## Artificial

## Intelligence and Machine Learning

Project Report

Semester-IV (Batch-2022)

Seoul Bike Sharing Demand Prediction

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## Title:

Seoul Bike Sharing Demand Prediction

**Abstract**:

## This project aims to design and implement an advanced artificial intelligence (AI) and machine learning (ML) solution in Python to predict bike sharing demand in Seoul. The primary objective is to provide users with a robust tool for forecasting the count of available bikes for rental during specific hours and days. The prediction model takes into account a diverse set of conditions, including weather parameters, temporal aspects such as time and date, and the presence of holidays.

## The methodology involves extensive data analysis and preprocessing of historical records encompassing bike rentals, weather variations, and holiday schedules. Leveraging various machine learning algorithms, the system extracts intricate patterns from the dataset, enabling it to make precise predictions. Python will be the principal programming language for tasks such as data manipulation, feature engineering, model development, and result visualization.

## The project's significance lies in its potential to offer stakeholders, such as bike-sharing operators, urban planners, and users, a valuable tool for strategic decision-making. By accurately predicting bike demand based on contextual factors, the model contributes to optimizing resource allocation, enhancing user experience, and improving the overall efficiency of Seoul's bike-sharing system. The outcomes of this project hold promise for broader applications in urban transportation systems, setting the stage for more informed and data-driven decision-making in dynamic environments.