**ML Project Assignment Description**

**For this assignment, you will be tasked with collecting data within your university and using machine learning to investigate future outcomes related to a specific problem or question of your choice. You will be required to follow the basic steps of a machine learning project, including data collection, cleaning, algorithm selection, model training, and results interpretation.**

**Project Titles**

1. Predicting Student Retention Rates: Using historical data on student enrollment, grades, and demographics, build a machine learning model that can predict which students are most likely to drop out of school.
2. Identifying Patterns in Course Evaluations: Using course evaluation data from students, faculty, and staff, use clustering analysis to identify common themes and patterns in feedback.
3. Analyzing Social Media Sentiment: Scrape social media data related to your university (e.g., tweets, Facebook posts) and use sentiment analysis to measure how people feel about different aspects of campus life.
4. Recommending Course Selections: Use collaborative filtering algorithms to recommend courses to students based on their previous course selections and academic performance.
5. Predicting Graduation Rates: Using historical data on graduation rates and demographic information, build a machine learning model that can predict which students are most likely to graduate on time.
6. Predicting Student GPA: Using historical data on student grades, demographics, and extracurricular activities, build a machine learning model that can predict a student's GPA at the end of the semester or year.
7. Analyzing Library Book Borrowing: Using data from the university library system, use clustering analysis to identify trends in book borrowing behavior among students and faculty.
8. Identifying High-Risk Campus Areas: Using crime data from campus security or local police departments, build a machine learning model that can predict areas on campus that are at high risk for criminal activity.
9. Recommending Extracurricular Activities: Use collaborative filtering algorithms to recommend extracurricular activities to students based on their interests and past involvement.
10. Predicting Student Success in Online Courses: Using data from online course platforms, build a machine learning model that can predict which students are most likely to succeed in online courses and identify the factors that contribute to their success.
11. Analyzing Student Housing Preferences: Using data from student housing surveys, build a machine learning model that can predict which housing options are most popular among students and identify the factors that influence their preferences.
12. Identifying Trends in Course Enrollment: Using historical data on course enrollments, use clustering analysis to identify trends in course popularity over time and among different student demographics.
13. Recommending Study Groups: Use collaborative filtering algorithms to recommend study groups to students based on their academic performance, interests, and study habits.
14. Predicting Athletic Team Performance: Using historical data on athletic team performance, build a machine learning model that can predict how well a team will perform in upcoming games or seasons.
15. Analyzing Campus Transportation Patterns: Using data on campus transportation, including shuttle and bus schedules, traffic patterns, and parking usage, identify areas of improvement to make transportation more efficient and effective for students and staff.

**Grading Rubric**

The assignment will be graded based on the following criteria:

* Data Collection (20%): Did the student collect relevant and clean data from within the university?
* Algorithm Selection (20%): Did the student select an appropriate machine learning algorithm for their problem or question?
* Model Training (30%): Did the student effectively train and test their machine learning model?
* Results Interpretation (20%): Did the student accurately interpret their results and communicate their findings to others?
* Creativity (10%): Did the student demonstrate creativity and originality in their approach to the problem or question?

**Deadline: Thursday 20/04/2023**