**National University of Computer and Emerging Sciences, Karachi Campus**  


## **AI-Driven Job-Resume Matching System**

[**CS4051- Information Retrieval**](https://classroom.google.com/c/NjU2Njk5MTg5OTQx)

**Project Proposal**

**BS (CS) – J**

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### **Objective**

Develop an AI-driven platform to streamline the job application process by automatically matching job postings with candidate resumes based on skills, experience, and educational background. This system aims to optimize the recruitment process for employers and help job seekers find suitable positions efficiently.

### **Introduction**

The recruitment landscape is evolving rapidly with the integration of artificial intelligence, yet the challenge of efficiently matching job vacancies with the right candidates remains. Traditional methods often lead to time-consuming manual sorting of applications, potentially overlooking ideal candidates. An AI-driven Job-Resume Matching System addresses this issue by automating the matching process, significantly reducing the time and resources spent on recruitment, and increasing the accuracy of matches.

### **Description**

The proposed system, utilizing machine learning algorithms and natural language processing (NLP), will analyze job descriptions and candidate resumes to identify and match based on key criteria such as required skills, experience levels, and educational qualifications. The system will:

* Host job listings and resumes, allowing easy access for employers and job seekers.
* Automatically rank candidates for a job based on the relevance of their skills and experience to the job requirements.
* Provide a user-friendly interface for both job seekers and employers to manage profiles, job postings, and applications.
* Send notifications to job seekers about new job postings that match their profiles.

Key features include:

* **Skill Extraction:** Using NLP to identify skills and qualifications from resumes and job descriptions.
* **Ranking Algorithm:** A sophisticated algorithm to rank candidates based on the match between their profile and job requirements.
* **Employer Dashboard:** For employers to post jobs, view applicants, and manage listings.
* **Job Seeker Profile:** Where job seekers can upload resumes, input skills, and apply to jobs.
* **Notification System:** Automated alerts about new job postings that match job seeker profiles.

### **Technologies Used**

* **Machine Learning & NLP:** Python libraries such as TensorFlow, PyTorch, and NLTK for developing matching algorithms and processing natural language data.
* **Database:** MySQL or MongoDB for storing user profiles, job listings, and application data.

### **Conclusion**

The AI-Driven Job-Resume Matching System represents a leap forward in recruitment technology, promising efficiency, accuracy, and accessibility. By leveraging AI and machine learning, the platform will revolutionize how employers and job seekers connect, making the recruitment process more streamlined and effective.