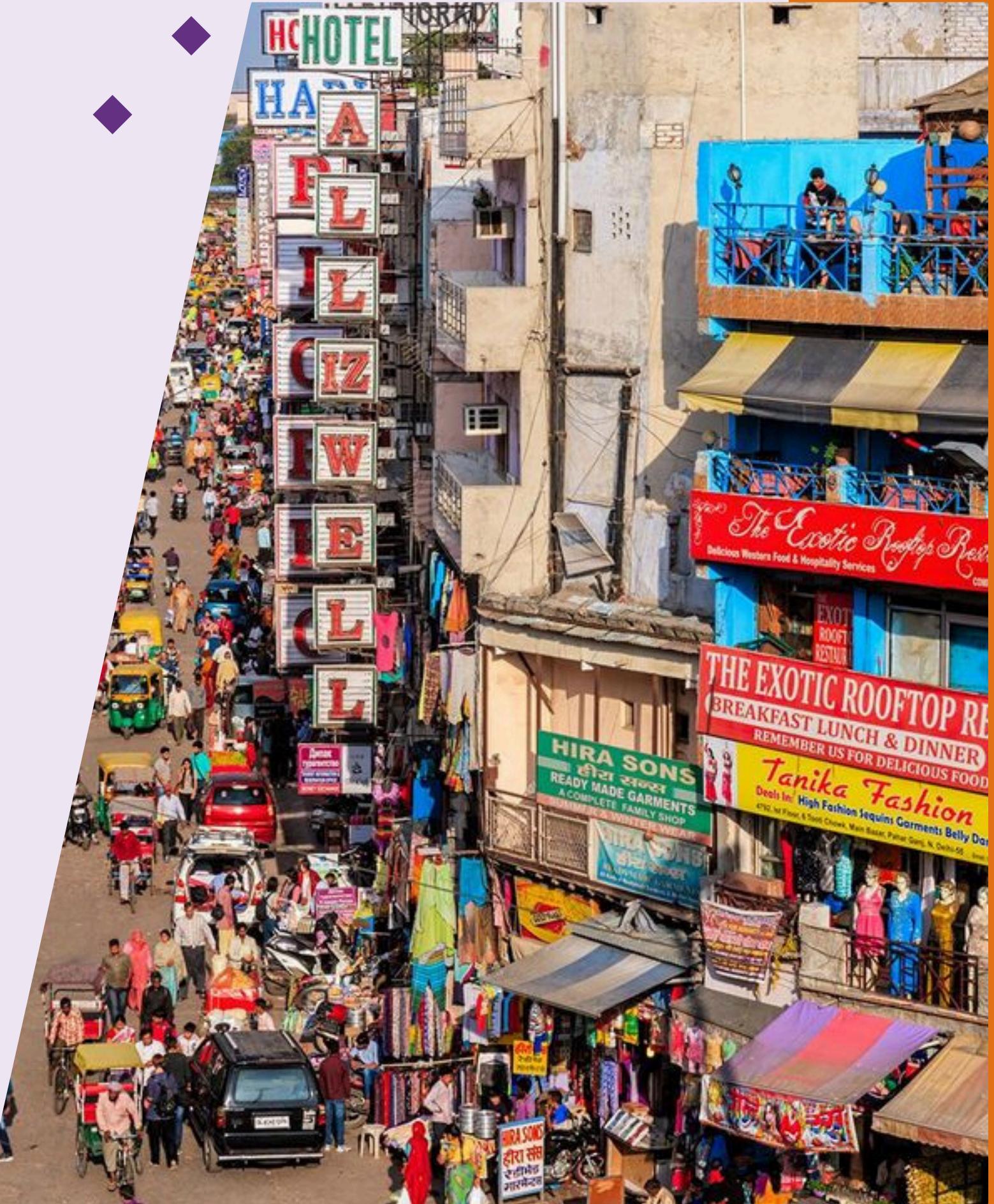




# FOOD DELIVERY PROJECT

Anna BORODINA



# CLIENT VALUE

A solution to deliver food from restaurants to clients in record time

**01** Present in 22 cities over India

**02** Available from 8am to midnight

**03** Average delivery time: 26 minutes

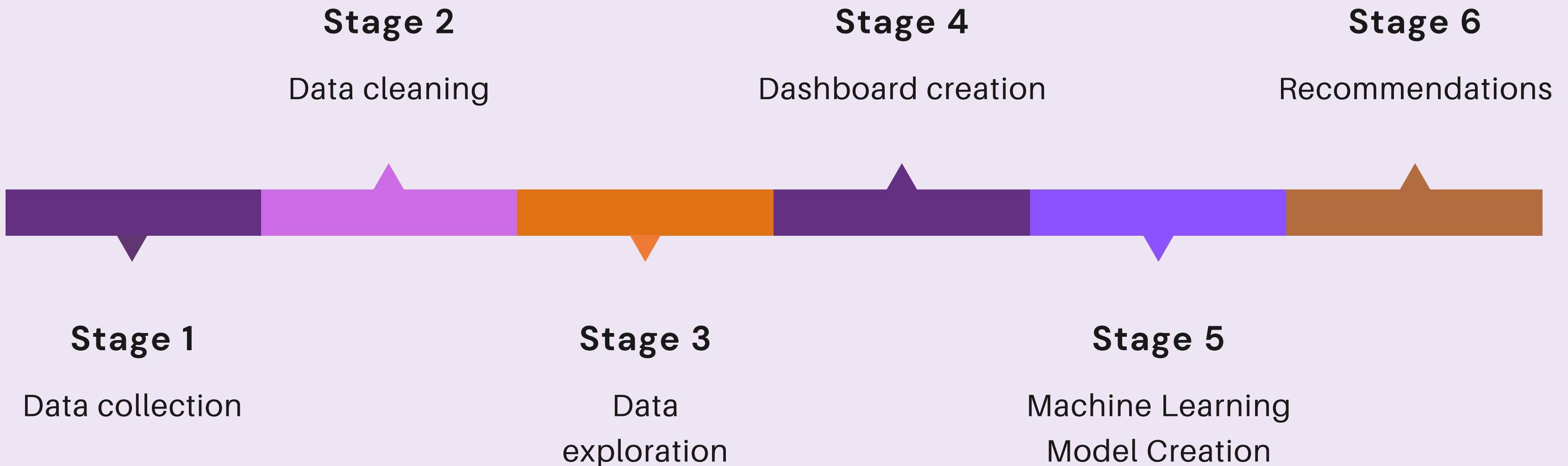
**04** Staff of 1320 delivery people



# OUR GOALS

- 01** Present current state of delivery business
- 02** Analyse key factors and trends
- 03** Propose ways to minimise delivery time
- 04** Optimise fleet dispatch

# PROJECT PLANNING



# OUR DATASET

**February to April 2022**

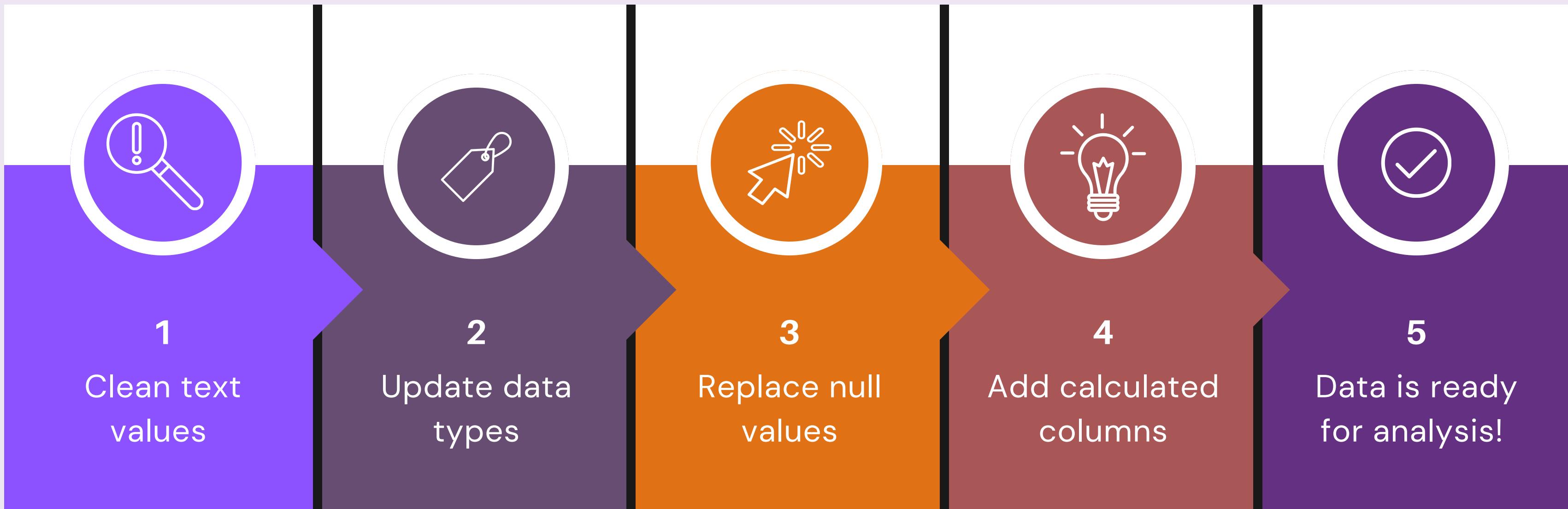
**22 Cities in India**

**Almost 57K deliveries**

**20 variables collected**

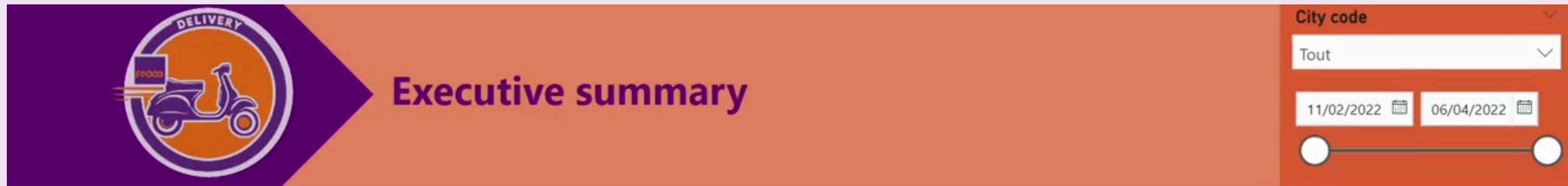
#	Column	Non-Null Count	Dtype
0	ID	56992	non-null object
1	Delivery_person_ID	56992	non-null object
2	Delivery_person_Age	54647	non-null float64
3	Delivery_person_Ratings	54577	non-null float64
4	Restaurant_latitude	56992	non-null float64
5	Restaurant_longitude	56992	non-null float64
6	Delivery_location_latitude	56992	non-null float64
7	Delivery_location_longitude	56992	non-null float64
8	Order_Date	56992	non-null datetime64[ns]
9	Time_Ordered	54817	non-null object
10	Time_Order_picked	56992	non-null object
11	Weatherconditions	56218	non-null object
12	Road_traffic_density	56237	non-null object
13	Vehicle_condition	56992	non-null int64
14	Type_of_order	56992	non-null object
15	Type_of_vehicle	56992	non-null object
16	multiple_deliveries	55761	non-null float64
17	Festival	56699	non-null object
18	City	55468	non-null object
19	Time_taken(min)	56992	non-null float64
20	City_code	56992	non-null object

# DATA CLEANING



# POWER BI DASHBOARD

Power BI



Number of cities

22

Number of delivery people

1320

Number of orders

56,4K

Average distance (km)

9,7

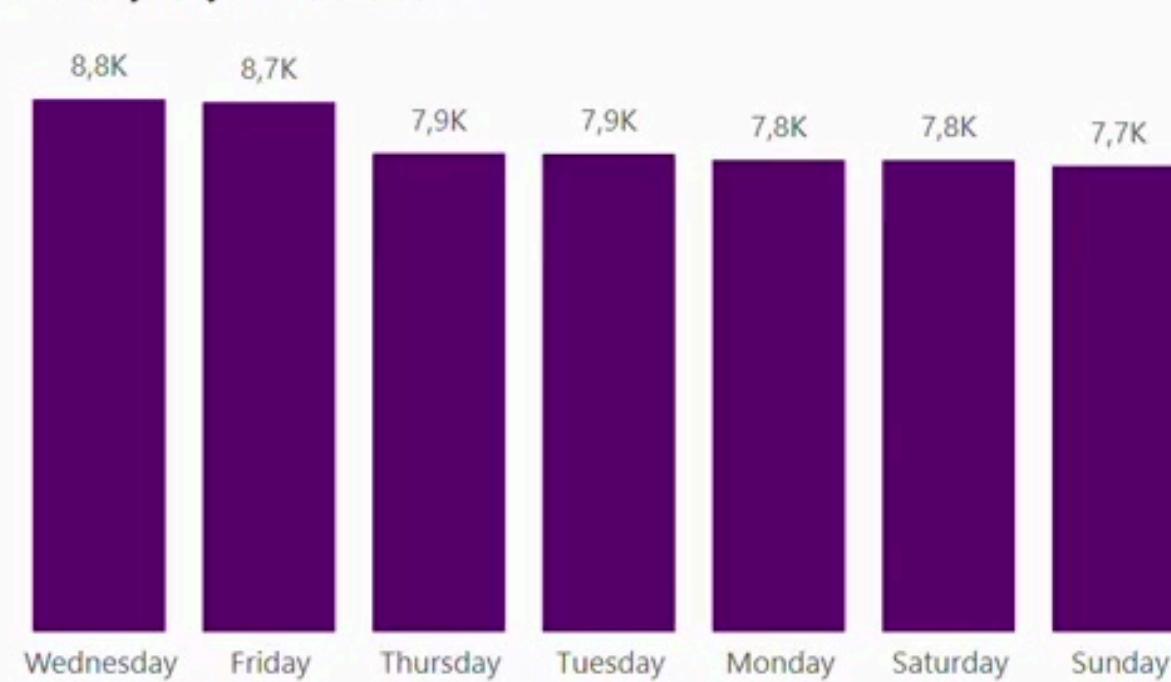
Average delivery time (mn)

26,3

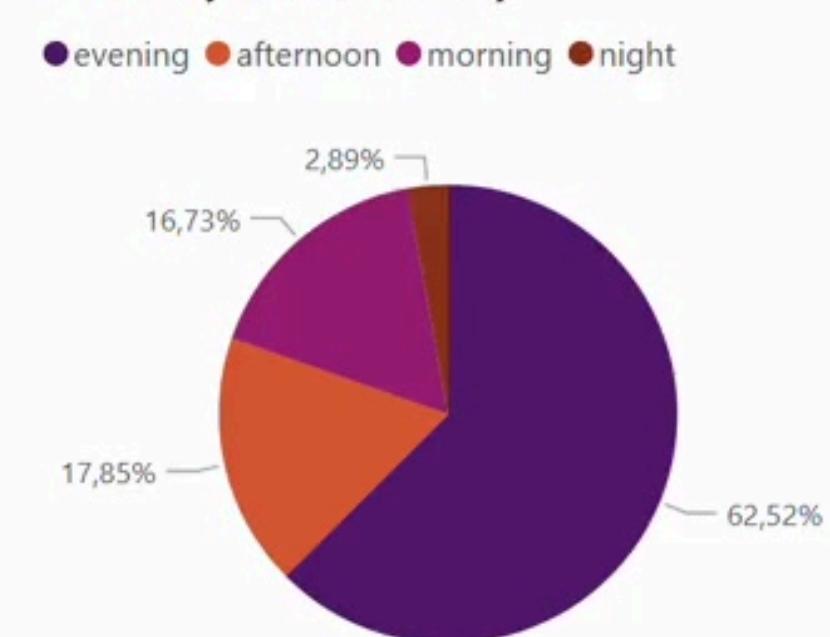
Locations by orders number



Orders by day of the week



Orders by time of the day





# MACHINE LEARNING REGRESSION MODELS



Predict Time\_taken(min) (Regression) ▾

DESIGN RESULT

SAVED TRAIN

Filter Metric: R2 Score

Previously trained

- DEMO1
- Random forest (Demo1) 0.844
- Ridge (L2) regression (Demo1) 0.624

SESSIONS MODELS TABLE

Metrics and assertions

Detailed metrics

Explained Variance Score	0.8444
Mean Absolute Percentage Error (MAPE)	11.94%
Mean Absolute Error (MAE)	2.777
Mean Squared Error (MSE)	13.24
Root Mean Squared Error (RMSE)	3.639
Root Mean Squared Logarithmic Error (RMSLE)	0.1484
R2 Score	0.8444
Pearson Coefficient	0.9189

DEMO1 Started 2024-04-08 at 12:36, ended 2024-04-08 at 12:38 2 models 18/27 features

R2 Score vs Time (s)

Random forest (Demo1) 0.844 ✓ Done 4 days ago (2024-04-08 12:38:47)

Most important features

Trees	100
Depth	15
Min samples	22
Hyperparameter search size	2

Train set 41505 rows

Test set 10432 rows

Train time 2 minutes and 25 seconds

Ridge (L2) regression (Demo1) 0.624 ✓ Done 4 days ago (2024-04-08 12:33:59)

Most important features

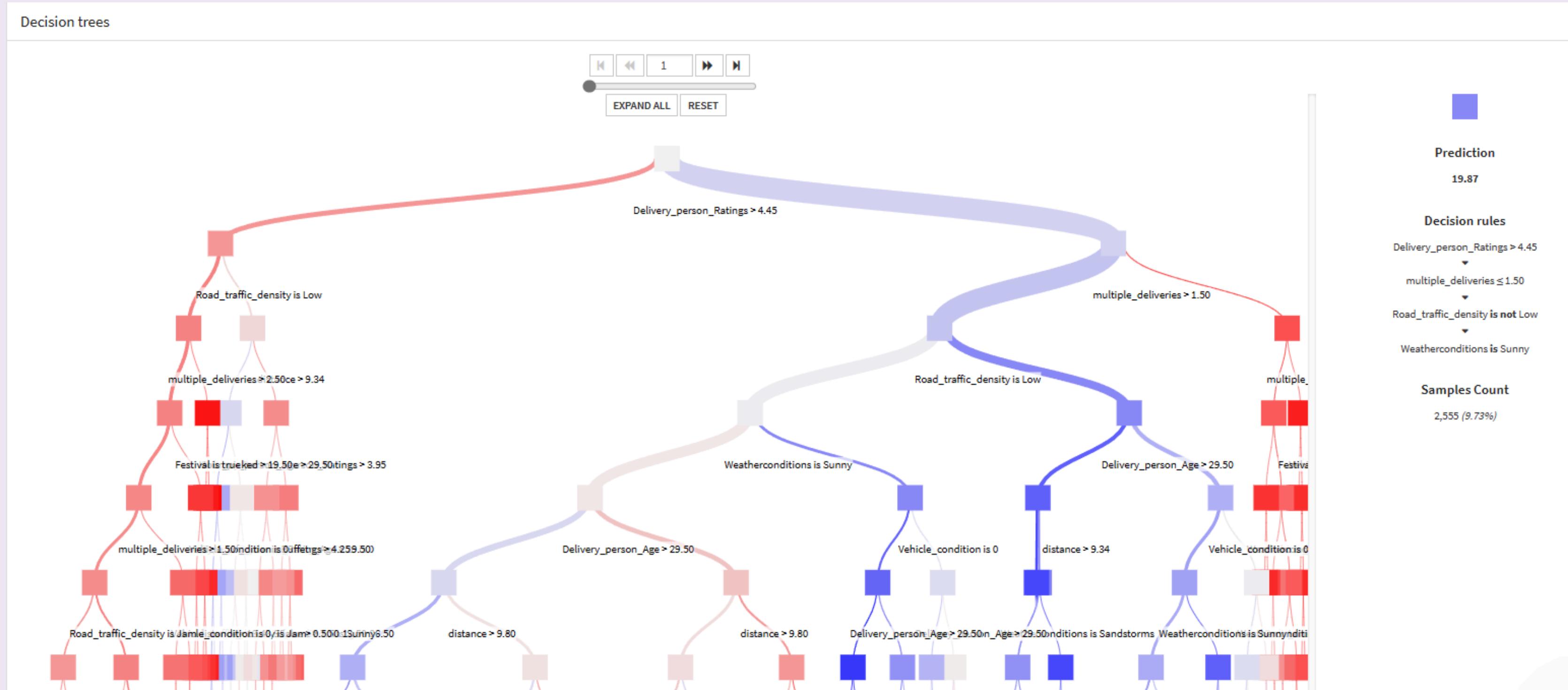
Alpha	3.0
Hyperparameter search size	3

Train set 41505 rows

Test set 10432 rows

Train time about 17 seconds

# MACHINE LEARNING DATAIKU DECISION TREES



# MACHINE LEARNING

## RANDOM FOREST REGRESSOR SCORE

```
# actual model

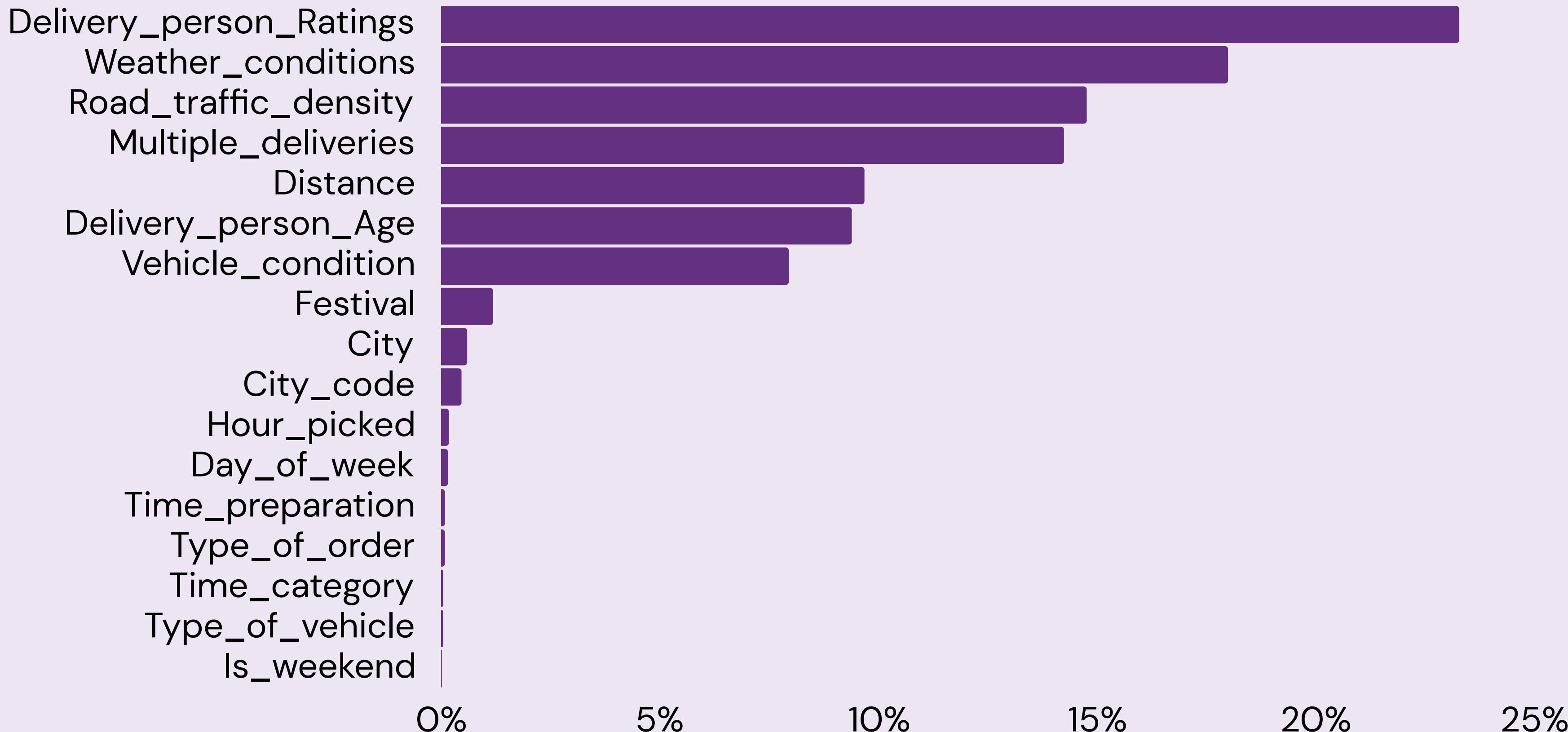
random_forest = RandomForestRegressor(n_estimators = 100, max_depth=15, min_samples_split=100)
random_forest.fit(X_train, y_train)                      # This steps is the actual training
y_train_pred_forest = random_forest.predict(X_train)
```

```
# model scores

print("Score sur Train set ",random_forest.score(X_train, y_train))
print("Score sur Test  set ",random_forest.score(X_test, y_test))
```

```
Score sur Train set  0.8643774537731477
Score sur Test  set  0.848097701754577
```

# FEATURES IMPORTANCE: PYTHON & DATAIKU



# PREDICTIONS - STREAMLIT APP



The image shows a Streamlit application interface for a delivery time prediction model. On the left, there is a sidebar titled "Enter Delivery Details" containing seven input fields with numerical values and +/- buttons for adjustment:

- Delivery\_person\_Age: 25,00
- Delivery\_person\_Ratings: 3,00
- Hour\_picked: 12
- multiple\_deliveries: 0,00
- Time\_preparation: 10,00
- distance: 6,00
- Weatherconditions: Fog

The main content area has a dark blue background featuring a silhouette of a city skyline. It displays the title "Delivery Time Prediction" in large white font, followed by "Predicted Delivery Time" and the message "The predicted delivery time is 22.76 minutes." Below this text is a graphic illustration of a delivery person on a red scooter carrying yellow boxes, with a dotted line extending from the scooter to a smartphone held in a hand. The smartphone screen shows a yellow delivery app interface with icons for food items like a burger and a drink, a checkmark, and a progress bar.

# CONCLUSION

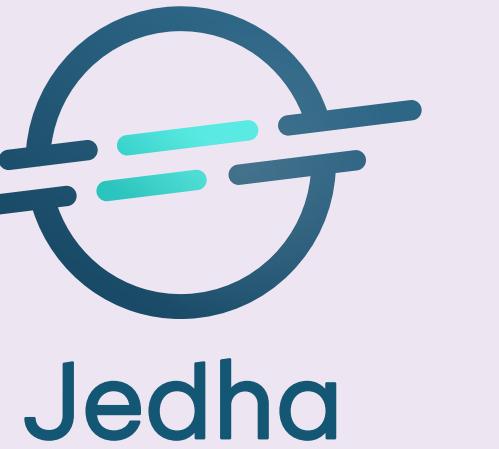
- O1** Adapt fleet availability to events, weather and traffic conditions
- O2** Rebalance orders by age groups
- O3** Switch more vehicle types to scooters instead of motorcycles
- O4** Optimize delivery with strategic geo-targeting, dynamic pricing, and targeted promotions to boost efficiency and revenue.





**THANK YOU FOR  
WATCHING!**





# ANY QUESTIONS?

