**RIPHAH INTERNATIONAL UNIVERSITY**



## Faculty of Computing

**SENIOR DESIGN PROJECT PROPOSAL & PLAN**

# MockBot

## Project Team

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Full Name of Student** | **CMS**  **Numbers** | **Program** | **Contact Number** | **Email Address** |
| Maryam Malik | 31510 | BSSE | 03068990916 | 31510@Students.riphah.edu.pk |
| Musabbiha Zahid | 35458 | BSSE | 03308179377 | 35458@Students.riphah.edu.pk |
| Mahnoor Tanzeel | 35913 | BSSE | 03185846127 | 35913@Students.riphah.edu.pk |

**Dr. Sumera Saleem**

Assistant Professor

# MockBot

**Change Record**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Author(s)** | **Version** | **Date** | **Notes** | **Supervisor’s Signature** |
| Maryam Malik, Musabbiha Zahid, Mahnoor Tanzeel Satti | 1.0 | 19-8-24 | Original Draft |  |
| Maryam Malik, Musabbiha Zahid, Mahnoor Tanzeel Satti | 1.1 | 26-8-24 | Changes Based on Feedback From Supervisor |  |
| Maryam Malik, Musabbiha Zahid, Mahnoor Tanzeel Satti | 1.2 | 10-9-24 | Changes Based on Feedback From Faculty |  |
| Maryam Malik, Musabbiha Zahid, Mahnoor Tanzeel Satti | 1.3 | 11-9-24 | Added Project Plan |  |
| Maryam Malik, Musabbiha Zahid, Mahnoor Tanzeel Satti | 1.4 | 18-9-24 | Changes Based on Feedback From Supervisor |  |

# Project Proposal

# Project Title: MockBot – AI Interview preparation system

## Opportunity & Stakeholders:

The **MockBot system** is designed to enhance interview preparation by offering AI-generated multiple-choice questions tailored to simulate real interview scenarios. After each preparation session, candidates are provided with detailed scores, helping them assess their readiness and identify areas where they need to improve. This structured approach allows interviewees to practice effectively and gain confidence in their abilities before facing real-life job interviews. For **talent acquisition**, MockBot makes the interviewee's results and academic profile visible to various companies. This transparency enables employers to evaluate candidates based on their skills and performance, facilitating the selection of the most suitable individuals for open positions. By showcasing candidate strengths through objective scores, the system bridges the gap between job seekers and employers, helping companies find the right talent more efficiently. Additionally**, resume optimization** services are a key part of MockBot's offerings. The platform includes a PDF converter for easy formatting and an ATS (Applicant Tracking System) analysis tool. This tool checks if resumes are compatible with ATS software, which is commonly used by employers to screen applicants. By ensuring that resumes meet ATS requirements, candidates have a higher chance of making it through the initial filtering process, improving their overall chances of being shortlisted for interviews.

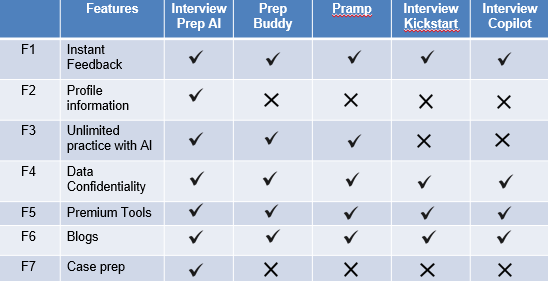
**Stakeholders:**

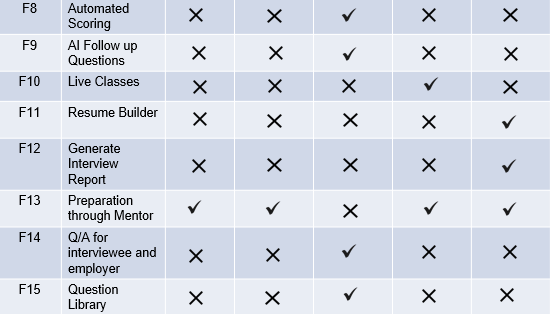
**Employers:** Employers can view candidate’s profile and select suitable candidates by using MockBot.

**Interviewees:** Interviewees discover their strengths and weaknesses which will allow them to focus on areas for improvement and perform better in real interviews.

**Educational Institutes:** Institutes can use the system to prepare their students for the job market, thus increasing the employability of their graduates.

## Existing System/ Description of the Current Situation:





## Problem Statement:

Many interview preparation systems rely on costly AI tools that users must purchase, limiting access for those who can't afford them. This financial barrier particularly affects job seekers from lower-income backgrounds, who often need these tools the most. On the other hand, systems without AI or chatbot-powered questions typically require company professionals to conduct training, making them expensive and inaccessible for many. As a result, free or affordable options are scarce, leaving many without effective preparation. Strict privacy policies further complicate the situation by keeping user information, like skills and experience, hidden from companies. While this ensures data protection, it also means talented individuals aren’t able to showcase their abilities to potential employers, limiting their chances for recognition. Additionally, many platforms fail to include both IQ and EQ questions, missing the opportunity to assess a candidate's mindset and emotional intelligence—key factors for success in the modern job market. Without these, the evaluation process remains incomplete, leaving gaps in understanding a candidate's true potential.

## Proposed Solution:

The **MockBot system** offers a free, accessible solution for interview preparation by eliminating the need for costly paid instructors. Instead of relying on expensive, in-person coaching, it uses AI to provide multiple-choice questions that simulate real interview scenarios, making it easier for anyone to practice and improve at their own pace.One of the standout features is its ability to assess not only knowledge but also the interviewee’s mindset and emotional intelligence. These soft skills are essential in today’s job market, where employers are looking for candidates who can handle pressure, communicate well, and work effectively in a team. By evaluating both IQ and EQ, MockBot ensures a more holistic preparation for interviews, helping users develop beyond just technical knowledge.Importantly, the platform is completely free, ensuring that no one is left out due to financial constraints. It opens doors for individuals from all backgrounds, providing equal access to quality interview prep that is typically reserved for those who can afford premium services. This level of accessibility democratizes interview preparation, giving everyone a fair shot at success.After each session, comprehensive reports on a candidate's performance are generated. These reports, along with academic profiles, are made available to companies, allowing employers to discover and recruit talent based on objective measures of both skill and emotional intelligence. This visibility helps connect talented individuals with opportunities they might have otherwise missed.Ultimately, MockBot is more than just an interview preparation tool—it’s a platform that levels the playing field, offering thorough, accessible preparation while creating new pathways for talented individuals to get noticed and succeed in their careers.

## Scope of the Project:

 **Smart AI-based MCQ’s Interview Preparation**: This module provides an AI-powered platform that offers multiple-choice questions covering intellectual (IQ), emotional intelligence (EQ), and IT-related skills. By incorporating both technical and soft skill assessments, it ensures a well-rounded preparation for candidates. The system adapts based on performance, offering targeted questions that help users improve in areas critical for success in modern job interviews.

 **Complexity Levels**: To ensure personalized learning, the MockBot system tailors its question bank by difficulty level. Candidates can start with **easy** questions and progress to **medium** and **hard** levels as their confidence grows. This tiered approach allows users to gradually enhance their skills, offering a challenging yet manageable path for continuous improvement.

 **Resume Optimization**: This module helps candidates polish their resumes by offering a **PDF converter** to standardize formatting and an **Applicant Tracking System (ATS) analysis tool.** The ATS tool checks whether a resume is compatible with screening software used by many employers. Ensuring a resume is ATS-friendly improves the chances of passing initial filters and being noticed by recruiters.

 **Companies Can View Academic Profiles**: MockBot gives employers access to candidate **academic profiles** and performance reports. This visibility allows companies to discover and evaluate talent based on both educational background and interview performance, enabling a more efficient and data-driven hiring process.

# List of Faculty Proposed Changes

## MockBot

**Supervisor’s Signature:**

|  |  |  |
| --- | --- | --- |
| **Proposed Change** | **Proposed By** | **Supervisor’s Decision** |
| Add IQ related testing | Ms. Tazzaina Malik | Approved |
| Add video uploading for judgment of body language by companies | Ms. Tazzaina Malik | Disapproved |
| Match systems testing criteria with Companies testing criteria | Ms. Tehreem Tajammal | Approved |

# Project Plan

**Work Breakdown Structure:** A work breakdown structure (WBS) is deliverable based decomposition of project scope. The WBS includes 100% of the work defined by the project scope and captures all deliverables – internal, external, interim – in terms of the work to be completed, including project management.

### Project Initiation

* 1. Define Goals
  2. Identify Stakeholders
  3. Project Charter Creation
  4. Feasibility Study

### Planning

* 1. Requirements Gathering
  2. User Requirements
  3. Company Requirements
  4. Admin Requirements
  5. AI API Selection
  6. Frontend and Backend Tech stack
  7. Resource Allocation
  8. Budget Estimation

### System Design

* 1. System Architecture Design
  2. User Interface
  3. Backend API Design
  4. Database Design
     1. User Data
     2. Question Data
     3. Score Data
     4. Company Data

1. **Development**
   1. Frontend Development
      1. User Signup/Login (user and company)
      2. Technical MCQs Interface
      3. IQ MCQs Interface
      4. EQ MCQs Interface
      5. Score Display to User
      6. Score and University Display of User to Company
   2. Backend Development
      1. AI Integration
      2. User and Company’s Authentication
      3. University and Scores display of User Algorithm
   3. Database Development
      1. Setup and Configuration
      2. Data Handling
2. **Testing and Evaluation**
   1. Unit Testing
   2. Frontend Functionality
   3. Integration Testing
   4. User Acceptance Testing
   5. Bug Fixing and Optimization
3. **Deployment**
   1. Setup Production Environment
   2. Deployment on Server
   3. User and Company Registration Process
4. **Monitoring and Maintenance**
   1. Performance Monitoring
   2. Bug Fixes and Updates
   3. User and Company Feedback Loop
5. **Project Closure**
   1. Final Review with Stakeholders
   2. Documentation Handover
   3. Post-Project Evaluation

**Roles & Responsibility Matrix:**

The purpose of roles & responsibility matrix is to identify who will do what.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **WBS #** | **WBS Deliverable** | **Activity #** | **Activity to Complete the Deliverable** | **Duration (# of Days)** | **Responsible Team Member(s) & Role(s)** |
| 1 | Project Initiation | 1.1 | Define Goals | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 1.2 | Identify stakeholders | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 1.3 | Create Project Charter | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 1.4 | Conduct Feasibility Study | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
| 2 | Planning | 2.1 | Requirements Gathering | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 2.2 | Define User Requirements | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 2.3 | Define Company Requirements | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 2.4 | Define Admin Requirements | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 2.6 | AI API Selection | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 2.7 | Frontend and Backend Technology Stack | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 2.8 | Resource Allocation | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 2.9 | Budget Estimation | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
| 3 | System Design | 3.1 | System Architecture Design | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 3.2 | User Interface | 3 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 3.3 | Backend API Design | 4 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 3.4 | Database Design | 6 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 3.4.1 | User Data | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 3.4.2 | Question Data | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 3.4.3 | Score Data | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 3.4.4 | Company Data | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
| 4 | Development | 4.1 | Frontend Development | 13 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 4.1.1 | User Signup/Login | 1 day | Maryam Malik |
|  |  | 4.1.2 | Technical MCQs Interface | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 4.1.3 | IQ MCQs Interface | 3 days | Musabbiha Zahid |
|  |  | 4.1.4 | EQ MCQs Interface | 3 days | Maryam Malik |
|  |  | 4.1.5 | Score Display to User | 1 day | Maryam Malik |
|  |  | 4.1.6 | Score and University Display of User to Company | 4 days | Mahnoor Tanzeel Satti |
|  |  | 4.2 | Backend Development | 7 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 4.2.1 | AI Integration | 3 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 4.2.2 | User and Company’s Authentication | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 4.2.3 | University and Score’s Display to Company | 3 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 4.3 | Database Development | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 4.3.1 | Setup and Configuration | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 4.3.2 | Data Handling | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
| 5 | Testing and Evaluation | 5.1 | Unit Testing | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 5.2 | Frontend Functionality | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 5.3 | Integration Testing | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 5.4 | User Acceptance Testing | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 5.5 | Bug Fixing and Optimization | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
| 6 | Deployment | 6.1 | Setup Production Environment | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 6.2 | Deployment on Server | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 6.3 | User and Company’s Registration Process | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
| 7 | Maintenance and Monitoring | 7.1 | Performance Monitoring | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 7.2 | Bug Fixes and Updates | 2 days | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 7.3 | User and Company’s Feedback Loop | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
| 8 | Project Closure | 8.1 | Final Review with Stakeholders | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 8.2 | Documentation handover | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |
|  |  | 8.3 | Post Project Evaluation | 1 day | Mahnoor Tanzeel Satti, Musabbiha Zahid, Maryam Malik |

**Approval**

|  |  |  |
| --- | --- | --- |
|  | **Project Supervisor** |  |
| **Comments** | | |
|  | | |
|  | | |
|  | | |
|  | **Name:** |  |
|  | **Date:** | **Signature:** |

|  |  |
| --- | --- |
| **Project Coordinator** |  |
| **Comments** | |
|  | |
|  | |
|  | |
|  | |
| **Name:** |  |
| **Date:** | **Signature:** |