A colorful logo with text

AI-generated content may be incorrect.

Introduction to Data Science

IT Job Listings Analysis

2/25/2025

Natalia- Petrina Radoi

Report

This project's dataset came from the Adzuna API, which provides job adverts in various fields, including IT, from several locations. Extensive information, including job names, locations, companies, pay ranges, and descriptions, is extracted from job ads in the UK gathered by the API request. (Adzuna Ltd, 2025)

The dataset has natural constraints even if it provides valuable information on job trends. The data comes from Adzuna; therefore, it could not be entirely representative of the general employment market since it only reflects postings on the platform. Moreover, by excluding groups or employment categories, job advertising might mirror corporate choices. Salary data is frequently not available, which can cause analysis to fall short.

Working on this project expanded my knowledge of using APIs to obtain, clean, and present data. Practical experience helped me to choose the best visualisation techniques to highlight concepts, arrange a dataset for good analysis, and handle missing data.

The challenge I faced was extracting the information from the APIs; I used the Postman tools to hide the parameters and test if I could access the API. After I wrote a code in Python using the VS code platform, when I ran the code, I had an error that the result.json() function was not working, so I had to create a condition and use the function print(data) to access the information. Because the information had become messy, I used the tabulate library to create a table so the data would look organised. I made a job list to extract specific data like job titles, locations, company names, minimum and maximum salaries and job descriptions. When I had the output, I found some incomplete salary information. To address that, I computed an average wage where possible and removed the row with the missing salary values. To give a better view of the job search, I created some visualisations, adjusting the layout of bar charts, bubble charts, and scatter charts for readability, which took multiple iterations.

The first plot examines how salaries vary depending on the location of IT job announcements. It emphasises the top ten locations with the greatest earnings to ascertain where the most appealing career paths are found. The second plot shows how the top five companies with the highest overall compensation in IT job announcements distribute their salaries. Rather than examining individual job ads, we compile salaries by business to pinpoint which companies pay the most. Because it makes reading easier and facilitates comparisons, I decided on a horizontal stacked bar chart instead of other graphs. Stacked bars show pay distribution; each bar stands for a company, and the length of the bar indicates the overall pay given. Stacking makes clear differentiation possible by showing how the total pay of every company adds up and facilitates easy comparisons between companies. The third visualisation emphasises the variations in compensation among the top seven highest-paying IT job titles. This study helps identify the positions in the IT industry with the highest financial payoff. I decided on the bubble chart with the bigger bubbles since it removes the need for extra labels and visibly shows the salary scale. (Donnelly, 2024)

The project was successful in running and structuring IT job data from the API and developing an understanding and effective visualisation using Python libraries like Pandas, Seaborn, Matplotlib, and Counter about the jobs in the market. Also, the implementation of data cleaning, deleting, and filling the missing value efficiently.

For future improvements, I would look for more specific job titles and details about the required skills. Then, I would look for jobs based on skills and compare both data analyses. I may also implement Natural Language Processing (NLP) techniques to extract more structured insights from job descriptions.

Based on publicly available employment listing data, this project's ethical statement guarantees compliance with ethical data use. Still, results are interpreted considering job advertising prejudices, including pay differences and company preferences. Respect for the platform of usage is also crucial since the data I take from an API. The initiative seeks to offer insights free from distortion of trends or false assertions regarding employment.

In conclusion, the project demonstrated how information can be used to examine job trends in the IT sector using API data. The challenges faced and the solutions found taught us valuable lessons applicable in future initiatives involving data collecting, processing, and display.

# References

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