Research Proposal Outline

Project Title

Machine Learning And It's Usage Within Curriculum And Revision Planning In Secondary Education.

Significance / Contribution to the discipline / Research Problem

Provides a real world case and application. Explores a topic that needs to be looked at due to issues in education. Can hopefully provide real world benefit.

Research Question

Can machine learning provide benefits to students and teachers in secondary education? Potentially questions might arise from this.

Aims and Objectives

Identify whether machine learning should be applied to secondary education and develop an application that may do this.

Key literature related to the project

Ahajjam, T., Moutaib, M., Aissa, H., Azrour, M., Farhaoui, Y., & Fattah, M. (2022). Predicting Students' Final Performance Using Artificial Neural Networks. Big Data Mining and Analytics, 5(4), 294-301. https://doi.org/10.26599/BDMA.2021.9020 030

Forero-Corba, W. & Bennasar, F. N. (2024) Techniques and applications of Machine Learning and Artificial Intelligence in education: a systematic review. Revista iberoamericana de educación a distancia. [Online] 27 (1), 209–253.

Joshi, M. & Kumar, S. (2020) Prediction and Analysis of Student Performance in Secondary Education Based on Data Mining and Machine Learning Techniques. International Journal of Scientific Research in Computer Science, Engineering and Information Technology. [Online] 294–301.

Yousafzai, B. K. et al. (2020) Application of machine learning and data mining in predicting the performance of intermediate and secondary education level student. Education and information technologies. [Online] 25 (6), 4677–4697.

Methodology / Development Strategy / Research Design

Use SDLC for the development of an application. Make sure that the research design stays focused and aims to answer the questions. Try to use real world data where possible.

Ethical considerations and risk assessment

Data security due to application made. Also considerations with real world test case, especially as this is children in an education setting. Risk is low for the work due to limited personal information being held and data being held locally.

Description of artefact(s) that will be created

Application for teachers to input scores as data and to be provided with schemes of work for the whole class as well as individual students. Bank of topics to be used to allow for students to have individual learning paths.

Timeline

SDLC to be completed by July 2025, so that user data can be gathered as feedback. First draft to be completed by June 2025.