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**PROJECT BASED  
LEARNING**

**Selectify:  
Selecting Smart Candidates In An Interview System Powered by AI**

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## **APPROVAL**

This Project titled “Selectify: Selecting Smart Candidates In An Interview System Powered by AI”, Submitted by Mir Rumana Zebin Alam, ID No: 211-16-566 to the Department of Computing and Information Systems, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computing & Information Systems and approved as to its style and contents. The presentation has been held on 12-01-2025.

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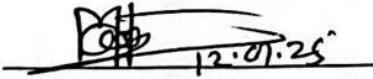
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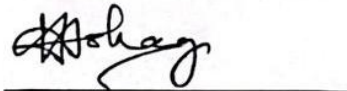
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## Declaration

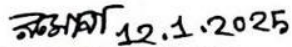
I hereby declare that; this project has been done by me under supervision of **Md. Mehedi Hassan, Lecturer (Senior Scale)**, department of Computing and Information System (CIS) of Daffodil International University. I am also declaring that this project or any part of there has never been submitted anywhere else for the award of any educational degree like, B.Sc., M.Sc., Diploma or other qualifications.

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# Acknowledgement

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# Executive Summary

Selectify is an innovative AI-powered interview platform designed to streamline and enhance the recruitment process for companies and candidates. Leveraging advanced technologies, the system features a video calling platform that identifies human behaviors and integrates an AI generative scanner to evaluate candidates' capabilities against job requirements. Selectify operates on a subscription model and includes dynamic role management with three primary user roles: candidates (User Account), interviewers (Employee Account), and administrators (Admin Account), allowing flexible role changes as needed.

The platform ensures secure and efficient payment processing through SSLcommerz and empowers companies to make data-driven hiring decisions. With a focus on automation, accuracy, and user experience, Selectify redefines how organizations assess and select talent, providing a seamless, intelligent, and efficient recruitment solution.

Selectify is a state-of-the-art AI Generative Interview System crafted to simplify and elevate the hiring process for companies while empowering candidates to showcase their potential. By combining innovative AI technologies with an intuitive interface, Selectify ensures an efficient, accurate, and engaging recruitment experience for all stakeholders.

Key features include:

- ❖ **Video Calling System:** Real-time video interviews with integrated AI to analyze and identify human behaviors, providing valuable insights into candidate suitability.
- ❖ **AI Generative Scanner:** Advanced AI-driven comparison system that evaluates candidates' qualifications, skills, and experiences against job requirements posted by companies.
- ❖ **Dynamic Role Management:** A subscription-based platform offering three user roles:
  - **Candidate Account (User Account):** Enables job seekers to apply, attend interviews, and track their progress.
  - **Interviewer Account (Employee Account):** Designed for professionals to manage and conduct interviews, assess candidates, and provide feedback.
  - **Administrator Account (Admin Account):** Provides full control over user roles, permissions, and platform operations, with the ability to dynamically modify roles as needed.

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# Chapter 1 - Introduction

## **Description of the Project:**

Selectify is a recruitment platform designed to streamline the hiring process and enhance decision-making for companies and candidates. Selectify provides robust functionalities tailored to different user roles. Administrators have complete control over user management, enabling them to dynamically assign and modify roles while overseeing platform operations. Interviewers can efficiently manage candidate interviews, assess performance, and provide insightful feedback, while candidates can apply for positions, attend interviews via video calls, and track their application progress.

With features like AI-driven behavior analysis during real-time video interviews, an advanced generative scanner for skill and qualification comparison, and secure payment integration for subscription management, Selectify redefines traditional recruitment practices. Automated notifications and intelligent evaluations ensure a seamless and efficient hiring experience. This comprehensive system simplifies administrative tasks, fosters data-driven decisions, and empowers organizations to find the right talent, ultimately transforming how companies and candidates interact in the hiring process.

- Selectify is an advanced recruitment platform designed to redefine the hiring process by leveraging cutting-edge AI technology. It provides a streamlined, efficient, and data-driven system that caters to the unique needs of companies and candidates alike.
- **Key Functionalities:**
- **For Administrators:**
  - Dynamic role management, enabling real-time assignment and modification of user roles.
  - Comprehensive control over platform operations, ensuring smooth and secure functionality.
- **For Interviewers:**
  - Tools to manage and conduct video interviews seamlessly.
  - AI-powered behavior analysis to assess candidates' suitability based on their expressions, tone, and body language.
  - Easy access to candidate information and detailed feedback systems.

# Chapter 2 - Initial Study

## 2.1 Project proposal:

### 1. Initial Conception

#### A. Brief description of the project:

Selectify is an innovative AI-driven recruitment platform designed to streamline and enhance hiring processes for companies and candidates. Utilizing advanced technologies, Selectify offers real-time video interviews with integrated AI behavior analysis, ensuring accurate candidate evaluations. Key features include an AI generative scanner to compare candidate qualifications with job requirements, dynamic role management for flexible user access, and secure payment integration through SSLcommerz.

The platform enables administrators to manage user roles and oversee operations dynamically, interviewers to conduct detailed assessments with actionable feedback, and candidates to track application progress and attend interviews seamlessly.

#### B. Proof of concept:

##### i. Prototype:

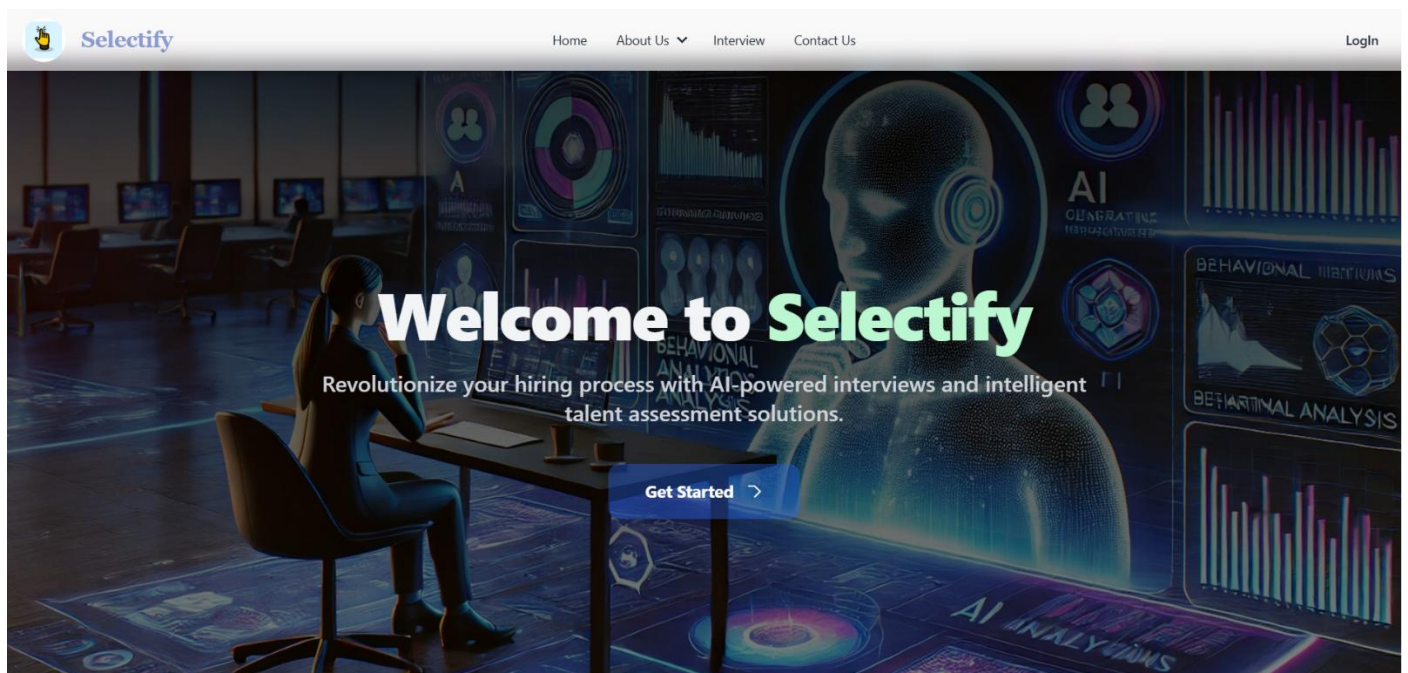


Figure 2.1: Demo of a Selectify

## **ii. Initial research:**

### **Market Viability:**

Selectify addresses a critical gap in modern recruitment by leveraging AI to streamline hiring processes and enhance decision-making. With businesses increasingly prioritizing efficiency and data-driven strategies, Selectify is well-positioned to meet the demand for intelligent hiring solutions. The platform's ability to deliver accurate evaluations and seamless experiences makes it an essential tool for organizations looking to optimize their recruitment workflows.

The growing global workforce and increasing reliance on remote work have created a heightened need for virtual recruitment platforms. Selectify's real-time video calling system and AI-driven assessments align perfectly with these trends, offering businesses a reliable solution for identifying top talent, even in a virtual setting. Its integration of AI for behavior analysis and candidate evaluation ensures that hiring decisions are not only efficient but also fair and unbiased, catering to the evolving expectations of modern organizations [1].

## **2. Feasibility Study**

### **A. Operational Feasibility:**

The use of advanced technologies like NodeJS, Express, and PostgreSQL in Selectify's backend ensures a robust and scalable platform capable of handling high volumes of data and user interactions. This tech stack provides a reliable foundation for managing real-time interviews, candidate evaluations, and user role management with speed and efficiency. By utilizing WebRTC via Agora.io, Selectify ensures seamless video calling capabilities, a critical feature for conducting remote interviews and providing real-time communication between candidates, interviewers, and administrators. The single-page application architecture powered by Next.js offers a smooth and responsive user experience, optimizing load times and overall performance. This enables users, whether they are candidates, interviewers, or administrators, to engage with the platform without delays or interruptions, enhancing usability and satisfaction. Furthermore, the platform integrates secure user authentication and payment processing through SSLcommerz, ensuring that all financial transactions and sensitive data are handled with the utmost security.

## **B. Technical Feasibility:**

Selectify leverages a modern and robust technology stack that ensures technical feasibility for handling the complexities of AI-driven recruitment processes. The combination of NodeJS, Express, and Mongoose provides a stable and scalable backend capable of efficiently managing large volumes of data, multiple concurrent user interactions, and complex queries. NodeJS's non-blocking nature ensures that the platform remains responsive even under heavy load, making it ideal for real-time operations like video interviews and dynamic role management. The integration of WebRTC via Agora.io allows seamless, high-quality video calling functionality, a crucial component for conducting remote interviews. WebRTC ensures real-time communication with minimal latency, enabling a smooth interview process for both candidates and interviewers. By incorporating Agora.io, Selectify benefits from a reliable, high-performance video communication API that handles video conferencing efficiently, regardless of the user's geographical location.

### **Hardware**

- Computer.
- 8 GB RAM.
- 1 TB SSD.
- Internet Connectivity.

### **Software**

- NodeJS.
- Express.
- Mongoose.
- Type Script.
- WebRTC.
- React Js.
- Visual studio code/ Cursor.
- Browser.

### **C. Economic feasibility:**

The economic feasibility of Selectify evaluates the costs associated with developing, deploying, and maintaining the platform, while also considering its potential for generating revenue and ensuring profitability. A comprehensive analysis of the project's financial aspects, including development, operational costs, and revenue generation, is essential to determine its economic viability in the long run.

The initial development costs for Selectify are focused on building a robust AI-powered platform, integrating real-time video communication, and implementing secure payment systems. Key areas of expenditure include . Selectify's development costs can be recovered through its subscription and pay-per-use models, assuming an initial customer base of recruitment agencies and businesses. The breakeven point may be achieved within 18-24 months, depending on the rate of user acquisition and market penetration.

With strong marketing efforts, strategic partnerships, and continual platform enhancements, Selectify can expect to see increased customer retention and an expanding user base. Projected growth rates of 15-25% annually for the first five years would lead to a positive ROI and long-term financial sustainability . Selectify demonstrates strong economic feasibility, with a solid development and operational cost structure, scalable revenue streams, and high market demand.

The project's subscription-based model, combined with AI-driven innovations, positions it as a competitive and attractive product in the recruitment tech market. By maintaining a focus on operational efficiency and customer acquisition, Selectify has the potential to generate substantial profits while delivering significant value to its users [2].

#### **Costs are divided into three parts:**

- Software Cost.
- Hosting Cost.
- Storage Cost.

#### **D. Comparative analysis:**

Selectify stands out in the recruitment technology landscape by combining AI-driven insights, real-time video communication, and dynamic role management. Compared to traditional recruitment platforms like LinkedIn and Indeed, Selectify offers a more comprehensive, data-driven approach. While LinkedIn focuses primarily on networking and job postings, and Indeed primarily aggregates job listings, Selectify provides an end-to-end solution that includes video interviews, AI-based candidate evaluation, and real-time behavioral analysis, which greatly enhances the recruitment process.

Additionally, platforms like Zoom or Skype provide video calling but lack the integration of AI to assess candidate behavior or qualifications. Selectify's unique AI generative scanner evaluates candidates' skills and qualifications against specific job requirements, ensuring a more accurate and data-driven hiring decision, a feature that most video conferencing tools lack

### **3. Foundation**

#### **A. Define Goal And Object Of the Project:**

**Goal:** The primary goal of Selectify is to revolutionize the recruitment process by integrating AI-driven insights, real-time video communication, and dynamic role management to streamline the hiring process, improve decision-making, and ensure a better fit between candidates and employers. Selectify aims to provide an all-in-one platform that not only facilitates efficient job application management but also enhances the interview experience by incorporating advanced behavioral analysis and automated candidate assessments.

#### **Objectives:**

- A. Enhance Communication.
- B. Simplify the Management of Appointments.
- C. Enhance the experience of patients.
- D. Efficient Prescription Management.
- E. Implement AI for Disease Identification.
- F. Ensure Scalability and Performance.
- G. Admin Functionality.
- H. User Feedback and Reviews.

### **Hight level features/requirement to achieve goals/objectives:**

- User Authentication and Authorization.
- Subscription Base Modeal Use Selectify.
- Real Time Communication.
- All Companys Interview Management.
- Payment Integration.
- Emloyee Controller System.
- User Reviews and Ratings.
- Admin Dashboard.
- Data Security and Privacy.
- AI Generative CV Scanner .
- User Interface and Experience
- Human Behaviour Analysis.

### **Nonfunctional requirements:**

- Performance.
- Availability.
- Security.
- Usability.
- Maintainability.
- Interoperability.
- Reliability.
- Support and Documentation.

## 4. Exploring and Engineering

### A. Iterative development:

#### Time Boxing

Timeboxing is a straightforward time management method that entails setting up a specific amount of time in advance for an activity and then finishing it inside that time limit.

Table 2.1: Time boxing table for doctors portal

No	Description of task	Time	Resource
<b>I</b>	Initial Study	5 days	User & Developer
<b>2</b>	Requirement Gathering and Analysis	5 days	Developer User & Admin
<b>3</b>	Design	10 days	Developer User & Admin
<b>4</b>	Implementation	30 days	Developer & User
<b>5</b>	Testing	10 days	Developer & User
<b>6</b>	Documentation	3 days	Developer & Analyst

## **Deployment:**

Deploying the Selectify project involves several essential steps to ensure a smooth, secure, and scalable rollout. The backend, developed using Node.js and Express, is containerized with Docker to maintain consistent environments across development, testing, and production. PostgreSQL, the selected database, is hosted on a reliable and scalable managed service such as Amazon RDS. Prisma, the ORM, is used to efficiently manage database schemas and migrations.

The AI-powered candidate evaluation system requires proper configuration and integration with the AI model, ensuring it functions seamlessly in the production environment. The real-time video communication feature, powered by WebRTC, is set up via Agora.io, with the necessary SDKs and API keys configured for secure and smooth operation in production.

The front end, built using Next.js, is deployed on Vercel, offering benefits like server-side rendering (SSR) to improve performance, enhance SEO, and ensure fast load times. Continuous Integration and Continuous Deployment (CI/CD) pipelines are implemented with GitHub Actions, automating testing, building, and deployment. These pipelines ensure that any updates are efficiently tested, built, and deployed to production, minimizing downtime and maintaining a consistent user experience.

With secure user authentication, payment processing, and AI-powered insights, the platform's deployment ensures that it's ready to handle high volumes of users while offering a robust, seamless recruitment experience.

## **2.2 Background of the Project:**

With the increasing demand for more efficient and data-driven recruitment processes, the Selectify project aims to revolutionize how candidates, interviewers, and administrators interact. By leveraging cutting-edge technologies such as Node.js, Express, Prisma, WebRTC (Agora.io), and PostgreSQL, the system ensures secure and efficient data management. The platform enables real-time communication during interviews, seamless candidate evaluations, and dynamic scheduling. It also integrates AI to analyze candidate behaviors and compare qualifications against job requirements. Featuring a single-page application with server-side rendering (SSR) using Next.js, Selectify delivers a smooth, responsive user experience. This project is designed to enhance the recruitment process, improve hiring decisions, and simplify administrative tasks, making the hiring process more efficient and effective for employers and candidates alike.

## 2.3 Problem areas:

Implementing the Selectify project can present several challenges across different aspects of the system. Identifying these potential problem areas early can help in devising strategies to mitigate them effectively. One of the main challenges is ensuring smooth real-time communication during video interviews, which can be impacted by internet connectivity or system performance. Addressing this requires optimizing the WebRTC integration and ensuring proper server configuration with Agora.io to minimize latency and interruptions.

Another challenge is the AI-driven evaluation system. Ensuring that the AI model accurately analyzes candidate behaviors and qualifications can be complex and requires continuous fine-tuning. To mitigate this, it is essential to gather sufficient training data and test the model under various scenarios to ensure its reliability and precision.

Managing user roles and permissions dynamically in a subscription-based model could also pose challenges in terms of flexibility and user experience. Ensuring that admins can easily modify roles without affecting system performance will require a robust role management system and seamless UI design.

Additionally, data security and privacy are critical, especially when handling sensitive candidate information. Implementing strong encryption methods, secure authentication, and regular audits will be necessary to protect user data and maintain trust.

- **Real-time Communication.**
- **Data Security and Privacy.**
- **System Integration.**
- **User Experience.**
- **AI Implementation.**
- **Performance and Scalability.**
- **Automated Notifications.**
- **Regulatory Compliance.**
- **Technical Debt and Maintenance.**

## 2.4 Possible solution:

To address potential problem areas in the Selectify project, several solutions can be implemented.

- **Scalability and Performance:** Use cloud-based infrastructure to ensure the system can handle increasing numbers of users and data efficiently.
- **Security:** Implement robust authentication and authorization protocols, including encryption for data in transit and at rest, to safeguard sensitive user information.
- **Real-Time Communication:** Leverage WebRTC with Agora.io for reliable and high-quality video and audio communication, while incorporating fallbacks and optimizations to ensure minimal latency and high availability.
- **Interview Scheduling:** Use an intuitive and responsive scheduling system with real-time updates and automated reminders to prevent conflicts and missed interviews.
- **Data Management:** Employ Prisma with PostgreSQL for efficient data handling, schema management, and backup solutions to prevent data loss.
- **Payment Processing:** Integrate secure payment gateways and ensure compliance with payment security standards, such as PCI-DSS, to handle transactions smoothly and securely.

## Chapter 3 - Literature Review

The Selectify project focuses on leveraging artificial intelligence (AI) and real-time communication to revolutionize the recruitment process, specifically in the context of interview assessments and candidate evaluations. Several key areas of technology have been researched and analyzed to ensure the success of this project.

**AI in Recruitment:** AI has been increasingly utilized in recruitment systems for evaluating candidates' skills, qualifications, and overall fit for a role. By applying machine learning algorithms to candidate data, AI can identify patterns and predict job performance more accurately than traditional recruitment methods. In the case of Selectify, the AI-powered generative scanner will compare a candidate's capabilities with job requirements, facilitating a more data-driven and objective selection process.

**Behavioral Analytics in Interviews:** Behavioral analysis during interviews is another emerging field in AI-based recruitment. AI systems can be trained to detect emotional and psychological cues, such as facial expressions, voice tone, and body language, which can provide deeper insights into a candidate's suitability for a role. This type of analysis helps interviewers make more informed decisions by going beyond traditional interview techniques. In Selectify, AI will be integrated to analyze candidates' behaviors during video interviews, providing interviewers with a comprehensive understanding of candidates' soft skills [3].

### 3.1 Discussion on problem and solution domain based on published articles:

The problem domain for Selectify revolves around the inefficiencies and limitations in traditional recruitment processes, particularly in the areas of candidate evaluation, interview management, and overall user experience. Traditional methods often involve subjective assessments, which can lead to bias, inconsistency, and time-consuming manual tasks. Several challenges are commonly faced in recruitment processes, including [4]. Traditional interviews are highly dependent on human judgment, which can be influenced by unconscious bias. This bias can skew the decision-making process, leading to the selection of candidates who may not be the best fit for a role. This is a significant problem, as it can impact the fairness and effectiveness of the recruitment process [5].

Selectify seeks to address these problems by integrating advanced technologies, such as AI, WebRTC, and secure payment processing, into its platform. The solutions proposed by Selectify directly target the pain points within the recruitment process [6]. One of the key solutions in Selectify is the AI-powered generative scanner system, which objectively compares candidates' qualifications, skills, and behavioral traits against job requirements posted by companies. This solution aims to eliminate bias in the recruitment process by using data-driven insights to evaluate candidates more effectively. AI-based solutions for recruitment have shown to improve decision-making by providing a deeper analysis of candidate potential beyond resumes and interviews.

Selectify utilizes WebRTC via Agora.io for real-time, high-quality video communication during interviews. This solution addresses the challenges of poor connectivity and low-quality video often encountered in traditional video interviews. WebRTC is known for its low latency, which is essential for ensuring smooth communication and a seamless interview experience. By integrating Agora.io's WebRTC solution, Selectify can provide a reliable and efficient platform for remote interviews, ensuring that interviewers can assess candidates effectively regardless of their location.

### 3.2 Recommended approach:

To successfully implement the Selectify project, it is crucial to adopt a methodical approach that combines technology, process design, and user experience considerations. The following key recommendations outline an effective approach for developing, deploying, and scaling Selectify.

#### **Waterfall Model:**

Implementing the **Waterfall Model** in the **Selectify** project requires a structured, sequential approach to software development. The Waterfall model emphasizes a clear and linear progression through distinct phases: requirements gathering, design, implementation, testing, deployment, and maintenance. Here's how the Waterfall Model can be applied to Selectify. The first step involves gathering comprehensive requirements from all stakeholders, including candidates, interviewers, and administrators. This phase aims to define what functionalities the platform should support, such as video interviews, AI-driven candidate analysis, secure payments [7].

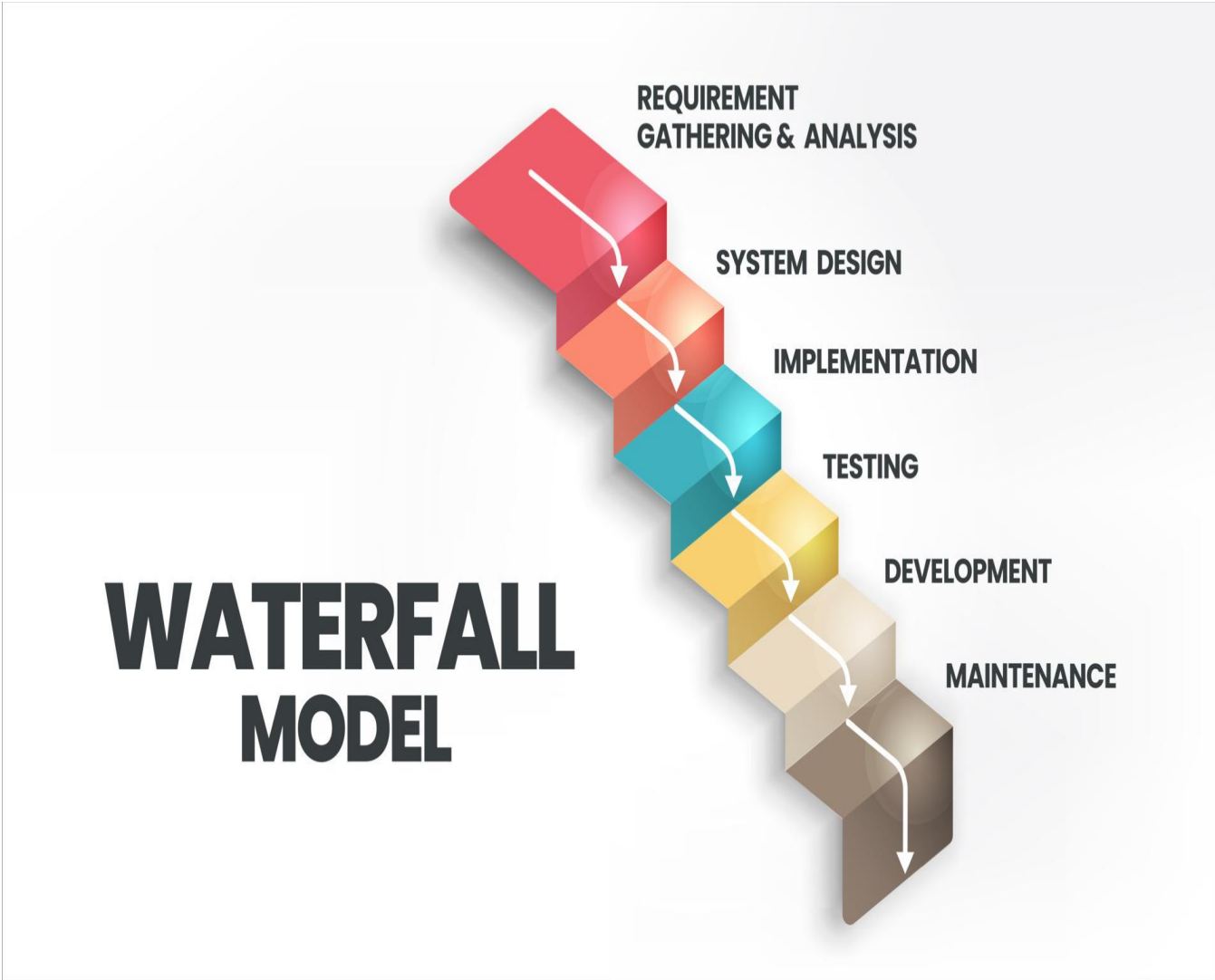


Figure 3.1: Waterfall model diagram

### **Agile Methodology:**

Implementing **Agile Methodology** in the **Selectify** project would involve adopting an iterative, flexible, and collaborative approach to software development. Agile emphasizes delivering small, functional segments of the application at regular intervals (typically in 2-4 week sprints) and incorporating constant feedback to make adjustments as needed. Here's how Agile can be applied to the **Selectify** project [8].

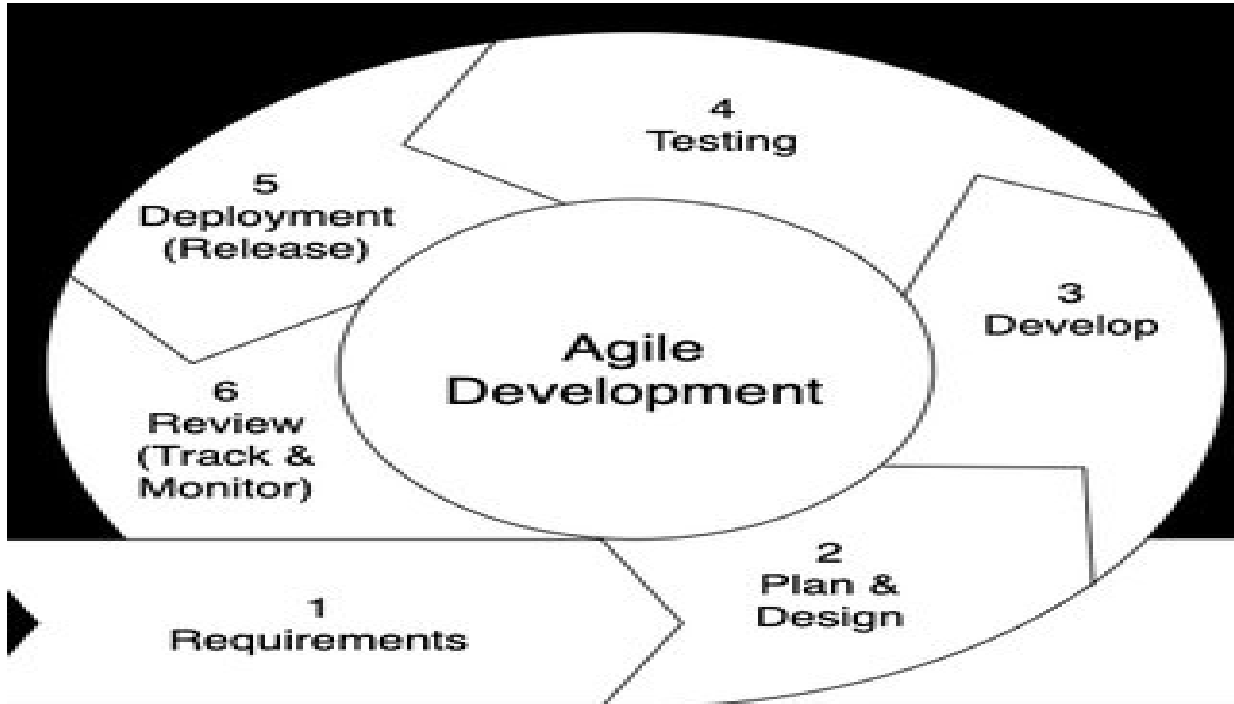


Figure 3.2: Agile model diagram

### **Dynamic System Development Methodology (DSDM):**

Originally designed for software development, the Dynamic Systems Development Method (DSDM) is an agile project management framework that first emerged in 1994. Building on the foundation of Rapid Application Development (RAD), which emphasized quick prototyping and iterative adjustments based on user feedback, DSDM has evolved into a versatile project management approach. Over time, it has grown from a tool focused solely on software projects to a widely applicable framework that can be used across various industries and project types [9].

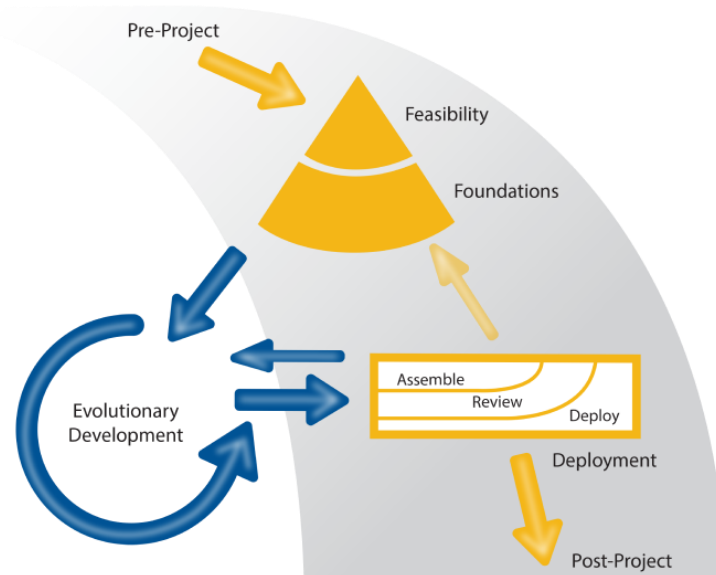


Figure 3.3: DSDM Process Methodology

The development of the Selectify system is a key part of my research project, and it faces challenges due to the need for a cohesive approach. Since not all aspects of the project were fully defined from the start, my primary tasks involve gathering data, analyzing it, and prioritizing development tasks. As the sole developer without a dedicated team, I find that combining elements from both the waterfall and DSDM models works well. The waterfall model aids in thorough requirement gathering, while the DSDM model enhances the efficiency of ongoing development. This hybrid approach provides flexibility and adaptability throughout the project, allowing for iterative changes and improvements as needed.

### 3.3 Why to Use:

The Selectify project tackles key challenges in the recruitment and interview process. The development process is carefully structured to meet the system's needs, ensuring its overall success and alignment with the project goals. While specific implementation details are still being refined, several factors influence this approach:

- The system enables seamless interaction between candidates, interviewers, and administrators.
  - It incorporates features that enhance user engagement.
  - The system is built to provide the necessary functionalities effectively.
  - It ensures timely support and responsiveness when required.
  - The project is designed to be completed within the established timeline.

### 3.4 Implementation Plan:

The implementation plan for Selectify follows a phased approach, beginning with the establishment of the core technology stack, including NodeJS, Express, TypeScript, Mongoose, and React. The first phase focuses on developing essential features such as user authentication, candidate and interviewer profile management, and real-time communication. In the next phase, the system will incorporate functionalities like the AI generative scanner, interview management, and secure payment processing. Continuous testing and user feedback will drive iterative improvements, ensuring optimal functionality and security. The final phase will involve deployment, ongoing monitoring, and maintenance to ensure sustained performance and reliability of the system.

Throughout the development process, Selectify will prioritize scalability, ensuring that the system can handle growing user bases and increasing data volumes as the platform evolves. Additionally, security measures will be embedded from the start, including robust encryption, secure user authentication, and data privacy protocols to protect sensitive candidate and employer information. User experience will be a key focus, with the platform being optimized for smooth navigation and responsiveness across various devices

## Chapter 4 – Planning

### 4.1 Project Plan:

The Selectify project addresses critical challenges in the recruitment and interview process by enhancing communication and coordination between candidates, interviewers, and administrators. Research highlights that poor communication during interviews can lead to misjudgments, delays in hiring, and reduced candidate satisfaction. Traditional methods of managing interviews and candidate evaluations are often inefficient and error-prone. Transitioning to a digital platform, as supported by various studies, significantly improves both the accuracy and efficiency of the recruitment process, ensuring better hiring decisions and a smoother experience for all parties involved [10].

#### 4.1.1 Work Backdown Structure (WBS):

The work breakdown structure (WBS) serves as a detailed guide for designing the complex multi-tiered interview processes in the Selectify project. It helps identify areas for improvement and outlines the necessary steps to enhance team operations and overall system performance. Each level of work is thoroughly analyzed, from high-level tasks to more detailed stages. By using the work breakdown structure, the development team ensures the most efficient outcomes. This framework seamlessly integrates with the carefully planned project stages, ensuring that every aspect of the recruitment and interview system is carefully structured for success.

Table 4.1: WBS for Doctors portal

<b>NO.</b>	<b>TASK-DESCRIPTION</b>	<b>TIME/DAY</b>
<b>01</b>	Registration & Login System.	2
<b>02</b>	UI Design for web	5
<b>04</b>	Customer able to search doctor based on their disease.	10
<b>05</b>	Online payments.	10
<b>06</b>	Booking and online receipts generated by the system.	20
<b>07</b>	Real time tracking for the doctors availability.	15
<b>08</b>	AI integretion	10

#### 4.1.2 Time Duration/Time Boxing:

Timeboxing is an effective time management technique utilized in the Selectify project, where a fixed maximum unit of time is allocated to specific development or operational activities in advance. Each task or activity is then completed within the defined time frame, ensuring efficient use of resources and maintaining project momentum while meeting deadlines [11].

Table 4.2: Selectify System Execution

<b>NO</b>	<b>DESCRIPTION OF TASK</b>	<b>TIME/DAYS</b>	<b>RESOURCE</b>
<b>1</b>	Initial Study	20	User & Developer
<b>2</b>	Requirement Gathering and Analysis	15	Developer User & Admin
<b>3</b>	Design	15	Developer User & Admin
<b>4</b>	Implementation	20	Developer & User
<b>5</b>	Testing	22	Developer & User
<b>6</b>	Documentation	30	Developer & Analyst

### 4.1.3 Gantt Chart

A Gantt chart is a vital tool in the Selectify project, visually representing information through a horizontal bar graph. It enables project managers and team members to quickly view task schedules, dependencies, and progress at a glance. By planning and displaying all tasks in one centralized view, the chart ensures the team remains organized and focused, helping to meet project deadlines efficiently [12].

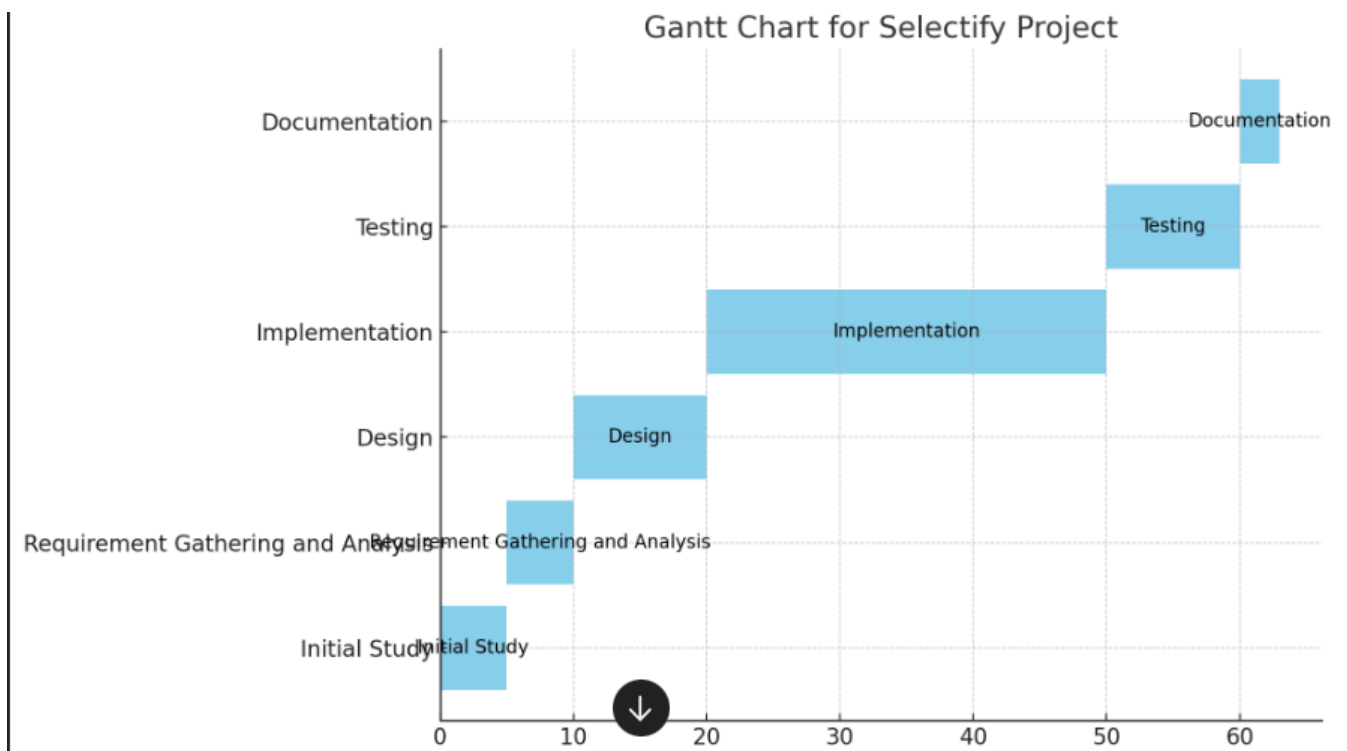


Fig 4.1: Gantt-Chart

## 4.2 Test plan:

The test plan for the Selectify project will ensure that all system components operate effectively and align with user expectations. The testing strategy includes unit testing to validate individual features, integration testing to verify seamless interactions among modules, and end-to-end testing to ensure the system's overall functionality. Functional testing will cover key user roles—Admin, Employee, and Candidate—to confirm account management, interview scheduling, video calling, and payment processing capabilities. Security testing will focus on safeguarding authentication, authorization, and data privacy. Performance testing will evaluate the system's responsiveness and scalability under varying conditions. The reliability and latency of real-time communication via WebRTC will also be rigorously tested. Lastly, user acceptance testing (UAT) will involve real users to ensure the platform meets practical requirements and expectations. The comprehensive test plan is designed to identify and resolve issues, guaranteeing a robust, efficient, and user-friendly application.

### 4.2.2 Required Test:

#### **Functional Testing for the Selectify Project:**

- ❖ **Integration Testing:** This phase is critical for ensuring seamless interaction between multiple components, especially in a system as dynamic as Selectify. Integration testing combines key features or groups to verify smooth functionality. Rigorous verification processes confirm that all modules operate cohesively before advancing to final test executions.
- ❖ **Unit Testing:** Detailed testing of individual segments and components ensures the accuracy and proper functioning of each element. Unit testing plays a vital role in maintaining quality, supporting development activities, and verifying compliance with standards and requirements.
- ❖ **System Testing:** After integration testing, system testing provides a comprehensive evaluation of Selectify's capabilities, features, and requirements. This phase ensures that the system performs effectively under different scenarios and highlights areas for optimizing workload management.
- ❖ **Acceptance Testing:** In the final testing phase, user participation is essential. Acceptance testing evaluates user satisfaction by assessing whether the system meets core business objectives and fulfills user expectations. This step ensures Selectify delivers value and achieves its intended goals.

## **Nonfunctional Testing for the Selectify Project:**

- ✓ **Security Testing:** This phase is dedicated to evaluating the Selectify system's security robustness from both internal and external perspectives. It involves identifying vulnerabilities, such as SQL injection risks, to strengthen defenses against potential threats. Comprehensive assessments of security measures ensure the protection of sensitive data and mitigate risks effectively.
- ✓ **Usability Testing:** This phase focuses on assessing Selectify's user interface and overall usability. The aim is to create a user-friendly and intuitive experience that allows candidates, employees, and administrators to navigate and interact with the system efficiently, enhancing satisfaction and convenience.
- ✓ **Reliability Testing:** Reliability testing evaluates Selectify's durability and performance under different conditions. This phase ensures the system operates consistently and dependably, reinforcing its resilience and maintaining trustworthiness during various scenarios.

## Chapter-5 Feasibility

A feasibility study is an in-depth evaluation aimed at determining the potential success of the Selectify project, such as implementing its advanced AI-driven capabilities and real-time communication system. It analyzes critical aspects, including technical, economic, and legal factors, to assess whether the project is a viable and strategic investment. Furthermore, this study identifies potential challenges and issues that could arise during Selectify's development and deployment, ensuring proactive solutions for successful execution.

### 5.1 Economic Feasibility

The Selectify web application system integrates AI-based candidate evaluation, a robust authentication mechanism, a dynamic admin panel, and distinct account types for candidates and interviewers. It also includes transaction tracking, payment processing, profile management, interview summaries, and features like candidate comparison and application management. Deployment is seamless, with additional costs, such as installation, tailored to specific requirements. Additionally, I offer complimentary system maintenance for six months post-launch, with provisions for adjustments or new requirements that may impact service continuity. To utilize the service, securing a server and domain name is mandatory.

Table 5.1: Economic Feasibility

<b>Components</b>	<b>Price</b>
<b>Software</b>	30,000/=
<b>Hardware</b>	80,000/=
<b>Hosting</b>	15,000/=
<b>Others</b>	9,000/=
<b>Total</b>	134,000/=

## 5.2 Technological Feasibility

The technical feasibility of the Selectify project is ensured through the adoption of robust and modern technologies tailored for its development. Utilizing NodeJS and Express guarantees efficient server-side performance, while Next.js, a React framework, delivers a responsive and dynamic user interface. Prisma, as the ORM tool, ensures seamless interaction with PostgreSQL, a reliable and scalable database system capable of handling extensive candidate data and evaluation records. Integration with WebRTC via Agora.io enables secure and real-time communication during interviews, which is essential for effective candidate assessment. The selected technologies are well-supported, widely adopted, and backed by strong communities, minimizing potential technical risks. Furthermore, the implementation of AI for candidate evaluation and behavior analysis leverages state-of-the-art innovation to ensure accurate and insightful assessments. Overall, the technical infrastructure is meticulously designed to meet the project's objectives effectively and securely.

## 5.3 Operational Feasibility

The operational feasibility of the Selectify platform lies in its ability to integrate seamlessly into existing recruitment workflows while enhancing efficiency and user experience. The system is designed to support the daily operations of administrators, interviewers, and candidates by streamlining interview scheduling, candidate evaluation, and real-time communication. With an intuitive interface, role-specific functionalities, and secure data management, Selectify is well-equipped to meet the operational needs of recruitment processes. Cutting-edge technologies like WebRTC for real-time video interviews and Prisma for database management ensure smooth functionality with minimal downtime. The platform's capability to handle critical tasks such as candidate scoring, AI-driven behavior analysis, and secure payment processing further emphasizes its readiness for real-world application. Overall, Selectify demonstrates operational feasibility, offering a transformative solution to optimize recruitment processes without disrupting current practices.

## 5.4 Cost Benefit Analysis

This data emphasizes the inefficiencies present in the current recruitment processes within the industry. Currently, completing each online task consumes an entire day. The implementation of the Selectify system is projected to deliver significant benefits to users. A detailed evaluation of the costs and benefits associated with the proposed structured redirection is presented below:

**Table 5.2: Cost Benefit Analysis**

No.	Components	Price 01 year	Price 02 year	Price 03 year	Price 04 year	Total
1	Software	1500/=	1500/=	1500/=	-	<b>4500/=</b>
2	Hardware	30000/=	-	30000/=	-	<b>60,000/=</b>
3	Hosting	6000/=	6000/=	6000/=	6000/=	<b>24,000/=</b>
4	Office	80000/=	-	-	-	<b>80000/=</b>
5	Staff	7000/=	7000/=	7000/=	70000/=	280000/=
6	Development	8000/=	8000/=	8000/=	8000/=	32000/=
	<b>Total</b>	<b>132,500/=</b>	<b>52,500/=</b>	<b>22,500/=</b>	<b>21,000</b>	<b>228,500/=</b>

**Total revenue:****Table 5.3: Total revenue**

<b>Total Earn</b>	<b>132,500/=</b>	<b>52,500/=</b>	<b>22,500/=</b>	<b>21,000/=</b>	<b>228,500/=</b>
<b>Total Expense</b>	30,400/=	30,400/=	30,400/=	30,400/=	121,600/=
<b>Total Revenue</b>	162,900	82,900/=	52900/=	51,400/=	350,100/=

After completing a detailed cost analysis, the revenue is projected to increase to 350100 /=. This shows, I am confident that this program has significant profitability

# Chapter 6 – Foundation

## 6.1 Over All Requirement List:

Functional and non-functional requirements are the two primary categories of requirements used in software engineering. These are a few instances of each:

### 6.1.1 List of functional requirements:

- ✓ Candidate Registration and Authentication
- ✓ Interview Scheduling
- ✓ Candidate Profile Management
- ✓ Capability Assessment
- ✓ Payment Processing
- ✓ Real-time Communication
- ✓ Review and Feedback System
- ✓ Notification System
- ✓ Admin Management

### 6.1.2 List of Not Functional Requirement:

- ❖ Efficiency
- ❖ Security
- ❖ Scalability
- ❖ Reliability
- ❖ User-Friendliness
- ❖ Maintainability
- ❖ Data Integrity
- ❖ Compliance
- ❖ Auditability

## 6.2 What Technology Implemented:

The Selectify platform employs cutting-edge technologies to deliver an intelligent and efficient AI-driven interview system. The backend is powered by NodeJS and Express, ensuring a scalable and high-performance server-side architecture. Prisma, an advanced Object-Relational Mapping (ORM) tool, manages database operations seamlessly with PostgreSQL, guaranteeing robust data handling and security. The platform incorporates real-time video communication using WebRTC via Agora.io, enabling reliable and low-latency interactions during interviews. On the front end, Next.js—a React framework—powers a dynamic and responsive user interface, ensuring an engaging and user-friendly experience. This carefully selected tech stack ensures Selectify is secure, intuitive, and capable of managing diverse functionalities, from automated candidate evaluations and application management to real-time video interviews and data-driven analytics, offering a streamlined experience for all users in the recruitment ecosystem.

### **Key Features:**

- Real-Time Communication
- User Authentication
- Candidate Application Process
- AI Generative Scanner
- Role-Based Account Management
- Payment Integration
- Subscription-Based Model
- Single-Page Application (SSR)

## 6.3 Recommendations and Justifications:

The *Selectify* system is highly recommended for its ability to optimize the interview and hiring process through its advanced AI-driven features. It integrates technologies like NodeJS, Express, Prisma, and PostgreSQL, ensuring reliable performance and real-time communication capabilities. The system supports multiple user roles, including candidates, employees, and admins, each with tailored functionalities that streamline the entire recruitment process. For example, AI-driven interview matching and real-time video calling enhance candidate assessment and interview experiences, while Prisma and PostgreSQL provide secure and efficient data management. The system's focus on secure user authentication, automated interview scheduling, and seamless

payment integration ensures a smooth and reliable hiring workflow for.

Real-time communication through video calls powered by WebRTC (via Agora.io) ensures smooth, interactive interview sessions, offering both candidates and interviewers a dynamic, face-to-face experience. The AI-driven generative scanner analyzes candidate behavior and compares it to job requirements, helping companies make informed decisions. Automated candidate application processes, interview scheduling, and real-time notifications make the platform user-friendly and efficient.

In addition to these features, the system provides secure user authentication, subscription-based access, and payment integration through SSLcommerz, ensuring that all transactions are safe and reliable. Prisma and PostgreSQL facilitate robust data management, ensuring sensitive information is stored securely while enabling easy access for authorized users.

With its focus on enhancing the recruitment experience, *Selectify* not only streamlines the hiring process but also provides companies with valuable insights into candidate suitability through a fully integrated platform.

# Chapter 7-Explorations

*Selectify* involves creating a seamless and efficient recruitment process using advanced AI technology and cutting-edge development techniques. This system fosters innovation, efficiency, and personalized candidate evaluation. It encompasses activities like real-time video interviews, AI-powered matching, and secure data management, offering a fulfilling and streamlined approach to hiring. *Selectify* supports candidates, employees, and admins, allowing for tailored experiences and smooth workflows, whether for individual job seekers or large-scale recruitment efforts. It is an effective solution for both enhancing recruitment strategies and offering a personalized, efficient hiring process for all stakeholders.

## 7.1 Old System Use Cases:

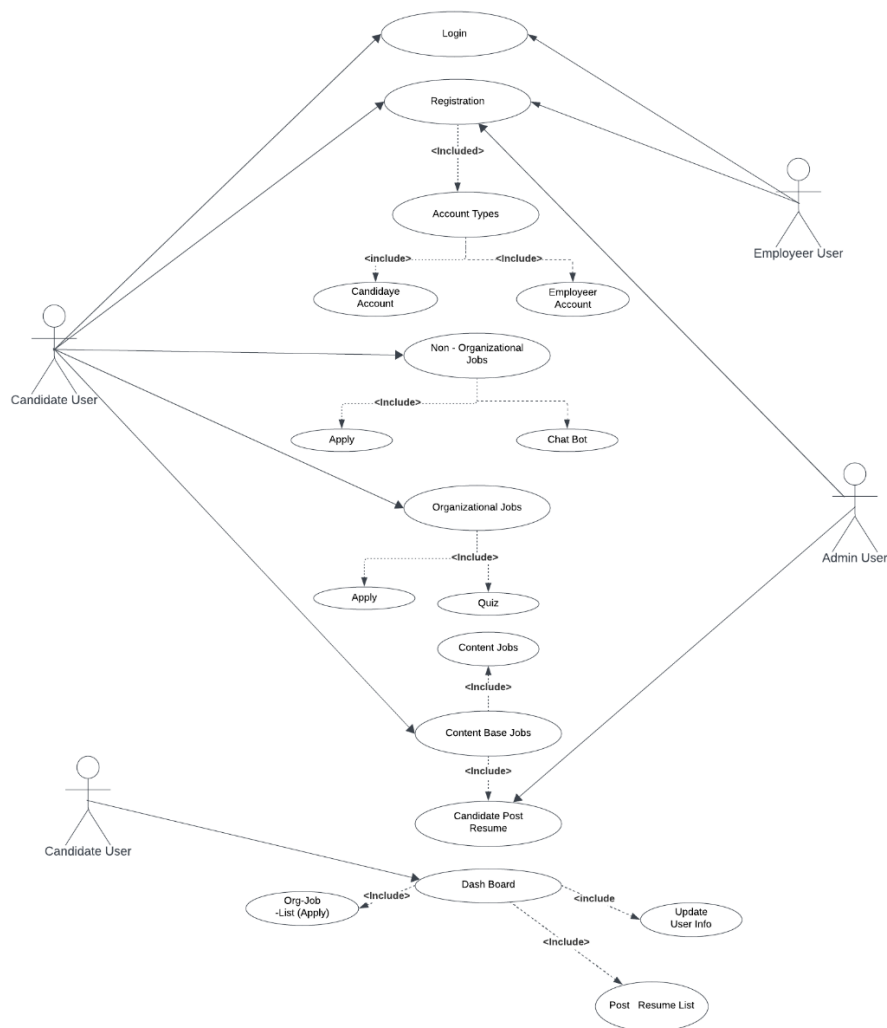


Fig 7.1: Usecase diagram of Selectify

## 7.2 Old system full activity diagram:

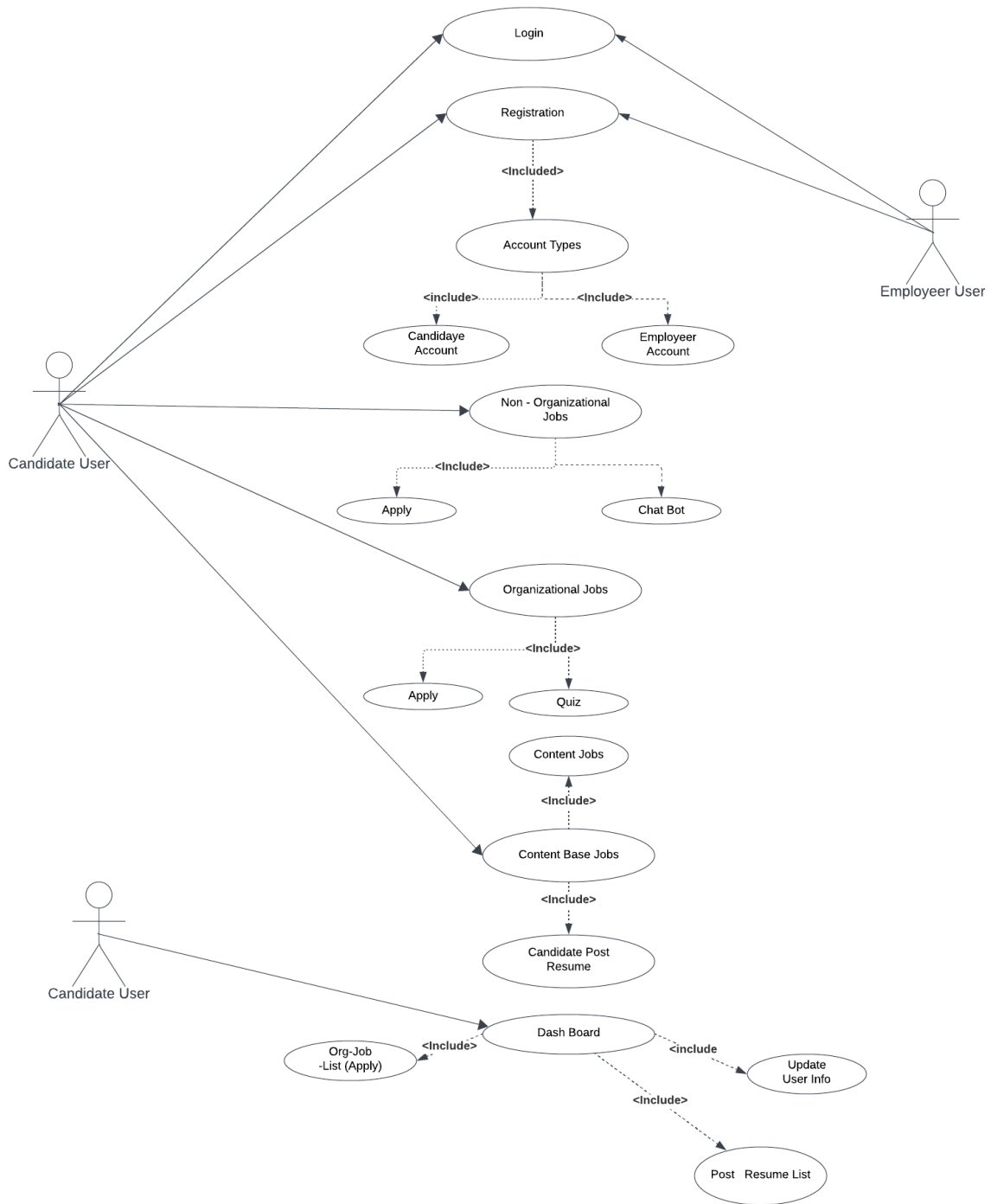


Fig 7.2: Admin-activity diagram of Selectify

## ERD Diagram:



Fig 7.3: User-activity ERD of Selectify

### 7.3 Prioritization Requirement List (PRL):

#### Applying Moscow:

The MoSCoW rule is fundamental to the feature prioritization in the *Selectify* project, aiding in efficiently categorizing and understanding requirements. This approach ensures a structured application process by prioritizing features into four categories: Must-Have, Should-Have, Could-Have, and Won't-Have for now. Below are the characteristics of the MoSCoW method as applied to *Selectify* [13].

Table 7.1: Prioritized-Requirement List of *Selectify*

Requirement No	Requirement Name	Priority
01	Implement WebRTC for video/voice calls between doctors and patients.	High
02	Develop a robust system for secure login and account management.	High
03	Create a system for booking, rescheduling, and managing appointments.	High
04	Build detailed patient profiles with medical history, diagnostic reports, and prescriptions	High
05	Enable doctors to generate, send, and manage electronic prescriptions.	High
06	Implement a secure system for processing consultation fees and transactions.	High
07	Provide tools for admins to manage doctor accounts, appointments, and view system metadata.	Medium
08	Show detailed information about doctors, including specializations and availability.	Low
09	Allow patients to leave reviews and ratings for doctors.	Low

## 7.4 Prototype of the System:

Prototyping is a strategic approach designed to optimize website development by focusing on essential marketing elements[13]. Below, you will find the prototype for the new system:

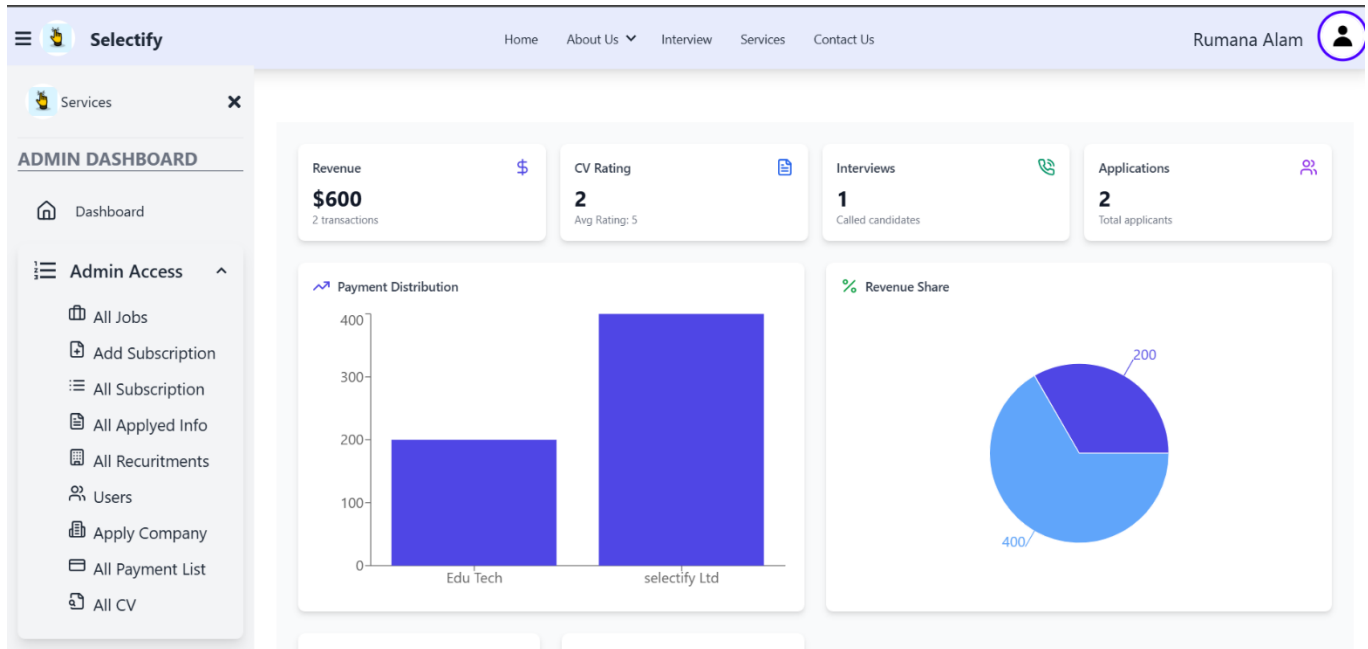


Fig 7.4: Selectify selection prototype

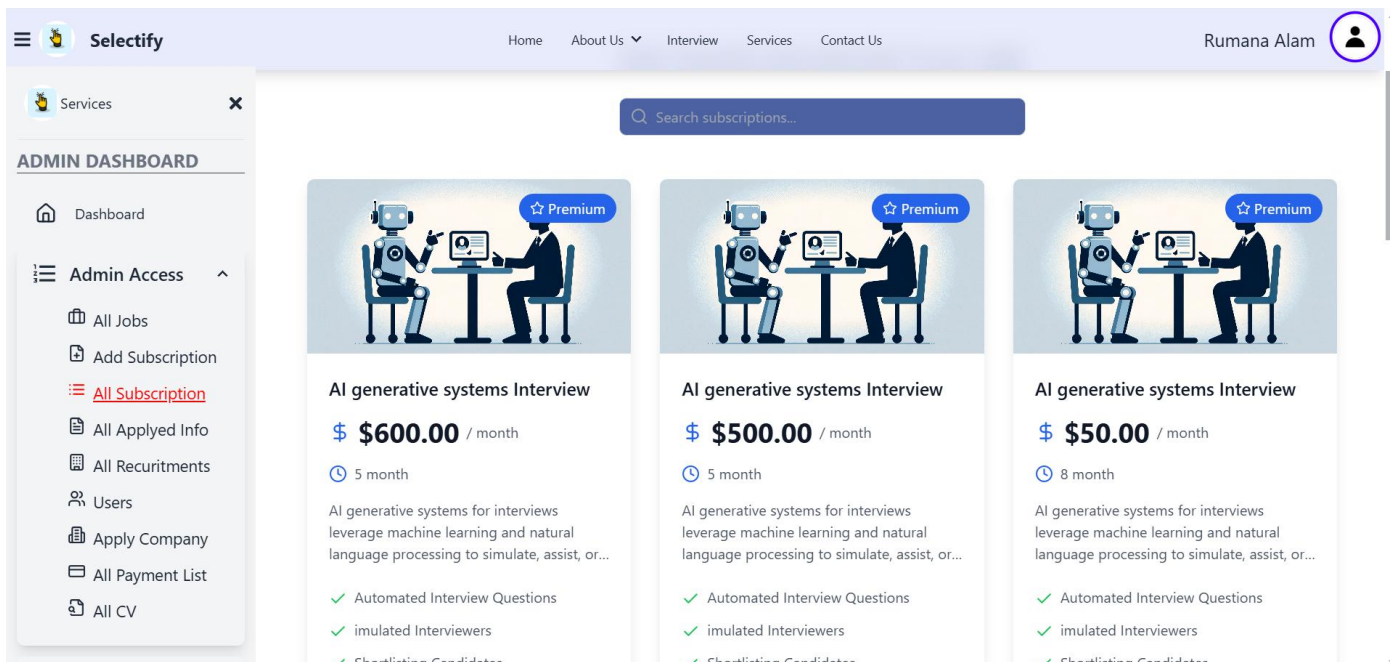




Fig 7.5: Feedback prototype


Home
About Us
Interview
Services
Contact Us
Rumana Alam 


---

Services ✕

**ADMIN DASHBOARD**

- [Dashboard](#)
- Admin Access** ^
  - [All Jobs](#)
  - [Add Subscription](#)
  - [All Subscription](#)
  - [All Applied Info](#)
  - [All Recruitments](#)
  - [Users](#)
  - [Apply Company](#)
  - [All Payment List](#)
  - [All CV](#)

## Job Applied CV Applicants



**Mir jerin**  
Verified USER  
 Dhaka

Chrome on Windows on desktop

**Contact Info**

- [+8801862447844](#)
- [mirromana2000@gmail.com](mailto:mirromana2000@gmail.com)
- Dhaka

**Job Details**

<a href="#">Edu Tech.</a>	<a href="#">Software Engineers</a>
1+ years of experience in software development	Dhaka, Bangladesh
Salary: <span style="color: green;">negotiation</span>	
Starting: 1/9/2025	Ending: 1/25/2025

**Skills**

---

**Education**

---

**Projects**

---

Fig 7.6: Admin Dashboard Selectify

# Chapter 8 - Engineering

## 8.1 New System Modules:

The proposed *Selectify* web application system offers a comprehensive suite meticulously designed to address recruitment needs effectively. These modules are tailored to cater to diverse user requirements, ensuring versatility and flexibility in the hiring process. Below, I outline the primary trends and models of the proposed system, highlighting its standout features and unique capabilities.

## 8.2 New System Use Case diagram

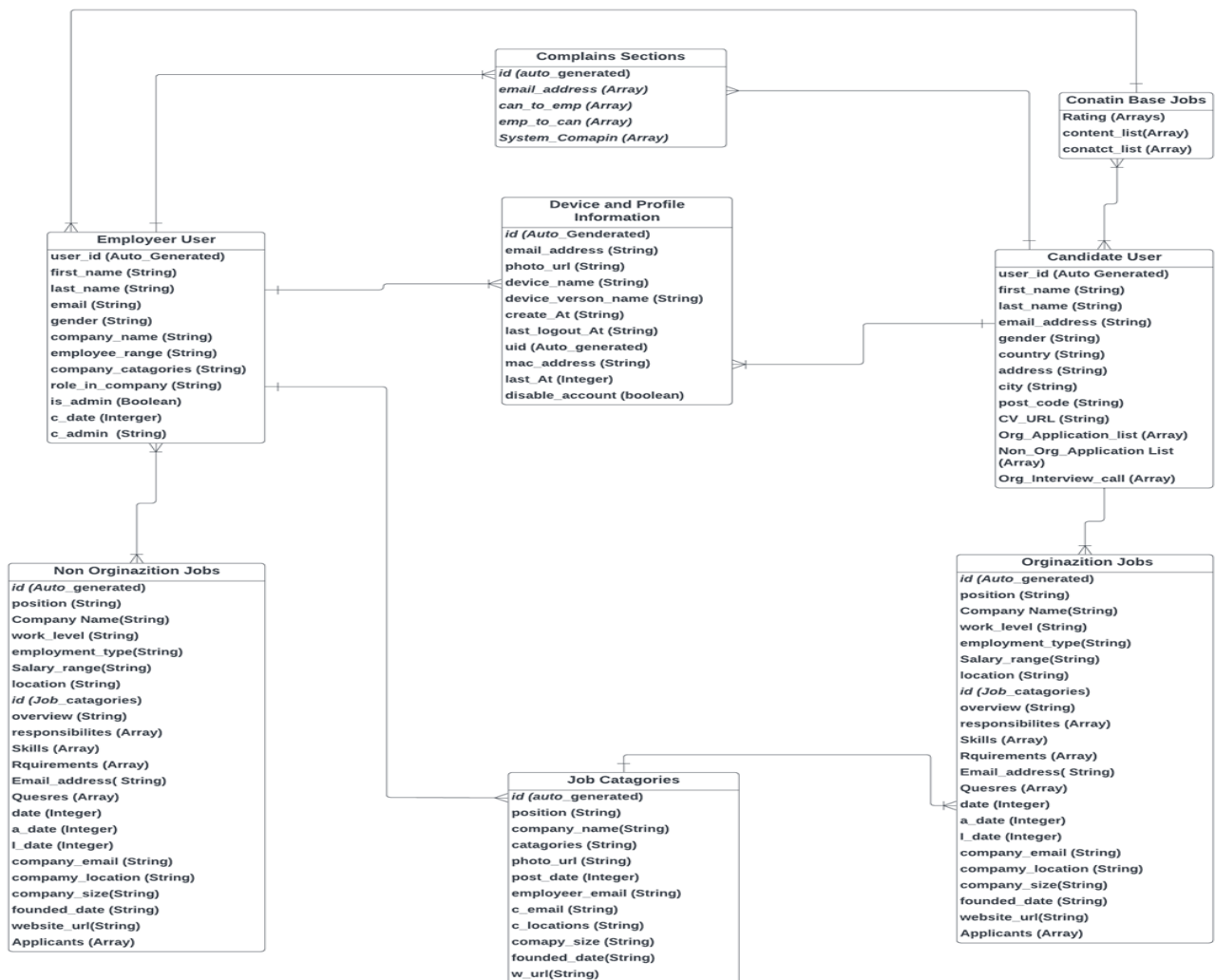


Fig 8.1: Newsystem Usecase diagram

### 8.3 New system ERD Diagram:



Fig 8.2: ERD-Diagram

## 8.4 System Interface Design/Prototype:

The screenshot displays the 'Selectify' web application interface. The top navigation bar includes 'Home', 'About Us', 'Interview', 'Services', and 'Contact Us', with a user profile 'zebrin Raisa' on the right. A left sidebar menu is open, showing 'EMPLOYEE DASHBOARD' with options like 'Dashboard', 'Jobs Features', 'Employee Access', 'Interview List', 'Selectee', 'Candidate Report', 'Payment Laser', and 'Contact'. The main content area features a job listing for 'Software Engineers' at 'Edu Tech.' in 'Dhaka, Bangladesh', with a 'CV Score: 8/10' badge. The listing includes details such as 'FULL TIME' position, dates 'Jan 9, 2025 - Jan 25, 2025', and a 'negotiation' salary type. Below the listing, there are sections for 'Your Candidate', 'Experience Required' (1+ years), 'Responsibilities' (Develop and maintain web applications), 'Required Skills' (JavaScript, Node Js, React), and 'Requirements' (Bachelor's degree in Computer Science or a related field).

Fig 8.3: Monitoring part

The screenshot displays the 'Selectify' web application interface showing an 'Interview Result' report. The top navigation bar includes 'Home', 'About Us', 'Interview', 'Services', and 'Contact Us', with a user profile 'Sana khan' on the right. A left sidebar menu is open, showing 'EMPLOYEE DASHBOARD' with options like 'Dashboard', 'Jobs Features', 'Employee Access', 'Interview List', 'Selectee', 'Candidate Report', 'Payment Laser', and 'Contact'. The main content area features an 'Interview Result' report titled 'Detailed analysis of your interview performance'. The report is divided into several sections: 'Company Details' (Edu Tech, Faroe Islands, +8801828170792), 'Candidate Information' (Mir jerin, mirromana2000@gmail.com), 'Interviewer Information' (Sana khan, myselectify2025@gmail.com), and 'Analysis Results' (Duration: 8.4 seconds, Body Detection: 100.0%, Face Detection: 100.0%, Hand Detection: 170.0%). A 'Selection Status' section at the bottom indicates the candidate is 'Selected'.

Fig 8.4: Human Behavior Analysis Interview Report

The screenshot displays the 'User Management' section of the Selectify application. It features a search bar at the top and a table listing five users. The table columns are: User, Role, System\_Info, Location, Creation\_Time, Status, Change\_Role, and Delete\_Account. The users listed are Sana khan (EMPLOYEE), Hossain (USER), Mir jerin (USER), Rumana Alam (ADMIN), and zebrin Raisa (EMPLOYEE). Each user entry includes their email, system details (Windows and Chrome), location (Dhaka), creation time, and status (Verified). Action buttons for 'Change' and 'Delete' are provided for each user.

User	Role	System_Info	Location	Creation_Time	Status	Change_Role	Delete_Account
Sana khan myselectify2025@gmail.com	EMPLOYEE	Windows (desktop) Chrome	Dhaka	Fri, 10 Jan 2025 04:51:25 GMT	Verified	Change	Delete
Hossain hossainwalmartteam007@gmail.com	USER	Windows (desktop) Chrome	Dhaka	Thu, 09 Jan 2025 10:02:40 GMT	Verified	Change	Delete
Mir jerin mirromana2000@gmail.com	USER	Windows (desktop) Chrome	Dhaka	Thu, 09 Jan 2025 03:57:15 GMT	Verified	Change	Delete
Rumana Alam alam16-566@diu.edu.bd	ADMIN	Windows (desktop) Chrome	Dhaka	Thu, 09 Jan 2025 03:25:20 GMT	Verified	Change	Delete
zebrin Raisa amsr215019@gmail.com	EMPLOYEE	Windows (desktop) Chrome	Dhaka	Thu, 09 Jan 2025 02:45:47 GMT	Verified	Change	Delete

Fig 8.5: User profile

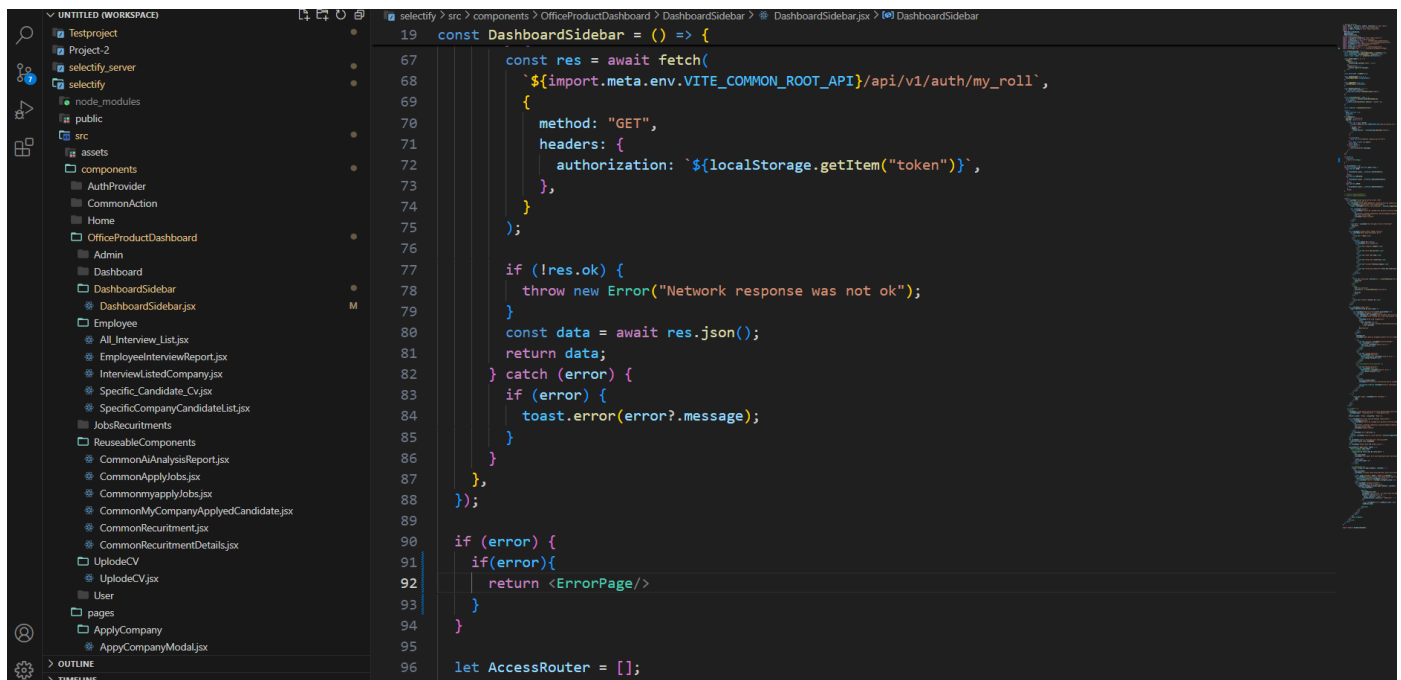
The screenshot shows the home page of the Selectify application. The header includes the Selectify logo, navigation links (Home, About Us, Interview, Contact Us), and a 'Login' button. The main content area features a large, futuristic graphic with a woman sitting at a desk in a dark room, surrounded by glowing data visualizations and AI-related text. The central text reads 'Welcome to Selectify' in a large, green font, followed by the tagline 'Revolutionize your hiring process with AI-powered interviews and intelligent talent assessment solutions.' A 'Get Started' button is positioned below the text.

Fig 8.6: Home Page Selectify

# Chapter 9 - Deployment/Development

## 9.1 Core Modules Coding Simples:

At this stage of the *Selectify* project, implementation and construction commenced after completing all the necessary analyses. Breaking down tasks into smaller, manageable segments ensured a streamlined development process. A variety of programming languages and tools were utilized to build the recommended framework, including Node.js, Express.js, React Js, Tailwind CSS, Agora.io for WebRTC, Tailwind CSS, and JavaScript. Here are some examples of the code:



```
19 const DashboardSidebar = () => {
67
68   const res = await fetch(
69     `${import.meta.env.VITE_COMMON_ROOT_API}/api/v1/auth/my_roll`,
70     {
71       method: "GET",
72       headers: {
73         authorization: `${localStorage.getItem("token")}`,
74       },
75     });
76
77   if (!res.ok) {
78     throw new Error("Network response was not ok");
79   }
80   const data = await res.json();
81   return data;
82 } catch (error) {
83   if (error) {
84     toast.error(error?.message);
85   }
86 }
87 },
88 );
89
90 if (error) {
91   if(error){
92     return <ErrorPage/>
93   }
94 }
95
96 let AccessRouter = [];
```

Fig 9.1: Sidebar Code

```

14  const UploadCV = () => {
192  const parseCV = (text) => {
193    const parsed = {
212      .filter(Boolean),
213    };
214
215    setParsedData(parsed);
216    return parsed;
217  };
218
219  const generateCVRating = async (cvText, skills) => {
220    try {
221      const model = genAI.getGenerativeModel({ model: "gemini-pro" });
222
223      const prompt = `Analyze this CV content and provide a rating out of 10 based on the following criteria:
224      - Skills relevance and depth
225      - Experience quality
226      - Education background
227      - Project portfolio
228
229      CV Content Summary:
230      ${cvText.substring(0, 1500)}
231
232      Skills: ${JSON.stringify(skills)}
233
234      Return only a JSON object with a single 'rating' key and a number value from 0-10.
235      Example: {"rating": 8}`;
236
237      const result = await model.generateContent(prompt);
238      const response = await result.response.text();
239    }
  
```

Fig 9.2: AI Generative Scanner

```

130  };
131
132  const validatePayment = async (payload: any) => {
133    try {
134      const response = await axios({
135        method: 'GET',
136        url: `${config.ssl_commerce.ssl_validation_api}?val_id=${payload.val_id}&store_id=${config.ssl_comme
137      });
138
139      return response?.data;
140    } catch (error) {
141      throw new AppError(HttpStatus.BAD_REQUEST, 'payment validation error', '');
142    }
143  };
144
145  const findAllPaymentListFromDb = async (query: Record<string, unknown>) => {
146    try {
147      const officeQuery = new QueryBuilder(
148        payments.find({ payment: true }).populate('userId',
149        query,
150      )
151      .search(excludeField)
152      .filter()
153      .sort()
154      .paginate()
155      .fields();
156
157      const result = await officeQuery.modelQuery;
158      const meta = await officeQuery.countTotal();
  
```

Fig 9.3: Transaction Code

```

1 import httpStatus from 'http-status';
2 import AppError from '../app/error/AppError';
3 import postrecruitments from '../PostRecruitment/postrecruitment.model';
4 import { TCV_Profile } from './cvscanner.interface';
5 import cvscanners from './cvscanner.model';
6 import QueryBuilder from '../app/builder/QueryBuilder';
7
8 const InsertCvScannerIntoDb = async (
9   payload: TCV_Profile,
10  userId: string,
11  postrecruitmentsId: string,
12 ) => {
13   const isExistPostRecruitment = await postrecruitments.findOne(
14     { _id: postrecruitmentsId },
15     { _id: true },
16   );
17   if (!isExistPostRecruitment) {
18     throw new AppError(
19       httpStatus.NOT_FOUND,
20       'Error: post recruitment does not exist in the database',
21     );
22   }
23 }
24
25 const isAlreadyExistCvScanner = await cvscanners.findOne(
26   { $and: [{ postrecruitmentsId, userId } ],
27     { _id: true },
28   );
29 if (isAlreadyExistCvScanner) {

```

Fig 9.4: User-account Code

```

import toast from "react-hot-toast";
const PutAction = (url, selectedSpecialties, refetch) => {
  fetch(url, {
    method: "PUT",
    headers: {
      "content-type": "application/json",
      authorization: `bearer ${localStorage.getItem("accessToken")}`,
    },
    body: JSON.stringify(selectedSpecialties),
  })
  .then((res) => {
    if (!res.ok) {
      throw new Error("API ERROR");
    }
    return res.json();
  })
  .then((data) => {
    toast.success(data?.message);
    refetch();
  })
  .catch((error) => {
    toast.error(error?.message);
  });
};

```

Fig 9.5: Authentication Code

## 9.2 Possible problem breakdown:

The *Selectify* system I propose boasts a number of standout features. Decomposing the system into manageable modules is essential for smooth development, as failing to do so could significantly hinder overall progress.

The *Selectify* platform integrates AI-powered interview matching, enhancing efficiency by providing precise and personalized candidate evaluations. The system includes a robust authentication mechanism, ensuring secure access for candidates, employees, and admins. An intuitive admin panel enables efficient management of roles, permissions, and platform activities. The system supports various account types, including candidate and employee accounts, creating a seamless recruitment process.

The payment system is designed for secure and efficient transactions, leveraging SSLcommerz to accommodate diverse payment methods. Users can manage their profiles, view transaction summaries, and access their activities effortlessly. Additional features include automated interview scheduling, real-time notifications, and a rating system for post-interview reviews, ensuring a streamlined and comprehensive recruitment experience.

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# Chapter 10 - Testing

## 10.1 Unit Testing:

The unit testing process of a project is essential. Individual assessments ensure that the project code functions correctly in this context [14].

Table 10.1: Testing-unit

<b>Integration testing</b>	<b>Test Class</b>	<b>Designed by</b> Mir Rumana Zebin Alam		
<b>Data source:</b>	Functionality Test	Tested By Mir Rumana Zebin Alam		
<b>Test case:</b>	<b>Test Description</b>	<b>Tasks</b>	<b>Expected Output</b>	<b>Actual Out Put</b>
<b>1.1</b>	Product Testing	Expect Data: From fill	Successfull	Successfull

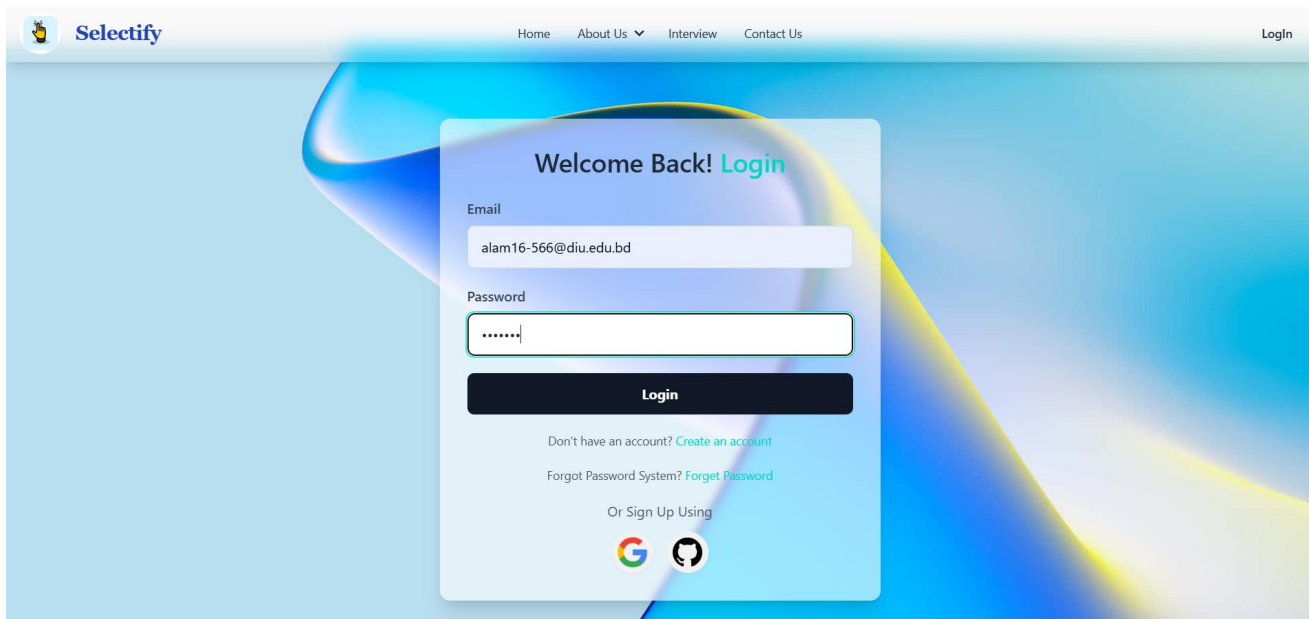


Fig 10.1: Login System-testing

## 10.2 Module testing:

Module testing in the *Selectify* project refers to the protocols, standards, and software components used to rigorously evaluate the system's functionality. It is recommended to focus on testing individual internal modules, such as AI-driven matching algorithms, real-time communication features, and authentication processes, on a smaller scale rather than attempting to test all system components simultaneously. This approach ensures a thorough examination of each module, enhancing the overall reliability and performance of the platform [15].

Table 10.2: Module-Testing

<b>Integration testing</b>	<b>Test Class</b>	<b>Designed by</b> Mir Rumana Zebin Alam		
<b>Data source:</b>	Object Test Functionality	<b>Tested By</b> Mir Rumana Zebin Alam		

Test case:	Test Description	Tasks	Expected Output	Actual Out Put
1.1	Registration testing	Expect Data: From filling	Successfully creates Account	Successfully creates Account

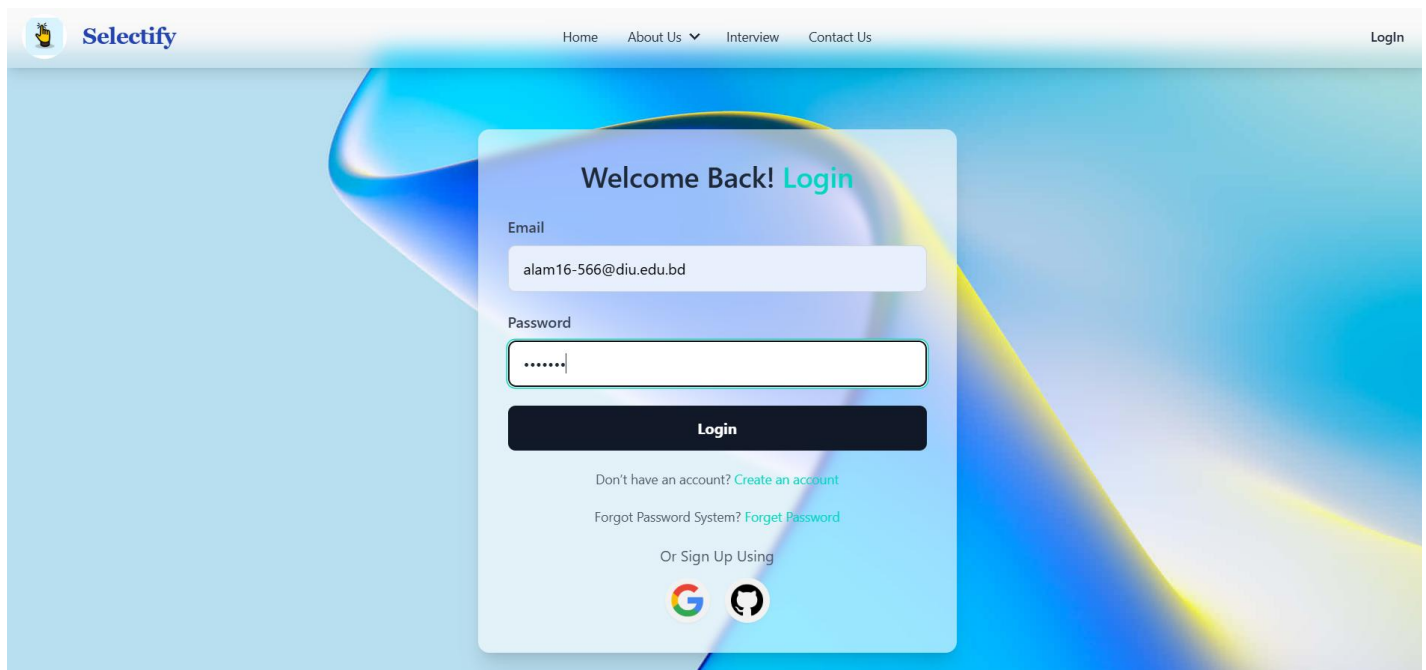


Fig 10.2:Module-testing

### 10.3 Integration Testing

Integrated testing checks the functionality of individual software units in a system. Its purpose of identifying design-related issues emphasizes the relevance of the archive integration test [16].

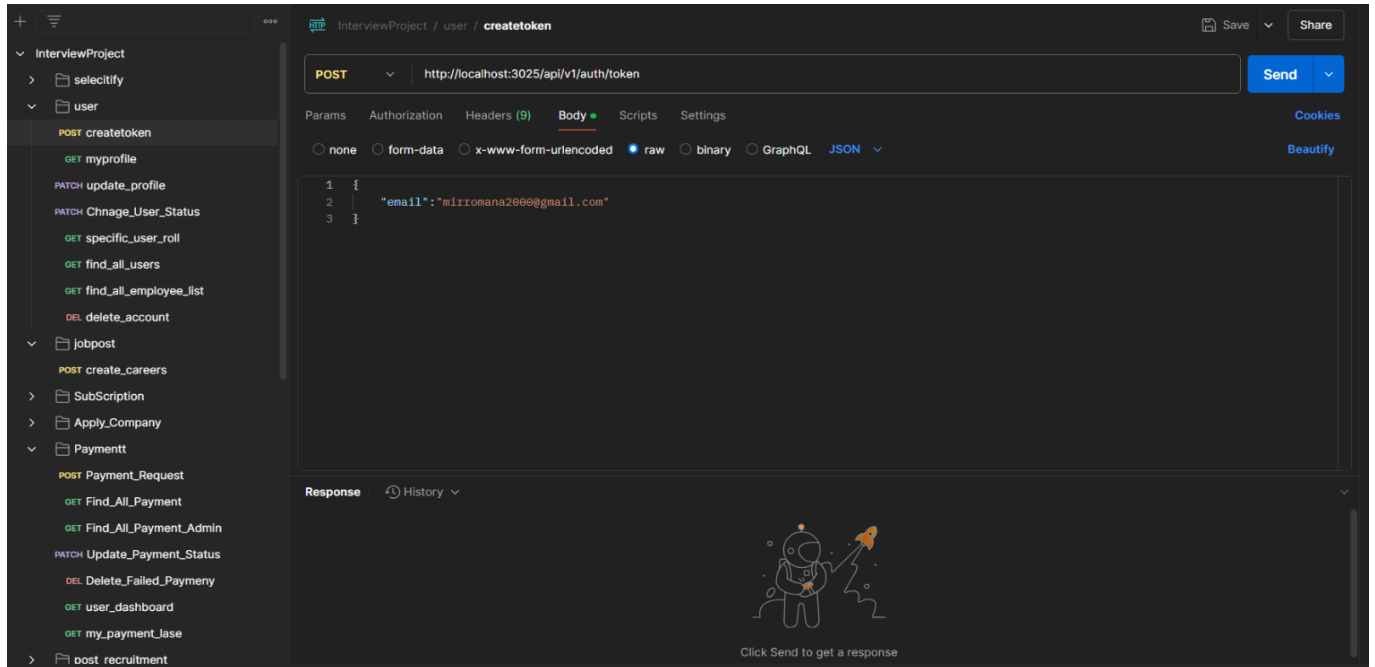


Fig 10.3: Integretion-testing

# Chapter 11-Implementation

## 11.1 Training:

An essential component of development is training. Maintaining current knowledge of the latest system updates and user manuals requires system users to receive training. Following training, users will find the system easy to use and understand [17].

**Table 11.1: Training table of Selectify**

<b>NO</b>	<b>User</b>	<b>Training Sect.</b>	<b>Time Duration</b>	<b>Note</b>
<b>01</b>	Admin	Account	3 hr	User Application
<b>02</b>		User Activity	45 min	Activity of user
<b>03</b>	User	User Dashboard	1 hr	Dashboard Information
<b>06</b>	Employe	CV scaneer with AI	2sec	Ai scaneer system
		Video calling	30 min	Interview
		Used with UI	1.3 hours	Result

## 11.2 Big bang:

The primary role of the *Selectify* project at this stage is the implementation of the new recruitment system while phasing out the existing one. The main course of action involves completing rigorous testing and deploying the new platform. However, transitioning data from the old system to the new one may face delays and risks, including potential data loss or corruption, particularly concerning the management of candidate profiles, interview schedules, and related records. Careful planning and robust migration strategies are essential to mitigate these risks and ensure a seamless transition [18].

## 11.3 Recommended implementation process:

The *Selectify* technology is currently being deployed across various organizational departments as part of a pilot project. This phased approach ensures that the system is thoroughly evaluated in real-world scenarios. A successful pilot phase is achievable by carefully monitoring performance and gathering user feedback. Once all features are validated and function as expected, the system will transition to full operational status, delivering its complete range of recruitment solutions.

## Chapter 12 - Critical Appraise and Evaluation

The *Selectify* system highlights any critical requirements that were not met during development and provides explanations for these gaps. It also identifies areas where additional effort and potential guidance are necessary to address these unmet requirements, ensuring the platform's functionality aligns with project goals and user expectations [19].

### 12.1 Objective Cloud be Met:

Here are some additional objectives that could be implemented in the *Selectify* system to further enhance its functionality and user experience:

- ❖ **Advanced Analytics and Reporting:** Provide detailed analytics and reporting tools for administrators and employers to track hiring trends, candidate performance, and system efficiency.
- ❖ **Mobile Application Support:** Develop a mobile app version of *Selectify* to offer easy access for candidates, employees, and admins on the go.
- ❖ **Customizable Notifications:** Enable users to personalize notification preferences for interview schedules, application updates, and other critical alerts.
- ❖ **Multilingual Support:** Incorporate support for multiple languages to cater to a diverse user base and improve accessibility.
- ❖ **Enhanced Security Features:** Implement advanced security measures, such as two-factor authentication and data encryption, to safeguard sensitive user data.
- ❖ **Candidate Resources:** Provide access to educational materials, interview tips, and career development resources to help candidates prepare effectively.
- ❖ **Advanced Search and Filtering:** Enhance search and filtering options for companies to find candidates based on skills, location, availability, and other criteria.
- ❖ **Community Forums:** Create forums or discussion boards for candidates and employers to share insights, ask questions, and discuss industry-related topics.

These objectives would enhance *Selectify's* user experience and further establish it as a comprehensive recruitment platform.

### 12.1.2 How much better could have been done:

- Enhanced User Experience
- Performance Optimization
- Security Enhancements
- Comprehensive Reporting
- Feedback and Support

### 12.1.3 How Better the features of the Solution?

The *Selectify* system excels with its advanced features, offering seamless real-time communication through WebRTC for interviews and assessments. It ensures secure and efficient management of candidate applications and interview schedules. The platform integrates a robust authentication system, automated email notifications for interview updates and feedback, and a secure payment gateway for subscription management. Employers can manage detailed candidate profiles and generate performance reports with ease, while candidates benefit from streamlined application tracking, interview preparation resources, and personalized feedback. The system's comprehensive admin panel enables efficient management of roles, permissions, and platform activities, ensuring a smooth and effective recruitment experience for all users.

### 12.1.4 Which Features Could Not be Touch

- Real time communication
- Secure user authentication
- Efficient appointment management
- Comprehensive patient profiles
- Effective prescription management
- Secure payment system
- Automated notifications

# Chapter 13- Conclusion

## 13.1 Summary of the Project

The *Selectify* project is a comprehensive web-based recruitment management system designed to enhance communication and streamline processes among candidates, employees, and administrators. Leveraging advanced technologies such as NodeJS, Express, Prisma, WebRTC (via Agora.io), and PostgreSQL, the system offers a robust platform for managing candidate applications, interviews, and performance evaluations. It supports three primary user roles: admins, who manage user accounts and platform activities; employees, who oversee interview processes and candidate assessments; and candidates, who can apply for jobs, track applications, and receive interview feedback. Key features include real-time video interviews, secure user authentication, automated payment processing, and email notifications. The system ensures user-friendly interactions and reliable performance through detailed usability and reliability testing. By integrating these elements, *Selectify* aims to improve recruitment management efficiency, enhance candidate experience, and provide a seamless hiring process for all users. This project addresses the need for secure, efficient, and accessible recruitment services, making it a valuable tool in modern hiring practices.

## 13.2 Goal of the Project

The goal of the *Selectify* project is to create a comprehensive, user-friendly recruitment management system that streamlines interactions between candidates, employees, and administrators. By integrating advanced technologies such as NodeJS, Express, Prisma, WebRTC, and PostgreSQL, the project aims to enhance the efficiency of interview scheduling, real-time candidate evaluations, and application management. The system seeks to improve the accessibility and convenience of the recruitment process through secure communication, seamless interview management, and automated workflows, ultimately providing a more effective and organized approach to talent.

### 13.3 My experience

The completion of the *Selectify* web application project has been a highly enriching experience, providing valuable insights into information gathering, problem-solving, and overcoming technical challenges. Initially, the project's complex technical requirements were demanding, but they offered an excellent opportunity to refine my skills. *Selectify* features a range of advanced functionalities, including real-time communication via WebRTC, secure user authentication, a comprehensive admin panel, interview scheduling and management, detailed candidate profiles, and a seamless payment system. Effective time and cost management were essential to delivering a successful solution.

I am confident that the expertise and knowledge gained from this project will significantly enhance my future endeavors. I am grateful for the strength, wisdom, and support of those who played a key role in the successful completion of the *Selectify* project.

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