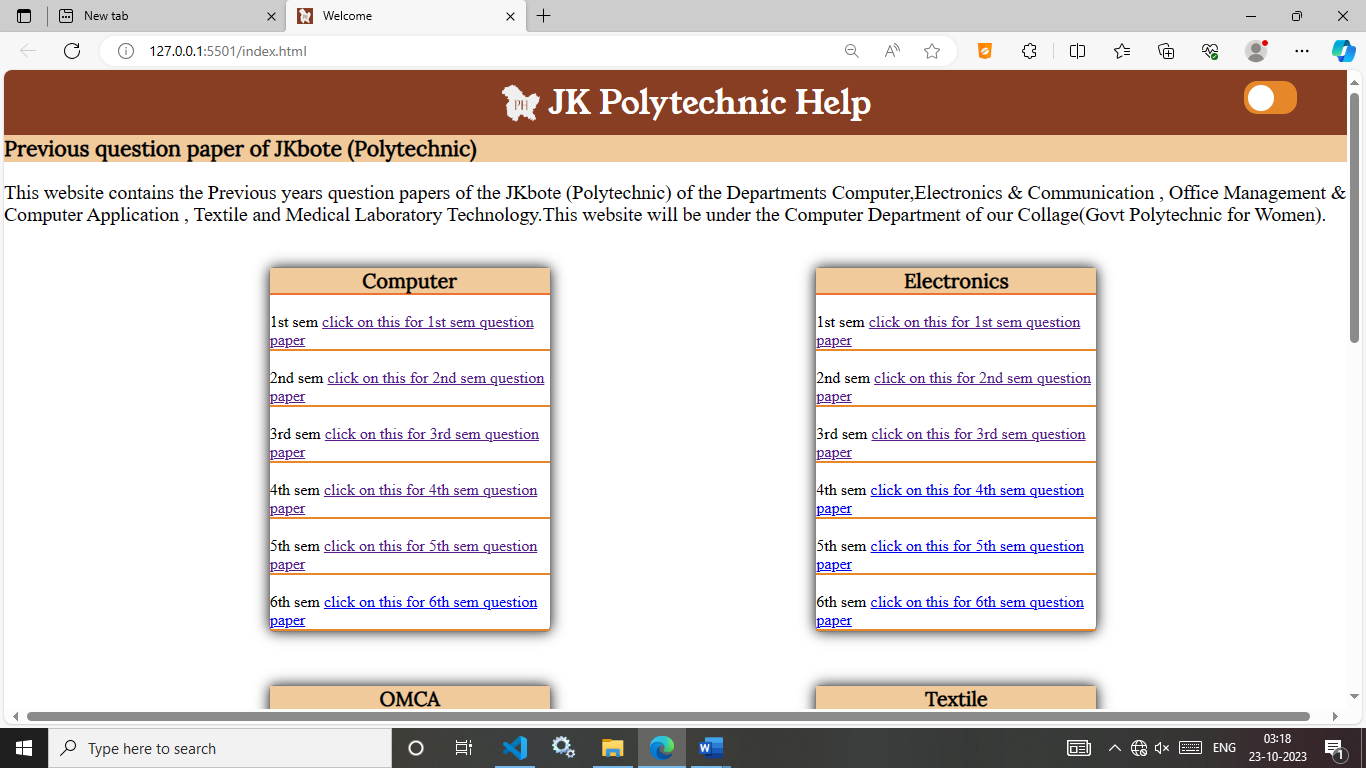
**HTML**

**SCREENSHOTS:**

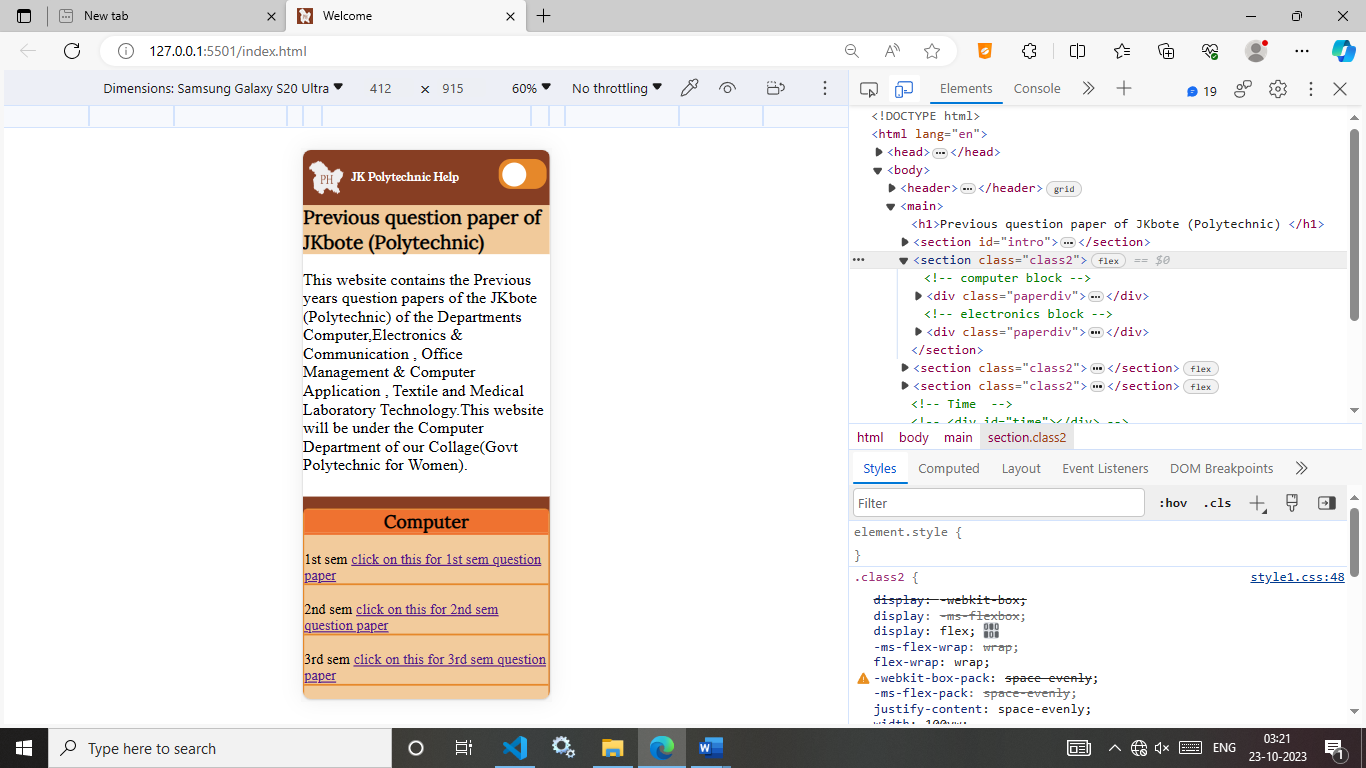
**Dark Mode:**

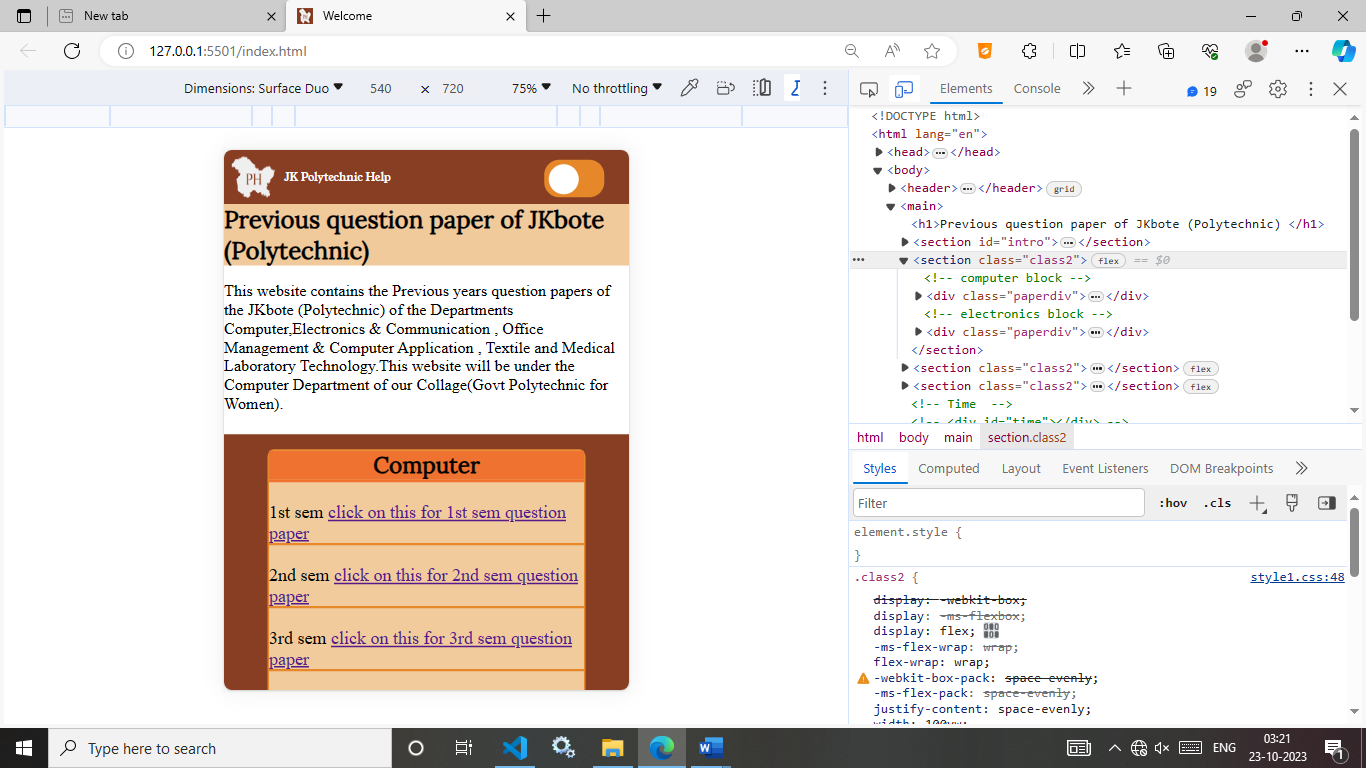
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**Light mode:**

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**Mobile View:**

****

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3. **Chat GTP**
4. [**https://www.w3schools.com**](https://www.w3schools.com/)

**GitHub Link :- https://kiranjeet28.github.io/JK\_Polytechnic\_Hub**