DATA EXPLORATION & VISUALISATION

The dataset has already been explored to find trends in average salary and educational levels of people for a singular profession. The next step is to broaden the scope of analysis by checking for patterns in salary and the use of Artificial Intelligence (AI) across all professions. With the results gathered after the execution of the provided tasks, the trends in automation probability could be accurately uncovered. These patterns are represented as graphs with the use of various plot functions from the matplotlib library.

## AVERAGE SALARY VS. PROFESSIONS
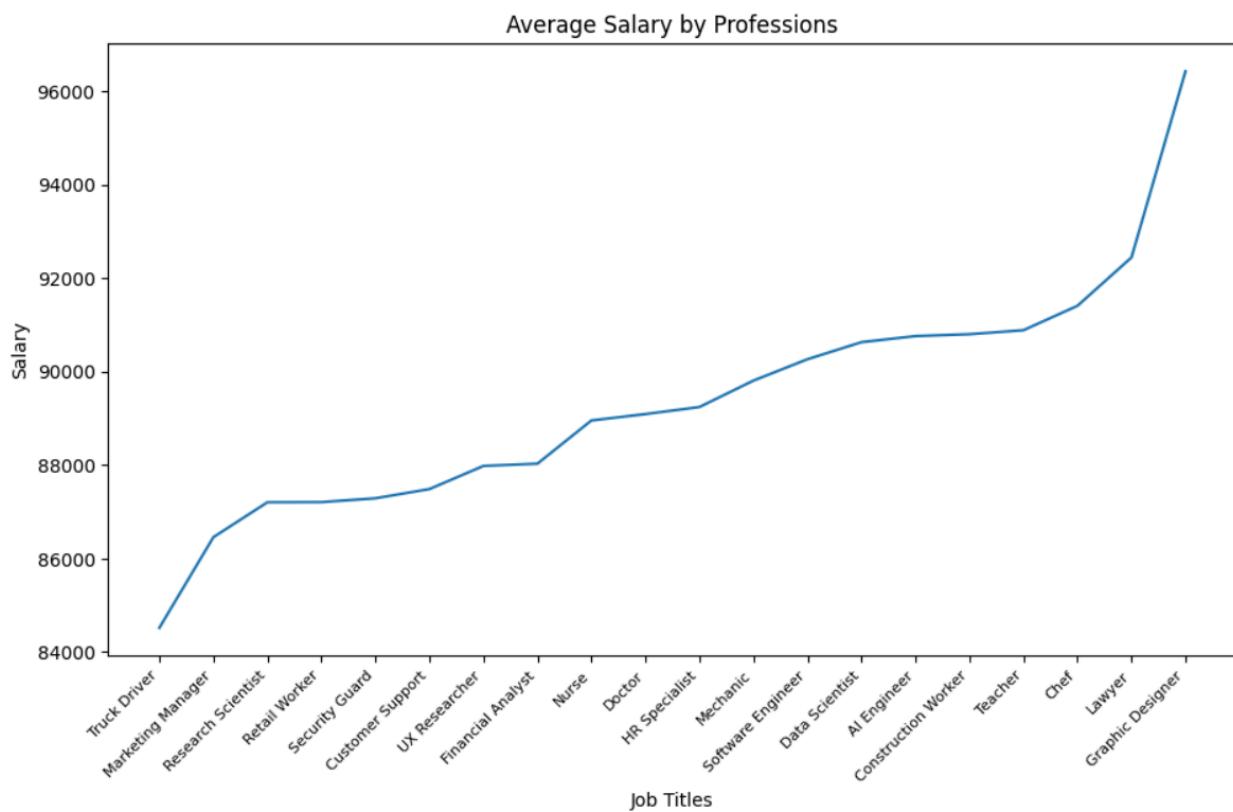
Figure 1. Line Graph depicting average salary vs. professions

The above graph shows the trends in mean salary across all professions in the dataset. The salary of twenty unique professions spans from 84,000 to 96,000 USD. According to the information available in the dataset, the salary of truck drivers is on the lower end of the spectrum, while lawyers and graphic designers have higher net worth. Low paying work might have a higher

chance of being automated by AI, but this can also depend on the exposure of AI in the work field and how successfully it can be implemented. From the salary ranges across professions, a link to automation probability can be further derived.

AI EXPOSURE VS. PROFESSIONS
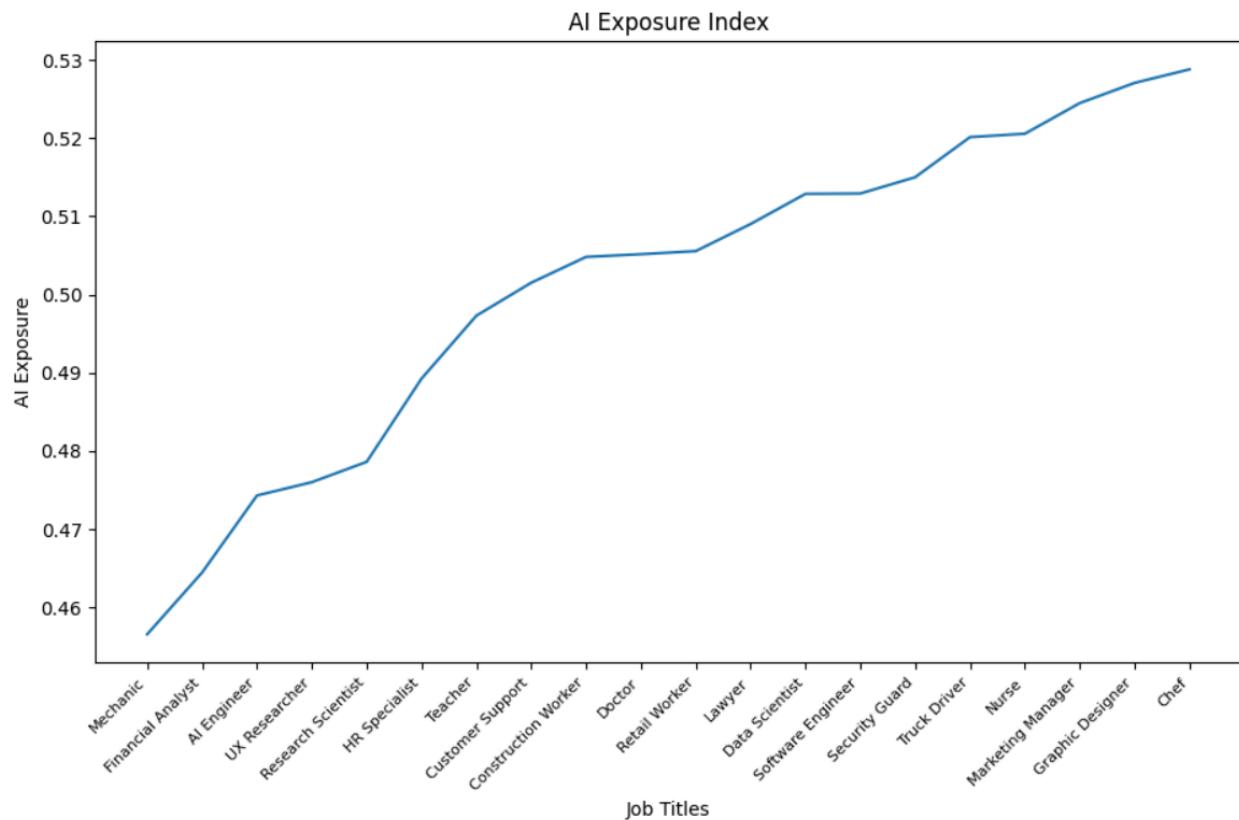
Figure 2. Line graph depicting AI exposure vs. professions

The exposure of AI tools and services can be noticed in many different fields of work, as seen in the above graph. AI exposure is measured as an index, with the values in the graph ranging from 0.46 to 0.53. It shows that mechanics and financial analysts have lesser AI exposure in their respective fields, and the professions with higher AI use in the current scenario are graphic designers and chefs.

Professions with successful implementation of AI into their field are more likely to be fully AI automated. This would significantly reduce labour costs, and the overall efficiency would be reflected in its output. This also implies that professions with higher AI exposure cannot be fully expected to be AI automated – if the implementation of AI tools is not entirely feasible for future development, and shows to be not sustainable to generate the desired results.

# PROBABILITY OF AUTOMATION ACROSS PROFESSIONS
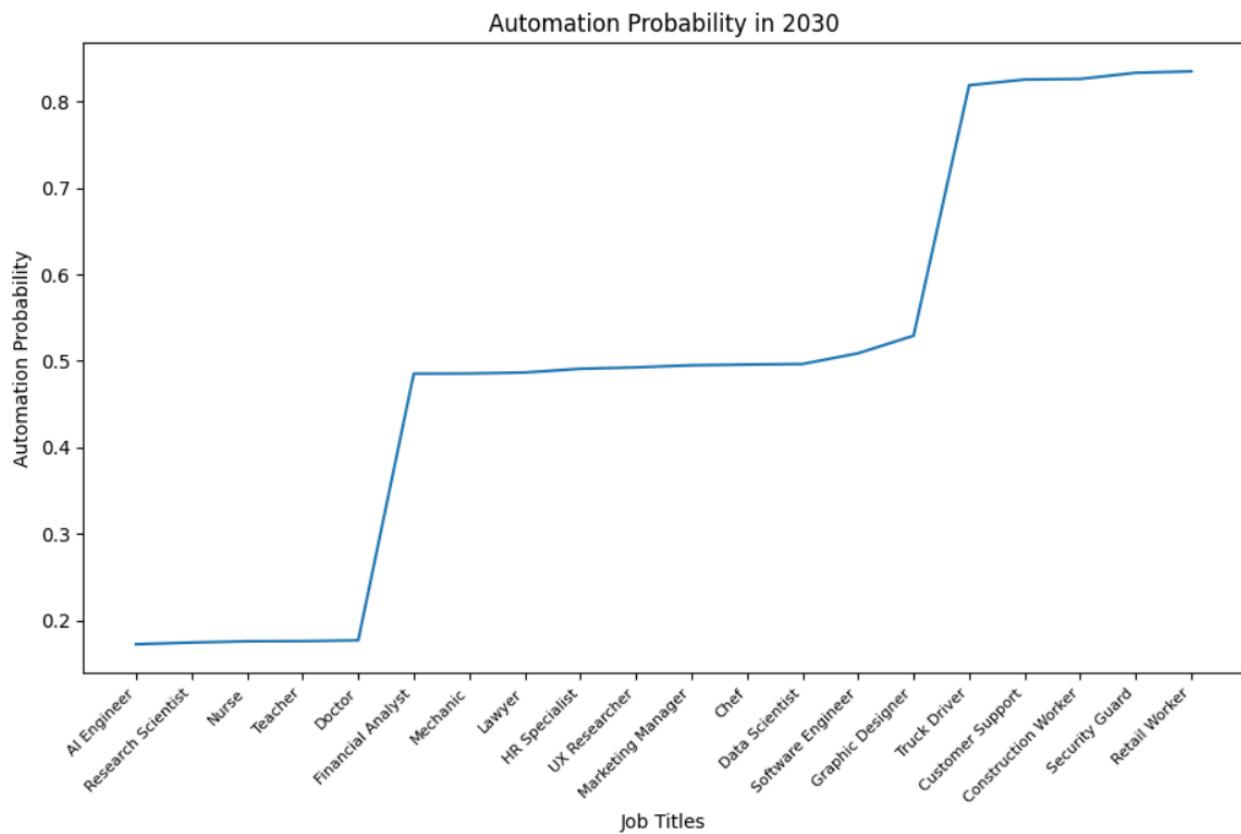
Figure 3. Line graph depicting AI automation probability vs. professions

This graph shows the visual representation of the predictive AI automation probabilities across jobs which were provided in the dataset. The probability values range from 0 to 1, with many jobs clustered around the ranges 0.1, 0.5 and 0.8 to 0.9. Many jobs have an automation probability of 0.5, with varying salaries and AI exposure. The data analysis can be made more efficiently by analysing the professions with extreme probability values.

By analysing professions with least probability of automation, it can be noted that they have substantial salaries, ranging from 88,000 to 91,000 USD. Some of these jobs have higher AI use, but this can be reasoned as unsustainable implementation of AI tools for proper automation.

The average salaries of professions with an automation probability above 0.8 are on the lower end, ranging from 84,000 to 87,000 USD. These jobs also have an AI exposure index above 0.5, indicating higher use of AI tools and services. This exposure can lead to full automation of these professions in the near future.

By completing the data analysis tasks, it can be concluded that the above three graphs are closely interrelated, with mean salary and use of AI tools influencing the automation probability values given in the dataset.

FURTHER ANALYSIS

The dataset also contains ten values indicating the proficiency of ten different skills per person in each job listing. Though these values do not influence the probability of automation of these jobs, the given data can be visualised in the form of a heatmap. The heatmap was generated with the use of seaborn, a python library that is also used to plot specialised graphs.

```python
plt.figure(figsize=(8,6))
sns.heatmap(jobs_by_skill)
plt.ylabel(None)
plt.show()
```
✓ 0.5s
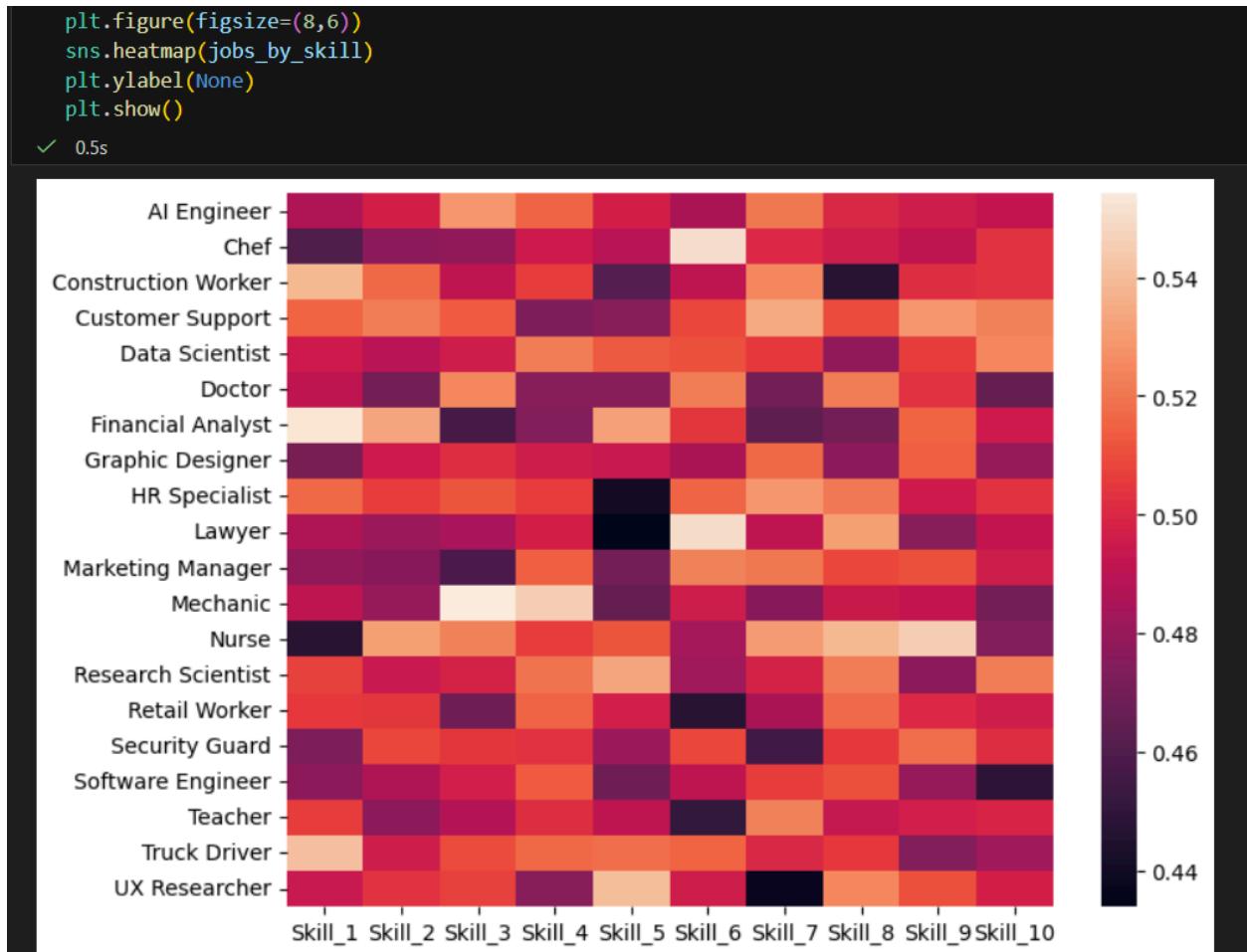
Figure 4. A heatmap showing the proficiency of skills in each profession