Bus Tracking Application

By Group 19
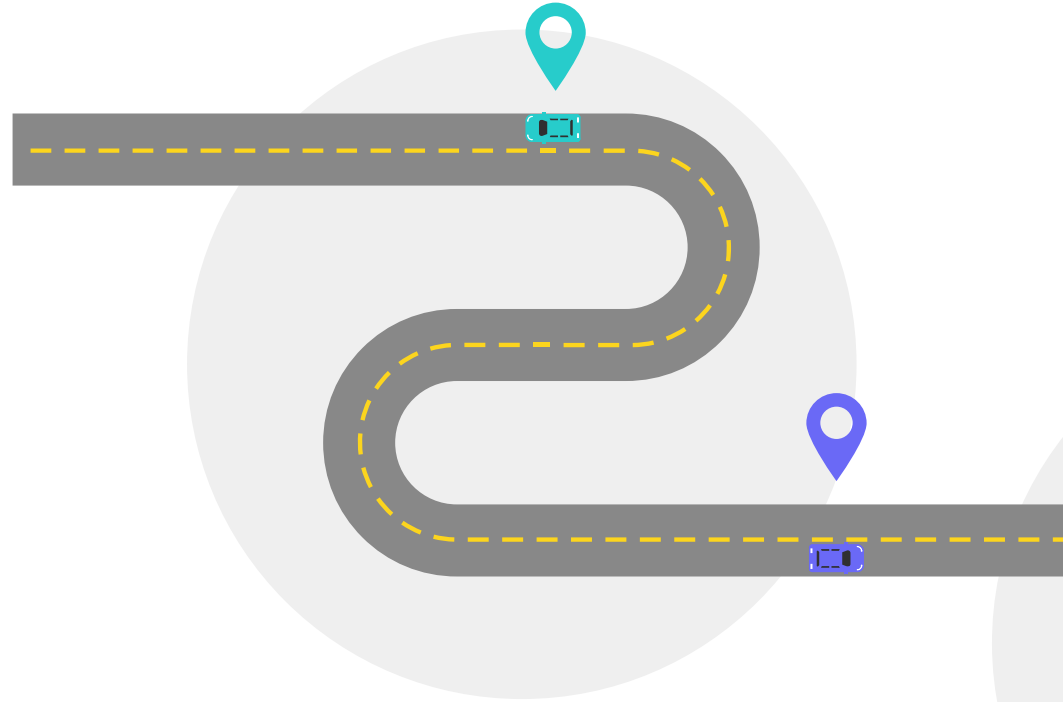
01

Background Information

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Description of Application

- The bus is a popular mode of transport in Singapore however only a limited number of bus stops have an electronic panel to display the bus information.

- The key idea behind the development of this application is to use public transport data online for everyone to easily access these information.

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Migrating from RDBMS TO NOSQL

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Why NOSQL & document database?
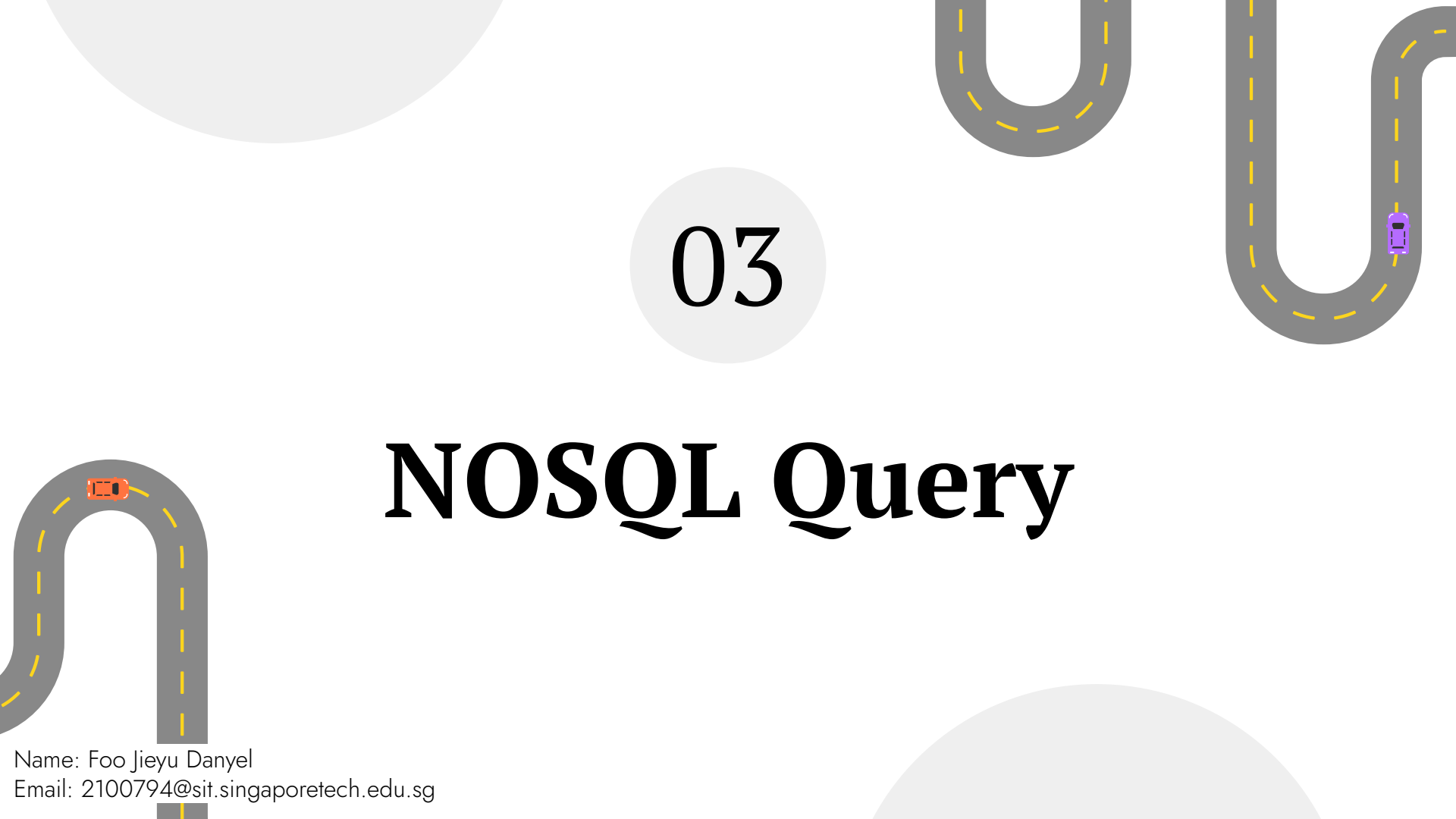
- Better scalability

- Faster

- Flexibility

- No relational schema

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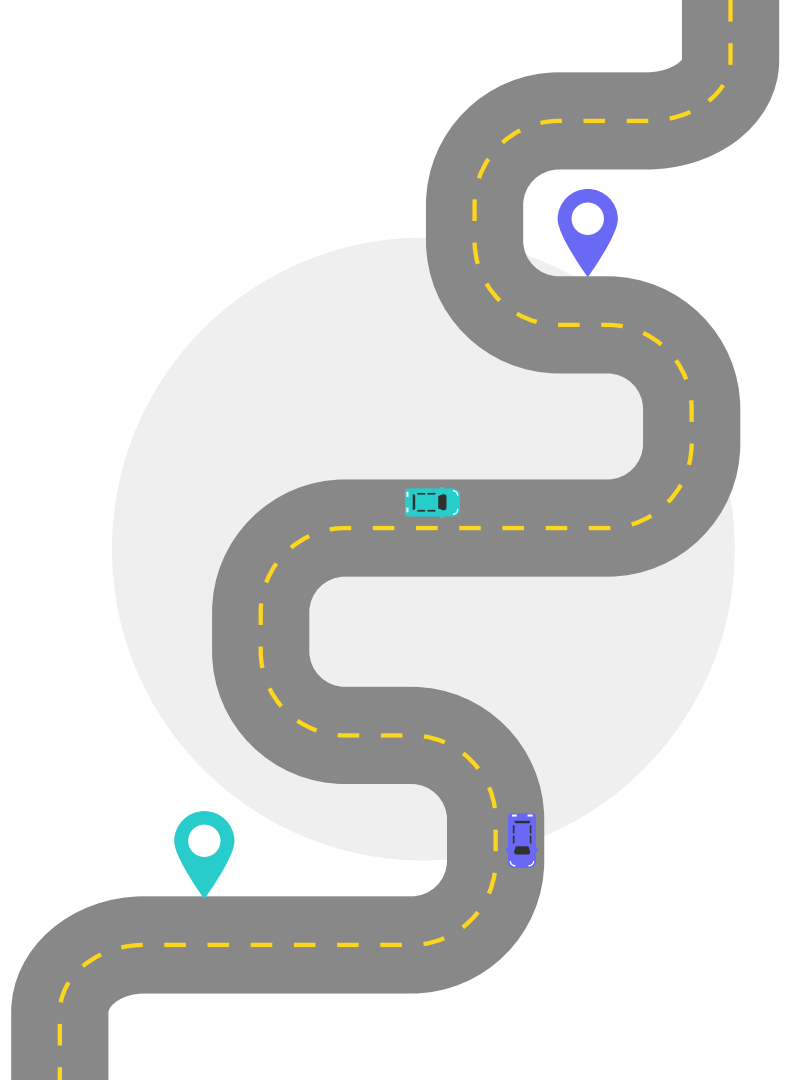
Migration Process

- Scheme 3 & 2

- Using Excel functions to merge all 3 tables into 1 document

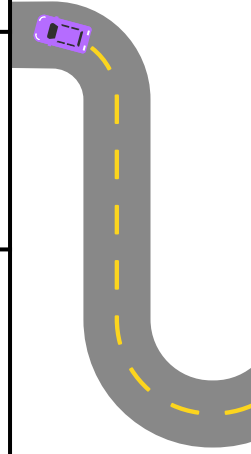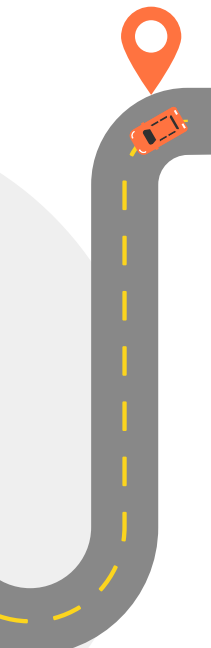- Converting Excel file to JSON file to be inserted into MongoDB
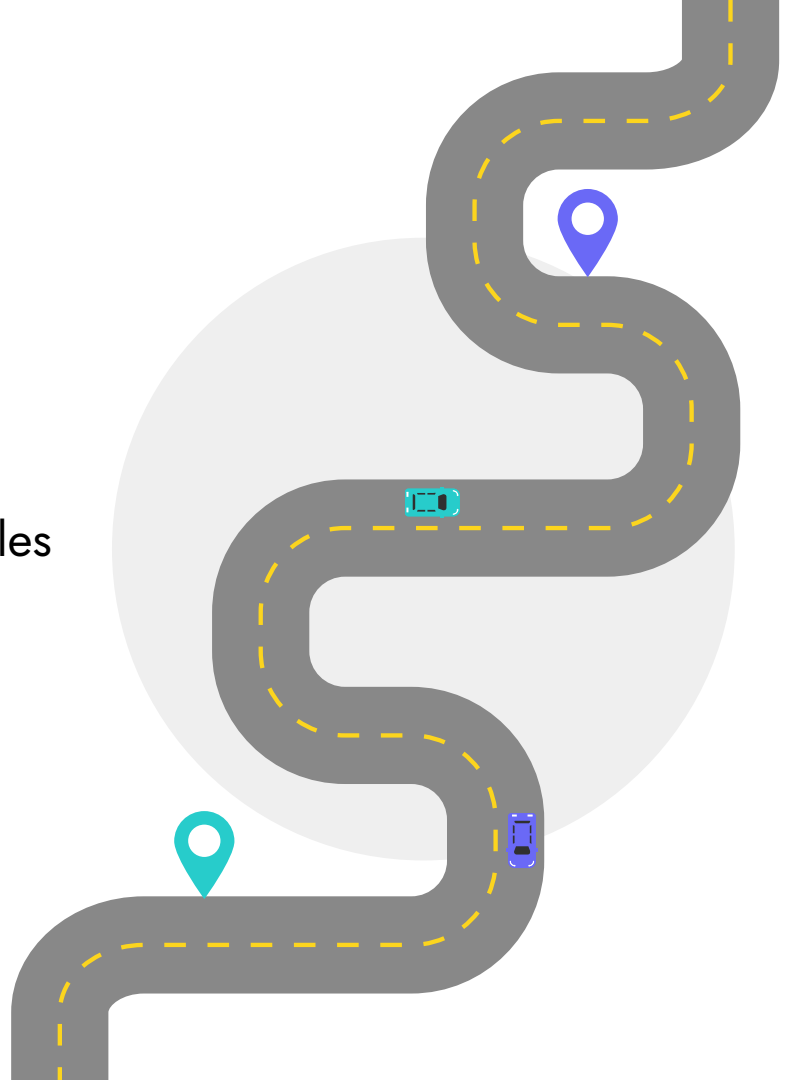
Name: Edwin Ng Jun Yuan
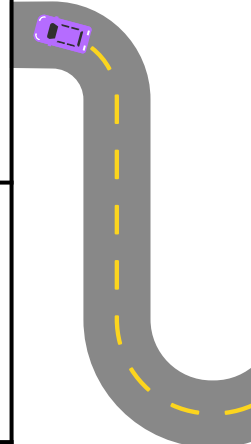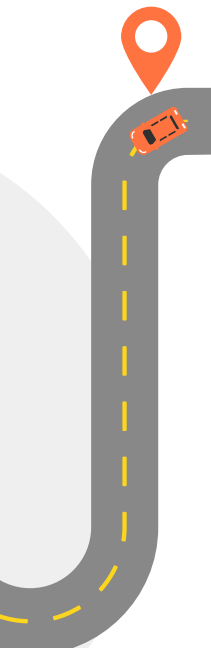Email: 2102597@sit.singaporetech.edu.sg

03

NOSQL Query

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Description of query	NOSQL query
1	Finds the buses available at the bus stop using bus stop code	cursor = BusApp.find({'BusStopCode': bus_code}, {"ServiceNo":1, "Description":1, "_id":0})
2	Finds the route of the bus service the user enters	cursor = BusApp.find({"$and": [{ "ServiceNo": bus_no},{ "Direction": '1'}]}, {"StopSequence":1, "BusStopCode":1, "Description":1, "_id":0})
3	Finds the bus stops near the user's current location	cursor = BusApp.find({"$and":[{"$and": [{"Latitude":{"$gt": str3}, "Longitude":{"$gt":str4}}]}, {"$and": [{"Latitude":{"$lt": s1}, "Longitude":{"$lt": s2}}]}]}, {"Description":1, "ServiceNo":1, "BusStopCode":1, "_id":0}).sort("Description")

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	Description of query	NOSQL query
4	Displays the description of the bus service that the user enters	cursor = BusApp.find_one({"$and": [{"ServiceNo":bus_no},{"Direction":'1'}]}, {"ServiceNo":1,"WD_FirstBus":1,"WD_LastBus":1 ,"SAT_FirstBus":1,"SAT_LastBus":1,"SUN_FirstBu s":1,"SUN_LastBus":1,"Category":1}
5	Finds the bus services that goes from point A to point B	cursor = BusApp.aggregate([{'$match':{'$or': [{'Description': first},{'Description': second}]}}, {'$group':{'_id':'$ServiceNo','count':{'$sum':1}}}, {'$project':{'count':{'$gt':['$count',2]}}},{'$match' :{'count':True}}])

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04

Demonstration Using Python

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04

Data Analysis

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Data Analysis

- Large concentration of Bus Stops in the west side

- Empty plot within the centre of the diagram
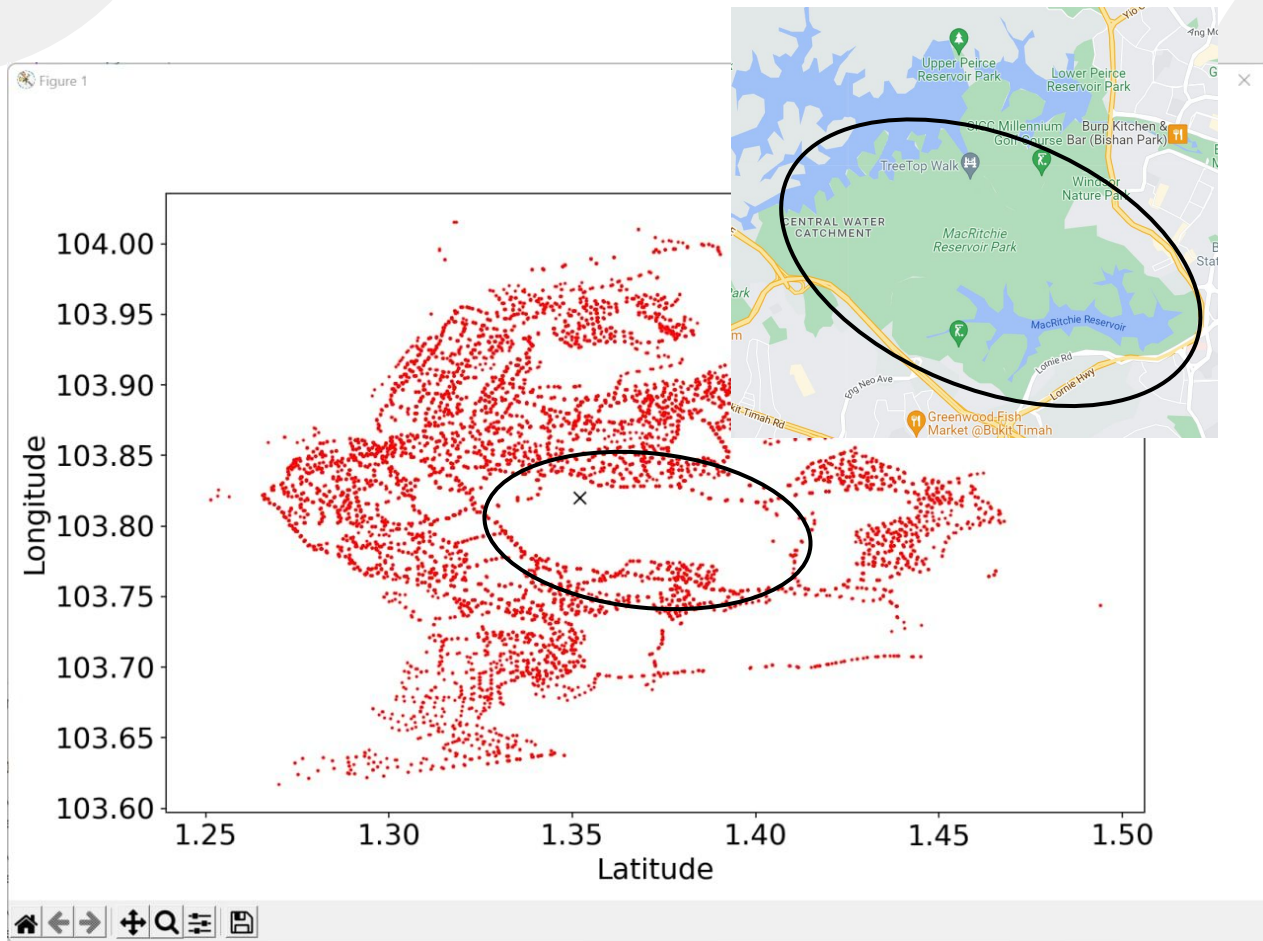
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Thank You!

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