Software Requirement Specification for TAC Portal

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Project ID	1
Problem Statement	Assessment Platform

1. Introduction:

1.1. Purpose:

This project aims to develop an educational assessment platform supporting coding exercises, MCQs, short answers, and matching questions. It features automated grading, manual evaluation, result management, and security measures. The platform streamlines assessment processes and provides a user-friendly interface for administrators and students, enhancing learning and performance evaluation.

1.2. Scope of Project:

- The project will support various assessment types, including coding exercises, multiple-choice questions (MCQs), short answer questions, and matching questions, catering to diverse evaluation needs.
- **Key features** include automated grading for objective questions, manual evaluation for subjective answers, a robust result management system, and advanced security measures to prevent malpractice, ensuring assessment integrity.
- The user interface will be intuitive and user-friendly for administrators, facilitating easy assessment creation, administration, and scheduling, while being accessible and easy to navigate for students, enhancing their overall experience.
- The platform will cover real-time monitoring, detailed performance analytics, and

comprehensive reporting, providing educators with valuable insights into student performance. It will also be compatible with existing Learning Management Systems (LMS) and support various devices and operating systems for seamless integration.

- Security measures will include data encryption and secure storage, ensuring compliance with educational data protection regulations. Robust user support, including documentation, tutorials, and helpdesk services, will ensure effective platform utilization and technical issue resolution.

2. System Overview:

2.1. Users:

Students:

Students can log in to the platform and access their dashboard, where they can view the status of their assessments. For each assessment, students can see whether it is scheduled, ongoing, completed, or pending evaluation.

The platform provides clear indicators or labels for each assessment status, making it easy for students to understand their progress.

Admin:

Administrators and instructors have access to an admin panel or dashboard with comprehensive assessment management tools. In the admin panel, they can view the status of all assessments across courses or classes.

Administrators can see which assessments are scheduled, currently in progress, completed, or awaiting manual evaluation. Additionally, administrators can drill down into specific assessments to view detailed analytics, such as average scores, completion rates, and time taken by students.

2.2. Features:

1. Login and registration:

Students/Admin can register for an account or log in with their existing account where they can view the status of their assessments.

2. Support for Multiple Question Types:

The platform supports various question formats such as coding exercises, multiple-choice questions (MCQs), short answers, and matching questions. This allows educators to create diverse assessments to evaluate different skills and knowledge areas.

3. MCQ Options Customization:

Allows educators to customize MCQs according to specific learning objectives, enhancing assessment flexibility and alignment with course content.

4. Compiler with Multiple Programming Language Support:

Provides support for a wide range of programming languages, allowing students to code in their preferred language for coding exercises and assessments.

5. Slot Booking for Assessments:

Grants students the flexibility to book assessment slots based on their availability, optimizing scheduling convenience and time management.

6. Automated and Manual Grading:

Facilitates automated grading for objective questions like MCQs and coding exercises, alongside manual evaluation for subjective questions, ensuring accuracy in assessment.

7. Result Management:

Empower administrators to track and analyze students' performance over time, generating performance reports and identifying areas for improvement.

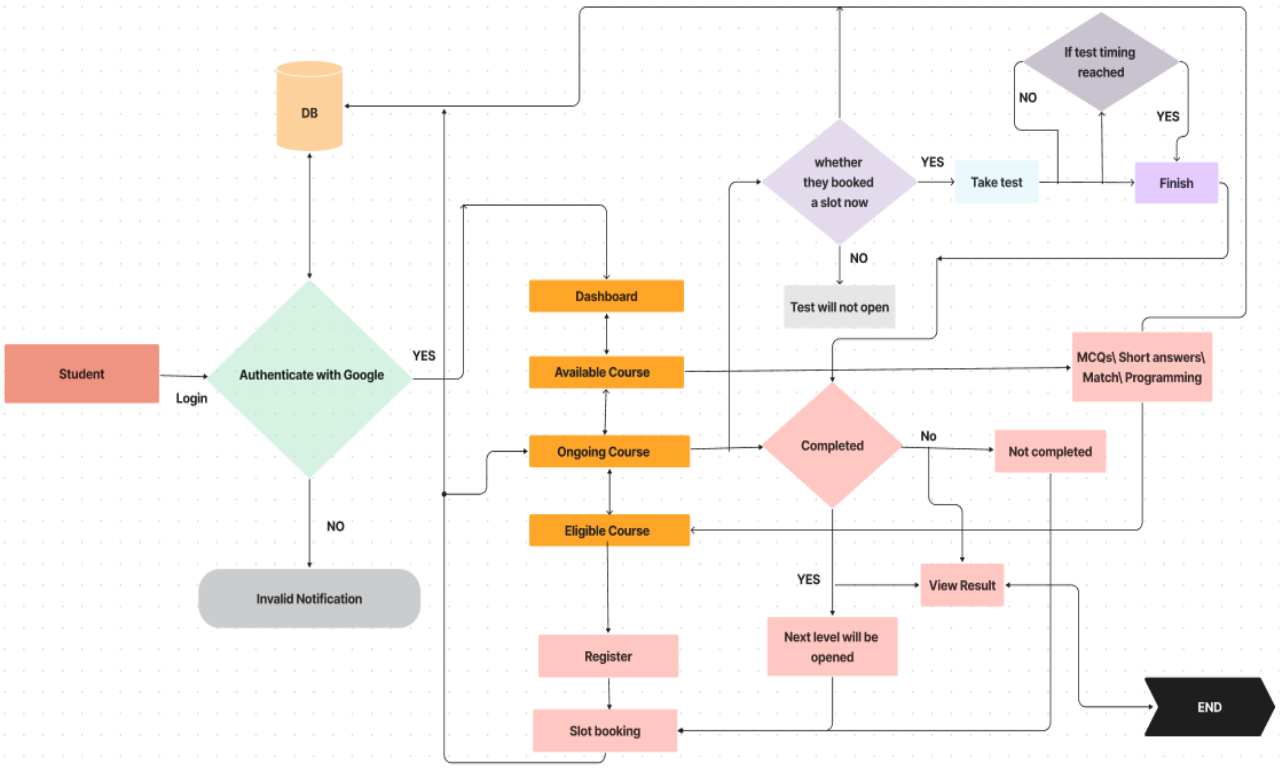
8. Security and Malpractice Preventions:

- Implement question and option shuffling in MCQs.
- Add timers and session monitoring for assessments.
- Perform security testing and audits.

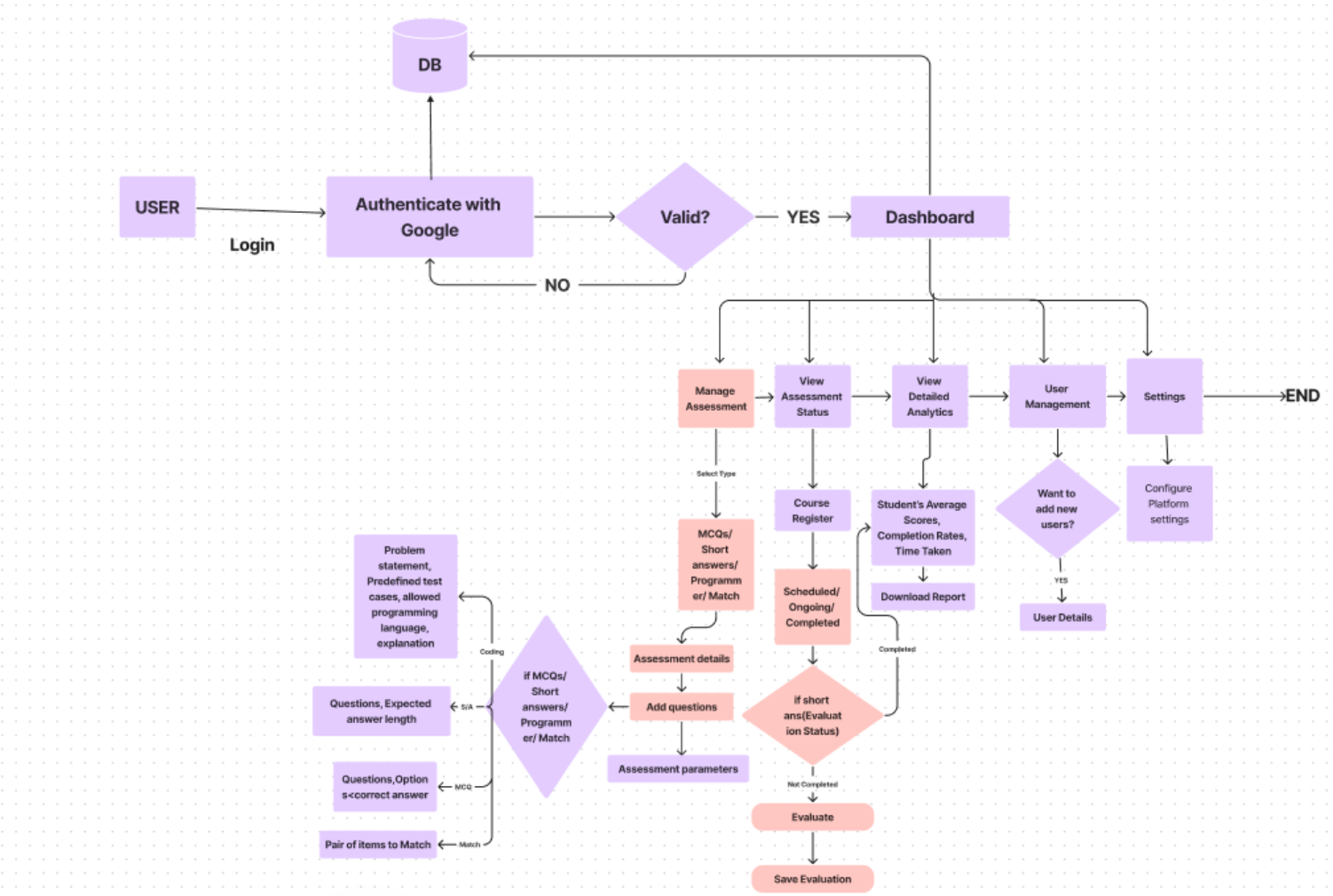
9. Assessment Status Visibility:

Provides both users and administrators with clear visibility into assessment statuses, including scheduled, ongoing, completed, or pending evaluation, ensuring transparency and effective assessment management.

User Interface



Admin Interface



3. System Requirements Specification:

3.1 Functional Requirements:

- **User Authentication and Authorization:**
  - The platform must provide secure user authentication mechanisms, allowing both students and administrators to log in with unique credentials.
  - Different user roles (such as students, instructors, and administrators) should have appropriate permissions and access levels based on their roles and responsibilities.

- **Assessment Creation and Management:**
  - Educators should be able to create assessments, including selecting question types, defining

assessment parameters (such as time limits and scoring criteria), and assigning assessments to specific classes or student groups.

- Administrators should have the ability to manage assessments centrally, monitor their status, and make adjustments as needed.

- **Question Bank Management:**
  - The platform should include a question bank feature where educators can store, organize, and manage a repository of questions for future assessments.
  - This feature should allow for easy searching, tagging, and categorization of questions to streamline the assessment creation process.

- **Scalability and Performance**:
  - The system should be scalable to accommodate a growing number of users, assessments, and question banks.
  - It should be able to handle simultaneous assessment activities without compromising performance or responsiveness.

- **Grading and Feedback Mechanisms:**
  - The platform should support automated grading for objective questions (e.g., MCQs, coding exercises with predefined test cases) and manual evaluation for subjective questions (e.g., short answers, open-ended coding exercises).
  - Educators should be able to provide detailed feedback and scores to students, facilitating their understanding of strengths and areas for improvement.

- **Result Reporting and Analytics:**
  - The system should generate comprehensive performance reports and analytics, allowing educators and administrators to track student progress, identify trends, and make data-driven decisions.
  - Reports should include individual student performance, class averages, question-level analysis, and other relevant metrics to assess learning outcomes effectively.

3.2. Non-Functional Requirements:

1. Performance:

The platform should respond quickly to user interactions, with minimal delay in loading assessments and generating feedback. Automated grading and manual evaluation processes should be efficient, ensuring timely assessment results.

2. Scalability:

The platform should be able to handle increasing numbers of users and assessments without sacrificing performance. It should scale seamlessly by adding more server resources to meet growing demand.

3. Reliability:

The platform should be highly available, with minimal downtime for maintenance. It should be resilient to failures, with backup systems in place to ensure uninterrupted assessment access.

4. Security:

Robust security measures should safeguard user data and assessment content from unauthorized access. Access controls and encryption should be implemented to protect sensitive information.

5. Usability:

The platform should have an intuitive interface that is easy for administrators and students. Accessibility features should be provided to accommodate users with disabilities, ensuring a seamless experience for all.

Ladies and gentlemen,

Today, I stand before you to discuss a subject that has profoundly reshaped our world: social media and its effect on communication.

In the span of just a few decades, social media has revolutionized the way we connect, share, and interact with each other. It has transformed our lives in ways that were once unimaginable, bringing a myriad of changes to the landscape of human communication.

Positive Effects

Firstly, let us consider the positive impacts. Social media has broken down geographical barriers, allowing us to connect with loved ones and friends across the globe. Never before has it been so easy to maintain relationships with people from different corners of the world, sharing moments and experiences in real time. It fosters a sense of global community, making our vast world feel a bit smaller and more interconnected.

Moreover, social media is a powerful tool for information dissemination. News, updates, and trends travel at lightning speed, keeping us informed and aware of events as they unfold. This rapid flow of information empowers individuals, enabling them to stay abreast of global developments and engage in informed discussions.

Communities have found new homes on social media platforms, where like-minded individuals come together to share ideas, support each other, and advocate for causes they are passionate about. These virtual communities provide a sense of belonging, bringing people together who might never have met otherwise.

From a professional standpoint, social media platforms like LinkedIn have become invaluable. They enable networking, career development, and the sharing of industry knowledge. Professionals can showcase their skills, connect with potential employers, and collaborate with peers, fostering a vibrant ecosystem of innovation and opportunity.

Negative Effects

However, it is essential to acknowledge the darker side of social media as well. The rapid spread of information comes with the risk of misinformation. Fake news and false information can quickly go

viral, leading to confusion and mistrust. It is imperative that we develop critical thinking skills and verify sources to combat this growing issue.

Cyberbullying is another grave concern. Social media can be a breeding ground for harassment and negativity, impacting the mental health and well-being of individuals, particularly young users. We must promote kindness, empathy, and respect in our online interactions to create a safer environment for everyone.

Privacy concerns loom large in the digital age. The sharing of personal information on social media platforms exposes us to risks such as data breaches and identity theft. It is crucial to be vigilant about privacy settings and mindful of the information we share online.

Moreover, the convenience of digital communication can sometimes come at the expense of face-to-face interactions. The art of conversation, the nuances of body language, and the warmth of personal connections can be lost when we rely too heavily on screens. We must strive to strike a balance, cherishing both our online and offline relationships.

Lastly, the pressure to present a curated, perfect life on social media can lead to mental health issues. The constant comparison with others can result in anxiety, depression, and a sense of inadequacy. It is vital to remember that social media often portrays a highlight reel, not the full reality of life.

Balancing the Impact

In conclusion, social media is a double-edged sword. It has the power to connect us, inform us, and build communities, but it also poses challenges that we must navigate carefully. By fostering digital literacy, promoting positive interactions, and maintaining a healthy balance between our online and offline lives, we can harness the benefits of social media while mitigating its drawbacks.

Let us embrace the opportunities social media offers, while being mindful of its impact on our communication and well-being. Together, we can create a digital world that enhances our lives, enriches our relationships, and empowers us to be better, more informed global citizens.

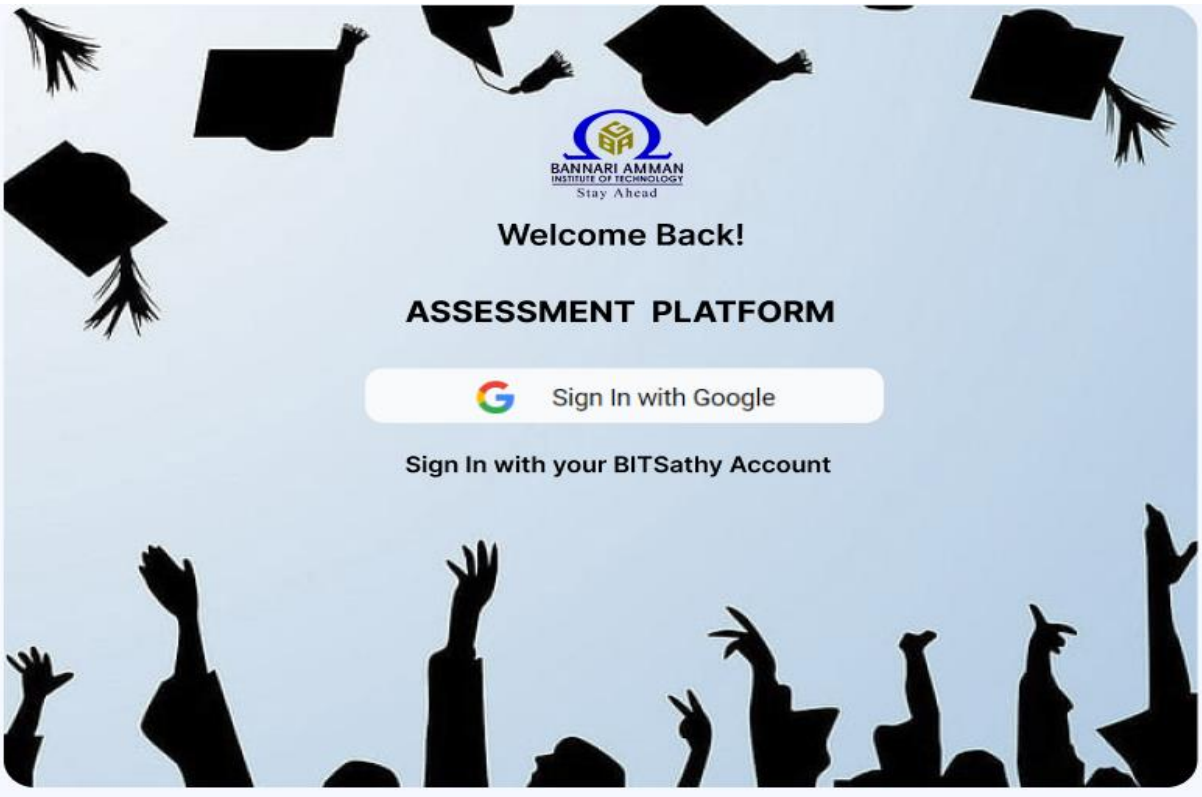
Thank you.

Stack:

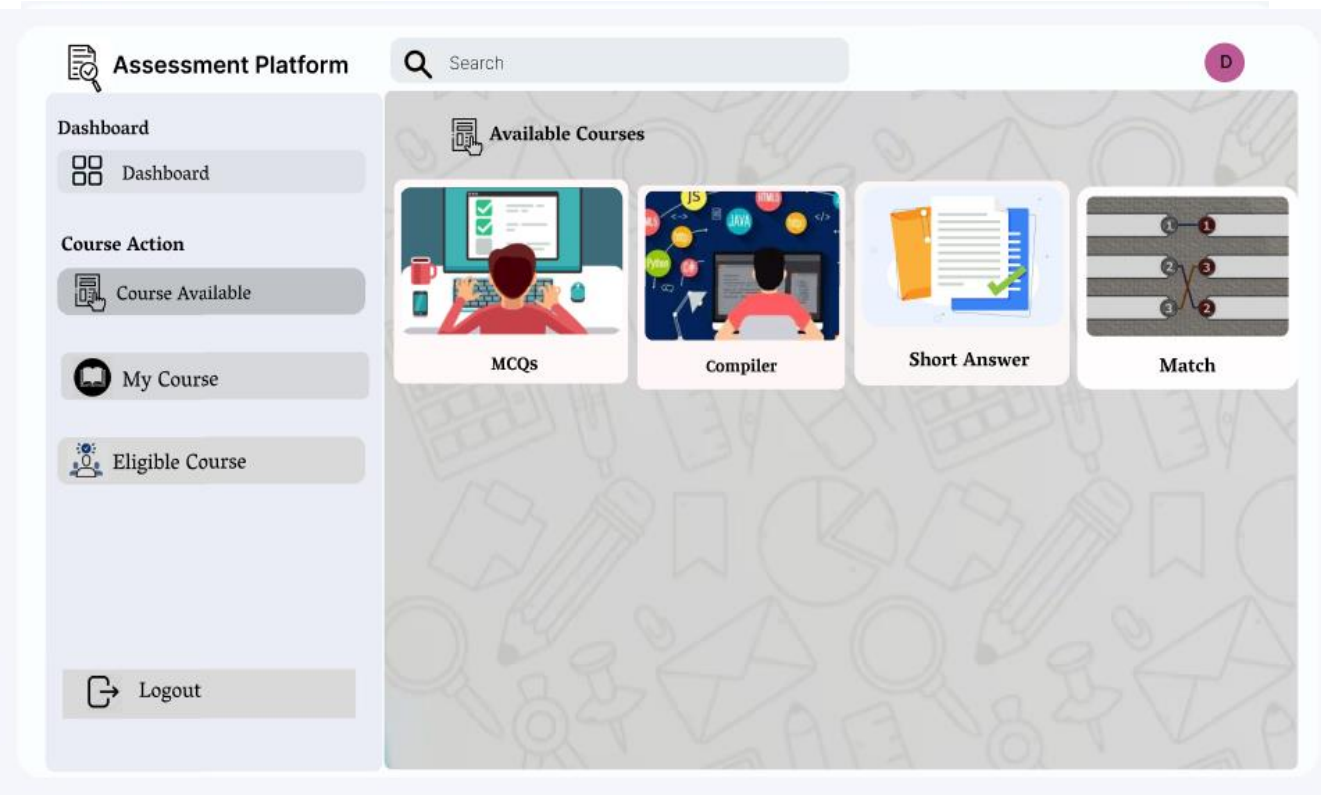
Front End	Angular / React.js
Backend	Java with Spring Boot
Data Base	PostgreSQL, MySQL
API	OpenAI, SOAP APIs, RESTFul API

Prototype of the Project:

1. *Login form*



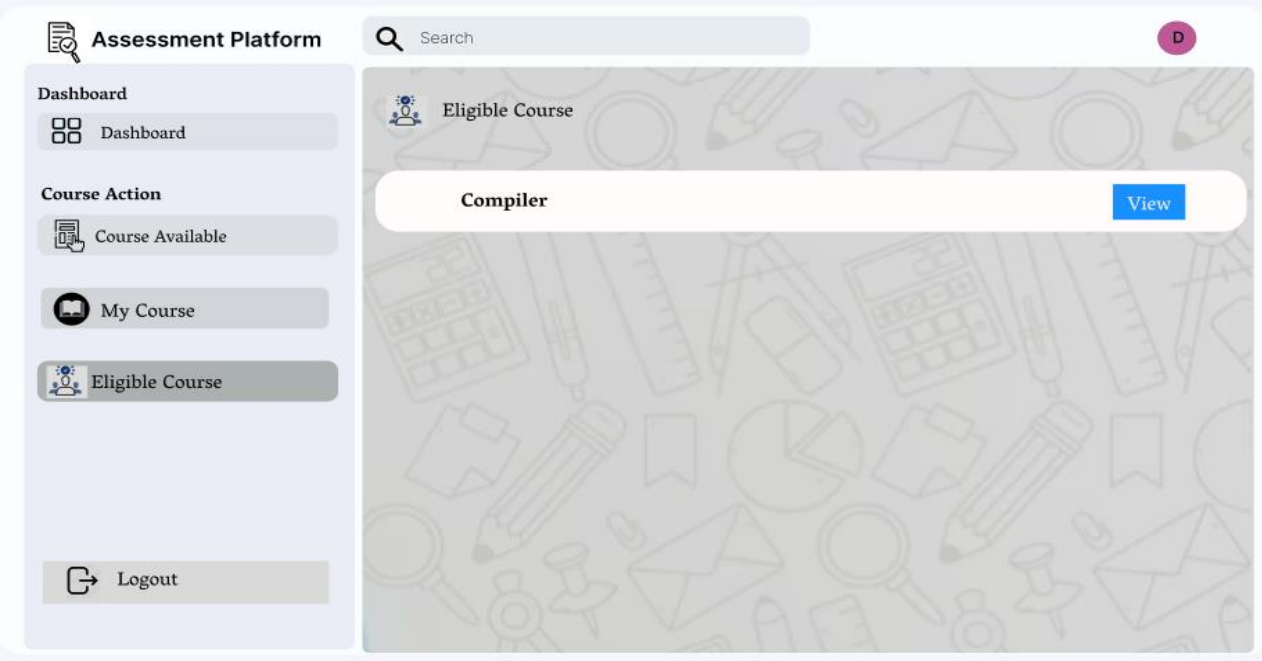
2. Student's view

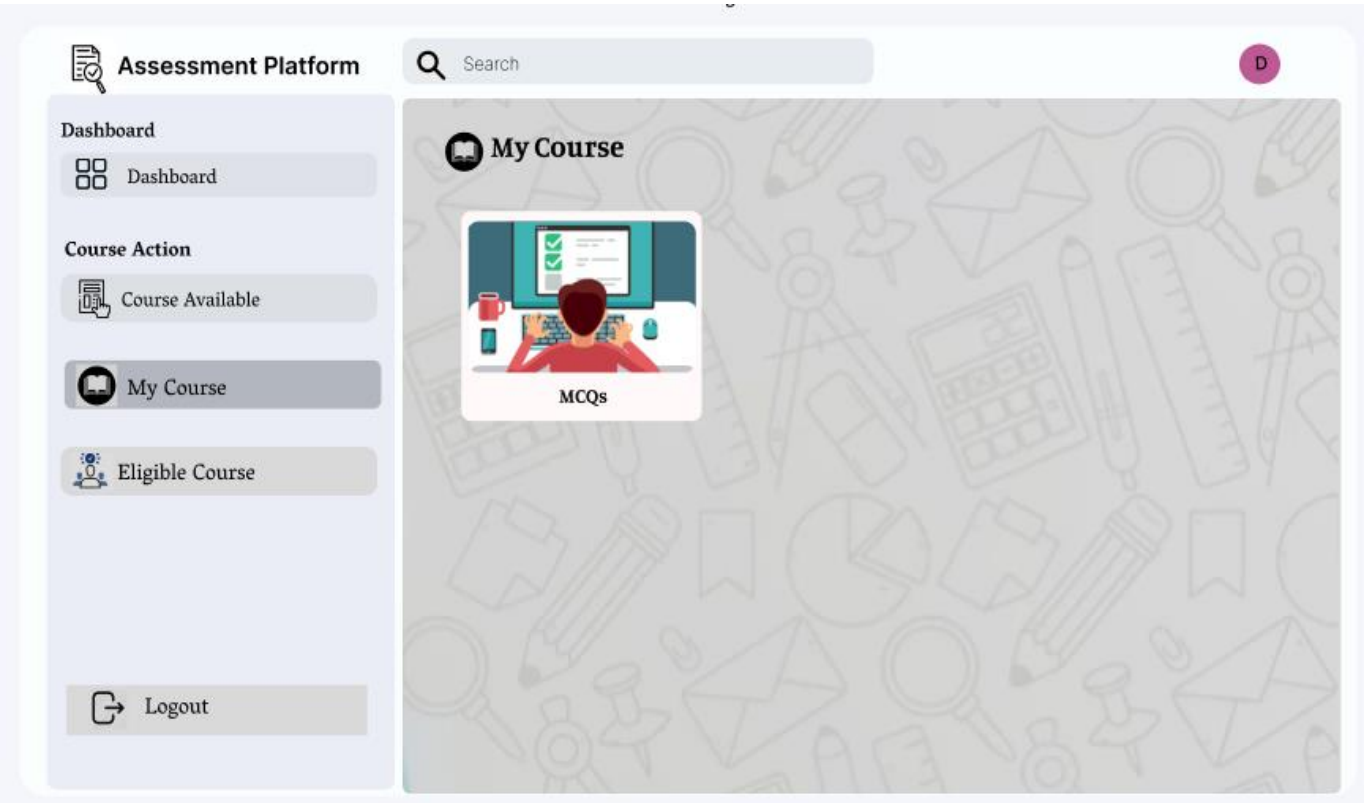


3. Available Course

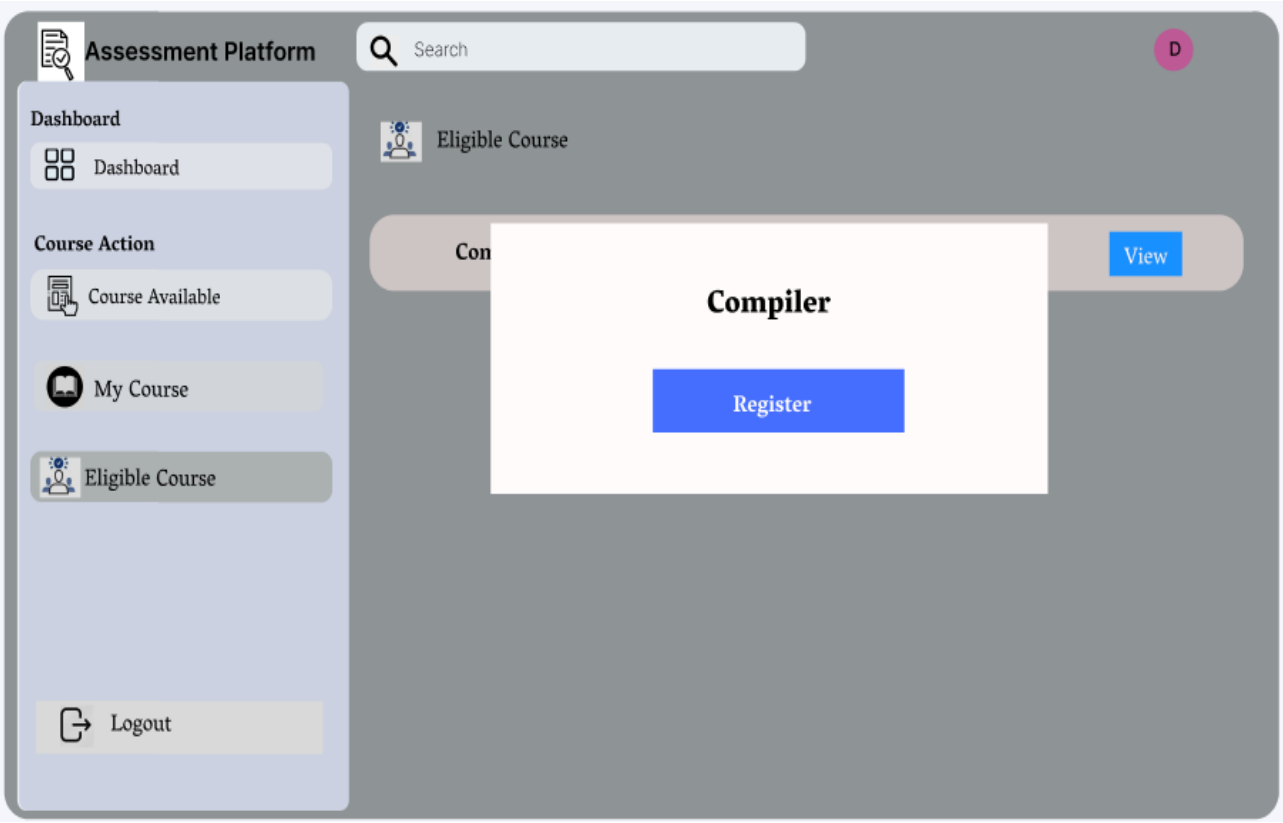
4. My Course

5. Eligible Course

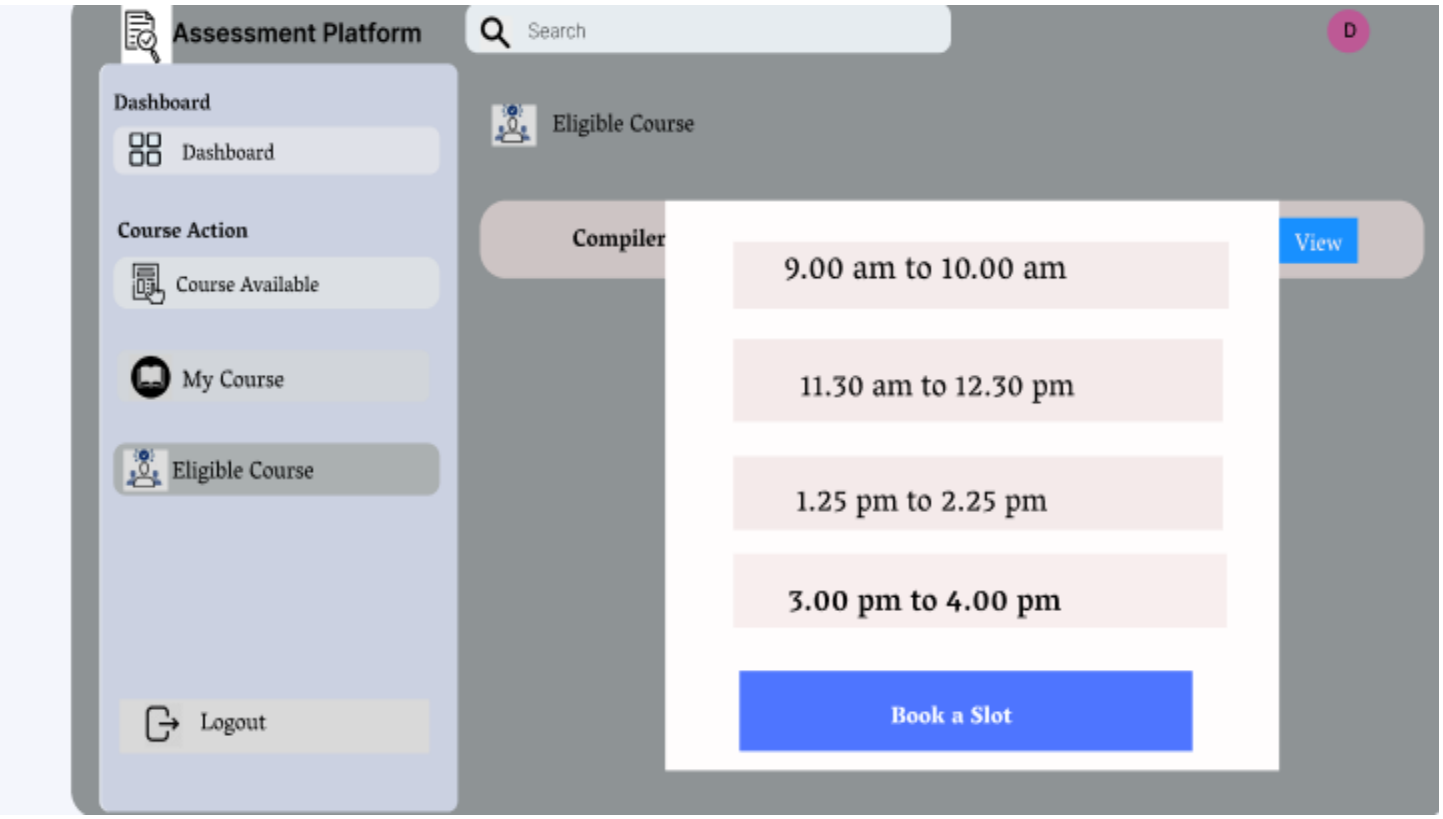




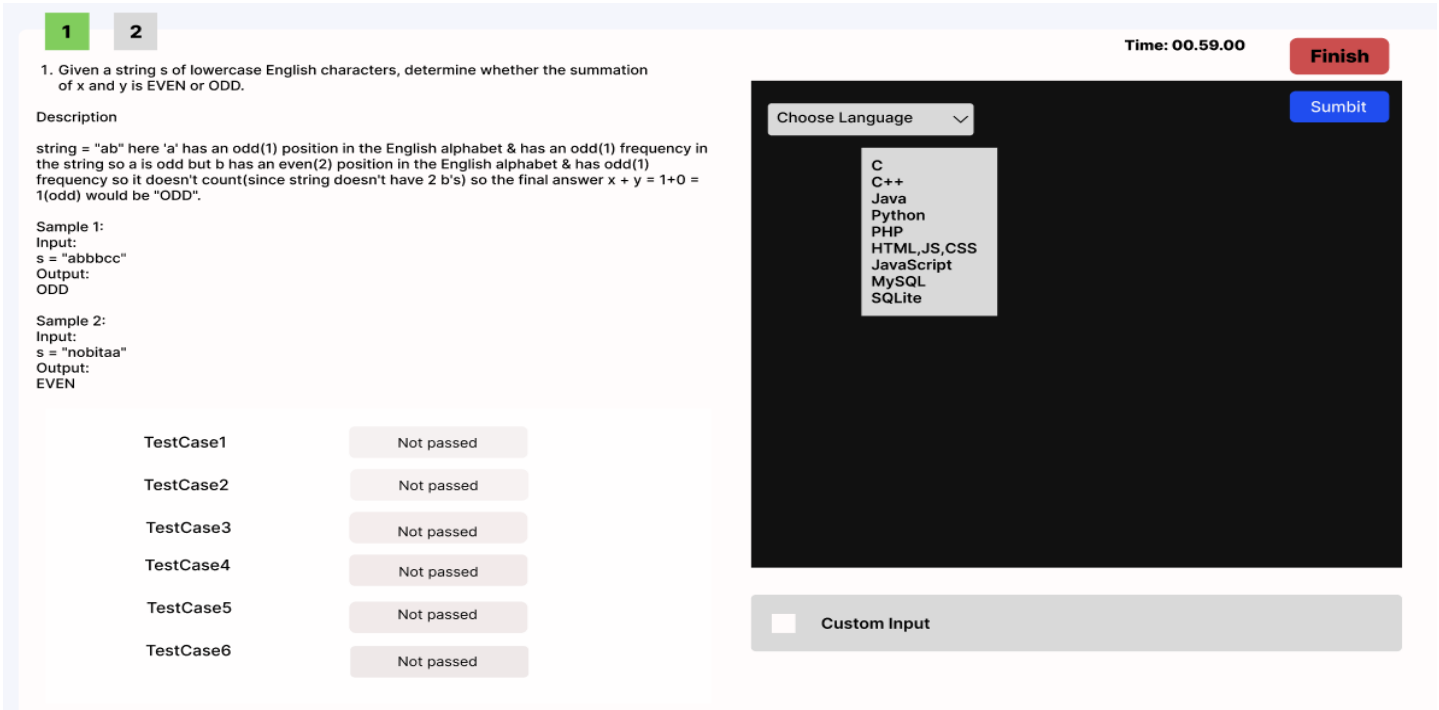
6. Registering the Assessment



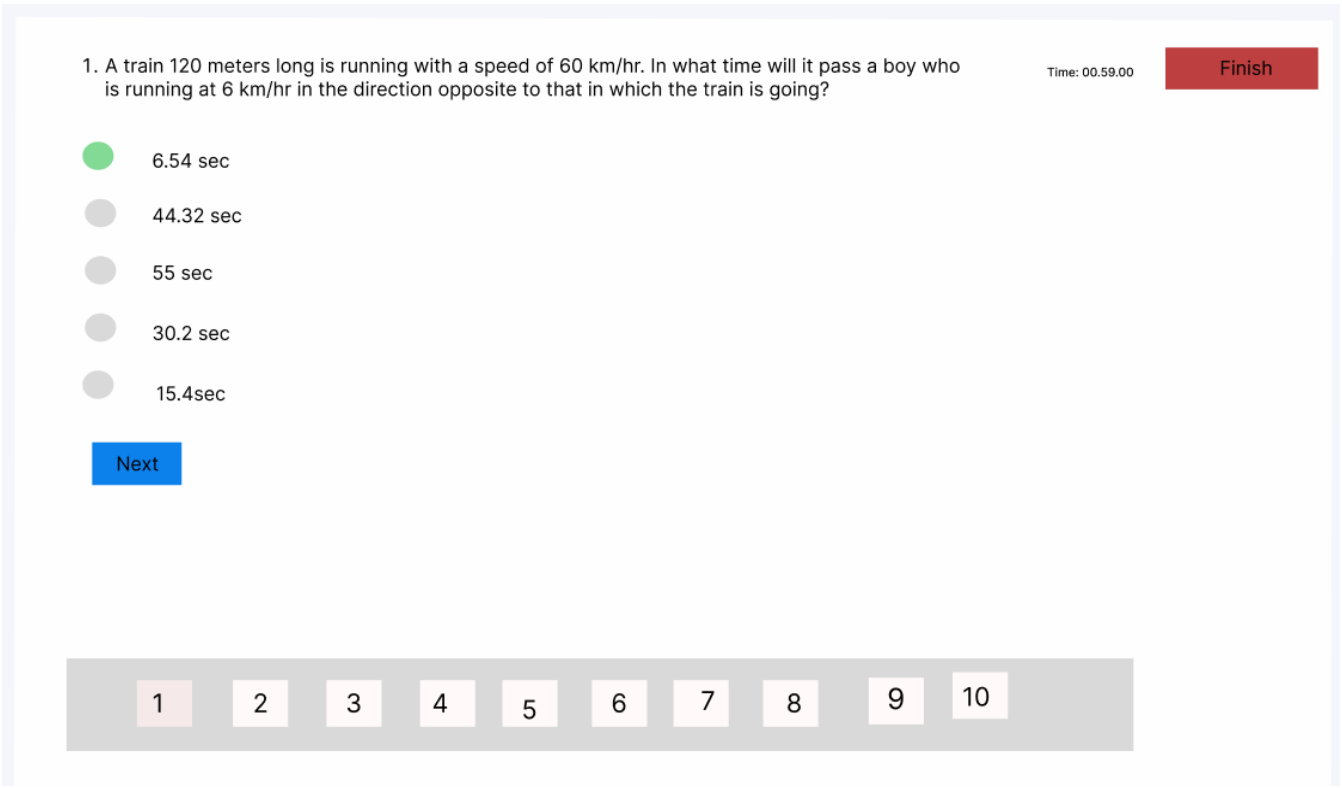
7. Slot Booking



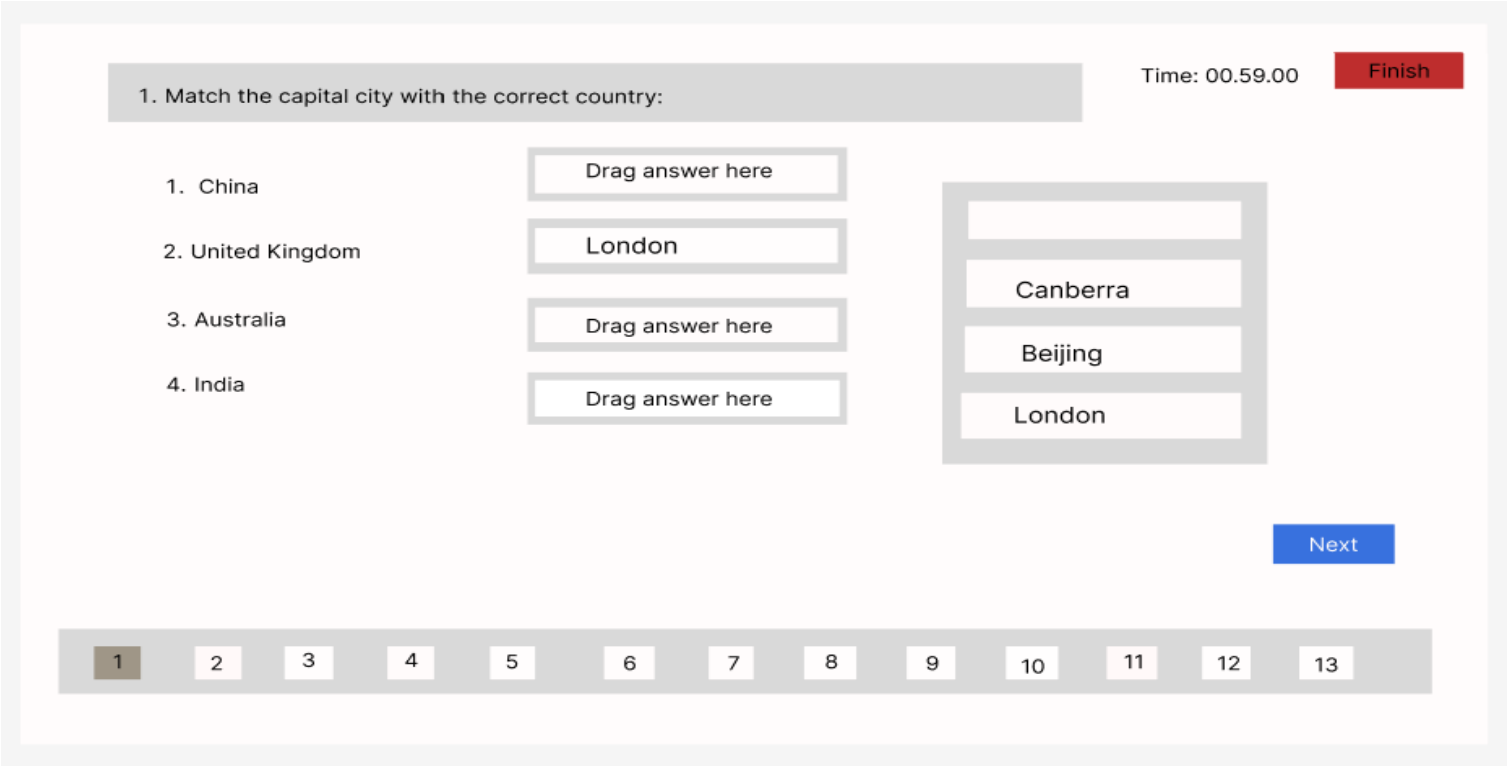
8. Programming page



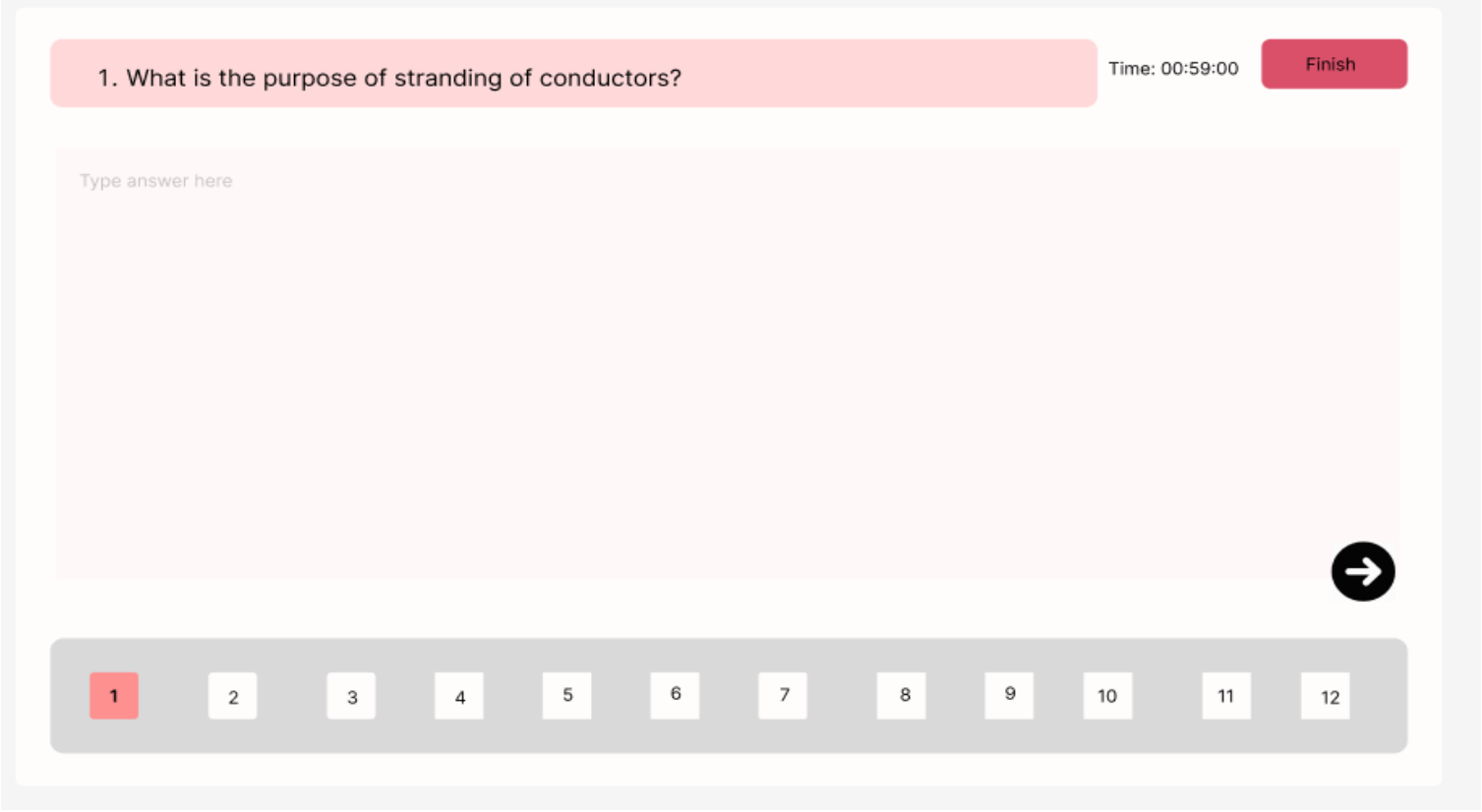
8. MCQ



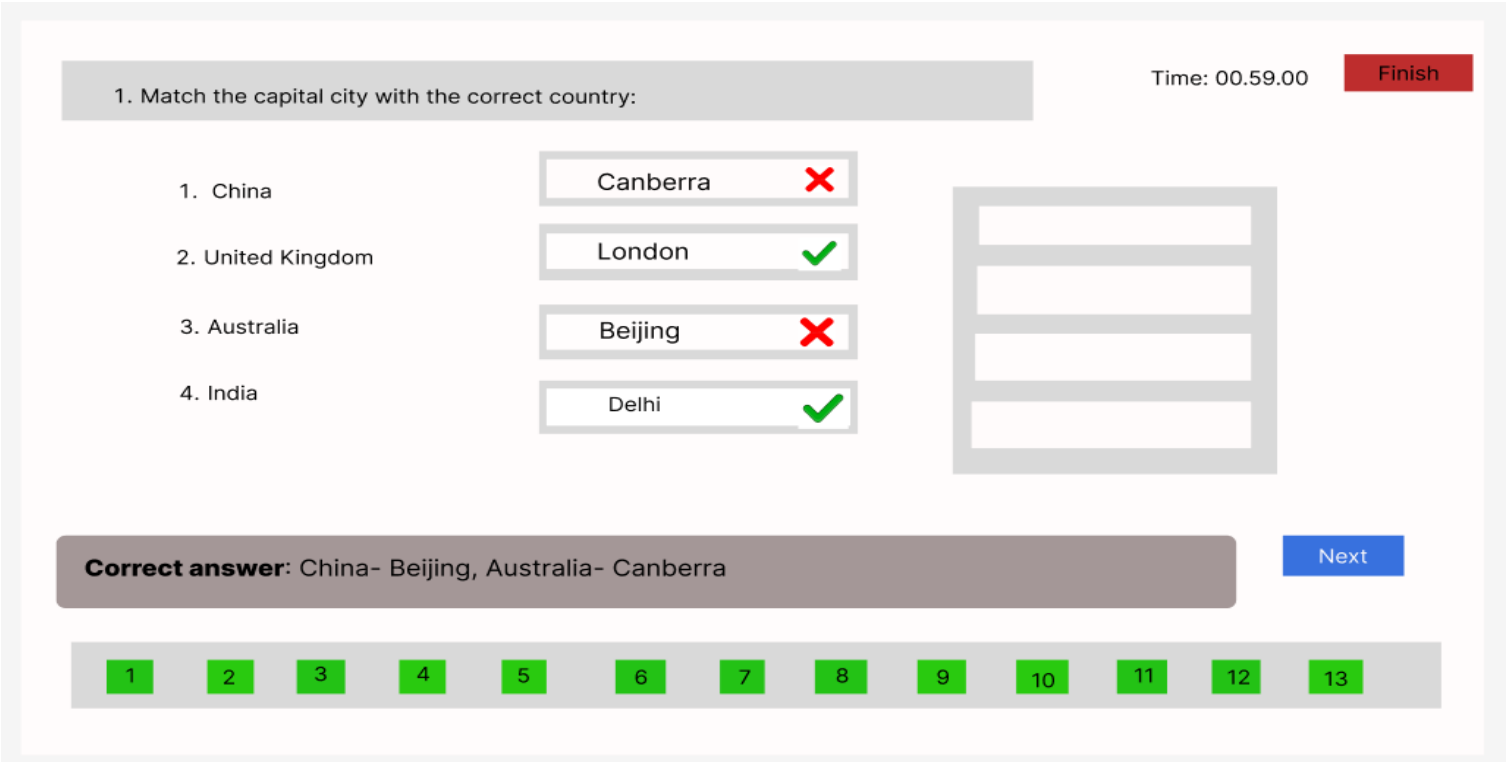
9. Match(with dragging method)



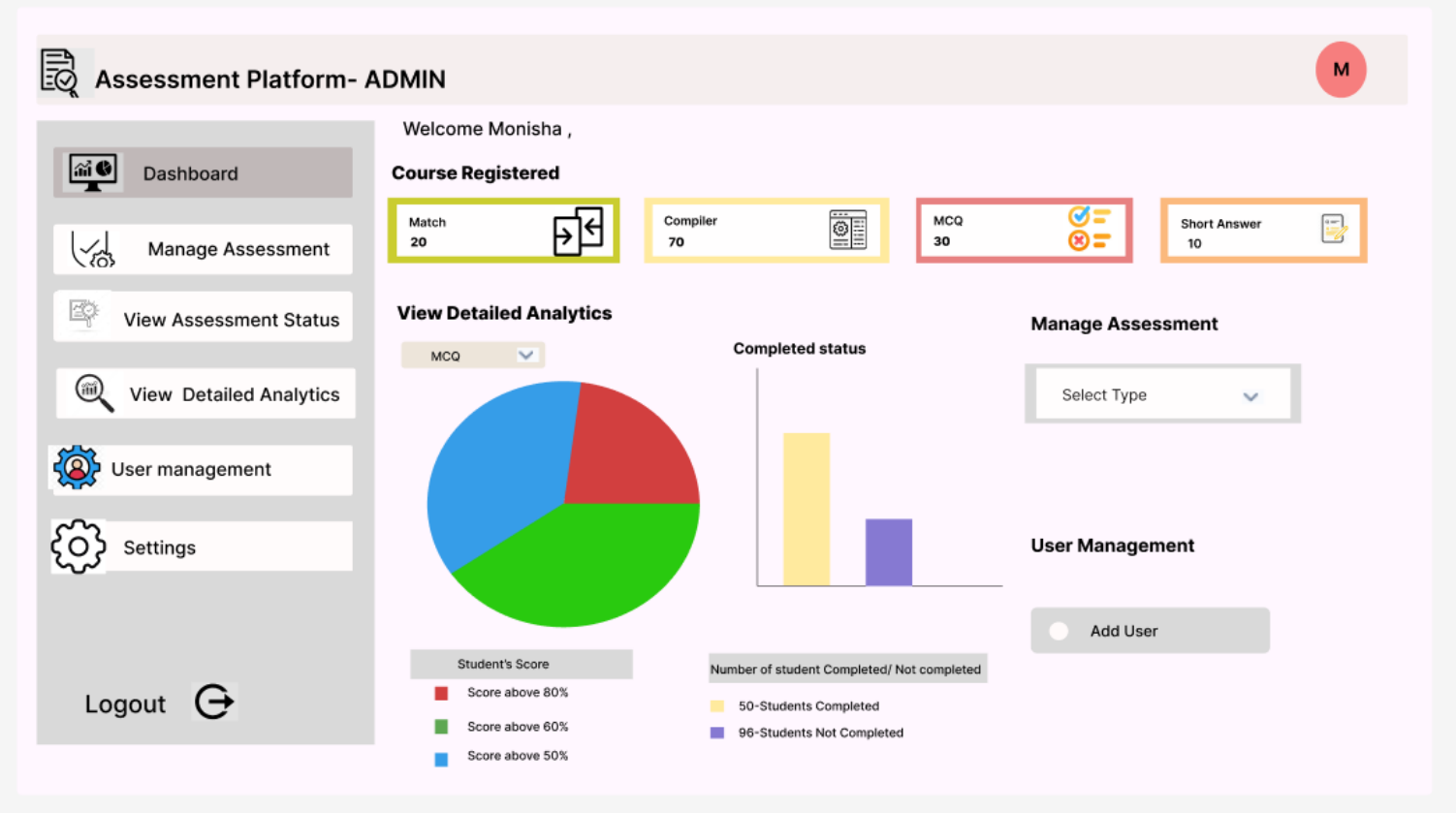
10. Short answer



11. Review the answer



12. Adim view


Assessment Platform- ADMIN
M
Dashboard
Manage Assessment
View Assessment Status
View Detailed Analytics
User management
Settings
Logout
Welcome Monisha ,
Course Registered
Match
20
Compiler
70
MCQ
30
Short Answer
10
View Detailed Analytics
MCQ
Student's Score
Score above 80%
Score above 60%
Score above 50%
Completed status
Number of student Completed/ Not completed
50-Students Completed
96-Students Not Completed
Manage Assessment
Select Type
User Management
Add User