

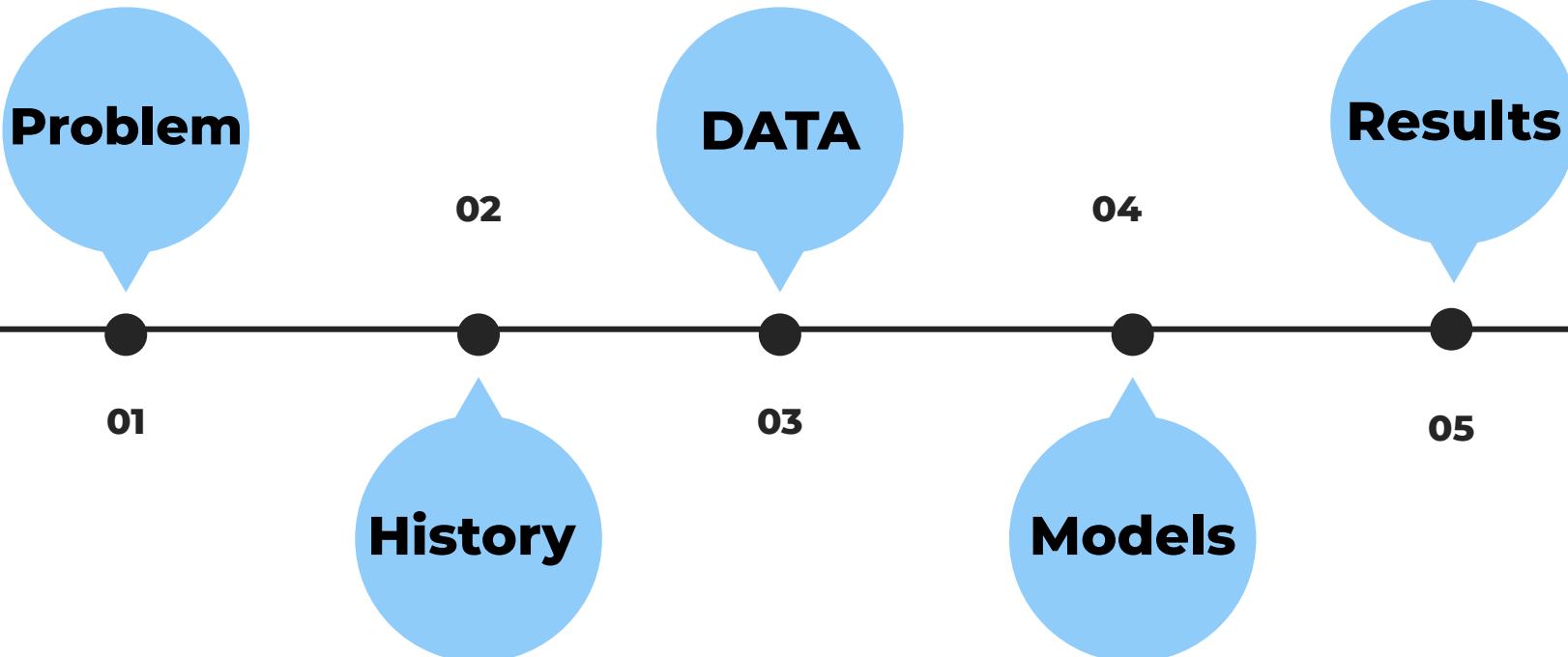
Clint Hoke
DSIR 420
Capstone

PREDICTING
WALT DISNEY WORLD®
WAIT TIMES





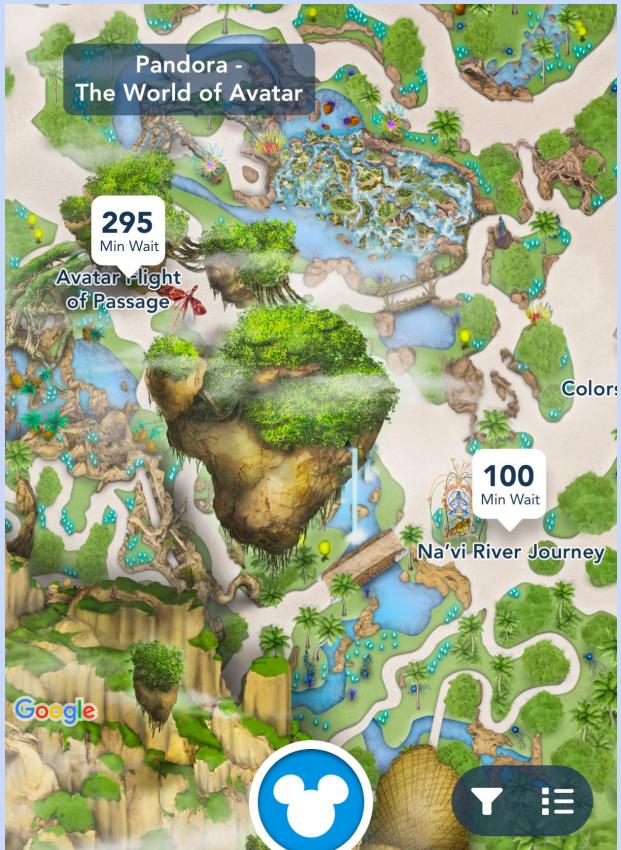
Table of Contents



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**

The image shows a tablet displaying the touringplans.com website. The top navigation bar includes the touringplans.com logo, a search bar, and a link to 'Travel Tools from The Unofficial Guide™ Team - See Our Books Here!'. Below this is a banner for 'DISNEY WORLD ULTIMATE TOURING PLANS' featuring a photo of a castle. A promotional box on the left says 'Subscribe Now: 1 Full Year for Only \$15.95!' and describes the benefits. On the right, there are fields for 'Choose a Username:' and 'Your Email Address:'. At the bottom of the screen, a navigation bar shows 'HOME / DISNEY WORLD / TOURING PLANS / ULTIMATE TOURING PLANS'. The main content area below the navigation bar contains text about the purpose of Ultimate Touring Plans, a section titled 'The Plans' with a note about plan modifications, and a bulleted list of attraction categories: Magic Kingdom, Epcot, and Disney's Hollywood Studios.

Ultimate Touring Plans are designed to see every attraction, show, parade and live performance in a Disney theme park in a single operating day. In Magic Kingdom, this can involve experiencing more than 50 attractions in as little as ten hours, and includes everything from character autographs to running over a barrel bridge on Tom Sawyer Island. It is not intended for families, first-time visitors, or for anyone simply wanting a nice day in the park. Ultimate Touring Plans are designed for physically fit theme park veterans seeking a unique challenge.

The Plans

Ultimate Touring Plans are linked below, but you should expect to make on-the-fly changes to these plans in order to complete all attractions. Attraction closures, weather, and other unpredictable events will likely make following the plan as written impossible.

Also, note that these plans are meant solely for those looking for a crazy challenge. They include lots of minor attractions that are not an integral part of a Disney theme park experience, and these plans will probably not optimize well if you copy them. WE DO NOT RECOMMEND THAT YOU COPY AN ULTIMATE TOURING PLAN AND TRY TO ALTER IT TO MAKE A FUN DAY FOR YOUR FAMILY. USE [ONE OF OUR OTHER PLANS](#) INSTEAD.

- Magic Kingdom
 - [Magic Kingdom Attractions](#)
 - [Magic Kingdom Ultimate Touring Plan](#)
- Epcot
 - [Epcot Attractions](#)
 - [Epcot Ultimate Touring Plan](#)

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

Metadata

After Hour Events

Holidays

After Hour Events

Schools In Session

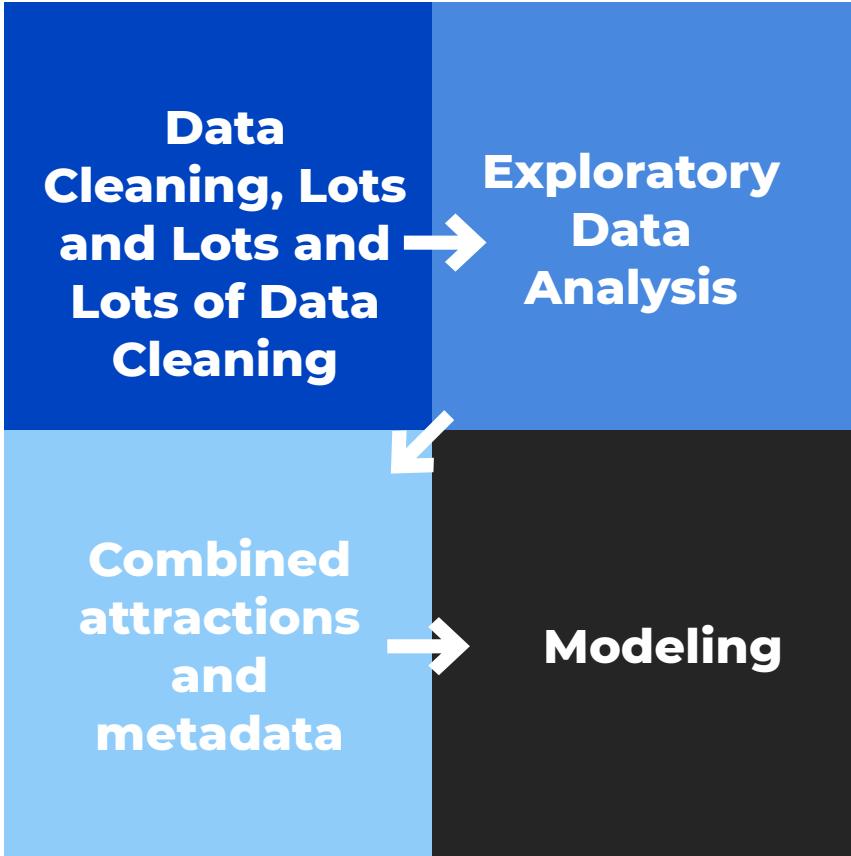
Extra Magic Hour

Parade Time

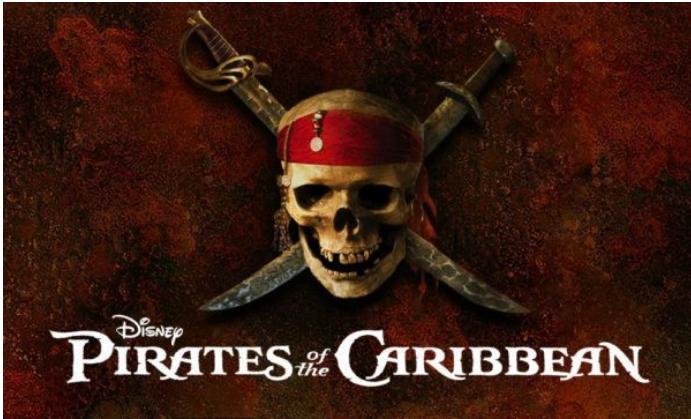
Special Events

Hours in operation

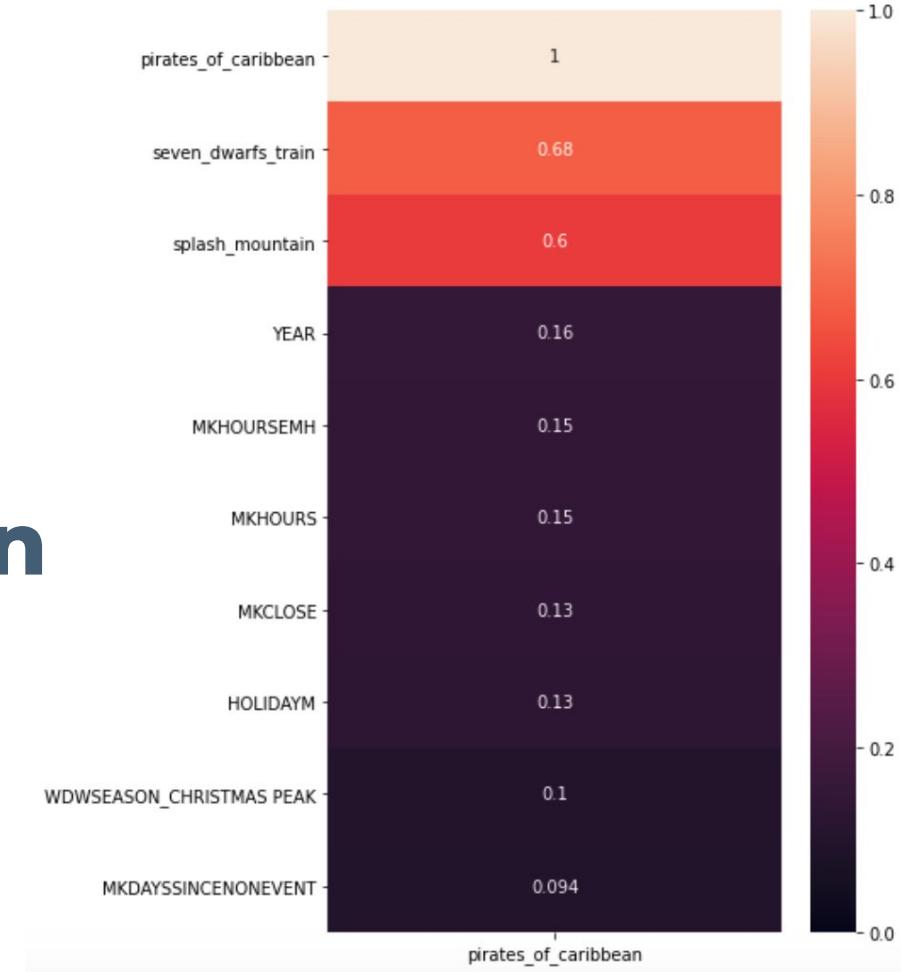
Capacity Lost



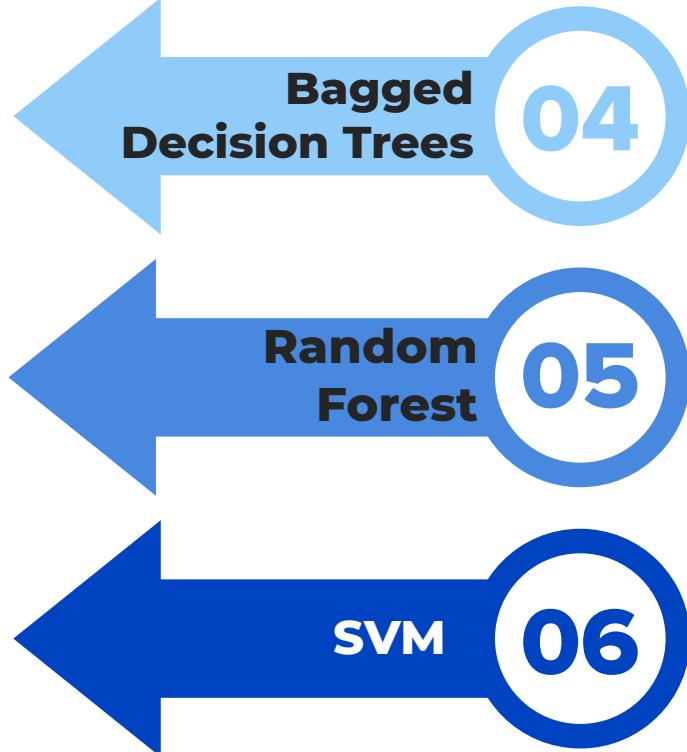
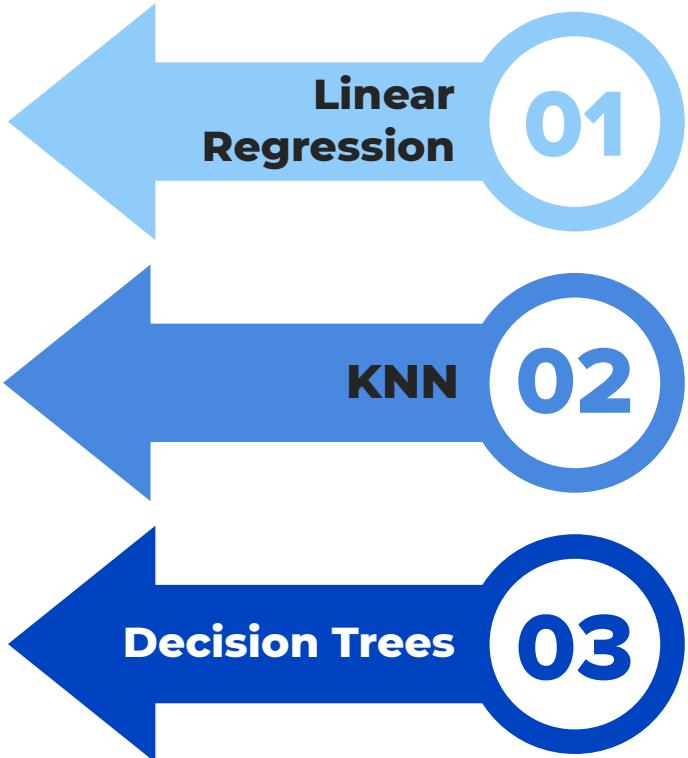
Data



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

12.17

10.61

SVM

AdaBoost

XGBoost

FB Prophet

14.9

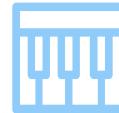
11.17



**No
attendance
figures**



**Limited
hourly
features**



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



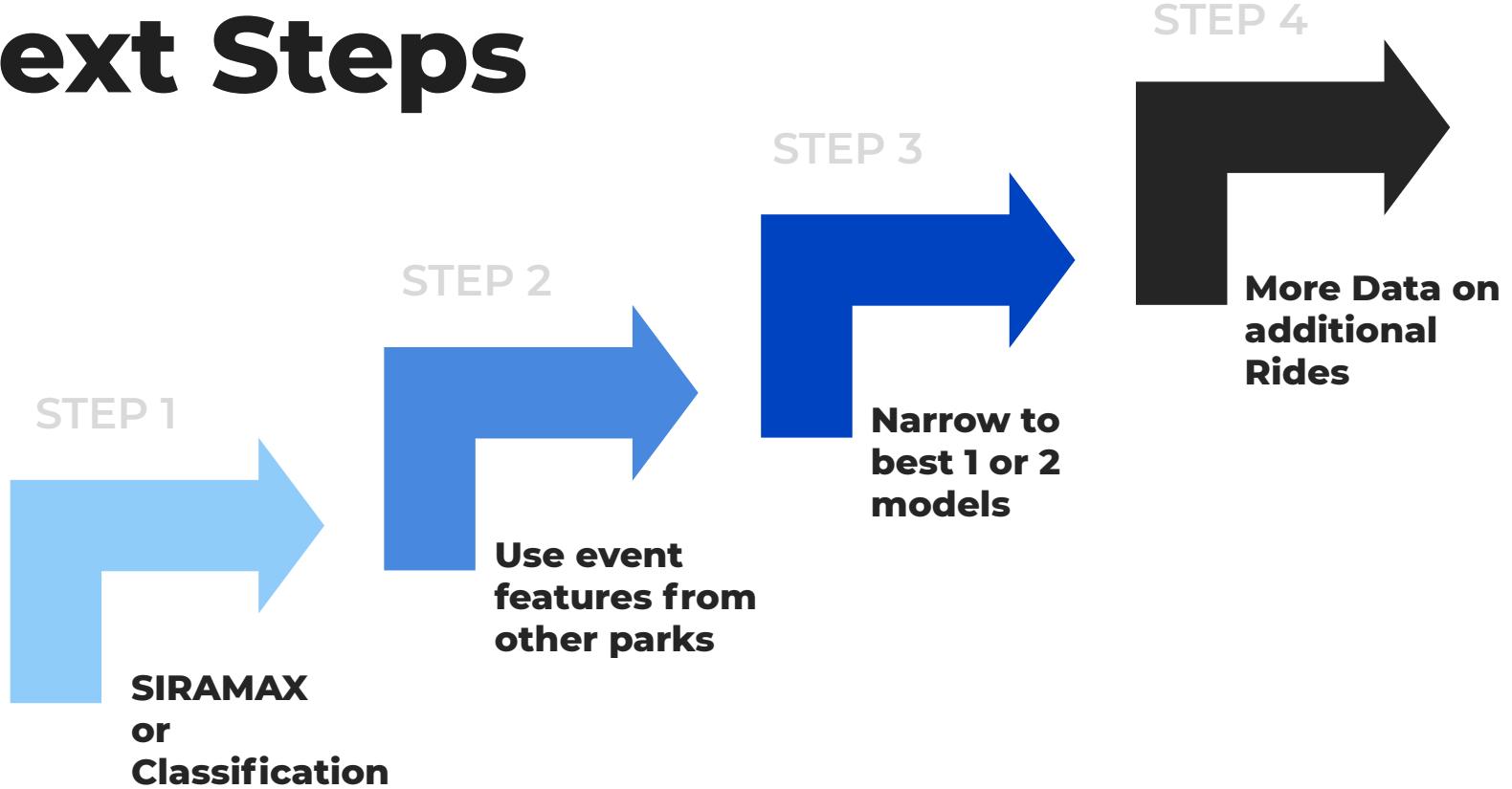
**Using
hourly avg
wait times**



**Extended
ride
downtime**

Issues

Next Steps





Any Questions?