

Job recruitment platform

The minor project report Submitted for the partial fulfillment
of the Requirements of the degree of

Bachelor of Technology (B. Tech.) in Computer
Science and Engineering

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A Project report on

TalentDoor

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A Project Report

To be submitted in the partial fulfillment of the requirements

For the degree of

Bachelor of Technology in Computer Science and Engineering



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CERTIFICATE

This is to certify that the project entitled : **JOB RECRUITMENT PLATFORM**
Submitted to **SWAMI VIVEKANANDA UNIVERISTY** in the partial fulfilment
of the requirement for the award of the B.TECH degree in **COMPUTER**
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under my guidance. The matter embodied in this project is genuine work done
by the students and has not been submitted whether to this University or to any
other University/Institute for the fulfillment of the requirement of any course of
study.

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We hereby state that the Project Report entitled **JOB RECRUITMENT PLATFORM** has been prepared by us to fulfill the requirements of Project-I (BTCSS781) during the period July 2025 to November 2025.

Signature of the students

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Chapter 1

INTRODUCTION

In today's job market, finding suitable employment in specialized fields is challenging. This platform simplifies career exploration by allowing applicants to upload profiles and access relevant job openings. Employers can browse organized candidate profiles to identify qualified individuals, making the portal a convenient bridge between job seekers and hiring companies.

1.1 Purpose of This Study

- Simplifies job searches and recruitment by connecting applicants with tailored career opportunities, making the process faster and more efficient for both sides.
- Enables employers to access organized candidate profiles and use skill-based filters to identify qualified talent quickly, reducing time and effort in hiring workflows.
- Centralizes job postings and applicant data, improving communication, transparency, and the overall recruitment experience for job seekers and organizations.

1.2 Brief Overview of the Project Report

The project report describes a digital recruitment portal designed to streamline employment matching. It explains features such as user profile uploads, tailored job listings for seekers, and detailed candidate search for employers. The report outlines modules for secure communication, skill-based filtering, and easy job posting, aiming to address time-consuming issues found in traditional recruitment systems.

Chapter 2

LITERATURE OVERVIEW

According to research, the traditional ways of recruitment included:

1. Placement or staffing organizations
2. Career expos
3. Newspaper ads
4. Advisory firms
5. Promotions via broadcast media
6. Employee connections
7. Guidance cells at educational institutions
8. Recommendations from workers or professionals

These earlier approaches were often slow, burdensome, and required effort, expense, and additional preparation. Gathering complete information on available positions was a major task and consumed a significant amount of time.

Today, the internet serves as an influential medium for individuals seeking career options across diverse industries. Numerous web platforms now display job opportunities requiring varied qualifications. Digital technologies have become a core element in human resource development. Many companies rely on online systems to attract and evaluate talent.

Although internet-based recruitment has greatly simplified the hiring process, older techniques still exist and continue to be used alongside modern methods.

Chapter 3

PROBLEM DEFINITION AND OBJECTIVE

The current job market presents significant challenges for both job seekers and employers due to inefficient search and application processes. Job seekers struggle to find relevant opportunities, while employers face difficulties in posting vacancies and managing large volumes of applicant data. Traditional recruitment methods are time-consuming, fragmented, and lack a centralized digital solution, leading to delays and reduced hiring quality. There is a clear need for a streamlined platform that enables seamless job searching, online applications, and efficient candidate management, allowing employers to quickly identify qualified talent and improving overall recruitment efficiency.

❖ Objectives of this Project :

- The platform helps job seekers discover suitable employment options and submit applications digitally, making the process faster and more convenient.
- Employers can directly connect with candidates by listing open roles and managing hiring activities online, streamlining vacancy publishing and applicant data handling.
- The portal enables employers to upload job openings, review candidate profiles, and shortlist applicants efficiently, improving recruitment workflow.
- Quick resume searches based on required skills allow recruiters to identify qualified professionals in minimal time, enhancing hiring speed and accuracy.

Chapter 4

SYSTEM ANALYSIS

- **User Roles and Access Control:** The system supports three distinct roles: Admin, Employee, and Employer, each with unique access and functionality tailored to their needs.
- **Authentication Process:** All users are required to log in. Employees and Employers must register before logging in if they do not have accounts, ensuring secure and authenticated access.
- **Admin Capabilities:** Admins manage user accounts and profiles, monitor system performance, provide user support, and perform system maintenance, enabling smooth system operations and high reliability.
- **Employee Features:** Employees can select and edit resume templates, check their resume scores, search and apply for jobs, manage their account, track application status, and change passwords, supporting a comprehensive job-seeker experience.
- **Employer Features:** Employers can search for employees, post and manage jobs, view and approve applications, send messages to candidates, manage their accounts, and change passwords, thus streamlining the hiring workflow.
- **Unified System Flow:** All user roles access the system via a common start point, perform their role-specific tasks after login, and conclude with a logout, ensuring a consistent and secure session lifecycle for all users.

■ DATA FLOW DIAGRAM (DFD)

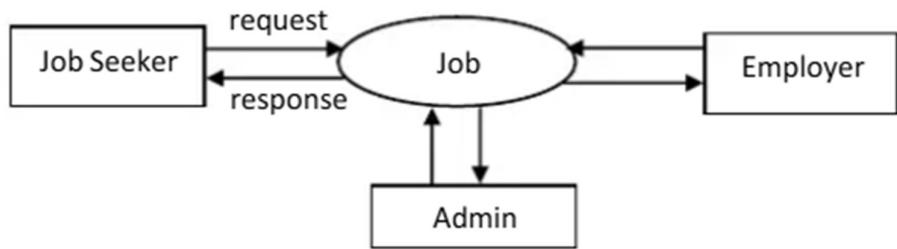


Figure 1: LEVEL-0 DFD

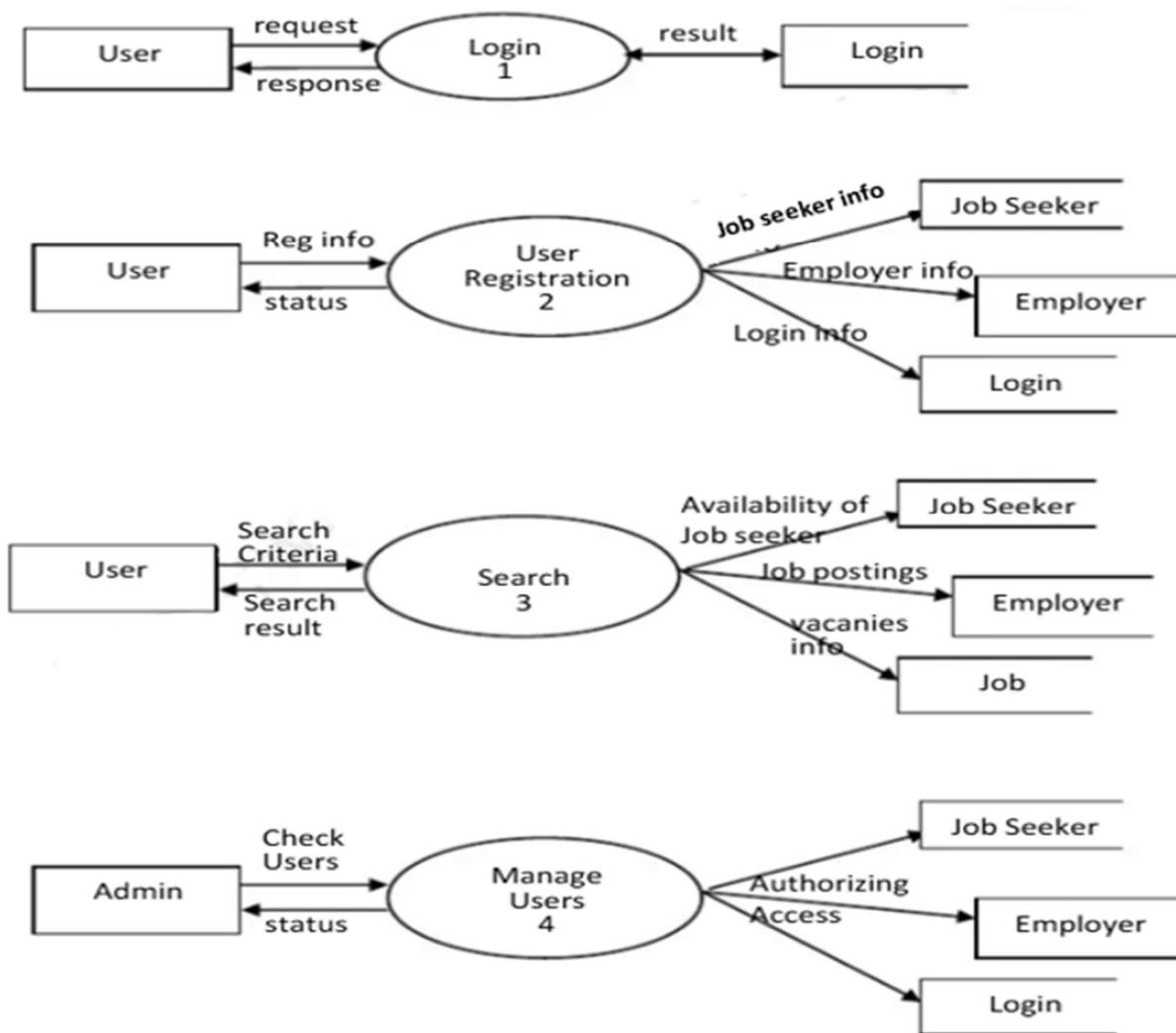
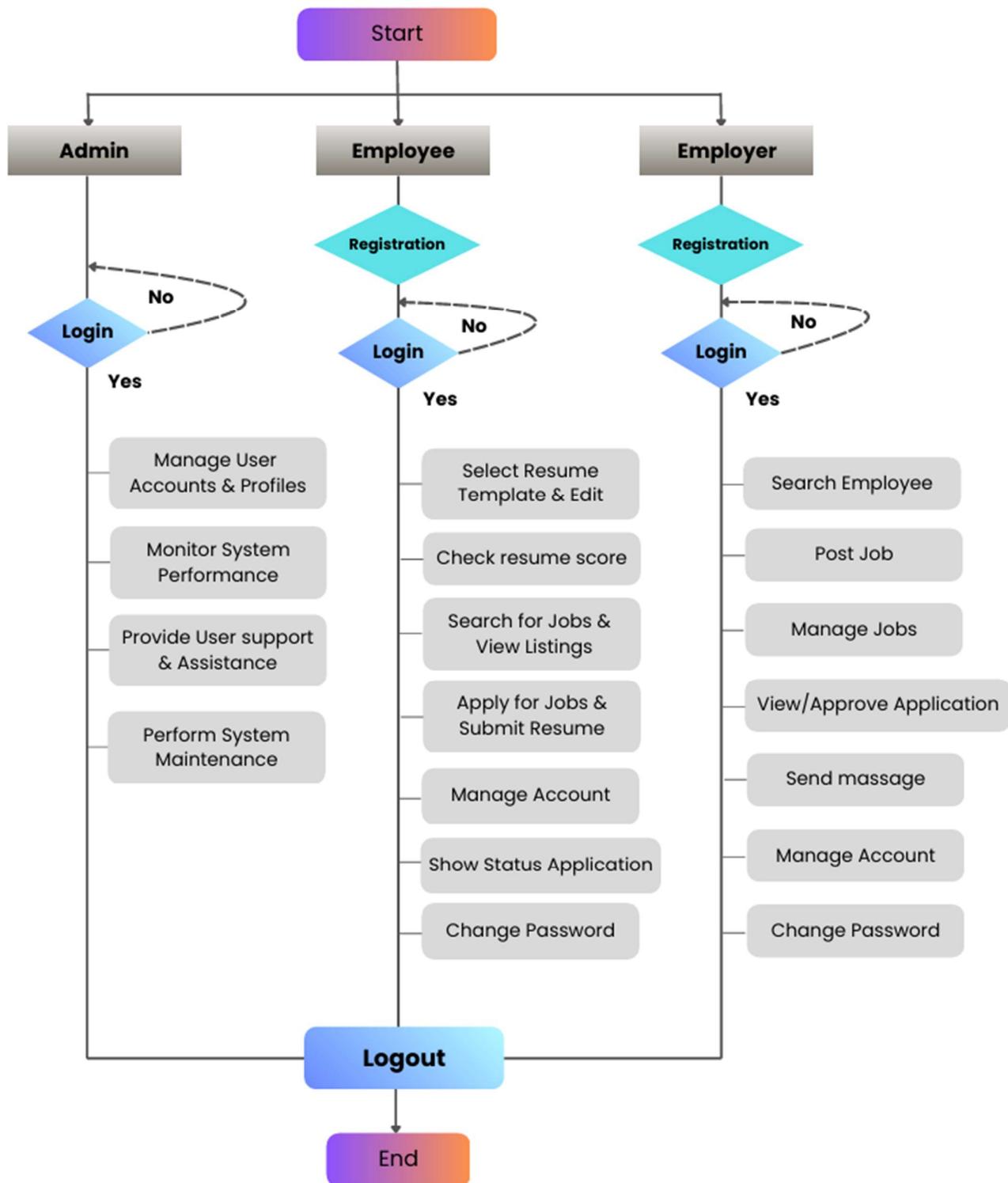


Figure 1: LEVEL-1 DFD

SYSTEM DESIGN

■ Flow Chart :



Chapter 6

TECHNOLOGY STACK

Frontend

- **HTML** – Structures web content, forming the backbone of all pages and user interface layouts.
- **CSS** – Styles interface components, ensuring responsive, attractive layouts with consistent branding and user-friendly experience.
- **JavaScript** – Enhances interactivity, dynamic rendering, and user engagement with modern scripting capabilities.
- **Bootstrap / Tailwind CSS** – Speeds responsive UI creation using utility classes and prebuilt components for consistent modern layouts.
- **ReactJS (Optional)** – Builds fast, component-based user interfaces, improving performance and modular development.

Backend

- **NodeJS with ExpressJS** – Handles server-side logic, routing, authentication, and smooth communication between frontend and database.

Database

- **MySQL / PostgreSQL** – Stores structured job data securely, supports queries, relationships, and scalability for enterprise-level usage.
- **SQLite (Optional)** – Lightweight local database for development or small-scale deployments with easy setup.
- **MongoDB** – NoSQL database storing flexible JSON-like documents for fast, scalable data handling.

UI/UX Design

- **Figma / Adobe XD / Sketch** – Design interactive layouts, prototypes, and user flows, ensuring a visually appealing and intuitive job portal interface.
- **Google Fonts API** – Integrates modern, readable typography to enhance design consistency, accessibility, and interface aesthetics.
- **Icons8 / Font Awesome** – Provides scalable icons to improve navigation clarity, interface usability, and visual communication across the portal.

Server / Deployment

- **Heroku / Vercel / Netlify / AWS / GCP / Azure** – Hosts application, ensuring scalable, secure, reliable access for users globally.
- **Docker (Optional)** – Simplifies deployment with containerization, ensuring consistent environment across development and production.

Version Control

- **Git with GitHub** – Tracks code changes, enables team collaboration, secure backups, and smooth project management.

Development Tools

- **VS Code** – Feature-rich editor supporting extensions, debugging, linting, and fast development workflow.
- **Chrome** – Browser for UI testing, debugging, and optimizing performance with developer tools.

KEY FEATURES OF TALENTDOOR

The TalentDoor Job Portal introduces several innovative features that enhance the traditional job search and recruitment process by integrating modern technologies and real-time communication tools. These additions make the platform more interactive, efficient, and user-friendly for both job seekers and employers.

1. Integrated Video Meeting System

TalentDoor includes a built-in video meeting system for seamless virtual interviews between recruiters and candidates. It offers features like screen sharing, real-time chat, and scheduling within the platform, eliminating external tools and ensuring a professional, efficient, and smooth interview experience for both parties.

2. Verified Company Profile

TalentDoor ensures authenticity by verifying each company's registration details, contact information, and email before allowing job postings. Approved companies display a "Verified Badge," promoting trust and transparency. This prevents fraudulent job listings and assures job seekers they are applying to genuine, legitimate employers.

3. AI-Based Job Recommendations

TalentDoor's AI recommendation engine intelligently matches job seekers with relevant job openings. It analyzes users' skills, interests, and experiences to present personalized suggestions that save time and enhance job search efficiency for candidates while helping recruiters connect with qualified professionals easily and effectively.

4. Resume Analyzer Tool

The Resume Analyzer reviews uploaded résumés for formatting, keyword usage, and skill relevance. It generates feedback that helps users improve their resumes, increasing their chances of selection. This automated tool enhances profile quality, boosts visibility, and aligns candidates' strengths with job requirements.

5. AI Chatbot Career Assistant

This feature provides users with an intelligent virtual assistant that helps them navigate the portal easily. The chatbot can suggest suitable jobs, answer FAQs, and recommend profile improvements based on user skills and interests. It acts as a personal career guide, making the platform more interactive and user-friendly.

Example: "Hi Malay 🙋 Would you like me to suggest jobs matching your Data Analyst skills?"

Chapter 8

Database Design

The database of *TalentDoor* is designed to store users, job postings, applications, messaging, and resume-related information in a structured and relational manner. The system ensures secure authentication, efficient job searches, and smooth employer–candidate interactions.

The database follows a **normalized relational structure**, mainly focusing on five core entities:

1. **Users Table (Common Login Table)**
2. **Employee Details Table**
3. **Employer Company Table**
4. **Job Posts Table**
5. **Applications Table**

1. USERS TABLE (Common Login Table)

- The **users** table stores the login credentials and role information for all individuals accessing the TalentDoor platform. This includes *Admins*, *Employees (Job Seekers)*, and *Employers*.
- IT handles authentication, authorization, and overall access control for the system. Each user is uniquely identified by a `user_id`. The `role` field determines the set of permissions available to a user, ensuring a secure and role-based workflow.
- The table snippet is shown below :

	user_id [PK] integer	full_name character varying (150)	email character varying (150)	password character varying (150)	role character varying (50)	date_created timestamp without time zone
1	1	admin1	admin@td.com	admin@34561	admin	2025-08-01 00:00:00
2	2	Malay Bhunia	mbhunia098@gmail.com	malay9000	employee	2025-10-10 00:00:00
3	3	Amit Sharma	hr@techvision.com	amit789	employer	2025-10-11 00:00:00

2. EMPLOYEE TABLE (Job Seeker)

- The **Employee** table contains detailed professional information about job seekers. It stores skills, résumé details, years of experience, and additional profile attributes.
- This table is directly linked to the **users** table and helps employers view complete candidate information. It also supports features like the Resume Analyzer, AI Job Recommendations, and skill-based search filters.
- The table snippet is shown below :

	emp_id [PK] integer	user_id integer	phone character varying (12)	resume_url text	skills text	education text	experience character varying (200)
1	1	2	8101032364	[null]	Python, SQL, PowerBI, Excel	B.Tech CSE	6 months

3. COMPANY TABLE (Employer Organization Details)

- The **company** table stores information about employer organizations registered on the platform. It includes company name, verified email, address, and verification status.
- Each employer (user with the role *employer*) is connected to exactly one company record. This table ensures authenticity by allowing only verified companies to post jobs, giving job seekers a safe and trustworthy environment.
- The table snippet is shown below :

	employer_id [PK] integer	company_name character varying (200)	company_email character varying (250)	registration_no character varying (100)	contact_no character varying (15)	is_verified boolean	user_id integer
1	1	TechVision Pvt Ltd	contact@techvision.com	02267542	9876543211	true	3

4. JOB POSTS TABLE (Job Listings)

- The **job posts** table contains all job openings created by employers. It stores job title, description, required skills, experience, vacancies, location, salary, job type, and posting date.
- Each job post is linked to a company record, ensuring traceability and transparency. This table powers job searches, job filtering, job recommendations, and displays listings to job seekers.
- The table snippet is shown below :

	job_id [PK] integer	employer_id integer	title character varying	work_experience character varying	vacancies integer	location character varying	salary character	job_type character var	status character varying	description text	created_at timestamp witho
1	101	1	Data Analyst	0-2 Years	3	Kolkata, Mum...	4-5 LPA	full time	Open	1) Proactiv...	20225-11-15 ...

5. APPLICATIONS TABLE (Job Applications)

- The **applications** table records applications submitted by job seekers for various job posts. It tracks which user applied to which job, along with the status (applied, reviewed, rejected, or hired).
- This table plays a critical role in the hiring workflow, enabling employers to shortlist candidates, review applicants, and update application status while also letting job seekers track their application progress.
- The table snippet is shown below :

	application_id [PK] integer	employee_id integer	job_id integer	status character varying (50)	application_date timestamp without time zone
1	501	1	101	reviewed	2025-11-16 00:00:00