**DATABASE FOR SJSU PARKING**

**Group Members**

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**Project Overview**

This project is intended to develop a sample database for storing and retrieving data related to SJSU Parking.

Parking is an essential component of the transportation system. A typical automobile is parked for 95% of its lifetime at multiple places.With the increase in infrastructure and people being independent, there is an increase in the number of owner vehicles leading to congestion on roads and parking lots. Considering the case of Universities in the United States, with the increase in student enrollments there is also an increase in demand for educational departments and parking lots. The ratio of the total number of students/ employees/ staffs to the parking space available in the university is approximately 5:1 i.e. one parking space for every 5 students (SJSU Parking Regulations). The standard parking ratio of a commuter-based campus is 1.8 - 2.0 people per parking space which implies that at present, the parking infrastructure at SJSU is severely strained.

**Project Description**

Through this project, we would like to deep dive into the core causes of parking shortage by creating a sample database of SJSU Parking and analyzing the correlation of multiple tables - class schedules, students, and parking. Referring to the 2019 Fall SJSU Parking Services’ historical data and SJSU student enrollment data, we will use the following subset of data:

(1) Class schedules: # of classes by daytime, # of students enrolled in each class

(2) Students: # of students’ transportation means by driving alone/ carpooling/ transit (shuttle or train)/ biking/ walking

(3) Parking: parking occupancy rate by daytime and permit types, # of carpool lots, #of cars with low turnover rates in garages, total # of parking lots available by parking permit, # of parking permits sold in 2019 Fall semester by permit types.

With this data analysis, we hope to suggest solutions to accommodate all students, employees, staff, and visitors on the SJSU campus.

**Goals to be Achieved**

1. Create a database and tables for SJSU’s parking data.
2. Verify the tables till 3rd normal form and check for the primary key- foreign key relations while designing.
3. Insert data into tables to analyze the database better.
4. Evaluate SJSU parking patterns by exploring garage occupancies during the day at regular intervals.
5. Study the types of permits available and their usage requirements.
6. Analyze the correlations of students, class schedules, and parking conditions data.
7. Update and modify the parking database at regular time intervals as new requirements arise.
8. Explore shared transportation modes such as carpooling, zip cars, college shuttle, etc. based on user preferences to reduce wait times.
9. Efficiently manage the parking database to reduce wait times and enhance the commuting experience.