

Quiz- Course 10- IBM Applied Data Science Capstone (Coursera)

Week 1-Quiz: Data Collection API and Web Scraping

1. After you performed a **GET** request on the Space X API and convert the response to a dataframe using **pd.json_normalize**. What year is located in the first row in the column **static_fire_date_utc**?

2006

2. Using the **API**, how many Falcon 9 launches are there after we remove Falcon 1 launches?

90

3. At the end of the **API** data collection process, how many missing values are there for the column **landingPad**?

26

4. After making a request to the Falcon9 Launch Wiki page and creating a BeautifulSoup object what is the output of: **soup.title**

- `<td colspan="9" > First flight of Falcon 9 v1.0. <sup class="reference" id="cite_ref-sfn20100604_17-0"`
- `<table class="wikitable plainrowheaders collapsible" style="width: 100%;">`
- `<title> List of Falcon 9 and Falcon Heavy launches - Wikipedia </title>`

Week 1-Quiz: Data Wrangling

1. How many launches came from CCAFS SLC 40?

55

```
→ df['LaunchSite'].value_counts()
CCAFS SLC 40      55
KSC LC 39A       22
VAFB SLC 4E      13
```

2. What was the success rate?

- 80%
- 40%
- 67%

```
→ df['Class']
   Class
0      0
1      0
2      0
89     1
df['Class'].mean()
0.66
```

3. In the lab you used the method **.value_counts()** to determine the number and occurrence of each orbit in the column **Orbit**. What was the value for Orbit with the column name **GTO**?

27

```
→ df['Orbit'].value_counts()
GTO      27
ISS      21
VLEO     14
PO        9
LEO        7
SSO        5
MEO        3
ES-L1      1
HEO        1
SO         1
GEO        1
```

4. How many landing outcomes in the column **landing_outcomes** had a value of none?

19

```
→ landing_outcomes = df['Outcome'].value_counts()
landing_outcomes
True ASDS      41
None None      19
True RTLS      14
False ASDS      6
True Ocean      5
False Ocean      2
None ASDS        2
False RTLS        1
```

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Week 2-Quiz: Exploratory Data Analysis using SQL

1. Which of the following will retrieve up to 20 records from the spacex table?

- **SELECT * from SPACEXTBL LIMIT 20**
- SELECT * from SPACEXTBL MAX 20
- SELECT * from SPACEXTBL where count(*)=20
- SELECT TOP 20 rows from SPACEXTB

2. Which of the following queries display the minimum payload mass?

- select payload_mass__kg_ from SPACEXTBL order by payload_mass__kg_group by booster_version LIMIT 1
- select payload_mass__kg_ from SPACEXTBL order by payload_mass__kg_desc LIMIT 1
- **select min(payload_mass__kg_) from SPACEXTBL**
- select payload_mass__kg_ from SPACEXTBL where payload_mass__kg_=(select max(payload_mass__kg_) from SPACEXTBL) LIMIT 1

3. You are writing a query that will give you the total payload_mass_kg carried by the booster versions. The mass should be stored in the mass column. You want the result column to be called "Total_Payload_Mass". Which of the following SQL queries is correct?

- SELECT count(PAYLOAD_MASS__KG_) as Total_Payload_Mass from SPACEXTBL
- **SELECT sum(PAYLOAD_MASS__KG_) as Total_Payload_Mass from SPACEXTBL**
- SELECT sum(PAYLOAD_MASS__KG_) from SPACEXTBL

→ In SQL, **Sum** is used for numerical variables. **Count** is used for categorical variables.

4. Which of the following query is used to display the mission outcome **counts** for each launch site?

- **select count("Mission_Outcome") as MISSION_OUTCOME_COUNT,Launch_Site from SPACEXTBL group by "Launch_Site";**
- select sum("Mission_Outcome") as MISSION_OUTCOME_COUNT,Launch_Site from SPACEXTBL group by "Launch_Site";

5. What are the unique launch sites mentioned in the Spacex table?

- **CCAFS LC-40,KSC LC-39A, VAFB SLC-4E , CCAFS SLC-40**
- CCAFS LC-40,KSC LC-39B,VAFB SLC-4k , CCAFS SLC-40
- None of the Above
- CCAS LC-40,KSC LC-39A,VAFB SLC-4E , CCAFS SLC-80

```
→ %sql SELECT DISTINCT Launch_Site FROM SPACEXTABLE;
Launch_Site
CCAFS LC-40
VAFB SLC-4E
KSC LC-39A
CCAFS SLC-40
```

Week 2- Quiz: Exploratory Data Analysis using Pandas and Matplotlib

1. What type of data does a **Bar Chart** best represent?

- Location Data
- Numerical
- **Categorical**
- None of the above

2. What are the total number of columns in the features dataframe after applying one hot encoding to columns Orbits, LaunchSite, LandingPad and Serial. Here the **features dataframe** consists of the following columns FlightNumber, 'PayloadMass', 'Orbit', 'LaunchSite', 'Flights', 'GridFins', 'Reused', 'Legs', 'LandingPad', 'Block', 'ReusedCount', 'Serial'

- 120
- **80**
- 83
- 96

3. The **catplot** code to show the scatterplot of FlightNumber vs LaunchSite with x as FlightNumber, and y to Launch Site and hue to 'Class' is

- sns.catplot(y="LaunchSite",x="FlightNumber",hue="Class", data=df, aspect = 1,kind='cat')
plt.ylabel("Launch Site",fontsize=15)
plt.xlabel("Flight Number",fontsize=15)
plt.show()
- **sns.catplot(y="LaunchSite",x="FlightNumber",hue="Class", data=df, aspect = 1)**
plt.ylabel("Launch Site",fontsize=15)
plt.xlabel("Flight Number",fontsize=15)
plt.show()
- sns.catplot(y="LaunchSite",x="FlightNumber",hue="Class", data=df, aspect = 1,kind='scatter')
plt.ylabel("Launch Site",fontsize=15)
plt.xlabel("Flight Number",fontsize=15)
plt.show()

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- `sns.catplot(y="LaunchSite",x="FlightNumber",hue="Class", col="Class", data=df, aspect = 1)`
`plt.ylabel("Launch Site",fontsize=15)`
`plt.xlabel("Flight Number",fontsize=15)`
`plt.show()`

Week 3- Quiz: Interactive Visual Analytics and Dashboard

1. How can you add marking objects such as circles, markers, or lines on a Folium map? (Click all choices that apply)

- **map.add_child(object)**
- `add_node(map, object)`
- `map.add_to(object)`
- **object.add_to(map)**

2. If you want to add multiple markers with similar coordinates on the Folium map, which Folium plugin you should use?

- **MarkerCluster**
- MarkerGroup
- MarkerContainer
- Markers should be add to map directly without any extra layer

3. Which attribute is used to provide available selections (such as a list of launch sites) for a Plotly DropDown input?

- **options**
- values
- input
- placeholder

4. How can we associate the result of a callback function (like a Plotly figure) to an element defined in the application layout?

- Using component name
- Dash automatically render the result of a callback function
- **Using a unique component id**

5. Can we add multiple input components to a dash callback function?

- **Yes**
- No

Week 4- Quiz: Predictive Analysis

1. How many records were there in the test sample?

2. For Support Vector Machines, what kernel has the best result on the validation dataset.

- rbf
- **sigmoid**
- linear

3. After selecting the best hyperparameters for the decision tree classifier using the validation data, what was the accuracy achieved on the test data?

- **83.33%**
- 73.33%
- 93.33%