

Data Analysis Assignment

Deadline – 21st April 2024, 11.59 pm

This is a group assignment. Conduct this assignment in the same group you formed during the introductory lecture.

Explainable AI (XAI) refers to the set of techniques to make the decisions of artificial intelligence (AI) models understandable by humans. XAI aims to ensure transparency and accountability in AI systems, enabling users to understand why an AI model made a particular decision. You are given a dataset collected through a survey conducted to understand the public perception of XAI, such as if the public is aware of XAI, if XAI is necessary, what the expectations of the public are for XAI, etc. The survey used to collect the data has also been given to you. Section 1 of the survey collects demographic information, whereas section 2 assesses the AI awareness of the participants. Finally, section 3 gathers responses regarding perceptions towards XAI. The answers to the question in section 2 are as follows.

- 7. Email,
- 8. Yes
- 9. No
- 10. Yes

What to do?

- Go through the survey to understand the questions that have been asked.
- Conduct a descriptive analysis and provide **three** main insights from it. You should elaborate on how you derive those insights, too. (30 marks)
- Test the following hypotheses. You should elaborate on the tools and techniques you used to evaluate the hypotheses. (30 marks)
 - H0: Gender significantly impacts the perceived importance of XAI.
 - H1: Age significantly impacts the perceived importance of XAI.
 - H2: Education significantly impacts the perceived importance of XAI.
 - H3: Occupation significantly impacts the perceived importance of XAI.
 - H4: Carer level significantly impacts the perceived importance of XAI.
 - H5: AI awareness significantly impacts the perceived importance of XAI.
- Answer the following questions. Ensure you use the appropriate measurements and visualizations to derive and explain the answers. (40 marks)
 - I. Is it important for users to know the reasons behind the decisions of AI systems?
 - II. Which impact (financial, medical, legal, etc.) caused by AI decisions gives rise to XAI being of higher importance?
 - III. Which ELE application gives rise to XAI being of higher importance?
 - IV. Are linguistic explanations preferred over other types of explanations?

V. RQ4: What are the expected characteristics of explanations?

Submit a short report (Maximum of 5 pages) in PDF format answering the above questions. Rename the report with the group name (e.g., Group A), and mention the index numbers of the group members at the top of the first page of the report. Each group should submit only one report.

If you have any questions, please contact me at sandarekaw@cse.mrt.ac.lk