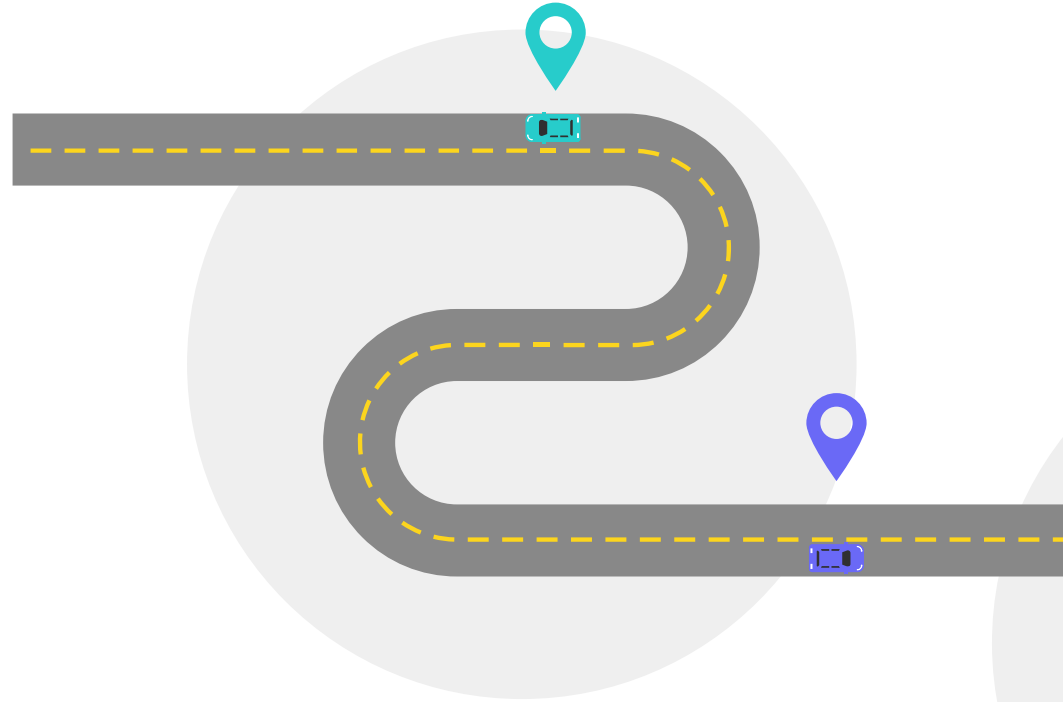


# Bus Tracking Application

By Group 19



The background features a light gray color with several stylized road segments. These roads are gray with dashed yellow lines and are shaped like large, rounded letters. One road on the left has an orange car, and another on the right has a purple car. There are also large, light gray circular shapes scattered around.

01

# Background Information

Name: Tee Wen Jun  
Email: [2101624@sit.singaporetech.edu.sg](mailto:2101624@sit.singaporetech.edu.sg)

# 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.

The background features a light gray color with several stylized road segments. These roads are gray with yellow dashed lines and curve in various directions. Small car icons are placed on some of these roads: an orange car on a road curving left on the bottom left, and a purple car on a road curving right on the top right. There are also large, light gray circular shapes scattered in the background.

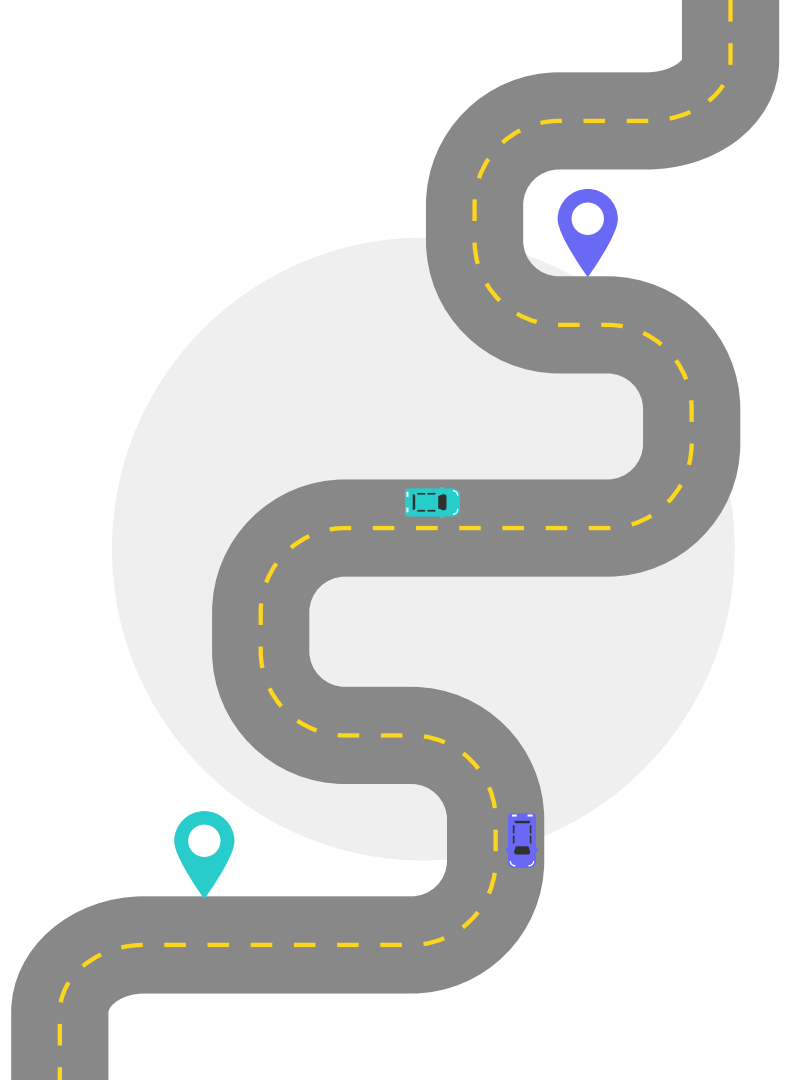
02

# Migrating from RDBMS TO NOSQL

Name: Edwin Ng Jun Yuan  
Email: [2102597@sit.singaporetech.edu.sg](mailto:2102597@sit.singaporetech.edu.sg)

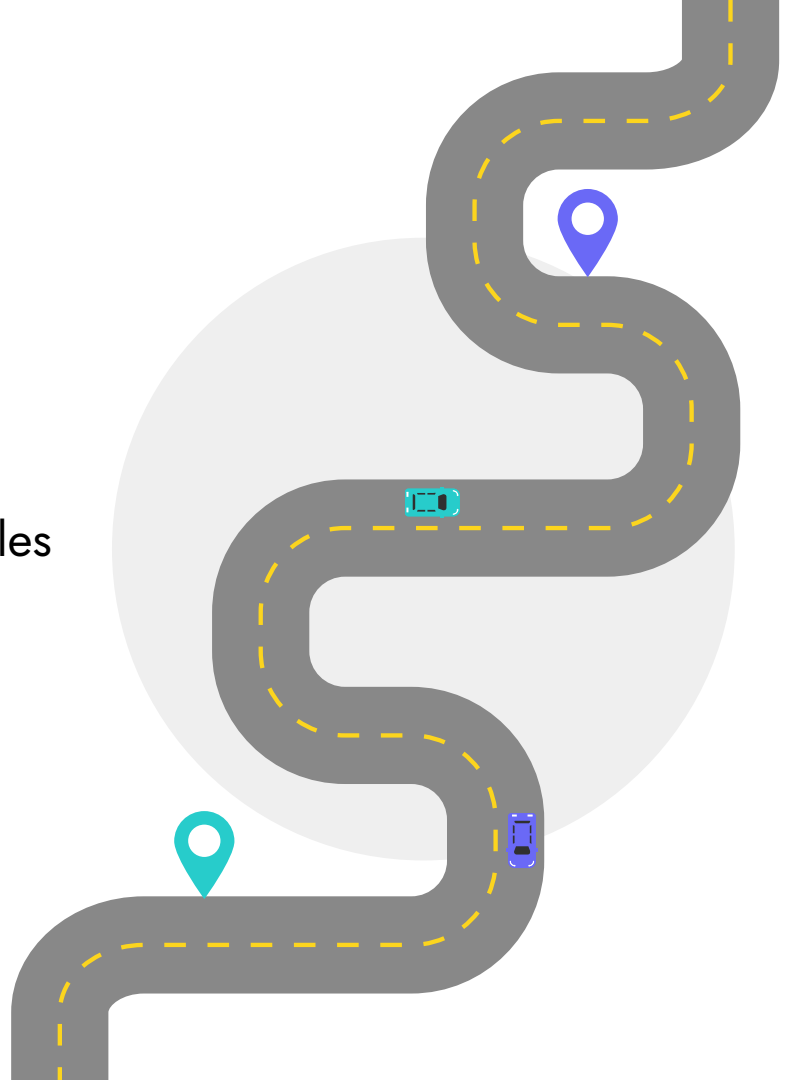
# Why NOSQL & document database?

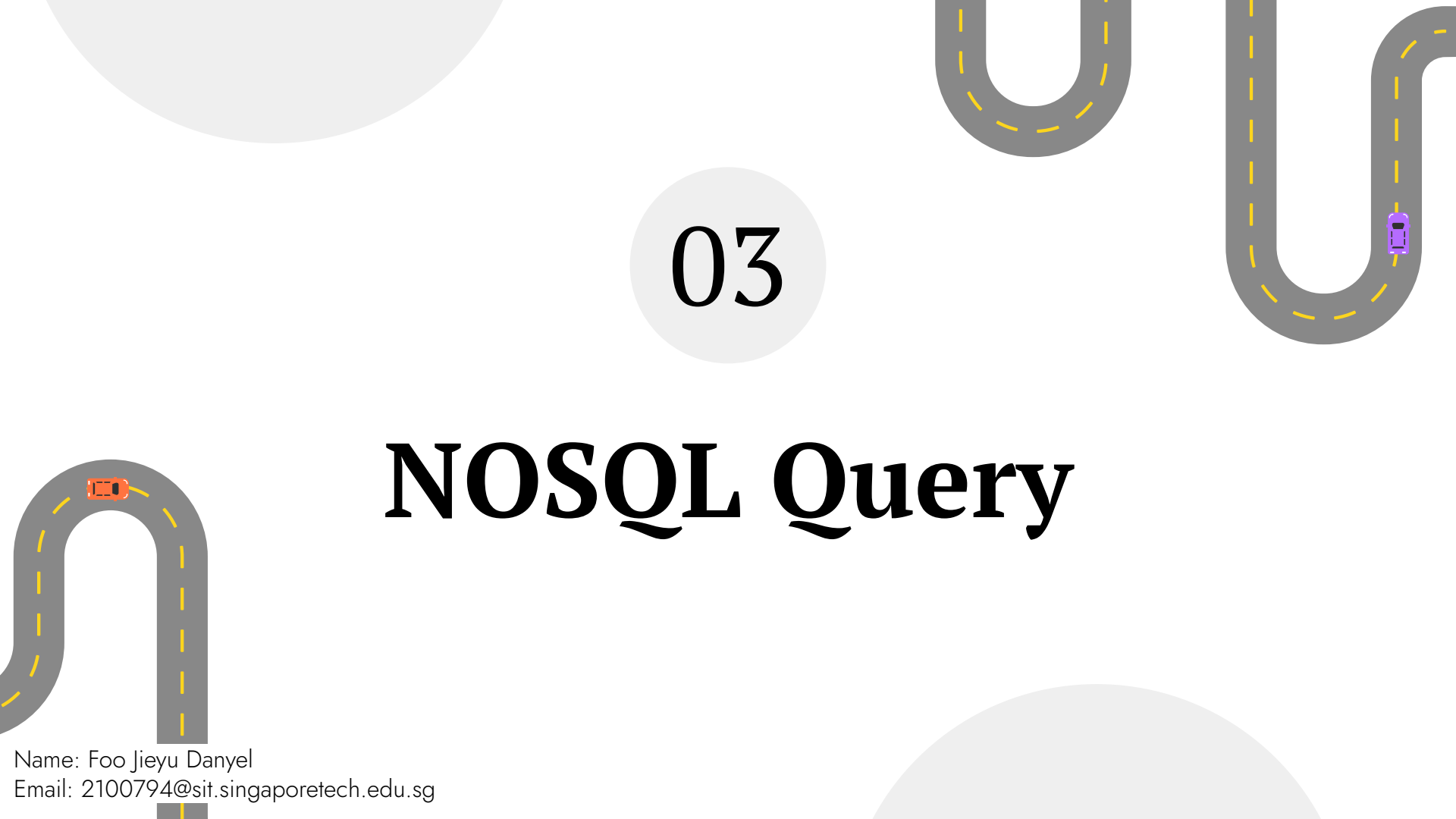
- Better scalability
- Faster
- Flexibility
- No relational schema



# 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

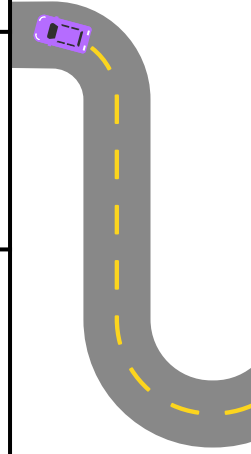
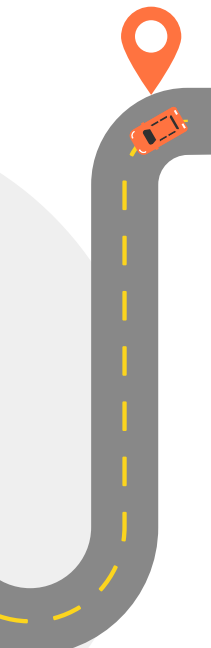


The background features a light gray color with large, faint circular shapes. Overlaid on these are stylized gray roads with dashed yellow lines. Three small cars are visible: an orange car on a road in the bottom left, a purple car on a road in the top right, and a small blue car on a road in the top center. The number '03' is centered in a light gray circle.

03

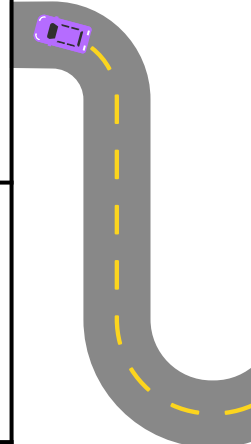
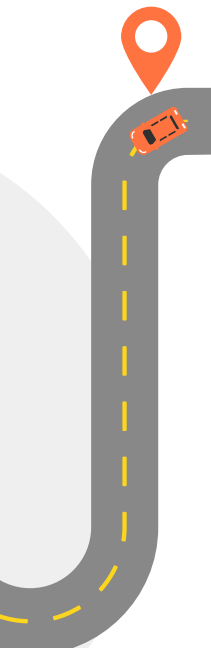
# NOSQL Query

Name: Foo Jieyu Danyel  
Email: 2100794@sit.singaporetech.edu.sg



	Description of query	NOSQL query
1	Finds the buses available at the bus stop using bus stop code	<pre>cursor = BusApp.find({'BusStopCode': bus_code, {"ServiceNo":1, "Description":1, "_id":0})</pre>
2	Finds the route of the bus service the user enters	<pre>cursor = BusApp.find( {"\$and": [{"ServiceNo": bus_no},{ "Direction": '1'}], {"StopSequence":1, "BusStopCode":1, "Description":1, "_id":0})</pre>
3	Finds the bus stops near the user's current location	<pre>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")</pre>





	Description of query	NOSQL query
4	Displays the description of the bus service that the user enters	<pre>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})</pre>
5	Finds the bus services that goes from point A to point B	<pre>cursor = BusApp.aggregate([{'\$match':{'\$or': [{'Description': first},{'Description': second}]}}, {'\$group':{'_id':'\$ServiceNo','count':{'\$sum':1}}}, {'\$project':{'count':{'\$gt':['\$count',2]}}},{'\$match' :{'count':True}}])</pre>



04

# Demonstration Using Python

Name: Joey Lim Jun Feng  
Email: 2101483@sit.singaporetech.edu.sg  
Name: Ng Wee Yang, Ryan  
Email: 2101112@sit.singaporetech.edu.sg

The background features a light gray color with large, faint circular shapes. Overlaid on these are stylized gray roads with dashed yellow lines. Three small car icons are visible: an orange car on a road in the bottom left, a purple car on a road in the top right, and a small blue car on a road in the top center. The number '04' is centered within a light gray circle.

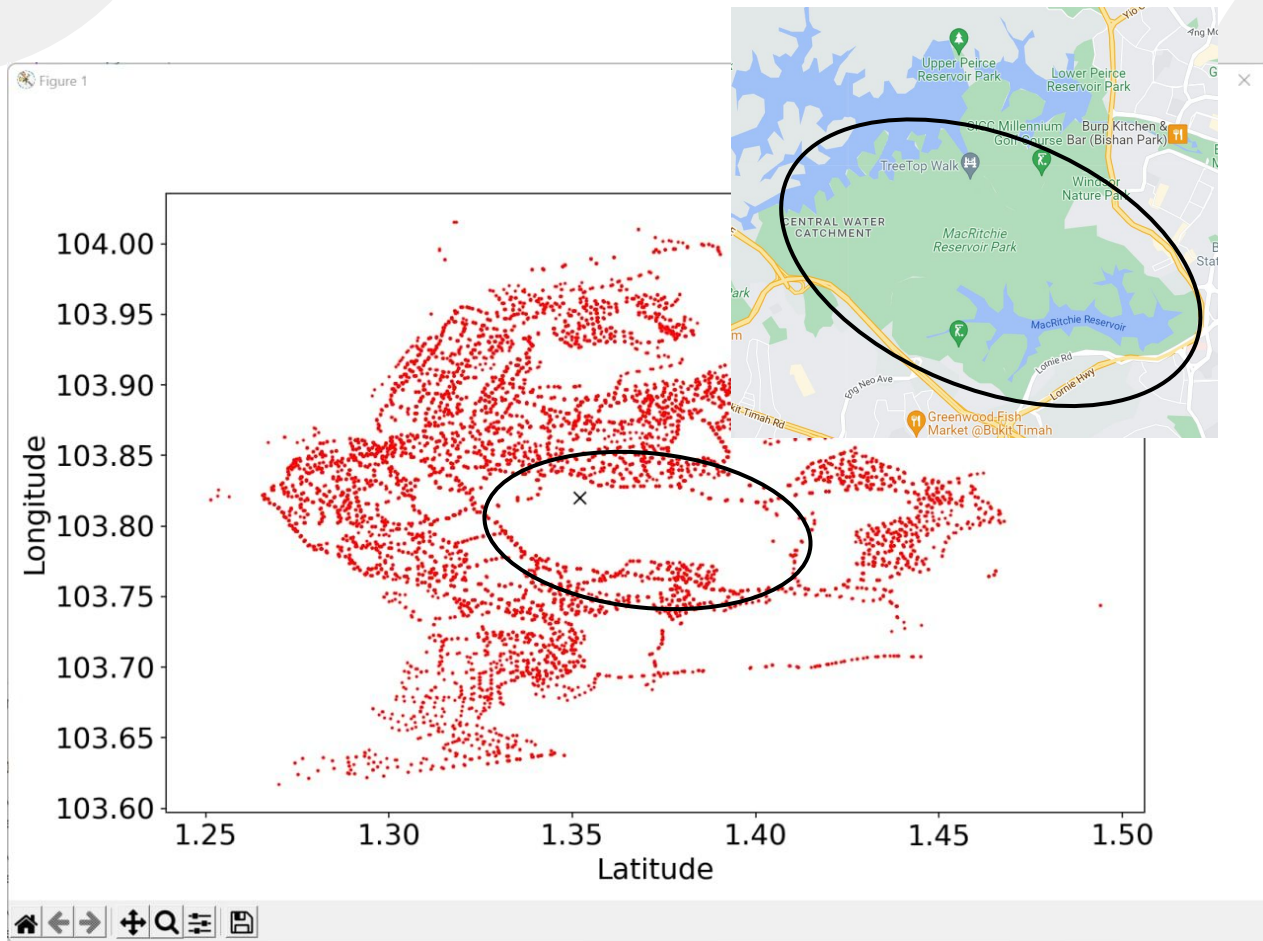
04

# Data Analysis

Name: Parris Cheng Pak Yiu  
Email: [2101175@sit.singaporetech.edu.sg](mailto:2101175@sit.singaporetech.edu.sg)

# Data Analysis

- Large concentration of Bus Stops in the west side
- Empty plot within the centre of the diagram



The background features two stylized grey roads with dashed yellow center lines. One road curves from the top left towards the center, with a small teal car on it. The other road curves from the bottom right towards the center, with a small blue car on it. Large, light grey circles are also visible in the corners.

# Thank You!

For any further queries please contact Joey Lim  
[@2101483@sit.singaporetech.edu.sg](mailto:@2101483@sit.singaporetech.edu.sg)