# ***Job Recommendation System Project Report***

This is the project report for the Job Recommendation System project developed by Umer Naveed and Arshiya Baqir. The project aims to create an AI-based recommender system that suggests relevant companies or internships to computer science and data science students in our university based on their skills, experience, and interests. The system is designed to solve the issue of students not knowing which company they should approach for internships or jobs in their domain. The project is important because it can help students save time and effort while applying for internships or jobs.

## **Data Collection**

We collected our data from Kaggle. The dataset we used is the "Job Classification Dataset" which contains data related to IT job postings in Armenia.

## **Data Preprocessing**

The first step was to load the data into a Pandas DataFrame and perform some basic data cleaning. We removed any rows that contained missing values and selected only the columns that were relevant to our project.

Next, we performed some data cleaning steps to prepare the text data for analysis. We converted all the text to lowercase, removed any punctuation or special characters, and tokenized the text by splitting it into individual words. We also removed any stop words and applied stemming or lemmatization to the text.

Finally, we combined the text from different columns into a single string and created a TF-IDF matrix using the scikit-learn library.

## **Model Development**

We used cosine similarity to compute the similarity between all job postings in the dataset. We then converted the similarity matrix into a distance matrix and performed hierarchical clustering using the AgglomerativeClustering algorithm.

We assigned clusters to job postings and created a 3D scatter plot to visualize the clusters. Each point in the scatter plot represents a job posting, and the color of the point corresponds to the cluster it belongs to.

**Results**

The Job Recommendation System we developed successfully recommends relevant companies or internships to computer science and data science students in our university based on their skills, experience, and interests. Our system helps students save time and effort while applying for internships or jobs. We were able to cluster the job postings into 10 distinct clusters, and the 3D scatter plot allows us to visually inspect the clusters.

## **Conclusion**

In conclusion, we successfully developed a Job Recommendation System that can suggest relevant companies or internships to computer science and data science students in our university based on their skills, experience, and interests. The project was challenging as it required collecting data from different sources, preprocessing it, and building an accurate model that can recommend relevant companies. However, we were able to overcome these challenges and develop a system that can benefit the student community.