Project Proposal:
Early Warning System for Student Success using D2L Behaviors

Introduction
The ability to identify the need for academic intervention and personalized academic support is crucial for ensuring the success of every student. This project aims to leverage machine learning techniques on data collected from the D2L Learning Management System to predict a students' academic trajectory in a course based on their D2L habits and behaviors.

Objectives
- Build a machine learning model to predict academic trajectory using D2L behaviors.
- Develop an early warning system for identifying students at risk of academic failure based on their unique patterns in D2L.
- Implement a real-time intervention strategy to guide at-risk students.

Scope
- Early Stages: Focus on courses in the School of ASETT.
- Analyze D2L behaviors including login patterns, time spent on content, assignment submissions, forum interactions, quiz performance/attempts, etc.
- Predict academic trajectory using historical D2L behaviours and grades.
- Exclude data that would compromise student privacy, as well as instructor activity logs (which could be used in the future).

Data Description
- Extract data from the D2L system, including timestamps of logins, frequency of interaction, time spent on specific content, engagement in forums, grades, etc.
- We aim to use this data to engineer metrics serving as key-indicators of a students' success, ultimately informing our success navigators/pertinent staff for intervention and course correction.

Timeline
- Weeks 1-2: Data collection, EDA, preprocessing, feature engineering
- Weeks 3-4: Model development and tuning.
- Weeks 5-6: Evaluation and documentation.

Budget
- No additional budget is required as existing data sources and tools will be utilized.

Team Members
- Sebastien Lozano-Forero
- Jamie Loewen

Conclusion
This project aims to leverage machine learning to provide a proactive early warning system for at-risk students, facilitating timely interventions and improving overall academic success.