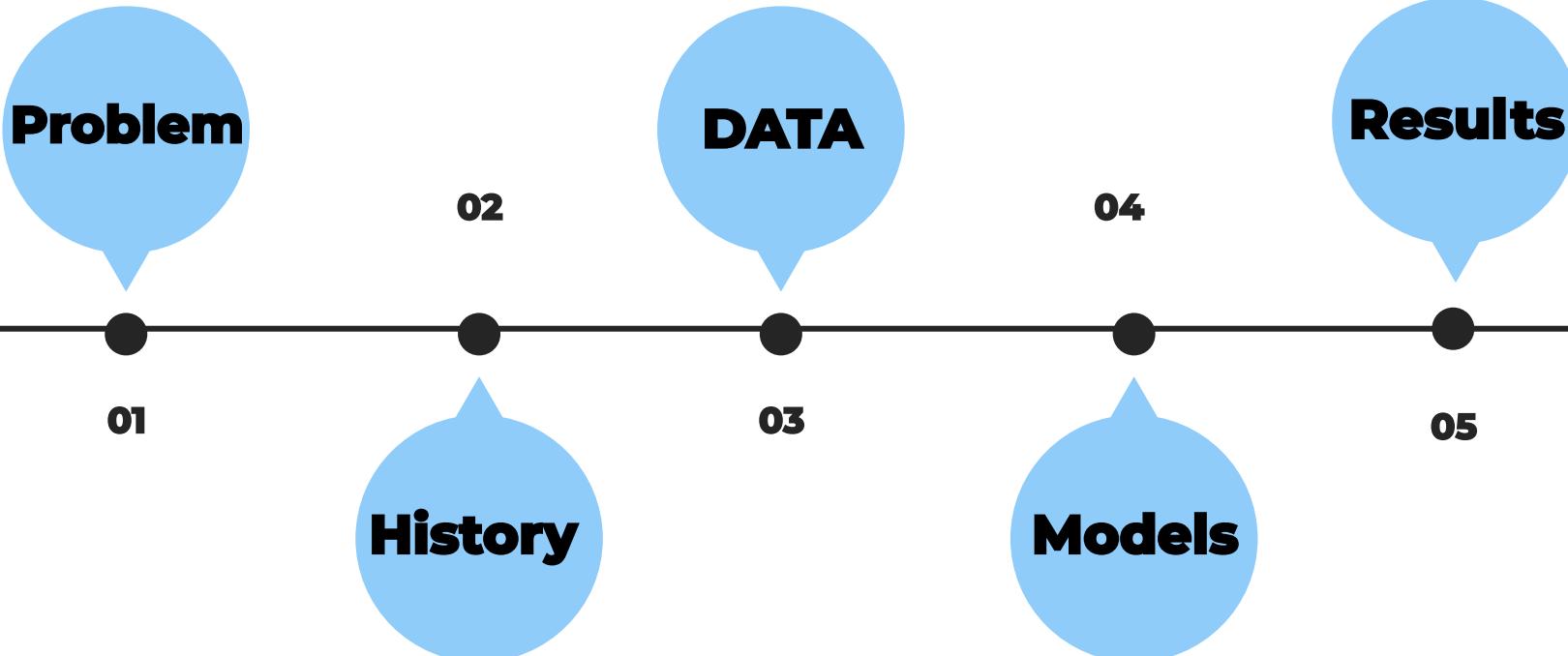


Clint Hoke  
DSIR 420  
Capstone

PREDICTING  
WALT DISNEY WORLD®  
WAIT TIMES



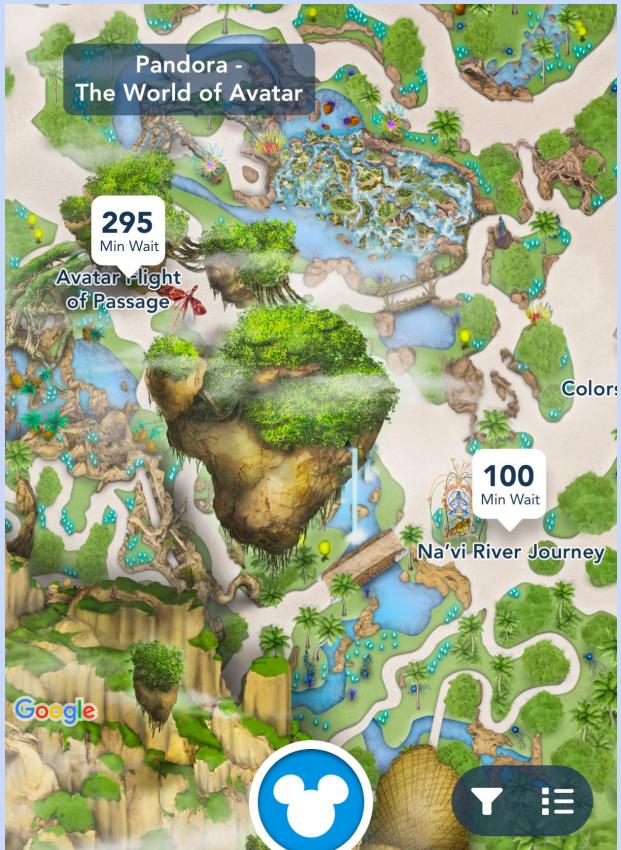
# Table of Contents



# 58,300,000

Guests attended **Walt Disney World** theme parks in **2018**

# Waiting.....



3:20 LTE

Wait Times

Filters (1)

Hide List

- Meet Ariel at Her Grotto  
Magic Kingdom Park  
50 Minute Wait
- Under the Sea ~ Journey of The Little Mermaid  
Magic Kingdom Park  
50 Minute Wait
- Buzz Lightyear's Space Ranger Spin  
Magic Kingdom Park  
55 Minute Wait
- Astro Orbiter  
Magic Kingdom Park  
60 Minute Wait
- The Barnstormer  
Magic Kingdom Park  
60 Minute Wait
- Big Thunder Mountain Railroad  
Magic Kingdom Park  
60 Minute Wait
- Jungle Cruise  
Magic Kingdom Park  
60 Minute Wait

Filter

Wait Times

Hide List

- Magic Kingdom Park  
100 Minute Wait
- Na'vi River Journey  
Disney's Animal Kingdom Theme Park  
110 Minute Wait
- Slinky Dog Dash  
Disney's Hollywood Studios  
125 Minute Wait
- Avatar Flight of Passage  
Disney's Animal Kingdom Theme Park  
145 Minute Wait
- Jungle Cruise  
Magic Kingdom Park  
145 Minute Wait
- Space Mountain  
Magic Kingdom Park  
155 Minute Wait
- Seven Dwarfs Mine Train  
Magic Kingdom Park  
195 Minute Wait

Home

Search

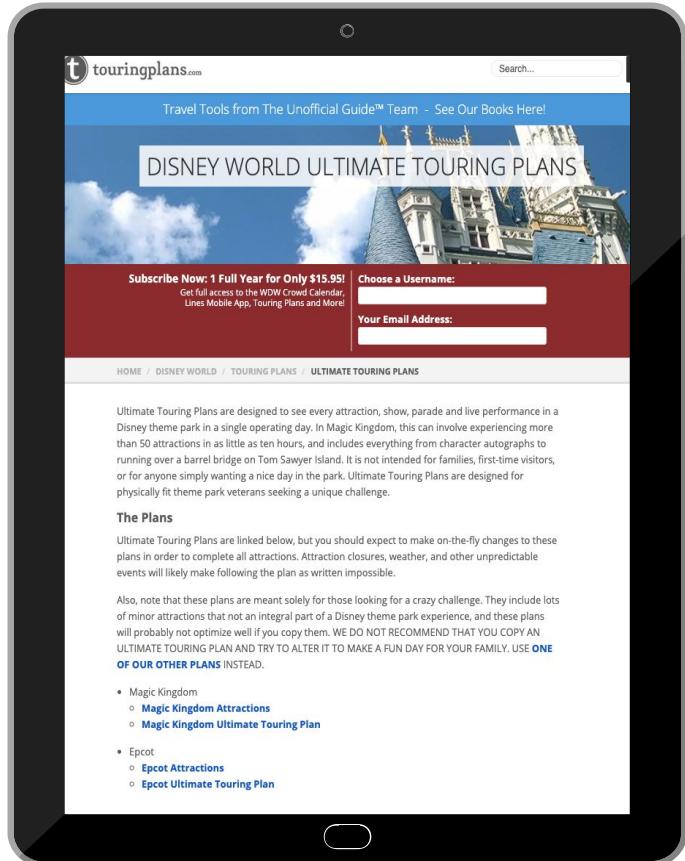
More

# Data Source



touringplans.com

**Released data sets for  
14 of the major  
attractions of Disney  
World**



Pirates of the Caribbean



Splash Mountain



Seven Dwarfs Mine Train



Magic Kingdom

Spaceship Earth



Soarin'



EPCOT

# Hollywood Studios

---

Toy Story Mania



Alien Swirling  
Saucers



Slinky Dog Dash



Rock 'N' Roller Coaster



Kilimanjaro Safaris



Navi River Journey



Flight of Passage



Dinosaur



Expedition Everest



# Animal Kingdom

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# Metadata

**Opening/Closing Time**

**Holidays**

**After Hour Events**

**Schools In Session**

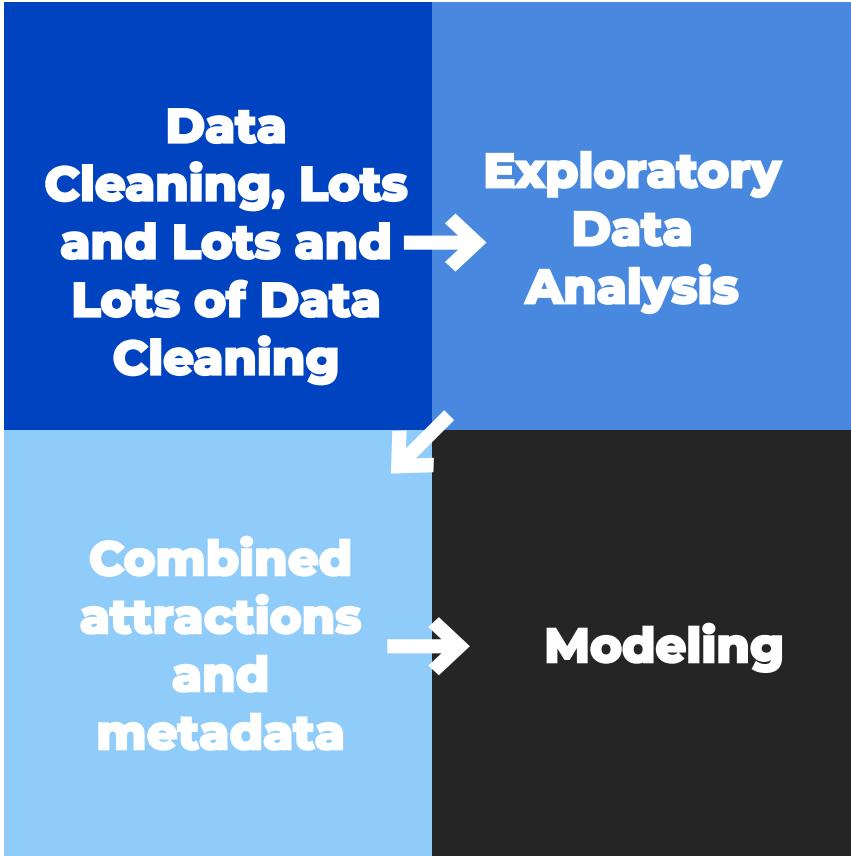
**Extra Magic Hour**

**Parade Time**

**Special Events**

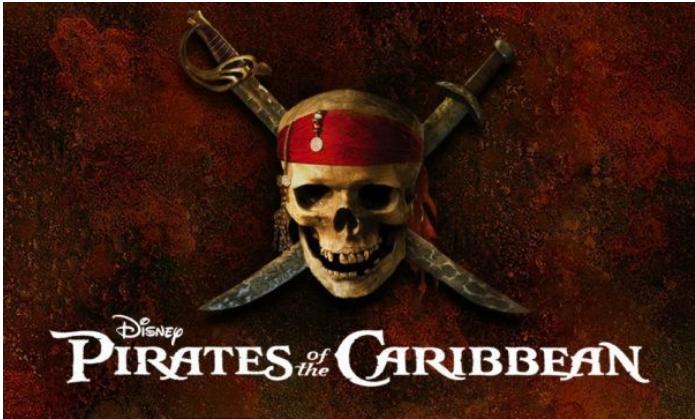
**Hours in operation**

**Capacity Lost**

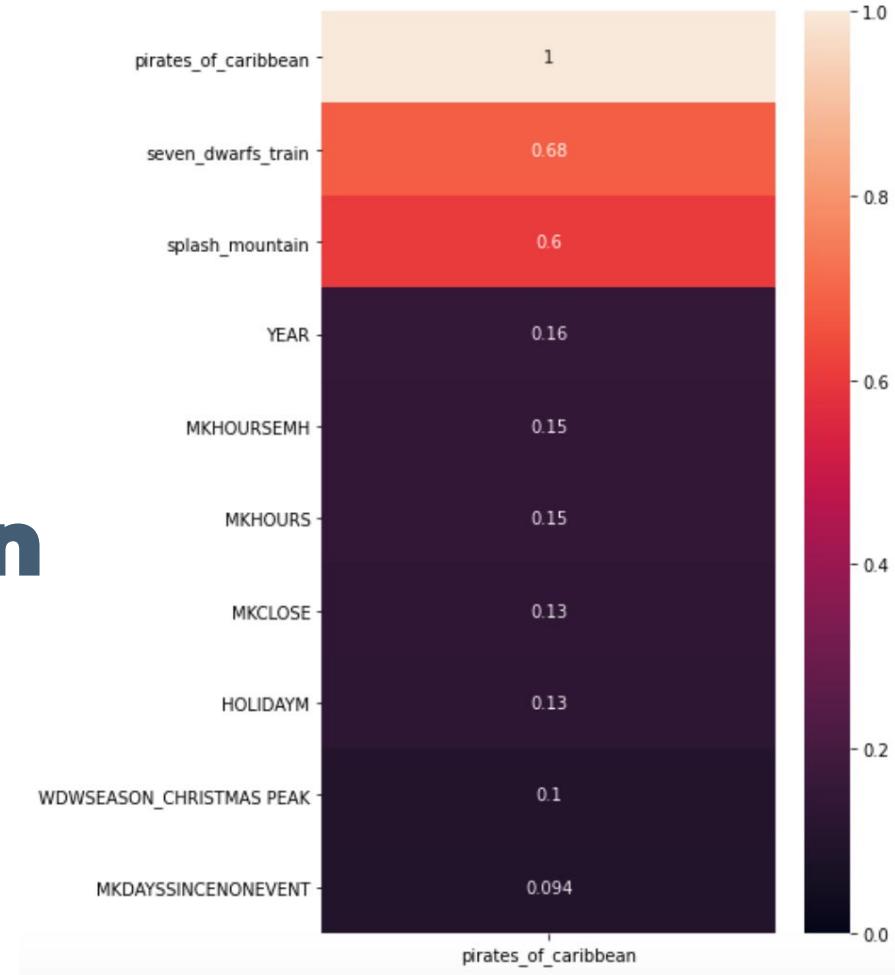


# Data

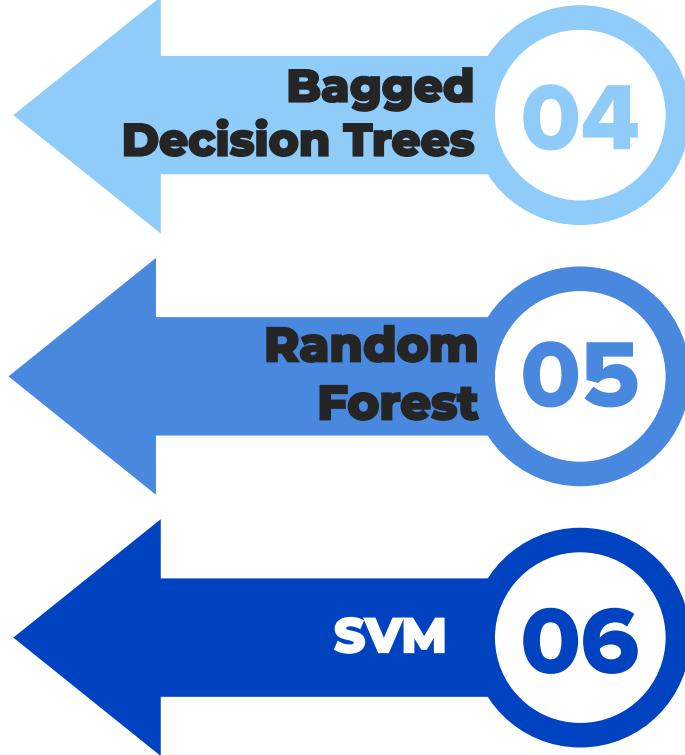
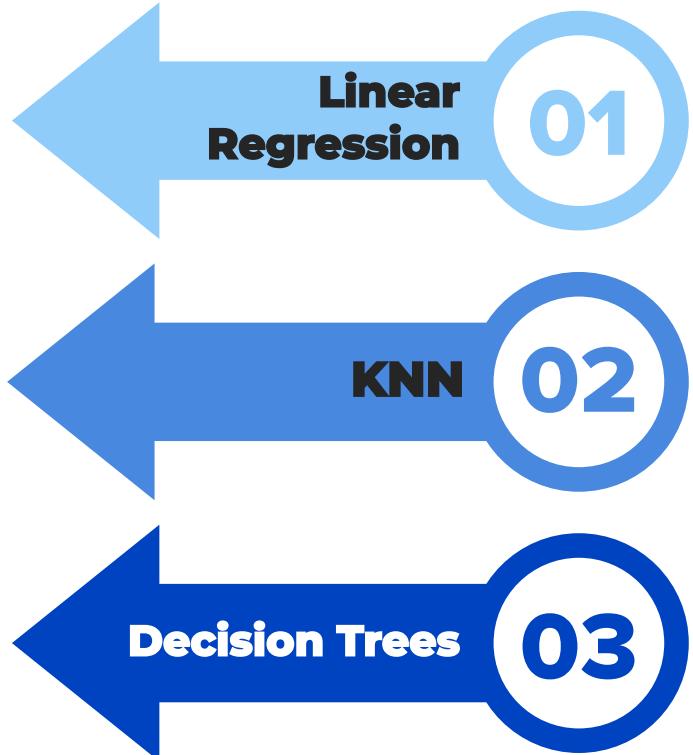
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# Correlation Heatmap



# Models



# Models

**AdaBoost**

07

**XGBoost**

08

**FB Prophet**

09

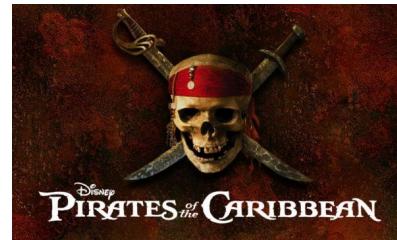
# FB Prophet

“Prophet is a procedure for forecasting time series data based on an additive model where non-linear trends are fit with yearly, weekly, and daily seasonality, plus holiday effects. It works best with time series that have strong seasonal effects and several seasons of historical data.”

Quote from

<https://facebook.github.io/prophet/>

# Pirates of the Caribbean



**RMSE**

**Linear  
Regression**

11.82

**KNN**

8.58

**Decision  
Tree**

11.92

**Bagged  
Decision  
Tree**

8.60

**Random  
Forest**

**7.88**

**RMSE**

**SVM**

12.17

**AdaBoost**

10.61

**XGBoost**

14.9

**FB Prophet**

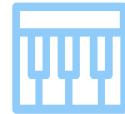
11.17



**No  
attendance  
figures**



**Limited  
hourly  
features**



**Basic model  
vs  
differentiated  
models for  
each ride**



**Using  
hourly avg  
wait times**

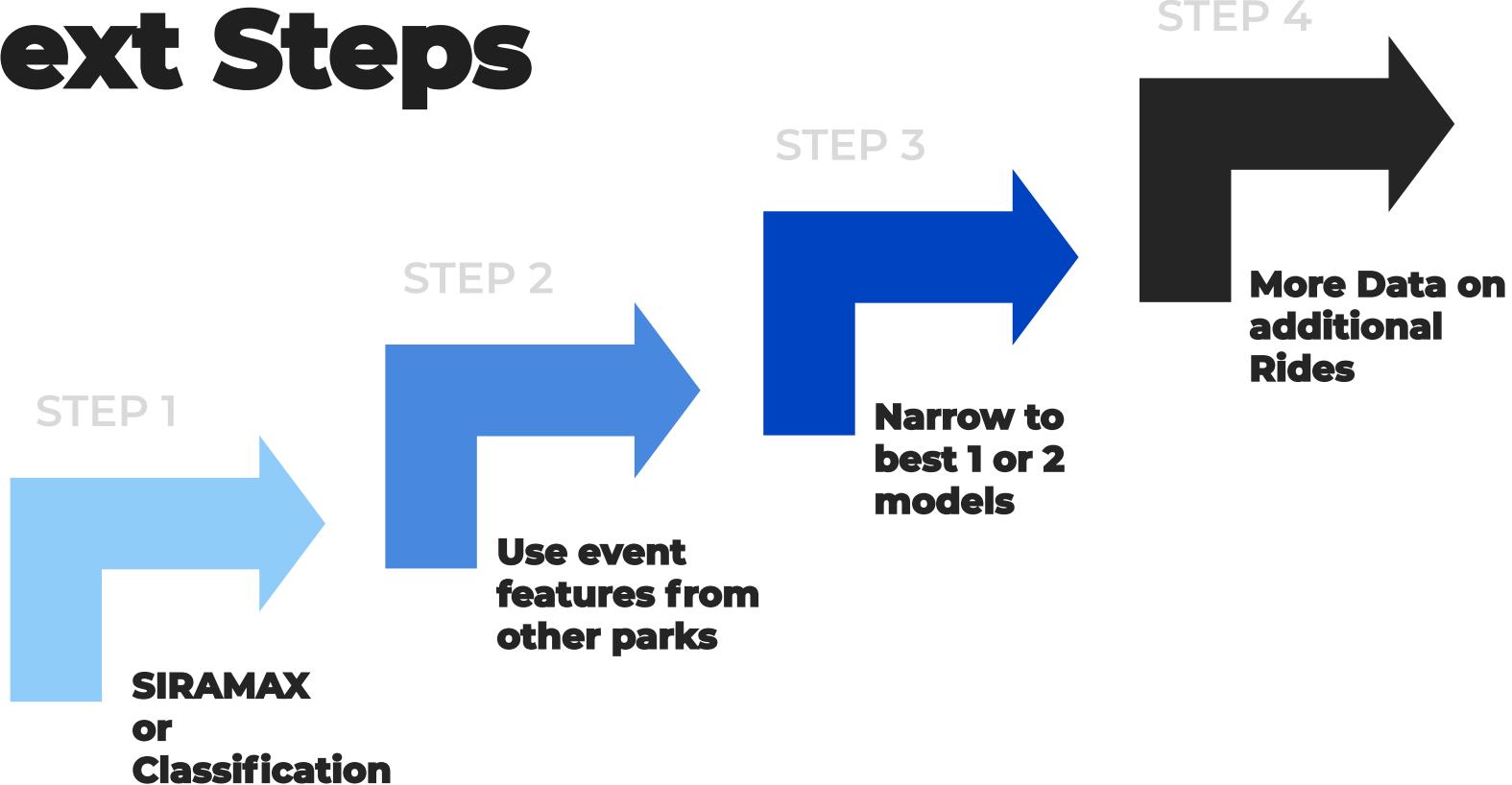


**Extended  
ride  
downtime**

# Issues

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# Next Steps





Any Questions?

# Models



# A timeline always works fine



## DAY 2

Venus has a beautiful name, but it's very hot



## DAY 4

Saturn is the ringed one and a gas giant

