CMPT 732: Final Project Proposal

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Topic:	End-to-End Data Pipeline for Past, Present, and Future Parking Insights at SFU
Brief Description of a problem	Parking availability at SFU is often unpredictable, leading to frustration for students and staff. Currently there is no integrated system that analyzes historical trends, current occupancy, and future predictions. Without such insights drivers spend extra time searching for available spots, contributing to congestion.
Brief Description of the objectives	This project aims to address the problem by designing a big data workflow that can process and analyze parking data across different time dimensions: - Past (What are the peaks? How long do people stay? What drives spikes?) - Present (How many spots are occupied/free in each lot?) - Future (How many will be occupied in 15-30 mins?)
Technologies intended to use	Python, API Gateway, AWS Lambda, Amazon S3, Apache Spark, PostgreSQL, Amazon Kinesis, AWS EMR
Overview of the proposed workflow