Unit 3, e-Portfolio Activity: Research Proposal Review →

Word Count ≈ 430

I'll be looking to do crime analysis for my research project. Giving me an opportunity to apply data science techniques such as:

- Trend analysis
- Prediction modelling
- Natural Language Programming (NLP)
- Clustering
- Recurrent neural networks (RNN)
- Geospatial analysis

Which of the methods described in this week's reading would you think would suit your purpose?

A quantitative research method would be the most appropriate approach for crime analysis due to its ability to systematically analyse numerical data and identify patterns. With the abundance of crime data available from open sources, such as government databases, police reports, and public crime statistics, I can apply techniques like trend analysis and statistical modelling to effectively track changes over time. This approach allows me to pinpoint specific areas or time periods with increased criminal activity, identify correlations, and predict potential future crime trends based on historical data.

On the other hand, a qualitative approach could be particularly useful during the conclusion phase of the crime analysis. At this stage, I could interpret the data by looking beyond the numbers to understand the underlying factors contributing to crime patterns. By examining the context, motivations, and social conditions associated with specific events, I can provide a more comprehensive explanation of crime trends. This method would allow me to combine data evidence with a deeper analysis of narratives and perspectives, offering valuable insights that could inform crime prevention strategies and policy recommendations.

Which data collection methods would you consider using?

From the list at the top of the page, I would look to use quantitative techniques such as trend analysis and clustering to identify crime hotspots. Potentially with a focus on UK or even Essex crime.

For a qualitative approach, the use of focus groups could be used. This could allow deep discussions with participants sharing their views on crime trends, perceived safety, and the effectiveness of policing strategies, revealing the social dynamics and underlying issues influencing crime patterns.

Which required skills will you need to have or develop for the chosen project?

A researcher mindset is essential for this project to effectively showcase and interpret findings. The data science techniques I have acquired through my degree will be crucial, particularly in programming languages such as Python and R. These tools will be necessary for creating data visualisations and conducting statistical analyses. Python and R are not only effective for

managing and processing large datasets but also for developing visualisations that clearly communicate complex information. Additionally, these programming skills will enable me to perform statistical inference, identifying patterns, trends, and relationships within the data. By leveraging these techniques, I will be able to draw meaningful conclusions, validate hypotheses, and present the results in a way that is both accessible and insightful to stakeholders.