**Problem Definition**

Many academic programs fail to prepare students for their future job placements, especially in the fast-changing field of technology. The programs are not designed to encourage students to learn skills that are in high demand by the job market. Instead, the programs might cause students to spend their academic years getting knowledge and skills that might not be required by any hiring companies. One cause of this problem is that schools are not in continuous communication with companies in the job market. Therefore, it is difficult to design an efficient academic program that will help students get a job in the future.

**Data that will be used**

Ideally, the best data for this platform would come from specific companies which might be willing to share their needs and expectations from future employees.

Data can also be collected from company websites: either on their career webpages or different webpages where thy post their job positions on.

Another source of data might be the job posting platforms like LinkedIn or Indeed. This data might need more filtering than data coming directly from certain companies because it might loose accuracy or liability as it passes from the first source to a second party.

If the project would develop and extend into predicting job market needs, then data can be collected from job market studies or innovation reports. Since extracting data from some of these resources is too advanced at the current stage of the project, the mentioned data sources may not be used at this step. Instead, a ready data set will be used for implementation and demonstration.

**Hypothesis**

If universities and schools design their academic programs in alignment with the skills and knowledge required in the job market, then the job placements of their alumni will increase.

If universities and schools receive regular information from job postings and the in-demand skills in the job market, they will be able to design very efficient academic programs which meet the industry needs.

This solution can be reached through a data-driven approach.

**AI algorithms and methods I intend to use:**

Natural Language Processing (NLP) can be used to get the needed information from textual data in job postings.

Clustering and dimensionality reduction can be used to group job positions that have similar requirements.

Machin eLearning models can be used to predict the skills that are going to be in-demand based on historical data (previous job postings).

Visualization tools like Tableau can be used to build a nice dashboard for users.

Recommendation Systems can be used to recommend courses for academic programs.

**How/Where I perform (implementation environment)**

Data can be retrieved from job posting websites using web scrapers or APIs. The data can then be filtered, cleaned, and prepared both at extraction time and after collection. For data analysis, Python or R can be used. A major algorithmic method to use would be natural Language Processing and machine learning (or deep learning). Data needs to be stored and displayed in user-friendly dashboard in a cloud-based environment.