



PROJECT DESIGN PRESENTATION

ANALYSIS, VISUALIZATION AND PREDICTION OF PASSENGER FLOW

'the road less taken'

Final AI project from SW800 – MAY/2018 batch

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Batch: Advanced Diploma in Artificial Intelligence (SW800 – MAY/2018)

KSRTC



6,339 Fleets



5 Zones



5,553 Schedules



17.39 KM /Day
(in lakhs)



₹6.89 crores /Day



31 million per day

Problem Statement

- Mines of data are kept with less/no analysis
- Less visibility
- Unseen outflow of ROI
- Reduced operational excellency
- Ignored best and least performers (Trip & Route)
- Less customer satisfaction

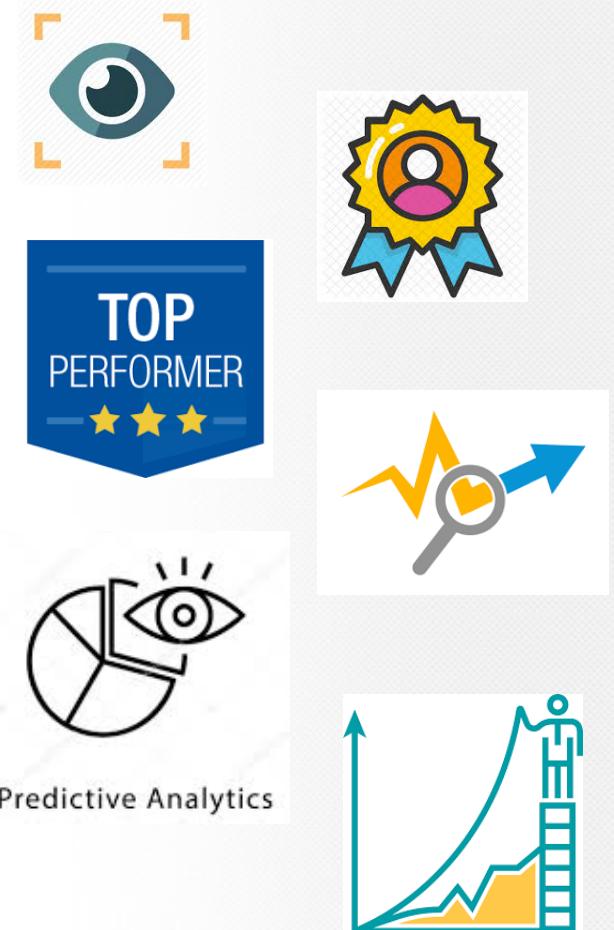


Objective

Using historical & real-time passenger data collected via HHT (handheld terminal), analyze and visualize the traffic flow of KSRTC passengers in order to help in planning, predicting and optimizing its related Operations / Administrative activities.

Solution

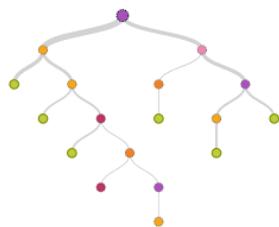
- ✓ Visualization of current data in multiple perspectives.
- ✓ Best routes (in terms of passenger count, duration & distance)
- ✓ Optimizing the trips (on the basis of passenger peak load)
- ✓ Possibility of adding new trips
- ✓ Identifying low ROI routes (in terms of passenger flow)\
- ✓ Predicting passenger flow for a future period



Project Overview



KSRTC
Management
& AI students



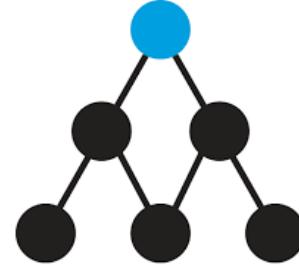
Random
Forest



2 Depots
5 Routes
6 Trips /Route



45% Model Score
20% Accuracy Score



7 ML algorithms
3 Months Data
3.17 LK rows
40 MB



Trip & Route
Feasibility



Actual 2 years
of Data

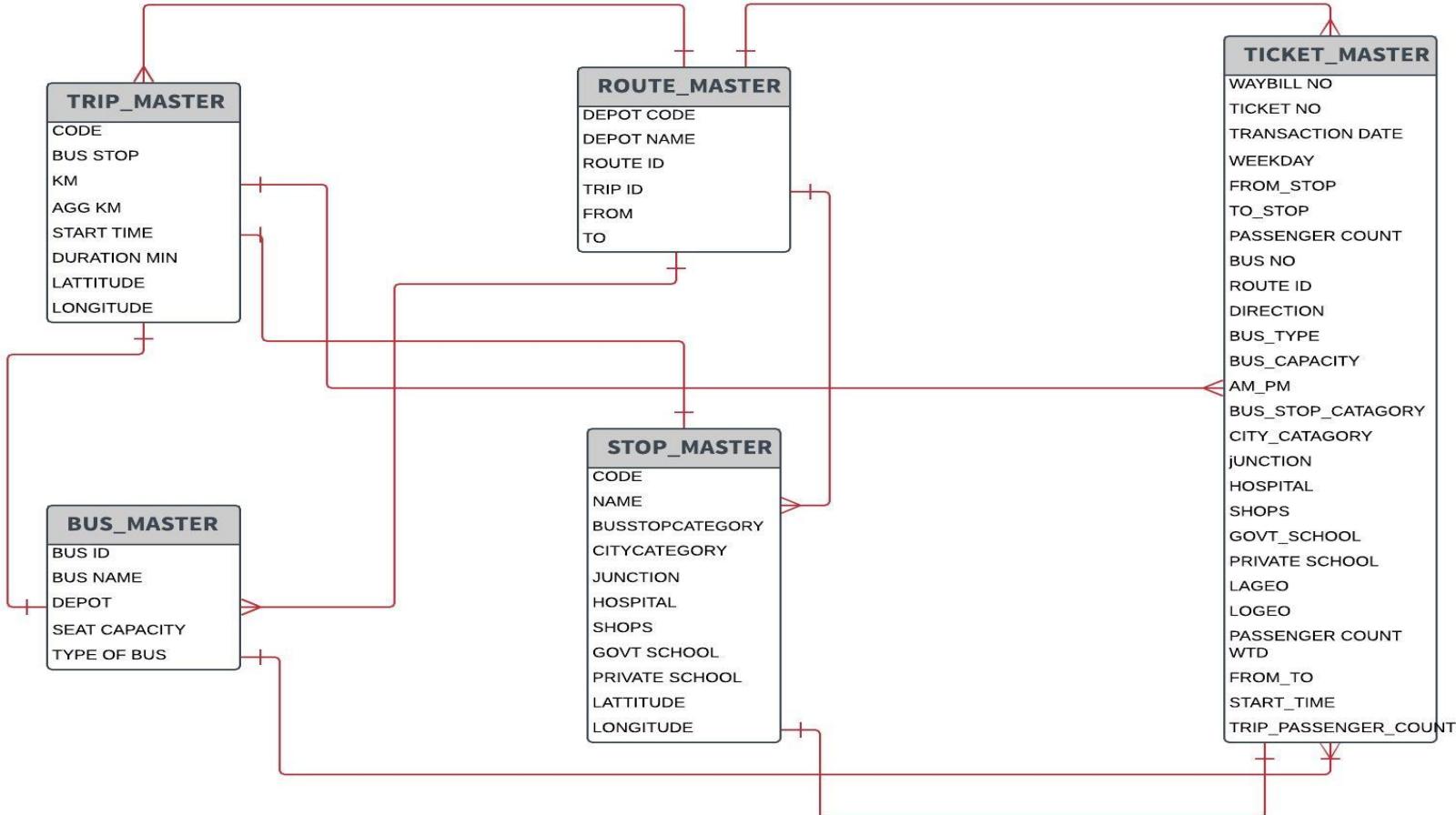


Forecast
Passenger flow

Tools



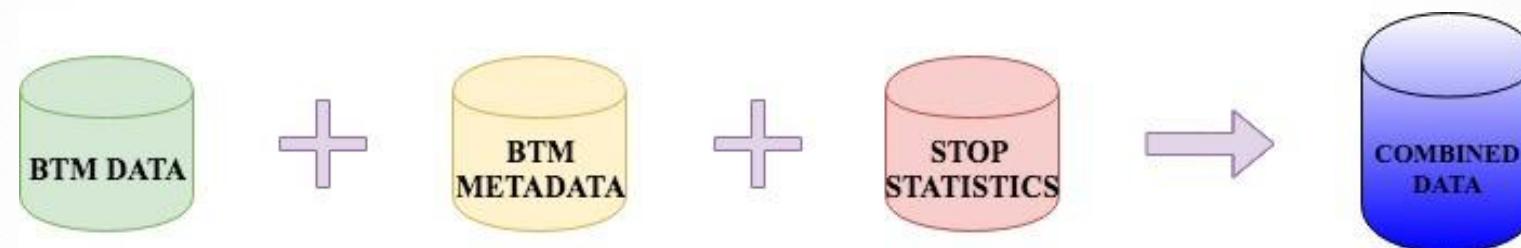
ERD



waybill_no,ticket_no,i_date,weekday,from_stops,to_stops,passenger_count,p_busno,p_route_id,p_direction,bus_type,bus_capacity,AM_PM,bus
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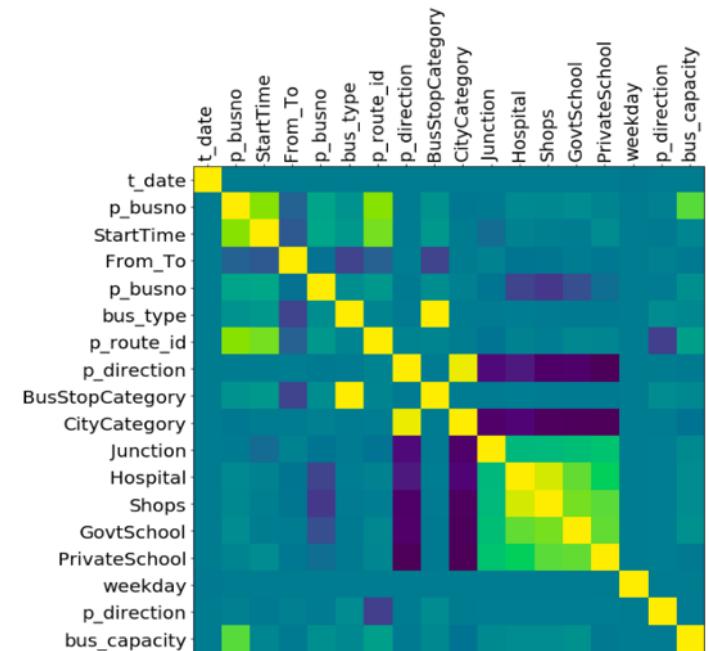
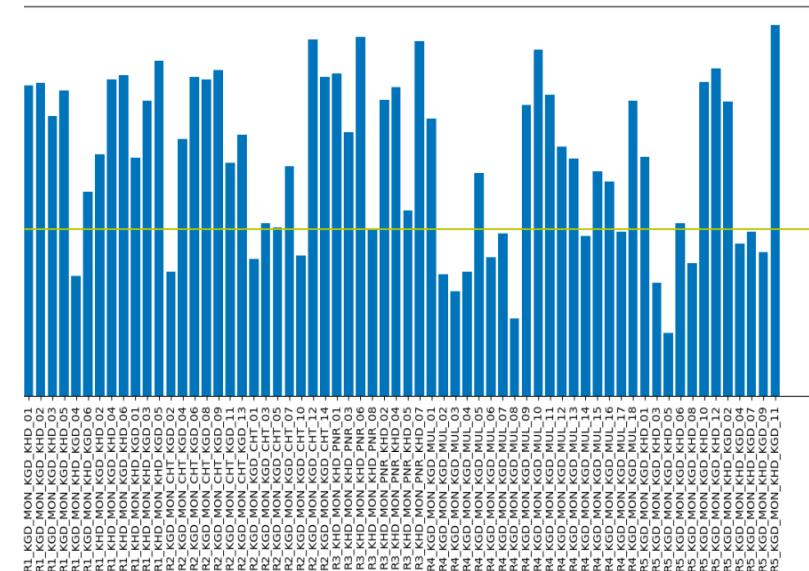
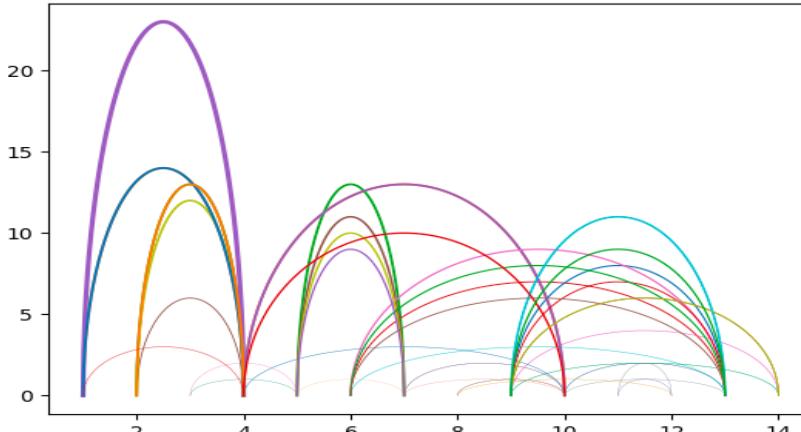
Phase 1 : Data combining

- Data is inferred from the Singapore government's bus transportation data
- keeping in mind the ticket data of KSRTC BTM
- Added *influential* parameters to data about the bus stops, like the shops, schools, hospitals, etc.
- We leverage on category of Bus Stops, Bus Types, Seat Capacity, Time, etc.

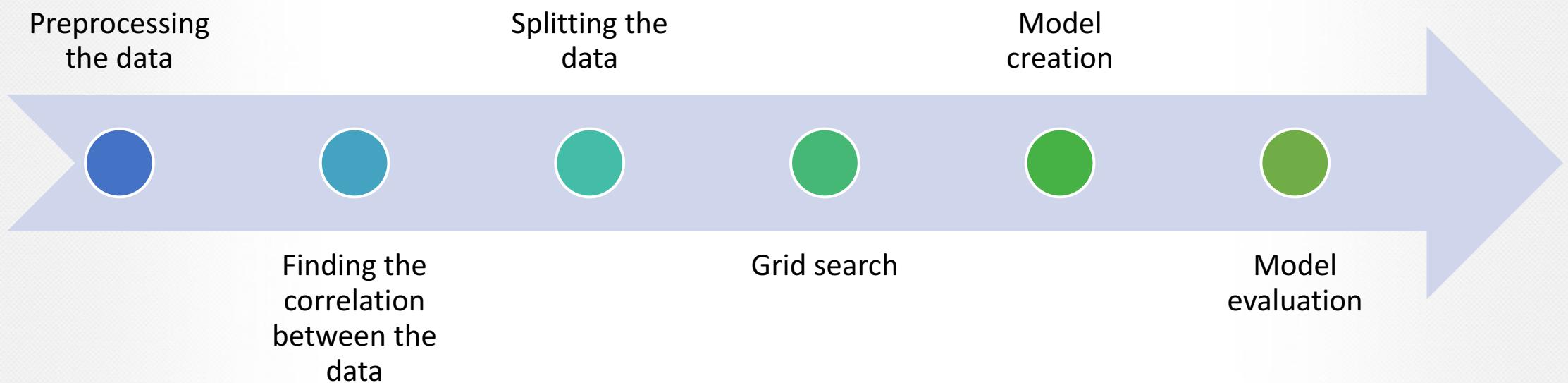


Phase 2 & 3 : Data Analysis & Visualization

- Passenger flow is analyzed with multiple attributes (Stop level - Trip level - Route level)
- We visualized Data correlation for better ML performance



Phase 4: Prediction



Phase 5: Predicting passenger flow for a future period

1. Predict whether the trips in the route will ensure ROI.



2. Predict whether a New route will be feasible.



Thank you