The Dilemma

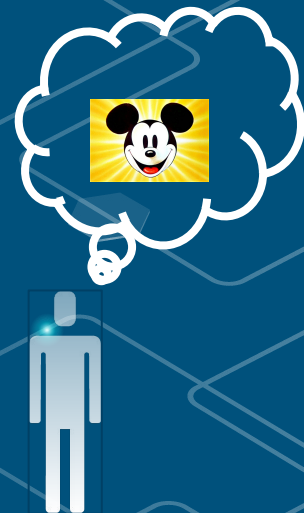- **Missing out on travel**
- **Fun for families**
- **Planning a family vacation**

Can we use Machine Learning to predict the wait time of Disney attractions?

- **Touring Plans Dataset**

ETL Process

Extraction

- Metadata- 190 variables each day 2015-2019, csv
- Attraction wait times for most days 2015-2019, csv
- Decided on 5 attractions in Animal Kingdom Park

Cleaning- Python Pandas and pgAdmin4

- Dropped 2 attractions- didn't span entire date range
- Metadata had multiple entries for a date range
- Average wait time for each day
- Decided on 5 variables for ML model

Machine Learning Prep

- **Converted variable values to integers**
- **Random Forest**

```
In [5]:  # Combining similar seasons together
         metadata_clean = metadata_clean.replace(
             {"WINTER": 1,
              "EASTER": 2,
              "SPRING": 3,
              "SUMMER": 4,
              "FALL": 5,
              "THANKSGIVING": 6,
              "CHRISTMAS": 7,
              "SUMMER BREAK": 4,
              "JULY 4TH": 4,
              "MEMORIAL DAY": 4,
              "SEPTEMBER LOW": 5,
              "JERSEY WEEK": 5,
              "HALLOWEEN": 5,
              "COLUMBUS DAY": 5,
              "PRESIDENTS WEEK": 1,
              "MARTIN LUTHER KING JUNIOR DAY": 1,
              "MARDI GRAS": 1,
              "CHRISTMAS PEAK": 7})
```

```
In [12]:  # Using GroupBy in order to group the data by "date" values
          safari_group = safari_clean.groupby(['date'])
          safari_date = safari_group.mean()
          safari_date.head()
```

Out[12]:

date	safari_wait
01/01/2015	29.276316
01/01/2016	24.934211
01/01/2017	40.411765
01/01/2018	14.220183
01/01/2019	54.455446

```
In [8]:  metadata_clean.head()
```

Out[8]:

	date	dayofweek	dayofyear	weekofyear	monthofyear	season
0	01/01/2015	5	0	0	1	7
1	01/02/2015	6	1	0	1	7
2	01/03/2015	7	2	0	1	7
3	01/04/2015	1	3	1	1	7
4	01/05/2015	2	4	1	1	7

Machine Learning Process

Kilimanjaro Safari

- Accuracy: 59.47%
- Mean Absolute Error: 12.91 minutes

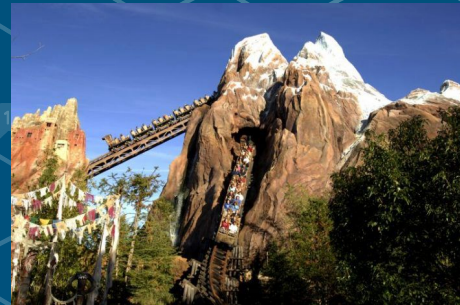
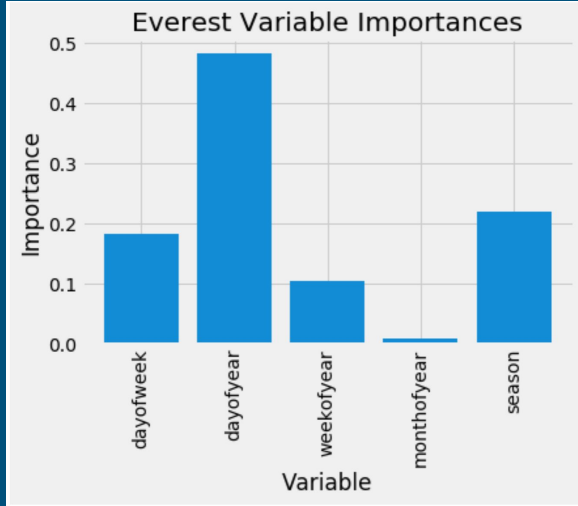
Safari Variable Importances
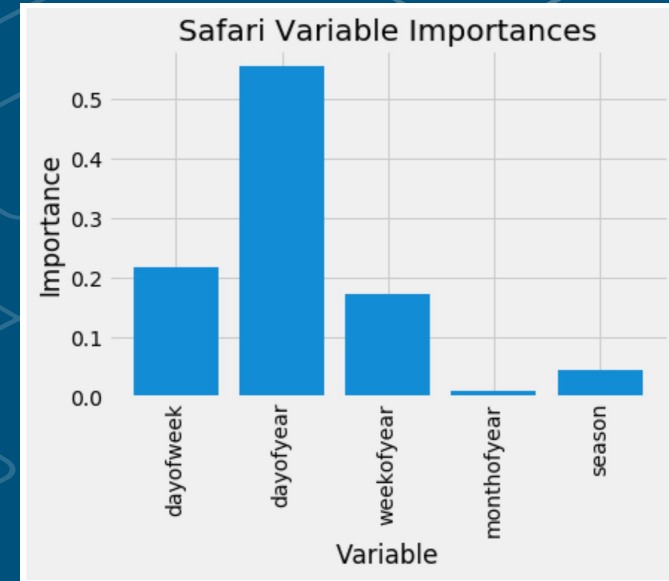
Machine Learning Process

Expedition Everest

- **Accuracy: 70.68%**

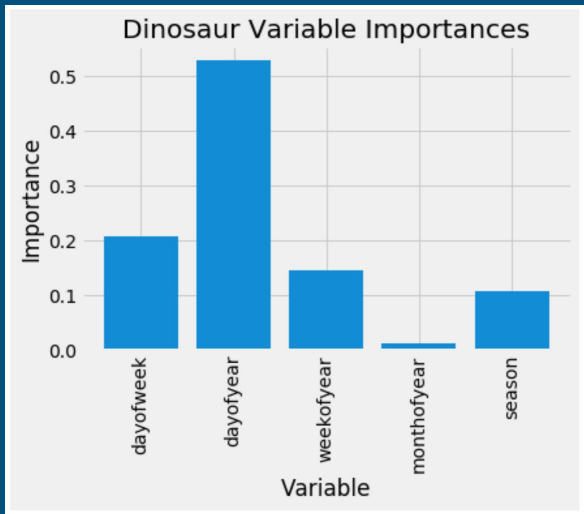- **Mean Absolute Error: 8.3 minutes**

Machine Learning Process

DINOSAUR

- **Accuracy: 71.63%**

- **Mean Absolute Error: 6.8 minutes**

Machine Learning Process

ML Predictions

- Created csv and converted to json
- Created html file to display table with javascript code to select specific date and display values on button-click
- Created GitHub pages site

https://lmm9.github.io/FinalProject_Disney/

Project Wrap Up

Next Steps

- **Include more attractions and parks**
- **Create ML models to predict based on the hour or minute**

Credits

Datasets

- **Disney World Metadata and Ride Wait Time Datasets, TouringPlans.com, January 2015 - December 2019, https://www.touringplans.com/walt-disney-world/crowd-calendar/#DataSets, Accessed 22 December 2020.**

Photos

Allears.net, disneytouristblog.com, tipstripflorida.com, touringplans.com, tripswithtykes.com,

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https://www.slidescarnival.com/
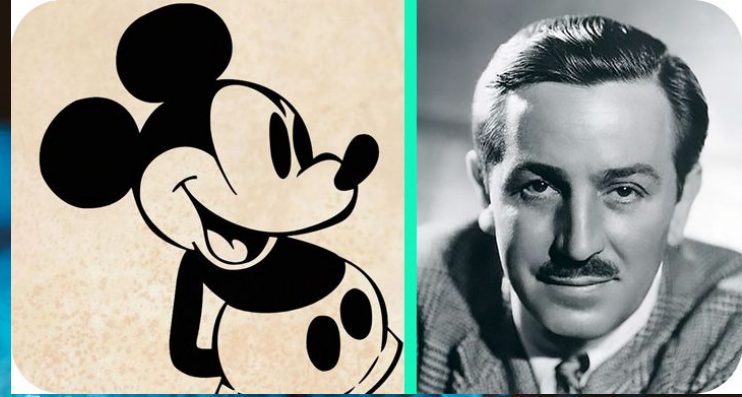
Questions/ Comments Welcomed

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