A Real- time Research Project/Societal Related Project Report

On

PrepPal : Your Interview Prep Assistant

submitted in partial fulfillment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

by

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(UGC Autonomous Institution | Approved by AICTE | Affiliated to JNTUH)

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CERTIFICATE

This is to certify that the Real-time Research Project/Societal Related Project entitled "PrepPal: Your Interview Prep Assistant" is a bonafide work carried out by Ms. KALIDINDI VARSHA (23WH1A05F8), Ms. YUVIKA SAI SIMHADRI (23WH1A05G7), Ms. SAI GAYATRI (23WH1A05I0), and Ms. LEISHA (23WH1A05I5) in partial fulfillment of the award of the B.Tech. degree in **Computer Science and Engineering, BVRIT Hyderabad College of Engineering for Women, Bachupally, Hyderabad,** affiliated to Jawaharlal Nehru Technological University Hyderabad, Hyderabad under my guidance and supervision. The results embodied in the project work have not been submitted to any other University or Institute for the award of any degree or diploma.

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DECLARATION

We hereby declare that the work presented in this project entitled **"PrepPal: Your Interview Prep Assistant"** submitted towards the completion of a Real-time Research Project/ Societal Related Project Work in the II-II B.Tech., CSE at BVRIT Hyderabad College of Engineering for Women, Hyderabad, is an authentic record of our original work.

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ABSTRACT

"**PrepPal: Your AI Interview Prep Assistant**" is an intelligent, accessible, and user-centric platform designed to support individuals in preparing for interviews, competitive exams, and career development opportunities. It delivers a seamless and interactive user experience by simulating real-time interview scenarios through an AI-powered chatbot, offering users a practical environment to hone their communication and problem-solving skills. Users can practice a wide variety of interview questions across multiple domains, including technical fields, aptitude assessments, HR rounds, and general knowledge, making PrepPal a versatile and comprehensive tool suitable for diverse preparation needs. The platform combines the power of advanced language models with a clean, responsive, and mobile-friendly web interface, ensuring smooth performance and accessibility across all devices. Built using Chatling AI with GPT-4o Mini for the backend and a robust combination of HTML, CSS, and JavaScript for the frontend, PrepPal is hosted on GitHub, facilitating easy access, version control, and continuous improvement. Its intuitive design, instant AI-driven feedback, personalized question sets, and adaptive learning experience allow users to practice effectively, monitor their progress, and enhance their performance with minimal effort. Additional features such as customizable interview modes, time-bound mock sessions, real-time performance analysis, and motivational tips further enhance the learning experience. This documentation outlines the detailed development lifecycle, architecture, and implementation strategies of PrepPal, emphasizing its user-first approach and technological innovation. PrepPal exemplifies the practical and transformative application of artificial intelligence in education and career readiness, providing a reliable, efficient, and empowering solution for students, job seekers, and professionals aiming to succeed in today's competitive landscape.

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1. INTRODUCTON

INTRODUCTION

'**PrepPal: Your AI Interview Prep Assistant**' is a comprehensive web-based platform designed to provide efficient and accessible interview preparation for students and job seekers. Users can easily interact with the AI-powered chatbot to practice a wide variety of interview questions across multiple domains. The platform features a responsive user interface that works seamlessly across devices, ensuring a smooth experience anytime, anywhere. A clean and intuitive design allows users to start mock interview sessions instantly without any registration hurdles.

PrepPal supports various question types, including technical, aptitude, and HR-based queries, offering real-time AI-generated responses that simulate actual interview scenarios. The platform also includes domain-specific practice to help users focus on their target areas. The chatbot delivers clear and relevant answers, helping users build confidence and improve communication skills.

PrepPal is built using HTML, CSS, and JavaScript for the frontend, ensuring a responsive and user-friendly design. The backend leverages Chatling AI powered by GPT-4o Mini, enabling smart and context-aware interactions. The entire application is hosted on GitHub, making it easily accessible and deployable without the need for complex setup.

1.1 OBJECTIVES

The primary objectives of the Resident Welfare App are as follows:

- **Accessible Interview Preparation:**

PrepPal aims to democratize interview preparation by providing a platform that users can access anytime, anywhere, and from any device. Whether someone is on a laptop at home or quickly practicing on their phone during a commute, PrepPal ensures that high-quality interview preparation resources are always within reach. The goal is to eliminate barriers such as expensive coaching, time constraints, or geographic limitations.

• **Real Time AI Interaction:**

One of the key features of PrepPal is its ability to simulate realistic interview scenarios through real-time, AI-generated interactions. Users will experience dynamic, spontaneous conversations that mirror actual interviews, making practice sessions more engaging and impactful. The instant feedback and question adaptation provided by the AI ensures that every session feels personalized and practical.

• **Domain Specific Practice:**

Recognizing that interview preparation isn't one-size-fits-all, PrepPal will offer targeted practice areas including technical (coding, problem-solving), aptitude (logical reasoning, numerical ability), and HR-related (behavioral, situational) question sets. This tailored approach allows users to focus on their weak areas, build confidence, and systematically improve across different aspects of the interview process.

• **User Friendly Interface:**

PrepPal prioritizes simplicity and intuitiveness in its design. A clean, minimalistic interface will guide users naturally through the platform, ensuring that even first-time users can start a mock interview session without confusion. Navigation will be smooth, responsive, and thoughtfully structured to reduce friction and keep users focused on their preparation rather than struggling with the tool itself.

• **Light Weight Deployment:**

To maximize accessibility, PrepPal will be a lightweight web application hosted on GitHub. Users won’t need to download apps, install software, or even create accounts. By minimizing technical hurdles, PrepPal will make it easy for anyone with an internet connection to start practicing immediately, promoting inclusivity and wide adoption.

1.2 METHODOLOGY

The development of the **PrepPal : Your Interview Prep Assistant** follows a structured approach that focuses on user needs, responsive design, and scalable architecture to enhance residential community management.

User Research :

The development process begins with a deep understanding of the target users—students and job aspirants. Through interviews, surveys, and feedback sessions, the project team will gather first hand insights into users' biggest challenges with interview preparation, their current strategies, and their expectations from an AI-based solution. This research will highlight user pain points and desires, directly informing design and feature decisions to ensure PrepPal is both relevant and effective.

Design Iterations:

With user research as the foundation, initial wireframes and prototypes of the user interface will be created, focusing on key workflows like starting a mock interview, selecting a domain, and receiving feedback. These designs will undergo usability testing with real users to uncover friction points or confusion areas. Iterative improvements will ensure the final design is intuitive, visually appealing, and supportive of smooth, efficient interactions.

Technical Development:

The application will be built using standard web technologies—HTML for structure, CSS for styling, and JavaScript for interactivity—ensuring it is lightweight and highly compatible across devices and browsers. To power real-time conversations, PrepPal will integrate Chatling AI with OpenAI’s GPT-4o Mini model, providing fast and realistic AI-generated responses. Hosting the app on GitHub Pages ensures that users can access it easily without needing installations, while keeping deployment and updates simple for developers.

2. Literature Survey

2.1 EXISTING SYSTEMS AND THEIR LIMITATIONS

Several platforms like Pramp, InterviewBuddy, and LeetCode Mock Interviews have emerged to support candidates in preparing for interviews. These platforms offer features such as mock interview matching, coding challenges, and structured feedback. However, they are often found to have the following limitations:

- **Restricted Access**: Many require mandatory account creation, paid subscriptions, or scheduling in advance, creating barriers to quick practice.
- **Limited AI Integration**: Few platforms leverage real-time AI-powered conversational agents for dynamic, adaptive mock interviews. Interactions are often scripted or peer-driven rather than spontaneous.
- **Narrow Domain Coverage**: Some services focus heavily on technical coding interviews, neglecting aptitude and HR question practice critical for well-rounded preparation.
- **Complex User Interfaces**: Users, especially first-timers, often face confusing workflows that delay or discourage regular practice.

2.2 ACADEMIC RESEARCH CONTRIBUTIONS

Recent academic studies emphasize the importance of AI in personalized education and training:

- **AI in Education**: Research by Nguyen et al. (2020) shows that AI-driven tutoring systems enhance learning outcomes by offering adaptive and individualized support.
- **Conversational AI for Training**: A study by Patel and Suresh (2021) highlights the effectiveness of AI chatbots in simulating human-like conversations, helping users practice communication and critical thinking skills.

- **Mobile-First Learning Trends**: Kumar and Das (2019) observed that platforms designed with a mobile-first mindset significantly improve engagement rates among students and young professionals.
- **Importance of Accessible Tools**: Studies advocate for lightweight, easily deployable tools (Liu & Wang, 2020) that do not require complex installations, supporting the shift towards browser-based education and practice.

These findings align closely with the philosophy behind PrepPal, which aims to deliver AI-driven, real-time, accessible, and comprehensive interview preparation.

2.3 TECHNOLOGICAL STACK IN MODERN SOLUTIONS

Modern interview preparation platforms and educational assistants typically utilize:

- **Frontend Technologies**: HTML, CSS, and JavaScript to ensure responsive, browser-compatible interfaces.
- **Backend and AI Integration**: GPT-based conversational models (like GPT-3.5 or GPT-4) integrated through APIs or frameworks such as Chatling AI for generating dynamic, human-like dialogue.
- **Hosting and Deployment**: Lightweight platforms often use services like GitHub Pages or Netlify for easy deployment and accessibility.
- **Responsive Design Principles**: Ensuring compatibility across smartphones, tablets, and desktops to maximize reach and usability.

2.4 NEED FOR THE PROPOSED SYSTEM

Despite the availability of several interview preparation resources, there remains a critical need for:

- **Instant Access**: A platform where users can begin practice immediately without tedious registrations or downloads.
- **AI-Powered Real-Time Practice**: Systems offering spontaneous, conversational AI sessions that mimic the unpredictability of real interviews.
- **Multi-Domain Coverage**: Tools providing practice not just for technical questions but also aptitude and HR rounds.

- **Lightweight and Inclusive Platforms**: Solutions that are easily accessible by users with any device and internet connection, lowering entry barriers and promoting widespread adoption.

PrepPal is positioned to address these needs with its clean interface, smart AI backend, domain-specific question sets, and accessible deployment strategy.

3. DESIGNS

3.1 INTRODUCTION

The design of the **PrepPal** : **Your Interview Prep Assistant** follows a user-friendly and responsive approach to support smooth navigation and daily functionality for community residents and administrators.

User Interface Layout:
PrepPal offers a clean, responsive, and user-friendly interface, enabling easy navigation across devices with minimalistic design, clear layouts, and real-time feedback for an efficient interview preparation experience.

Responsive Design:
PrepPal's chatbot simulates realistic interview scenarios with dynamic, context-aware responses that adapt to user input. The conversation flow is responsive and seamless across all devices, ensuring clear, intuitive, and uninterrupted interactions. Time-based cues, hints, and suggestions enhance the experience, making interview practice effective on both desktop and mobile.

Light Weight Architecture:
PrepPal uses a modular, lightweight architecture built with HTML, CSS, and JavaScript for fast, responsive performance. Powered by Chatling AI with GPT-4o Mini and hosted on GitHub, it ensures easy browser access, efficient updates, and smooth operation even on low-spec devices and limited networks.

Design Scalability:
PrepPal's modular design supports easy integration of new features and seamless backend scaling to handle more users and data. Its responsive frontend ensures consistent performance, allowing the platform to grow from individual users to larger organizations without compromising quality.

3.2 ARCHITECTURE DIAGRAM

The architecture diagram illustrates the interaction between PrepPal's core components—user interface, chatbot engine, backend AI, and data management. It shows how these modules work together to process user input, deliver AI-powered feedback, and ensure seamless performance. The diagram also highlights the system's scalability and modularity, allowing for easy integration of new features and updates.

Below is a simplified architectural representation:

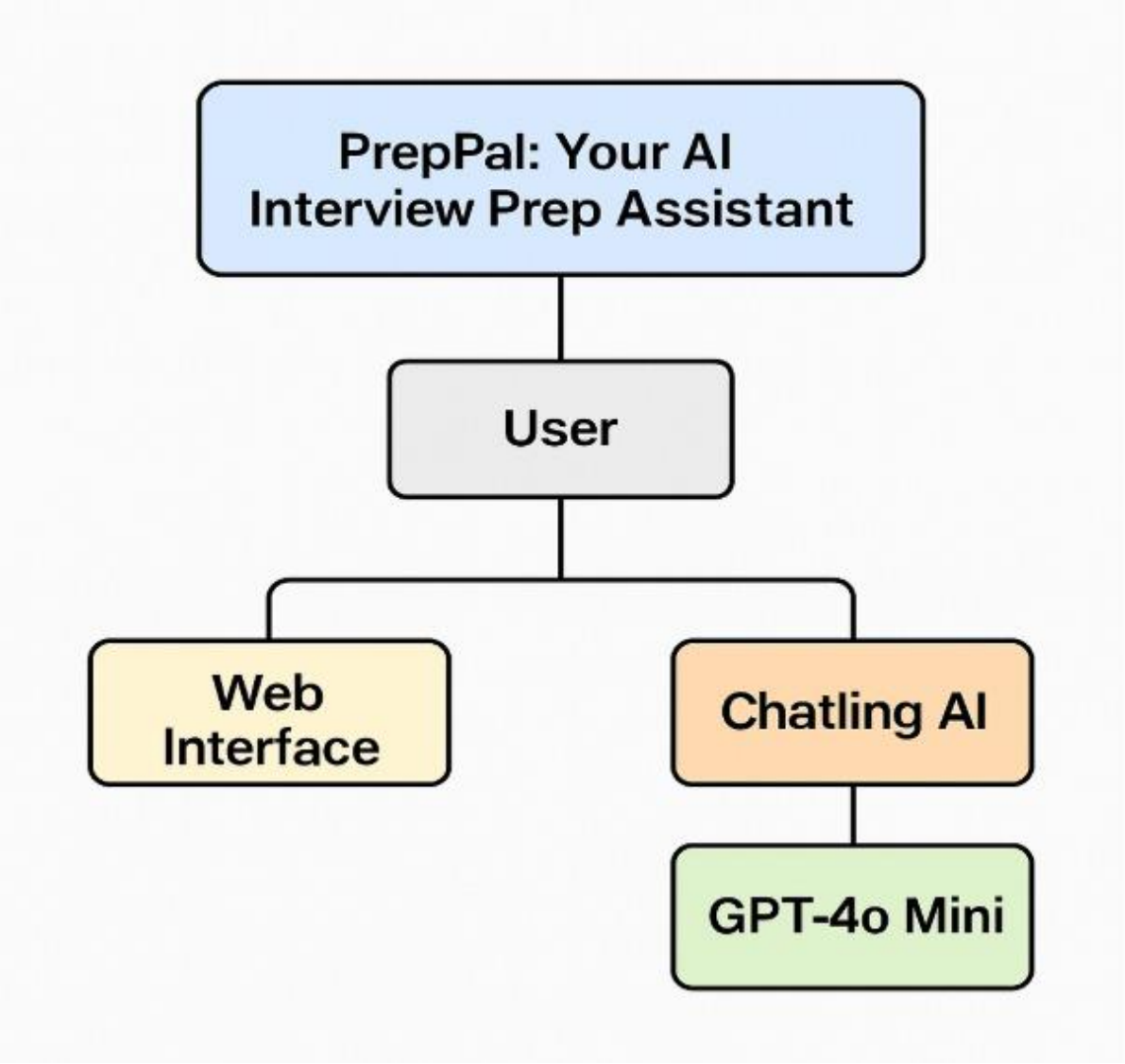


Fig. 3.2.1 Architecture Diagram

This diagram illustrates the flow of PrepPal, starting with the user accessing the web app via a responsive interface built with HTML, CSS, and JavaScript. Users interact with the chatbot for mock interviews, domain-specific practice, and performance tracking. The frontend communicates with the backend, powered by Chatling AI with GPT-4o Mini, to provide real-time AI-generated responses. The backend handles user input, session management, and stores data, ensuring personalized interactions. Currently running locally for development and testing, the app will be hosted on GitHub Pages (frontend) and a cloud-based backend service like Heroku or AWS for secure, scalable deployment.

3.3 SEQUENTIAL DIAGRAM

A sequence diagram is a type of interaction diagram in Unified Modeling Language (UML) that shows how objects interact in a particular sequence to achieve a specific goal or outcome. It is particularly useful for understanding and documenting the dynamic behavior of a system by visualizing the flow of messages, events, and interactions between various components over time. A sequence diagram is a type of chart used to show how different parts of a system interact over time. It helps visualize the order in which events happen and how objects or people (actors) communicate with each other to perform a function.

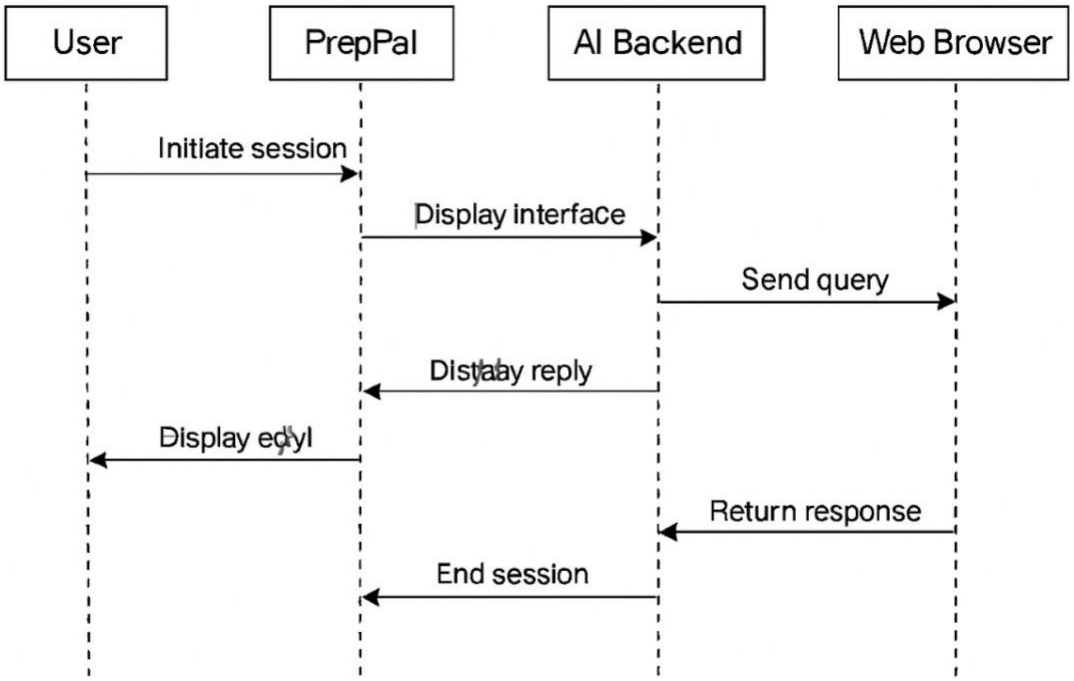


Fig. 3.3.1 Sequential diagram

Here's a simple breakdown:

Lifeline: A vertical line that represents an object or person involved in the interaction.

Actors: People or external systems that interact with the system, shown as stick figures.

Messages: Arrows that show the communication between objects or actors. They indicate who is sending and receiving information.

Activation Bar: A thin rectangle on the lifeline that shows when an object is doing something.

The sequential diagram illustrates the interaction flow between the User, PrepPal Chatbot UI, and the Backend System (Chatling AI + GPT-4o Mini) during a typical interview preparation session.

Components Involved:

User: Initiates the conversation by accessing the PrepPal chatbot and responding to prompts.

PrepPal Chatbot (UI): Serves as the front-end interface, collecting user input and displaying AI-generated responses.

Chatling AI + GPT-4o Mini (Backend): The AI engine responsible for processing user input and generating personalized interview preparation guidance.

Sequence Flow:

User → Chatbot UI: Begins interaction by confirming preparation for an interview.

Chatbot UI → User: Prompts user to enter their role, target company, and area of focus.

User → Chatbot UI: Provides inputs like "Java Developer," "Google," and "Interview."

Chatbot UI → Chatling AI Backend: Forwards collected user inputs to the backend for processing.

Chatling AI Backend → Chatbot UI: Returns personalized responses including preparation strategies, technical questions, behavioral tips, and closing remarks.

Chatbot UI → User: Displays the AI-generated content in a structured format for the user.

4. TECHNOLOGY STACK

4.1 INTRODUCTION

PrepPal: Your Interview Prep Assistant is developed using lightweight and modern web technologies to provide a seamless, fast, and accessible platform for interview preparation.

The front-end is built using HTML, CSS, and JavaScript, ensuring a clean, responsive, and user-friendly interface across all devices. Minimalistic design principles and responsive web techniques are implemented to guarantee smooth usability on desktops, tablets, and smartphones.

Chatbot functionality is integrated through Chatling AI, which acts as a middleware connecting the user interface to OpenAI's GPT-4o Mini model. This setup enables real-time AI-driven mock interviews and dynamic interaction, providing a realistic and adaptive practice environment for users.

As a frontend-only application, PrepPal does not require a traditional backend server, making it lightweight and easy to maintain. Instead, it relies on secure API communication with the external AI service for handling user inputs and generating responses.

The application is hosted on GitHub Pages, ensuring easy access without installation, free global availability, and seamless updates through Git-based version control. Future enhancements may include direct integrations with lightweight databases or authentication services to expand functionality if needed.

4.2 SOFTWARE REQUIREMENTS

Operating System

An operating system acts as the foundation for developing, running, and accessing the PrepPal application. It manages hardware resources, provides essential system services, and supports a stable development environment. PrepPal can be built and used on a variety of platforms, including Windows (Windows 10 and above), macOS (Monterey, Ventura, or newer versions),

and Linux-based systems like Ubuntu 20.04 or later. This cross-platform compatibility ensures that developers and users can interact with PrepPal on their preferred systems without facing performance or installation issues. The flexibility to run on multiple operating systems makes PrepPal easily accessible to a wider audience, from students to professionals.

Web Hosting Platform

To make PrepPal available publicly on the internet, a reliable and scalable hosting platform is necessary. PrepPal is hosted using GitHub Pages, a popular and efficient solution for deploying static websites directly from a GitHub repository. GitHub Pages offers free hosting services with integrated version control, automatic updates, and global Content Delivery Network (CDN) support for faster and more secure access. This approach eliminates the need for purchasing separate hosting services, reducing operational costs, and simplifying the deployment process. Hosting on GitHub Pages ensures that PrepPal remains lightweight, always updated, and easily accessible to users worldwide without complex backend server setups.

Backend Development

The backend of PrepPal differs from traditional server-heavy architectures by leveraging AI-as-a-Service platforms. PrepPal utilizes Chatling AI, integrated with OpenAI's GPT-4o Mini model, to handle user queries dynamically and generate real-time responses. This approach enables PrepPal to simulate realistic interview sessions without maintaining its own server infrastructure. Chatling AI acts as a middle layer that receives user inputs from the frontend, processes them through the GPT-4o Mini model, and returns intelligent, domain-specific answers. This architecture allows PrepPal to focus on scalability, accuracy, and adaptability across various fields like technical interviews, HR questions, and aptitude assessments without burdening the application with backend server management.

Frontend Development

The frontend represents the user-facing side of PrepPal, delivering the primary interactive experience. It is developed using HTML5 for structuring web content, CSS3 for creating visually appealing and responsive designs, and JavaScript for enabling dynamic functionality such as real-time messaging with the AI backend. Special care has been taken to ensure that the interface is clean, intuitive, and easy to navigate even for first-time users. The responsive design ensures that the application adapts well to different screen sizes, offering a consistent

experience across desktops, tablets, and mobile devices. The choice of lightweight frontend technologies also guarantees faster loading times and minimal device resource usage.

Browser Requirements

Since PrepPal is designed as a fully web-based application, it must operate effectively within modern browsers. It is optimized to work seamlessly on widely used browsers like Google Chrome, Mozilla Firefox, Microsoft Edge (Chromium-based versions), and Safari. This ensures maximum compatibility and performance without the need for additional extensions or plugins. Users can simply access the application through a browser without any installation, making the onboarding process quick and convenient. The optimization for multiple browsers further broadens PrepPal's accessibility and usability for users from different technical backgrounds.

Development Environment

The development of PrepPal was carried out using Visual Studio Code (VS Code), a lightweight yet powerful code editor that supports extensions for HTML, CSS, JavaScript, and Git version control. VS Code's live preview features and integrated debugging tools enabled an efficient and streamlined development workflow. For version control, collaboration, and deployment management, GitHub was used. The combination of VS Code and GitHub allowed the development team to work collaboratively, maintain code integrity, track changes, and deploy new updates to GitHub Pages with ease. This development environment ensured that PrepPal was built systematically with clear versioning and minimal deployment overhead.

Additional Tools and Services

Several additional tools and services were integral to the successful development and deployment of PrepPal. The Chatling AI Dashboard was used extensively to configure chatbot behavior, manage dialogue flows, and integrate the GPT-4o Mini model for realistic interview simulations. All source code and documentation are stored and maintained in the official GitHub repository, providing version control, backup, and easy access for future enhancements. Finally, the live demonstration of PrepPal is hosted at https://23wh1a05g7.github.io/PrepPal/, enabling users to experience the application instantly without needing to download or install anything. This combination of tools ensures that PrepPal is not only functional but also easily maintainable and scalable for future needs.

4.3 HARDWARE REQUIREMENTS

Processor

The processor, or Central Processing Unit (CPU), is the core component responsible for executing instructions and managing system operations. For the development and smooth functioning of PrepPal, a multi-core processor like an Intel Core i5/i7 or AMD Ryzen 5/7 was used. These processors support parallel task execution, ensuring efficient multitasking and smooth performance. A powerful CPU is essential for running development tools, managing AI interactions, and maintaining real-time responsiveness during user sessions.

Memory

Memory, particularly Random Access Memory (RAM), is essential for temporarily storing active data and supporting smooth operation of applications. For the development and execution of PrepPal, a minimum of 8 GB RAM was used to handle basic tasks and ensure stable performance. However, 16 GB or more is recommended for optimal multitasking, faster load times, and enhanced responsiveness, especially when running development environments, hosting the chatbot interface, and managing AI-driven processes simultaneously.

Storage

Storage is responsible for holding all the application files, assets, and data necessary for PrepPal to function properly. This includes the frontend code, AI models, user data, performance reports, and other essential resources. Adequate storage ensures that the system can handle large volumes of data without performance issues, providing quick access to files during runtime and smooth operation of the platform. Sufficient storage capacity is crucial for maintaining the integrity and availability of application resources.

Network

A stable and reliable internet connection is essential for the seamless operation of PrepPal. It is required for hosting the platform on GitHub Pages, ensuring users can access the application from any device. Additionally, a constant internet connection is needed to access the AI backend services, such as GPT-4o Mini via Chatling AI, to process user inputs and provide real-time responses. Finally, the internet connection supports live chatbot interactions, allowing users to engage in uninterrupted, dynamic interview simulations.

Peripherals

For the development of PrepPal, essential peripherals such as a keyboard and mouse were used to interact with the system and write the code. In addition, multiple monitors were utilized to enhance productivity and streamline multitasking, allowing for efficient management of different development tools, testing environments, and resources simultaneously. This setup helped speed up the development process and ensured a more organized workspace, facilitating smoother workflows and faster problem-solving during implementation.

4.4 PACKAGES AND MODULES

Definition

Packages are collections of related, reusable code and assets grouped together to offer specific functionalities that can be easily shared or imported into other projects. Modules, on the other hand, are smaller components, typically files or groups of files, that encapsulate specific functions or classes to organize logic in a way that enhances readability and maintainability. Both packages and modules help streamline development by allowing the use of pre-built functionality, reducing the need for redundant code, and improving code organization and efficiency.

Key Packages and Modules Used in PrepPal:

Chatling AI + GPT-4o Mini

Chatling AI combined with GPT-4o Mini is a critical package used in PrepPal to power the platform's chatbot functionality. This package enables real-time, context-aware responses, allowing users to engage in dynamic, intelligent conversations during their mock interview sessions. GPT-4o Mini, a lighter version of the powerful GPT-4 model, ensures that the AI can handle a variety of user inputs and generate high-quality responses, making the interview simulation more realistic and interactive. This package is central to the AI-driven experience, providing intelligent feedback and adapting to user performance throughout the session.

HTML, CSS, JavaScript

The frontend of PrepPal was developed using a combination of HTML, CSS, and JavaScript, forming the core stack for the platform's user interface and interactions.

HTML5: This is the backbone of the website, providing the structure and layout of all pages. It defines elements like headers, navigation bars, content areas, and forms, creating a framework that organizes and displays the content effectively.

CSS3: Used for styling and layout, CSS3 brings visual appeal to the platform. It controls the design elements, such as colours, fonts, spacing, and positioning, ensuring that the interface is not only functional but also visually engaging. Additionally, CSS3 enables responsive design, ensuring that PrepPal looks and performs well on any device.

JavaScript: JavaScript enables dynamic behaviour and interactivity on the frontend. It handles logic such as user input processing, interactive elements (like buttons and forms), and triggers various actions based on user interactions with the chatbot. JavaScript is also used to connect the frontend with the backend, enabling real-time data flow and communication between the user and the AI assistant.

GitHub Pages

GitHub Pages is used to host the PrepPal website, providing static website hosting for public access. GitHub Pages is an easy and reliable way to host web applications directly from a GitHub repository, ensuring that the platform is accessible to users without the need for complex server configurations or deployments. Hosting on GitHub Pages ensures seamless deployment, automatic updates, and quick loading times, as it supports fast and efficient content delivery across the internet. The platform can be accessed from any web browser, allowing users to interact with the AI chatbot without the need for downloads or installations.

VS Code Extensions and Modules

For development, Visual Studio Code (VS Code) was used as the primary code editor, enhanced by various extensions and modules to improve the coding experience.

Live Server: This extension provides a real-time preview of the application in the browser as changes are made in the code. It automatically reloads the page when edits are saved, making it easier for developers to test and iterate quickly.

IntelliSense: IntelliSense is a code-completion tool that helps developers by providing smart suggestions for functions, variables, and methods as they type, reducing coding errors and speeding up development. It's particularly useful for writing clean and efficient JavaScript and HTML code.

Prettier: This code formatter ensures that the code remains consistent, readable, and properly formatted by automatically fixing indentation and aligning code. Prettier helps maintain a uniform style across the project, which is especially valuable when collaborating in teams or managing large codebases.

5. IMPLEMENTATION

5.1 INTRODUCTION

The implementation of PrepPal focuses on building a responsive AI chatbot using frontend technologies like HTML, CSS, and JavaScript, integrated with an AI backend powered by GPT-4o Mini through Chatling AI. Hosted on GitHub Pages, PrepPal ensures fast access without complex setup, making it easily available to users.

The platform delivers real-time communication, context-aware responses, and realistic interview simulations across various domains, helping users practice effectively. By combining an intuitive frontend with intelligent backend services, PrepPal offers a smooth, engaging, and accessible interview preparation experience for students and job seekers.

Fig. 5.1.1 Homepage Overview

The user interface of PrepPal is designed to be visually appealing and welcoming. It features a bright green header that immediately catches the user's attention and sets an energetic, positive tone for the platform. Accompanying the header is a friendly illustration of a person at a desk, symbolizing focus, preparation, and readiness for interviews, helping users relate to the platform's purpose right from the start.

At the heart of the landing page is a welcome message that reads, "Welcome to PrepPal – Your ultimate interview prep assistant!" This greeting creates a warm first impression and clearly communicates the platform's goal: to assist users in their interview preparation journey.

Features Section

The features are presented in a clean, organized manner, each highlighting one of PrepPal's core strengths:

AI-powered Responses: Intelligent, real-time answers to user queries, simulating realistic interview scenarios.

Supports Multiple Domains: Covers technical, HR, aptitude, and more, catering to a wide range of preparation needs.

Works on Any Device: Fully responsive design ensures seamless performance on desktops, tablets, and smartphones, allowing users to practice anytime, anywhere.

Each feature is displayed clearly, often with small icons or illustrations to enhance readability and engagement.

Look and Feel

PrepPal embraces a minimalist design philosophy, ensuring that users are not overwhelmed by unnecessary elements. It uses soft colors and a rounded UI style, creating a calm and friendly user experience. The features and other key elements are arranged in a card layout, making the interface intuitive, modern, and easy to navigate. Overall, the design is aimed at providing a clean, professional, and user-centered environment that enhances focus and improves the user's learning experience.

5.2 TESTING

Effective testing was crucial in ensuring that PrepPal delivers a smooth, reliable, and user-friendly experience across all features and platforms. Several testing scenarios were conducted to validate the system's functionality, performance, and usability:

Testing Scenarios

Chatbot Response Validation

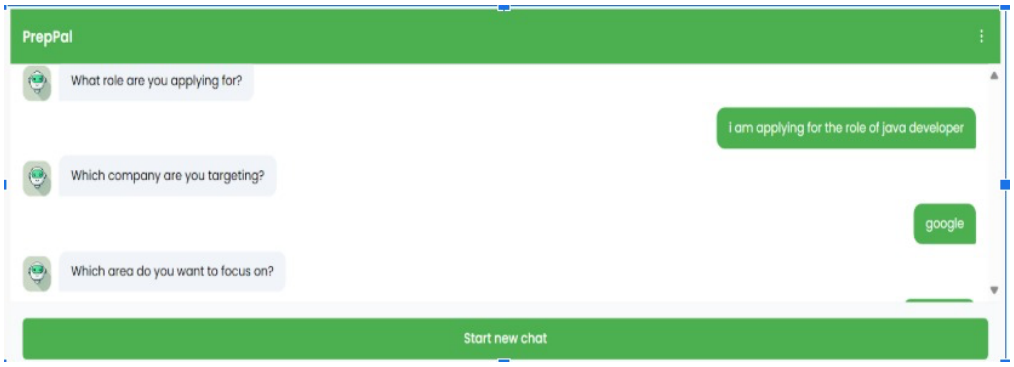
The chatbot was tested by asking questions like, "Can you help me with HR interview questions?" to verify that it responds accurately with relevant answers. The AI was evaluated for its ability to understand user intent and deliver precise, domain-specific content.

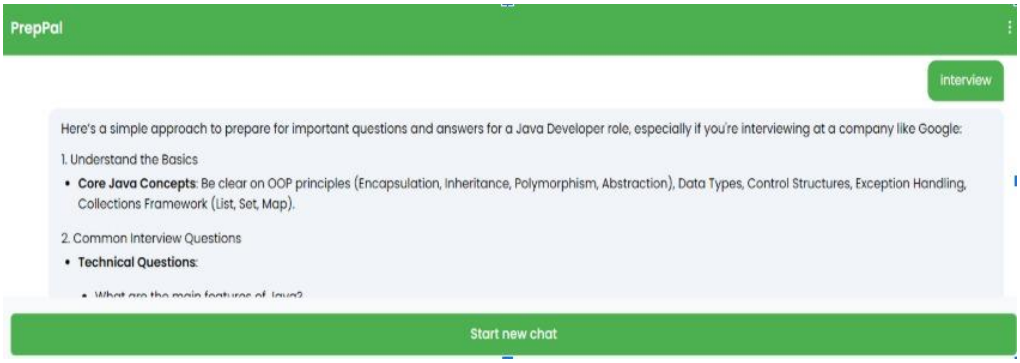
5.3 TEST-CASES

Testing Scenario 1: Role-Specific Interview – Java Developer at Google

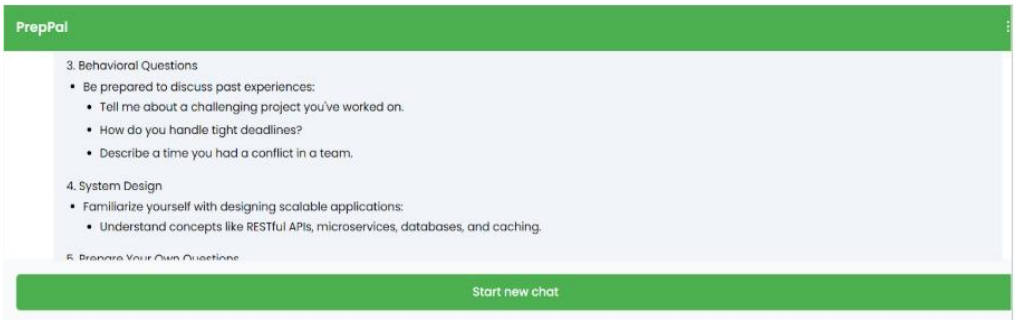
Objective:

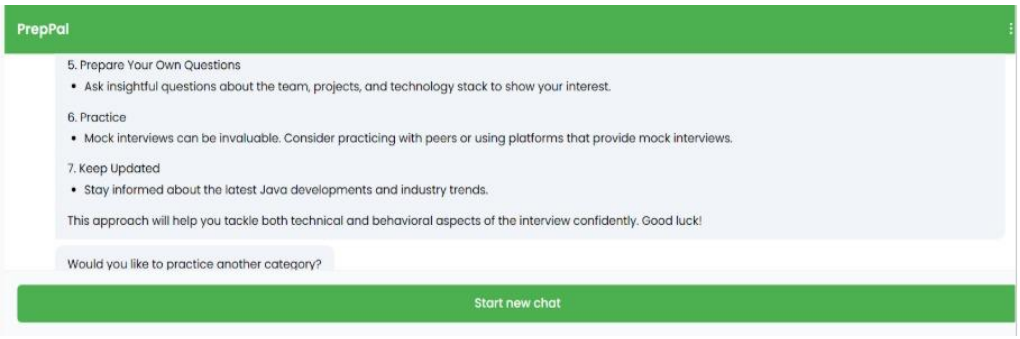
To test PrepPal's ability to handle role-specific interview preparation by tailoring its responses to a particular job title and company.

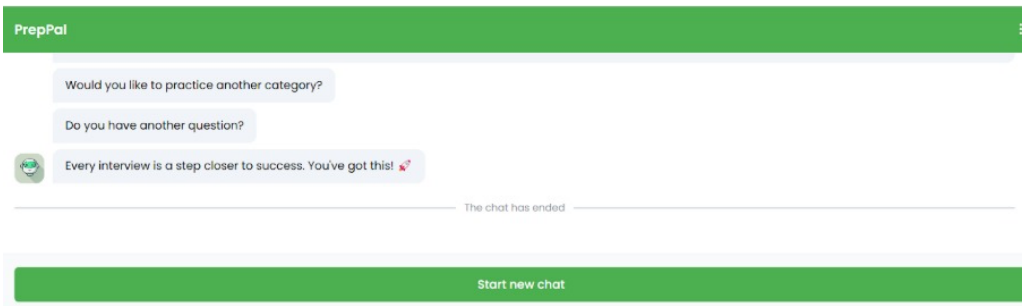



PrepPal
interview
Here's a simple approach to prepare for important questions and answers for a Java Developer role, especially if you're interviewing at a company like Google:
1. Understand the Basics
• Core Java Concepts: Be clear on OOP principles (Encapsulation, Inheritance, Polymorphism, Abstraction), Data Types, Control Structures, Exception Handling, Collections Framework (List, Set, Map).
2. Common Interview Questions
• Technical Questions:
Start new chat


repPal
• Technical Questions:
• What are the main features of Java?
• Explain the difference between interface and abstract class.
• How does garbage collection work in Java?
• Coding Problems:
• Practice algorithms and data structures like Arrays, Linked Lists, Trees, Sorting Algorithms, etc.
• Solve problems on platforms like LeetCode or HackerRank.
3. Behavioral Questions


PrepPal
3. Behavioral Questions
• Be prepared to discuss past experiences:
• Tell me about a challenging project you've worked on.
• How do you handle tight deadlines?
• Describe a time you had a conflict in a team.
4. System Design
• Familiarize yourself with designing scalable applications:
• Understand concepts like RESTful APIs, microservices, databases, and caching.
Start new chat


PrepPal
5. Prepare Your Own Questions
• Ask insightful questions about the team, projects, and technology stack to show your interest.
6. Practice
• Mock interviews can be invaluable. Consider practicing with peers or using platforms that provide mock interviews.
7. Keep Updated
• Stay informed about the latest Java developments and industry trends.
This approach will help you tackle both technical and behavioral aspects of the interview confidently. Good luck!
Would you like to practice another category?
Start new chat


PrepPal
Would you like to practice another category?
Do you have another question?
Every interview is a step closer to success. You've got this!
The chat has ended
Start new chat

Steps:

Launch Chatbot

Open the PrepPal platform and initiate the chatbot interface to start the interaction.

Respond “Yes”

When prompted with a greeting or a question like "Are you ready to start preparing?", respond with "Yes" to proceed.

Input: “Java Developer”

When asked for the role you are preparing for, input "Java Developer". This tests the chatbot’s ability to recognize technical roles and generate appropriate technical questions and guidance related to Java development.

Input: “Google”

When asked for the target company, input "Google". This step checks whether PrepPal can tailor its responses by considering the specific expectations and interview style of major tech companies like Google.

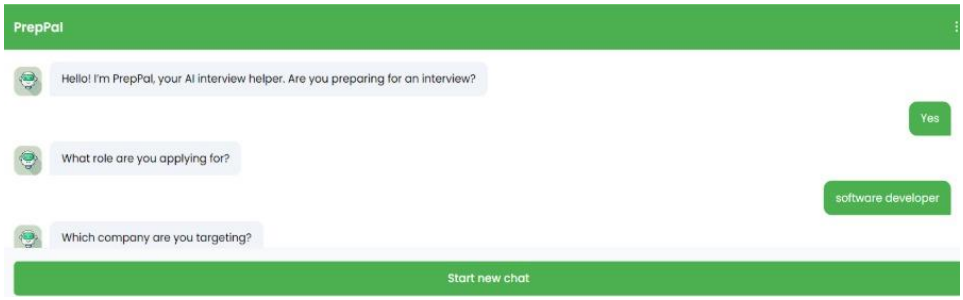
Select: “Interview”

Choose the "Interview" option when prompted for the type of preparation. This ensures the chatbot shifts its focus to simulate actual interview scenarios rather than general preparation tips or aptitude tests.

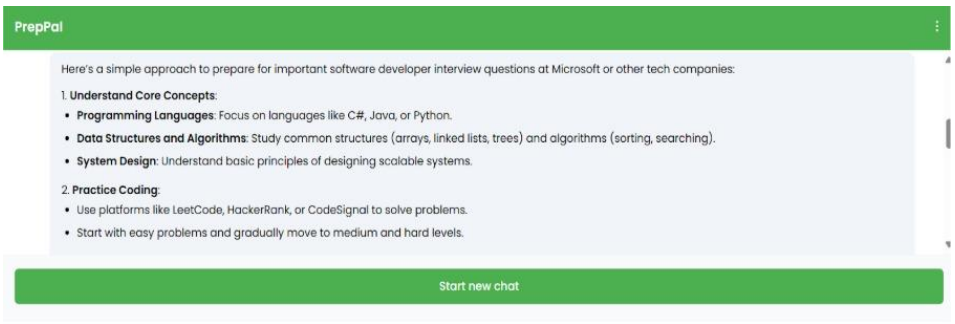
Testing Scenario 2: Role-Specific Technical Preparation – Software Developer at Microsoft

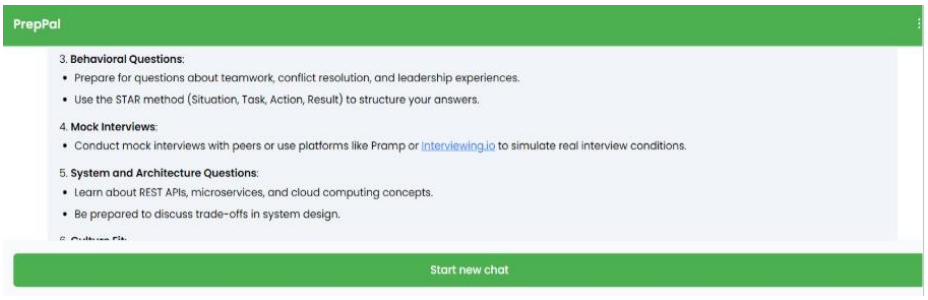
Objective:

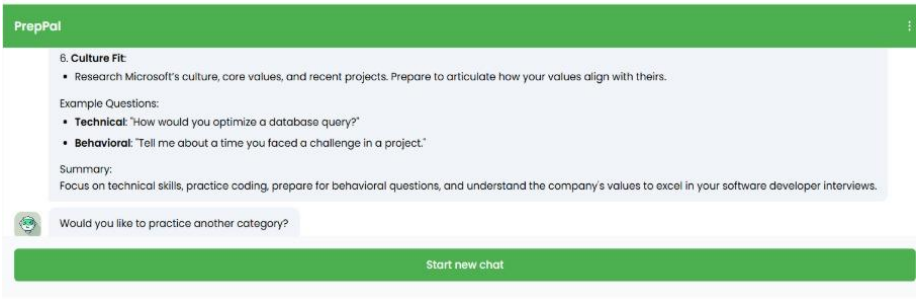
To verify that PrepPal can effectively tailor technical preparation based on a specific role and company, delivering relevant and specialized practice content.

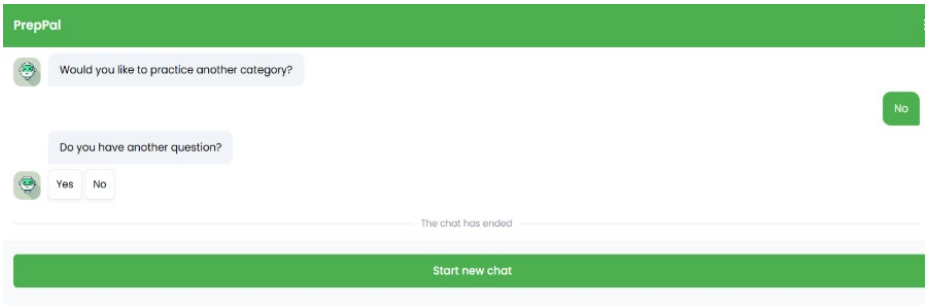

PrepPal
Hello! I'm PrepPal, your AI interview helper. Are you preparing for an interview?
Yes
What role are you applying for?
software developer
Which company are you targeting?
Start new chat


PrepPal
microsoft
Which area do you want to focus on?
technical
Here's a simple approach to prepare for important software developer interview questions at Microsoft or other tech companies:
1. Understand Core Concepts:
• Programming Languages: Focus on languages like C#, Java, or Python.
Start new chat


PrepPal
Here's a simple approach to prepare for important software developer interview questions at Microsoft or other tech companies:
1. Understand Core Concepts:
• Programming Languages: Focus on languages like C#, Java, or Python.
• Data Structures and Algorithms: Study common structures (arrays, linked lists, trees) and algorithms (sorting, searching).
• System Design: Understand basic principles of designing scalable systems.
2. Practice Coding:
• Use platforms like LeetCode, HackerRank, or CodeSignal to solve problems.
• Start with easy problems and gradually move to medium and hard levels.
Start new chat


PrepPal
3. Behavioral Questions:
• Prepare for questions about teamwork, conflict resolution, and leadership experiences.
• Use the STAR method (Situation, Task, Action, Result) to structure your answers.
4. Mock Interviews:
• Conduct mock interviews with peers or use platforms like Pramp or interviewing.io to simulate real interview conditions.
5. System and Architecture Questions:
• Learn about REST APIs, microservices, and cloud computing concepts.
• Be prepared to discuss trade-offs in system design.
Start new chat


PrepPal
6. Culture Fit:
• Research Microsoft's culture, core values, and recent projects. Prepare to articulate how your values align with theirs.
Example Questions:
• Technical: "How would you optimize a database query?"
• Behavioral: "Tell me about a time you faced a challenge in a project."
Summary:
Focus on technical skills, practice coding, prepare for behavioral questions, and understand the company's values to excel in your software developer interviews.
Would you like to practice another category?
Start new chat



Steps:

Launch Chatbot

Access the PrepPal platform and start the chatbot to begin the interaction session.

Respond “Yes”

When prompted with a greeting or readiness check, reply "Yes" to move forward into the preparation flow.

Input: “Software Developer”

Enter "Software Developer" when asked for the desired role. This tests the chatbot’s ability to recognize a broader but still technical position and customize the questions accordingly.

Input: “Microsoft”

Provide "Microsoft" as the target company when prompted. This checks if PrepPal adapts to company-specific expectations, tailoring its preparation style for Microsoft's typical interview processes and technical standards.

Select: “Technical”

Choose "Technical" when asked for the type of preparation. This ensures the chatbot focuses specifically on coding problems, algorithm challenges, and technical concept discussions, simulating real technical interviews.

6. RESULTS

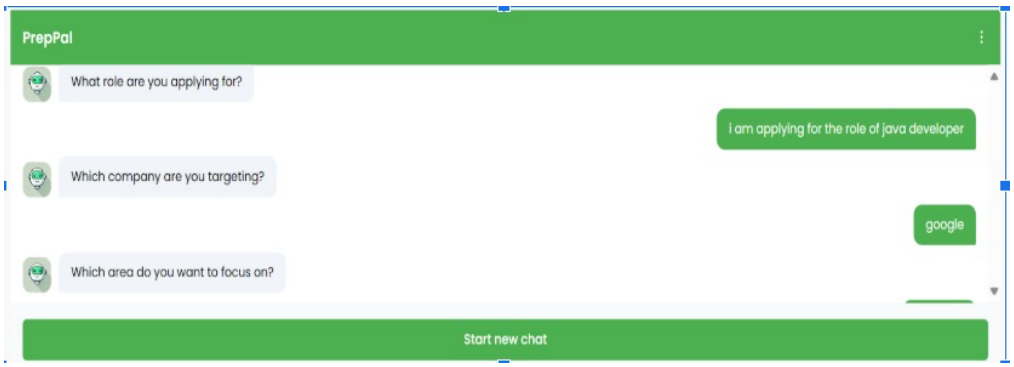


Fig 6.1. Chatbot Interaction for Google Interview.

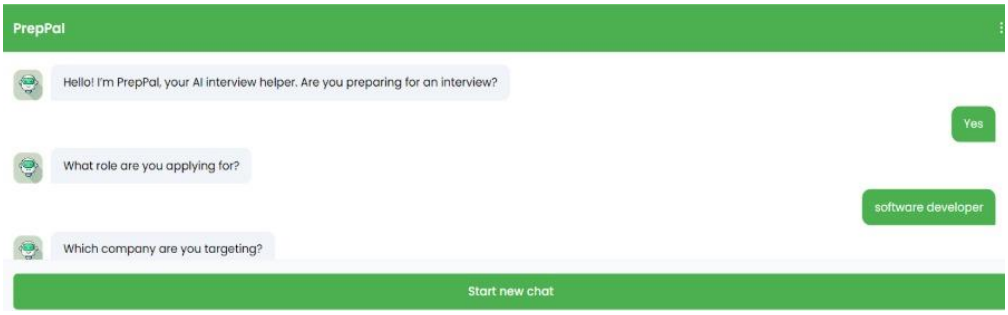


Fig 6.2. Chatbot Interaction for Software Developer post.

7. CONCLUSION AND FUTURE SCOPE

7.1 CONCLUSION

PrepPal is a fully functional, AI-powered interview preparation platform designed to simulate real interview settings and provide a comprehensive practice environment. It offers domain-specific and company-specific guidance, helping users prepare more effectively for their target roles. With its focus on accessibility and responsiveness, PrepPal ensures a smooth experience across devices, making it easy for users to engage anytime and anywhere. Additionally, the platform boosts user confidence by offering motivational support alongside technical practice, empowering candidates to perform their best in actual interviews.

7.2 FUTURE SCOPE

Looking ahead, several upgrades are planned to enhance the capabilities of PrepPal and provide an even more immersive preparation experience. Planned enhancements include;

Voice Interaction:
Introduce voice-based conversations to help users practice verbal communication skills during interviews.

Performance Analytics:
Implement tracking and reporting tools to provide users with insights into their strengths, weaknesses, and overall progress.

Company-Specific Q&A Bank:
Build a curated database of frequently asked questions and model answers for interviews at top companies.

Mock Interview Simulation:
Develop full-scale mock interview sessions that simulate real interview environments, including timing and evaluation.

These enhancements will contribute to a more smart solution for community management, improving both resident experience and administrative control.

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