## Full Stack Engineering

Project Report

Semester-VI (Batch-2022)

UPlacement-Job Searching Portal

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**Supervised By: Submitted By:**

Mr. Rahul Khushi, 2210991795 (G-24)

Kashish Sharma, 2210991770 (G-24)

Kartikay Singh Manhas, 2210991761 (G-24)

**Department of Computer Science and Engineering**

## Chitkara University Institute of Engineering & Technology,

## Chitkara University, Punjab

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**ABSTRACT**

UPlacement is an innovative recruitment platform designed to overcome common hiring challenges such as manual screening inefficiencies, hiring biases, poor job matching, and fragmented hiring tools. By leveraging automation and AI-driven insights, UPlacement streamlines the job search and recruitment process, making it faster, smarter, and more effective. The platform connects job seekers with suitable opportunities while providing recruiters with efficient tools to manage job postings and applicants.

The system offers a user-friendly interface, responsive design, and AI-powered job recommendations to enhance the job search experience. Features like secure login, job-related APIs, automated job tracking, and company management tools enable seamless interactions between candidates and employers. Additionally, an AI chatbot assists users by providing personalized job suggestions, interview guidance, and interactive support, ensuring a smoother recruitment journey.

Employers can efficiently manage job postings, track applications, and engage with potential candidates using structured data and analytics. Job seekers benefit from smart job searches, resume uploads, skill management, and real-time status updates to stay informed about their applications. The admin panel allows authorized personnel to oversee job listings, applicants, and company details with enhanced security and access control.

UPlacement also focuses on enhancing user experience through dark mode support, real-time notifications, and seamless job search filters to make navigation effortless. With a clean and modern UI, job seekers can explore trending roles, access detailed job descriptions, and apply with ease. The platform ensures accessibility across multiple devices, making job searching and hiring more efficient.

Future enhancements include AI-driven career guidance, real-time engagement features, and blockchain integration for secure document storage. By bridging the gap between job seekers and recruiters, UPlacement redefines hiring, making it more efficient, unbiased, and accessible, ultimately transforming the way talent connects with opportunities.

**INTRODUCTION**

In today’s competitive job market, traditional hiring processes face challenges like manual screening, biased selection, and inefficient job matching, leading to delays and missed opportunities. To address these issues, UPlacement offers a smart, AI-powered recruitment platform that connects job seekers with the right opportunities while streamlining hiring for recruiters.

With automation, secure login, job-related APIs, and an AI chatbot, UPlacement enhances the job search and hiring experience. Job seekers can search, apply, and track applications, while employers can post jobs, manage candidates, and oversee company details efficiently.

By providing a responsive UI, AI-driven recommendations, and real-time job tracking, UPlacement ensures a faster, smarter, and unbiased hiring process. Future enhancements like AI career guidance and blockchain-based security will further refine recruitment, making it more efficient and accessible for all.

**BACKGROUND**

In today’s competitive job market, traditional hiring processes face challenges like manual screening, biased selection, and inefficient job matching, leading to delays and missed opportunities. To address these issues, UPlacement offers a smart, AI-powered recruitment platform that connects job seekers with the right opportunities while streamlining hiring for recruiters.

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**OBJECTIVES**

* To streamline the recruitment process by reducing manual screening delays and improving efficiency.
* To provide AI-driven job matching for better connections between job seekers and recruiters.
* To enhance user experience with a responsive UI, secure login, and real-time job tracking.
* To integrate AI chat assistance for personalized job recommendations and interview guidance.
* To ensure fair and unbiased hiring through automated, data-driven decision-making.
* To offer a secure authentication system using Google login and role-based access control.
* To continuously improve with future innovations like AI career guidance and blockchain-based security.
* To enable real-time **notifications** for job application status updates and employer responses.

**SIGNIFICANCE**

UPlacement revolutionizes the recruitment process by eliminating inefficiencies and enhancing job-candidate matching through AI-driven automation. It provides a faster, fairer, and more effective hiring experience, benefiting both job seekers and recruiters.

By integrating secure login, real-time application tracking, and AI-powered job recommendations, UPlacement reduces hiring bias, improves accessibility, and ensures a seamless user experience. Its AI chatbot assistance and structured applicant tracking system make job searching and hiring more efficient and engaging.

With future innovations like AI-based career guidance and blockchain security, UPlacement aims to set new standards in digital recruitment, making the hiring process smarter, unbiased, and more accessible for all.

**FEATURES & FUNCTIONALITY**

1. User-Friendly Interface

* Responsive Design – Optimized for mobile, tablet, and desktop use.
* Dark Mode Support – Enhances user experience with theme customization.

1. Job Search & Application

* Advanced Search Bar – Find jobs using keywords, roles, and skills.
* Smart Filters – Refine results by location, job type, and salary.
* Application Tracking – View real-time status updates on job applications.

1. Employer & Admin Management

* Job Posting & Management – Employers can add, edit, and track job listings.
* Company Management – Recruiters can register, update, and manage company details.
* Admin Panel – Secure access for managing job listings, applicants, and companies.

1. AI-Powered Assistance

* AI Job Chatbot – Provides job recommendations and interview guidance.
* Automated Job Matching – AI-driven suggestions based on user skills and job trends.

1. Security & Authentication

* Secure Login – User authentication with options like Google sign-in.
* Data Privacy & Role-Based Access – Ensures authorized access to sensitive information.

1. Future Enhancements

* AI-Based Career Guidance – Personalized job growth recommendations.
* Blockchain Integration – Secure document storage for resumes and certifications.

**PROBLEM DEFINITION & REQUIREMENTS**

**PROBLEM STATEMENT**

The traditional recruitment process faces several challenges, making job searching and hiring inefficient and frustrating for both job seekers and employers. Manual screening of applications slows down hiring, leading to delays and increased workload for recruiters. Bias in hiring decisions results in missed talent opportunities, affecting diversity and fairness in recruitment. Poor job matching prevents candidates from finding the right opportunities, while fragmented tools make the hiring process complex and disorganized.

These challenges highlight the need for a streamlined, efficient, and unbiased recruitment solution. UPlacement addresses these issues by integrating AI-driven job matching, automated screening, and a user-friendly platform to ensure a faster, smarter, and fairer hiring experience.

**SOFTWARE REQUIREMENTS**

1. Frontend Technologies

* HTML, CSS, JavaScript – For designing a responsive and dynamic UI.
* ReactJS – For building an interactive and efficient user interface.

1. Backend Technologies

* Node.js & Express.js – For server-side operations and handling API requests.
* MongoDB – For secure and efficient database management.

1. Authentication & Security

* Secure Login System – Google authentication and role-based access control.
* Encryption & Data Privacy – To ensure user data security and confidentiality.

1. AI & Automation

* AI Chatbot – Provides job recommendations and interview assistance.
* Automated Job Matching – AI-based recommendations based on skills and job trends.

1. Deployment & Version Control

* Agile Sprints & CI/CD – For continuous integration and deployment.
* Git & GitHub – For version control and collaborative development.

1. API Integrations

* Job-Related APIs – For job posting, application tracking, and user management.
* Gemini API – To power AI-driven job recommendations and chatbot interactions.

**HARDWARE REQUIREMENTS**

1. Server Requirements

* Processor: Intel Core i5/i7 or AMD Ryzen 5/7 (or higher)
* RAM: Minimum 8GB (Recommended 16GB for better performance)
* Storage: 256GB SSD (Recommended 512GB SSD or higher for faster data access)
* Network: High-speed internet connection for API calls and real-time updates

1. Client (User) Requirements

* Processor: Intel Core i3/i5 or AMD equivalent
* RAM: Minimum 4GB (Recommended 8GB for a smooth experience)
* Storage: 100GB HDD/SSD (for browser caching and application data)
* Display: HD (1366x768) or Full HD (1920x1080) resolution for an optimal UI experience
* Internet Connection: Stable broadband or Wi-Fi connection for seamless interaction with the platform.

**PROPOSED DESIGN / METHODOLOGY**

1. System Design

* UPlacement is designed as a web-based platform with a modular architecture to ensure scalability, security, and efficiency. It follows a three-tier architecture:
* Frontend (Client-Side): Built using ReactJS for an interactive and responsive UI.
* Backend (Server-Side): Powered by Node.js and Express.js for handling business logic and API requests.
* Database (Storage Layer): Uses MongoDB for efficient job and user data management.

1. Development Methodology

* Agile Development: The project follows an Agile methodology with iterative development through sprints and continuous feedback.
* CI/CD (Continuous Integration & Deployment): Automated deployment ensures frequent updates and smooth enhancements.

1. Key Functional Modules

* User Authentication: Secure login with Google authentication and role-based access.
* Job Management: Recruiters can post, update, and track job listings.
* Application Tracking: Job seekers can apply for jobs and receive real-time updates.
* AI-Powered Chatbot: Provides job recommendations and interview assistance.

1. AI and Automation

* AI-Driven Job Matching: Matches candidates with jobs based on skills and preferences.
* Automated Notifications: Sends updates on application status and job recommendations.

1. Security & Data Privacy

* Role-Based Access Control (RBAC): Ensures restricted access based on user roles (Admin, Recruiter, Job Seeker).
* Data Encryption: Protects sensitive user information and job-related data from unauthorized access.

**FILE STRUCTURE**

1. Frontend (ReactJS) – Contains UI components, pages, and services for job listings, profile management, and application tracking. Uses ReactJS, Tailwind CSS, and API services.
2. Backend (Node.js & Express.js) – Includes routes, controllers, models, and middleware for handling authentication, job postings, and AI-powered job recommendations. Uses MongoDB for data storage.
3. Security & Deployment – Implements secure login (OAuth 2.0, JWT), role-based access control, and CI/CD pipelines for seamless updates. Supports AI chatbot and automated notifications for job seekers.

**ALGORITHM USED**

1. Job-Related APIs Algorithm

* Type: API-Based Data Retrieval & Management
* Allows users to create, view, and manage job listings efficiently.
* Ensures secure access control, where only authorized users can modify job-related data.

1. AI-Powered Job Matching Algorithm

* Type: Automated Job Recommendation System
* Matches job seekers with relevant job postings based on skills and job descriptions.
* Uses structured data filtering to ensure accurate job recommendations.

1. AI Chatbot Algorithm

* Type: Interactive Job Assistance (Powered by Gemini API)
* Provides personalized job suggestions to users.
* Helps in guiding candidates through the application process and interview preparation.

1. Secure User Authentication Algorithm

* Type: OAuth-Based Authentication
* Enables secure login with Google authentication for easy access.
* Ensures data protection by allowing only authorized users to access platform features

**RESULTS**

A person sitting at a desk with a computer

AI-generated content may be incorrect.

A computer on a desk

AI-generated content may be incorrect.

A person typing on a keyboard

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

A screenshot of a computer

AI-generated content may be incorrect.

