BASIC

PRESENTATION
FOR
GRADING CRITERIA

COVER LETTER

IBM DATA SCIENCE COURSE

PRESENTED BY- DEEPAK KUMAR

DATE- 30-03-2024

AGENDA

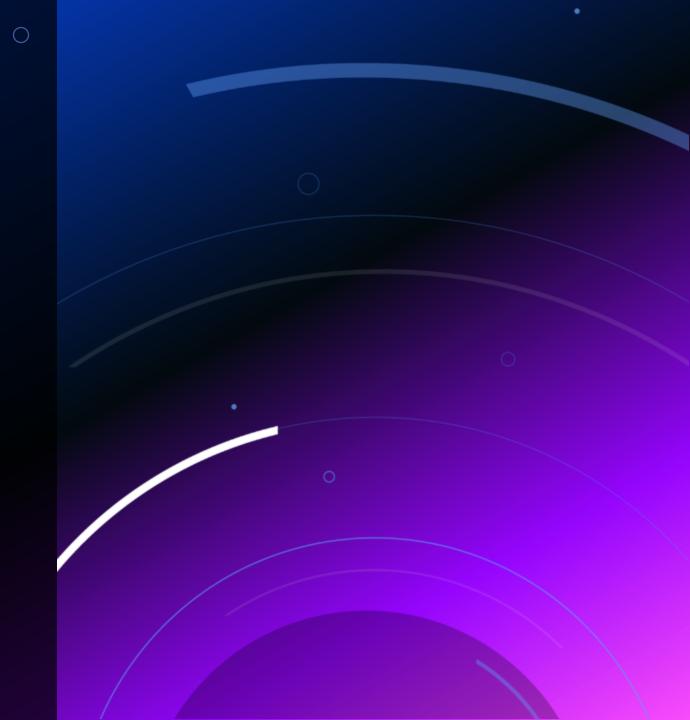
Introduction

Basic Learnings

Screen Schots

Out-Comes

Final submission



INTRODUCTION

- 1. DEFINING DATA SCIENCE AND WHAT DATA SCIENTISTS DO
- 2. APPLICATIONS AND CAREERS IN DATA SCIENCE
- 3. DATA LITERACY FOR DATA SCIENCE
- 4. COURSERA COMMUNITY AND CAREER SUPPORT
- 5. POST-COMPLETION CAREER SUPPORT SERVICES
- 6. APPLIED DATA SCIENCE CAPSTONS.

BEST POSSIBLE SCREEN SHOTS

dtype: int64

```
[7]: # Apply value_counts() on column LaunchSite
    df.value_counts('LaunchSite')

[7]: LaunchSite
    CCAFS SLC 40    55
    KSC LC 39A     22
    VAFB SLC 4E     13
```

Each launch aims to an dedicated orbit, and here are some common orbit types:

Overview of Dataset

													-				
	FlightNumber	Date	BoosterVersion	PayloadMass	Orbit	LaunchSite	Outcome	Flights	GridFins	Reused	Legs	LandingPad	Block	ReusedCount	Serial	Longitude	Latitude
0	1	2010-06-04	Falcon 9	6104.959412	LEO	CCAFS SLC 40	None None	3.	False	False	False	NaN	1.0	0	B0003	-80.577366	28.561857
1	2	2012-05-22	Falcon 9	525.000000	LEO	CCAFS SLC 40	None None	1	False	False	False	NaN	1.0	0	B0005	-80.577366	28.561857
2	3	2013-03-01	Falcon 9	677.000000	ISS	CCAFS SLC 40	None None	1	False	False	False	NaN	1.0	0	B0007	-80.577366	28.561857
3	4	2013-09-29	Falcon 9	500.000000	PO	VAFB SLC 4E	False Ocean	1	False	False	False	NaN	1.0	0	B1003	-120.610829	34.632093
4	5	2013-12-03	Falcon 9	3170.000000	GTO	CCAFS SLC 40	None None	1	False	False	False	NaN	1.0	0	B1004	-80.577366	28.561857
5	6	2014-01-06	Falcon 9	3325.000000	GTO	CCAFS SLC 40	None None	1	False	False	False	NaN	1.0	0	B1005	-80.577366	28.561857
6	7	2014-04-18	Falcon 9	2296.000000	ISS	CCAFS SLC 40	True Ocean	1	False	False	True	NaN	1.0	0	B1006	-80.577366	28.561857
7	8	2014-07-14	Falcon 9	1316.000000	LEO	CCAFS SLC 40	True Ocean	1	False	False	True	NaN	1.0	0	B1007	-80.577366	28.561857
8	9	2014-08-05	Falcon 9	4535.000000	GTO	CCAFS SLC 40	None None	1	False	False	False	NaN	1.0	0	B1008	-80.577366	28.561857
9	10	2014-09-07	Falcon 9	4428.000000	GTO	CCAFS SLC 40	None None	1	False	False	False	NaN	1.0	0	B1011	-80.577366	28.561857

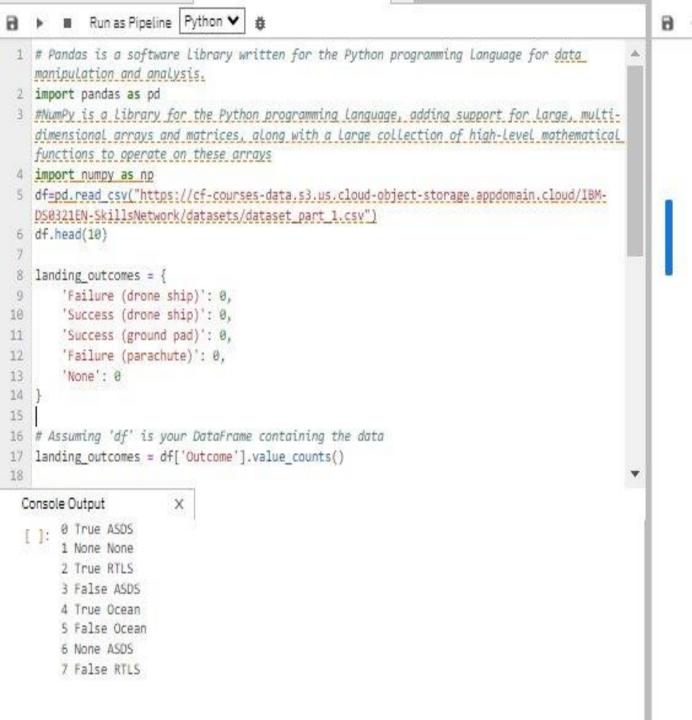
TASK 3: Calculate the number and occurrence of mission outcome of the orbits

Use the method .value_counts() on the column Outcome to determine the number of landing_outcomes. Then assign it to a variable landing_outcomes.

```
[8]: # landing_outcomes = values on Outcome column
df.value_counts('Outcome')

[8]: Outcome
True ASDS 41
```

True ASDS	4
None None	1
True RTLS	1
False ASDS	
True Ocean	
False Ocean	
None ASDS	
False RTLS	
dtype: int64	



Use the method .value_counts() to determine the number and occurrence of each orbit in the column Orbit

Python

Markdown 🗸

]: # Apply value counts on Orbit column

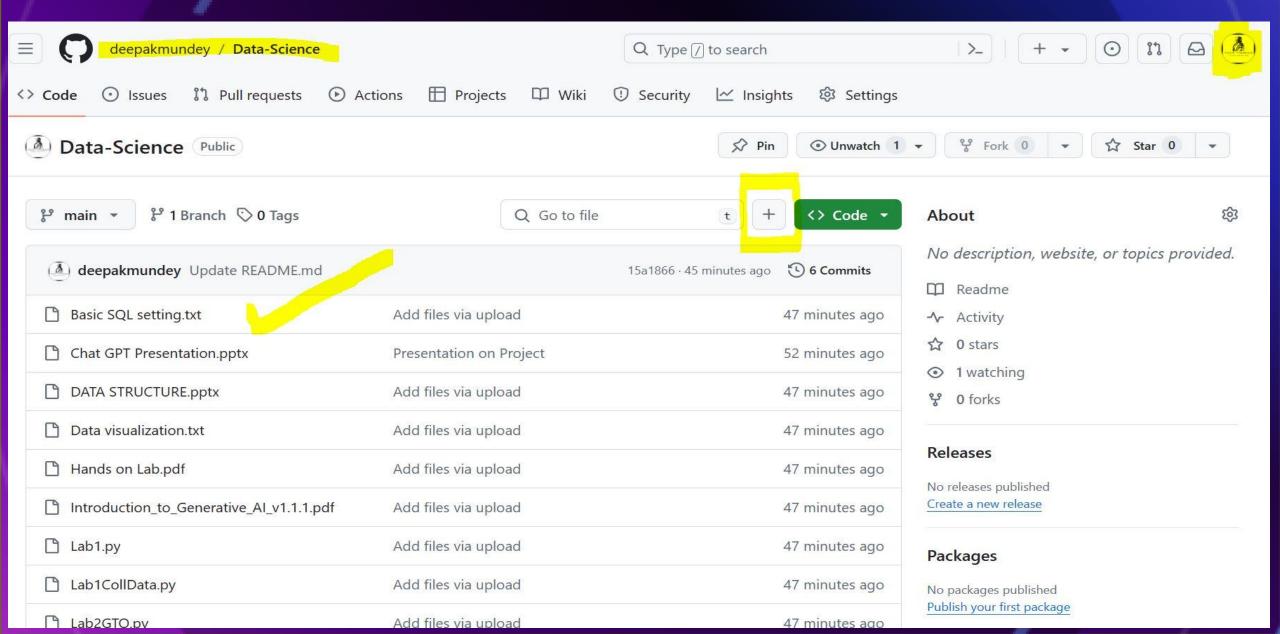
TASK 3: Calculate the number and occurence of mission outcome of the orbits

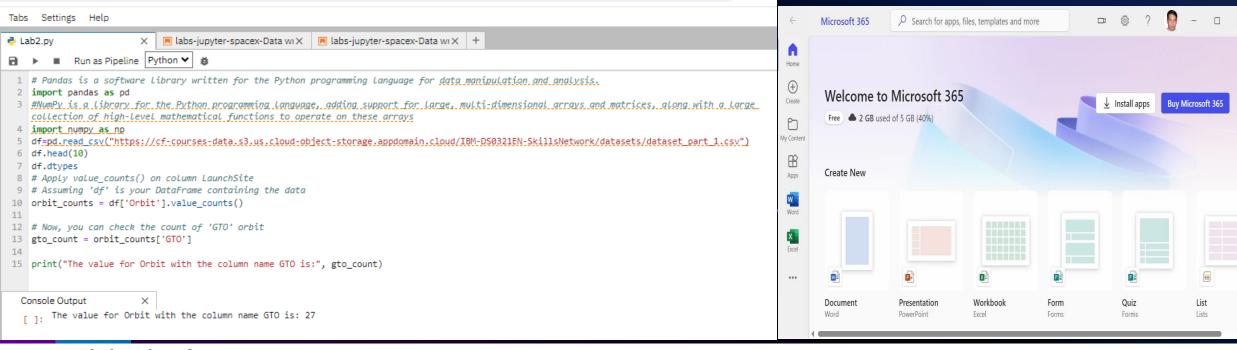
Use the method .value_counts() on the column Outcome to determine the number of landing_outcomes .Then assign it to a variable landing_outcomes.

| | # Landing outcomes = values on Outcome column

True Ocean means the mission outcome was successfully landed to a specific region of the ocean while False Ocean means the mission outcome was unsuccessfully landed to a specific region of the ocean. True RTLS means the mission outcome was successfully landed to a ground pad False RTLS means the mission outcome was unsuccessfully landed to a ground pad. True ASDS means the mission outcome was successfully landed to a drone ship False ASDS means the mission outcome was unsuccessfully landed to a drone ship. None ASDS and None None these represent a failure to land.

HUB UPLOADS





Load the dataframe

5 2013-12-03

Falcon 9

3170.000000

Load the data

from js import fetch

```
import io
     URL1 = "https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBM-DS0321EN-SkillsNetwork/datasets/dataset part 2.csv"
      resp1 = await fetch(URL1)
      text1 = io.BytesIO((await resp1.arrayBuffer()).to_py())
      data = pd.read_csv(text1)
     data.head()
[5]:
         FlightNumber
                            Date BoosterVersion PayloadMass
                                                               Orbit
                                                                        LaunchSite
                                                                                     Outcome Flights GridFins Reused Legs LandingPad Block ReusedCount Serial
                                                                                                                                                                        Longitude
                                                                                                                                                                                    Latitude Class
     0
                    1 2010-06-04
                                         Falcon 9
                                                   6104.959412
                                                                 LEO CCAFS SLC 40 None None
                                                                                                           False
                                                                                                                   False False
                                                                                                                                     NaN
                                                                                                                                              1.0
                                                                                                                                                             0 B0003
                                                                                                                                                                        -80.577366 28.561857
                                                                                                                                                                                                 0
                    2 2012-05-22
                                                    525.000000
                                                                                                                        False
                                                                                                                                              1.0
                                                                                                                                                                        -80.577366 28.561857
                                                                                                                                                                                                 0
                                         Falcon 9
                                                                 LEO CCAFS SLC 40 None None
                                                                                                           False
                                                                                                                   False
                                                                                                                                     NaN
                                                                                                                                                             0 B0005
     2
                    3 2013-03-01
                                         Falcon 9
                                                    677.000000
                                                                  ISS CCAFS SLC 40
                                                                                   None None
                                                                                                    1
                                                                                                           False
                                                                                                                   False
                                                                                                                        False
                                                                                                                                     NaN
                                                                                                                                              1.0
                                                                                                                                                             0 B0007
                                                                                                                                                                        -80.577366
                                                                                                                                                                                   28.561857
                                                                                                                                                                                                 0
                    4 2013-09-29
                                                    500.000000
                                                                       VAFB SLC 4E False Ocean
                                                                                                                   False False
                                                                                                                                              1.0
                                                                                                                                                                       -120.610829 34.632093
                                         Falcon 9
                                                                                                    1
                                                                                                           False
                                                                                                                                     NaN
                                                                                                                                                             0 B1003
                                                                                                                                                                                                 0
```

False

False False

NaN

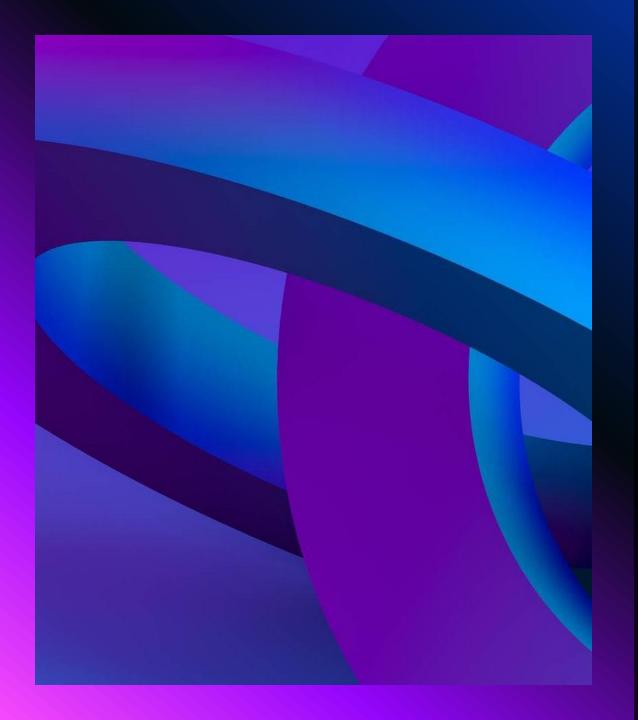
1.0

0 B1004

-80.577366 28.561857

0

GTO CCAFS SLC 40 None None

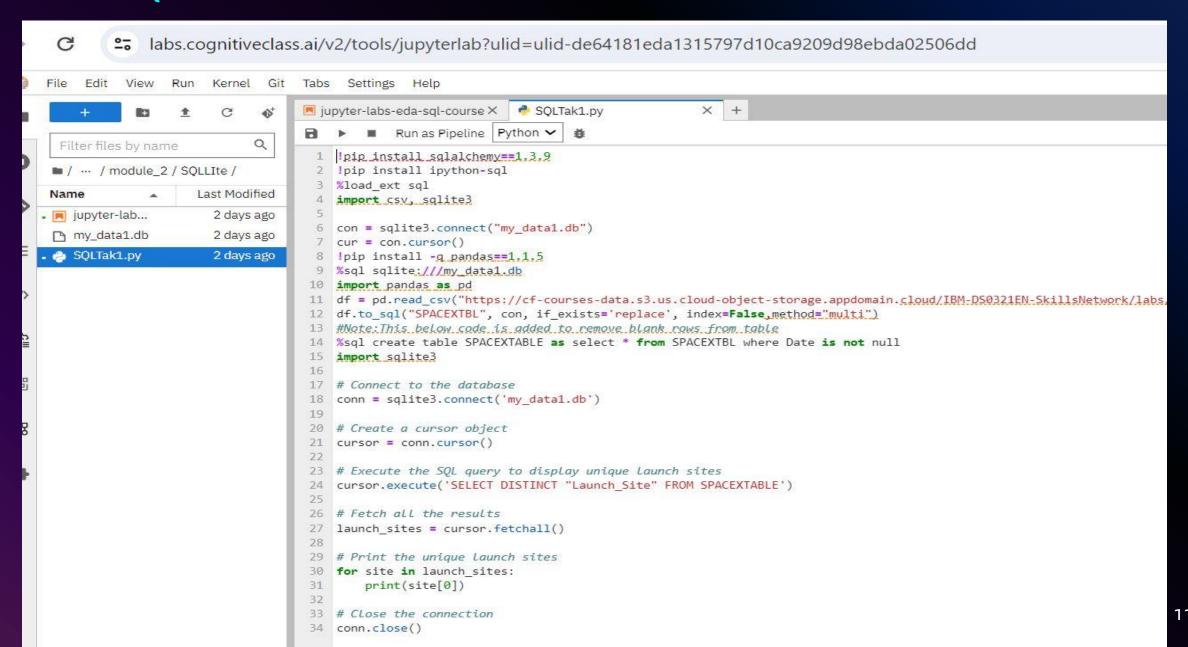


SPEAKING IMPACT

Your ability to communicate effectively will leave a lasting impact on your audience

Effectively communicating involves not only delivering a message but also resonating with the experiences, values, and emotions of those listening

FINAL SQL 100% DONE

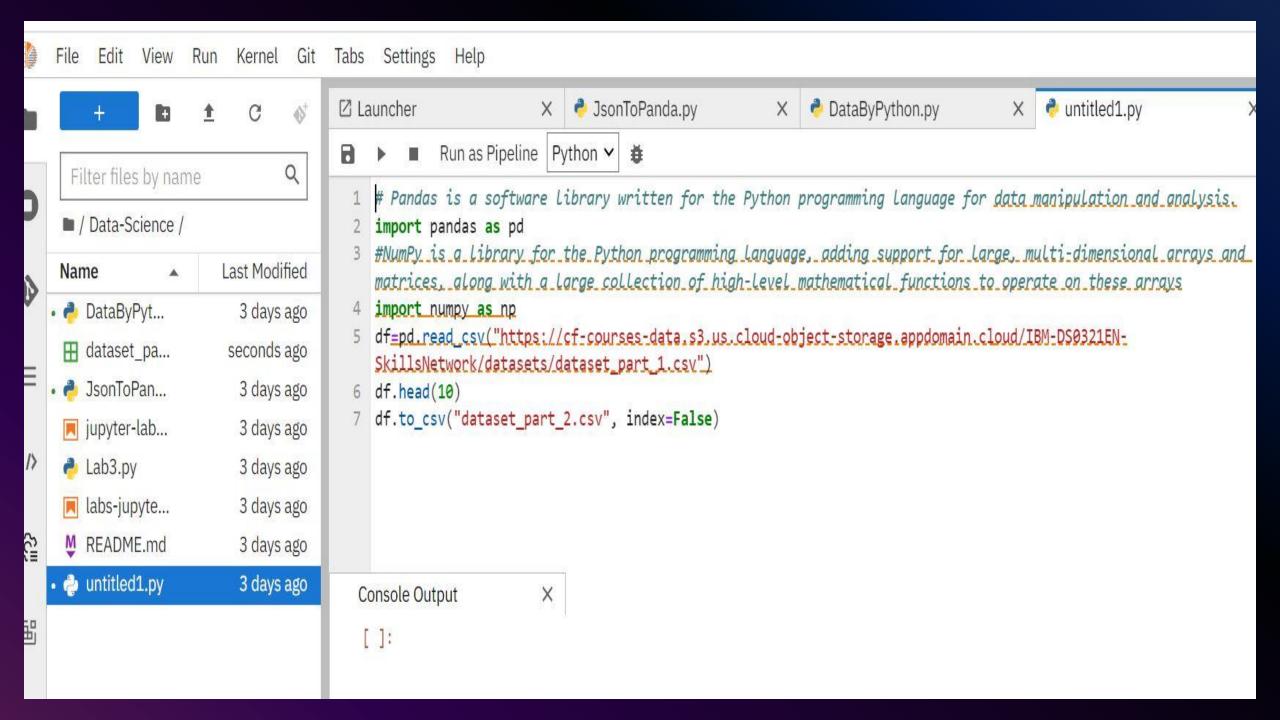


■ jupyter-labs-eda-sql-course × + jupyter-labs-eda-sql-course × + B + X □ □ ► ■ C → Markdown ∨ O git Run as Pipeline + X □ □ ► ■ C → Markdown ∨ O git Run as Pipeline Task 8 Task 2 List the names of the booster_versions which have carried the maximum payload mass. Use a subquery Display 5 records where launch sites begin with the string 'CCA [38]: # Execute the SQL query with a subquery to find the maximum payload mass [31]: conn = sqlite3.connect('my data1.db') cursor.execute(' SELECT booster version # Create a cursor object FROM SPACEXTABLE cursor = conn.cursor() WHERE PAYLOAD MASS KG IN (SELECT MAX(PAYLOAD_MASS_KG_) # Execute the SQL query to fetch 5 records where Launch sites begin with 'CCA' FROM SPACEXTABLE cursor.execute('SELECT * FROM SPACEXTABLE WHERE "Launch_Site" LIKE "CCA%" LIMIT_5') # Fetch the results records = cursor.fetchall() # Fetch all the results booster_versions = cursor.fetchall() # Print the fetched records for record in records: # Print the names of booster versions with maximum payload mass print(record) for version in booster versions: print(version[0]) ('2010-06-04', '18:45:00', 'F9 v1.0 B0003', 'CCAFS LC-40', 'Dragon Spacecraft Qualification Unit', 0, 'LEO', 'SpaceX', 'Success', 'Failure (parachute)') F9 B5 B1048.4 ('2010-12-08', '15:43:00', 'F9 v1.0 B0004', 'CCAFS LC-40', 'Dragon demo flight C1, two CubeSats, barrel of Brouere cheese', 0, 'LEO (ISS)', 'NASA (COTS) NRO', 'Succ ess', 'Failure (parachute)') F9 B5 B1049.4 F9 B5 B1051.3 ('2012-05-22', '7:44:00', 'F9 v1.0 B0005', 'CCAFS LC-40', 'Dragon demo flight C2', 525, 'LEO (ISS)', 'NASA (COTS)', 'Success', 'No attempt') ('2012-10-08', '0:35:00', 'F9 v1.0 B0006', 'CCAFS LC-40', 'SpaceX CRS-1', 500, 'LEO (ISS)', 'NASA (CRS)', 'Success', 'No attempt') F9 B5 B1056.4 F9 B5 B1048.5 ('2013-03-01', '15:10:00', 'F9 v1.0 B0007', 'CCAFS LC-40', 'SpaceX CRS-2', 677, 'LEO (ISS)', 'NASA (CRS)', 'Success', 'No attempt') F9 B5 B1051.4 F9 B5 B1049.5 Task 3 E9 B5 B1060 2 F9 B5 B1058.3 Display the total payload mass carried by boosters launched by NASA (CRS) F9 B5 B1051.6 F9 B5 B1060.3 [32]: cursor.execute('' F9 B5 B1049.7 SELECT SUM("Payload_Mass_kg_") FROM SPACEXTABLE Task 9 WHERE "Launch_Site" = 'NASA (CRS)' List the records which will display the month names, failure landing_outcomes in drone ship ,booster versions, launch_site for the months in year 2015. Note: SQLLite does not support monthnames. So you need to use substr(Date, 6,2) as month to get the months and substr(Date,0,5)='2015' for yea # Fetch the total payload mass total_payload_mass = cursor.fetchone()[0] # Execute the SOL query to select records for the year 2015 with specified condition ■ jupyter-labs-eda-sql-course × + > theia@theia-deepakmundey: /home/project × B + % □ □ ► ■ C → Markdown ∨ O git Run as Pipeline # Print the records print("\t".join(str(col) for col in row)) theia@theia-deepakmundey:/home/project\$ wget "https://cf-courses-data.s3.us.cloud-object-s Month Landing Outcome Booster Version Launch Site torage.appdomain.cloud/IBM-DS0321EN-SkillsNetwork/labs/module 3/spacex dash app.py" Failure (drone ship) F9 v1.1 B1012 CCAFS LC-40 Failure (drone ship) F9 v1.1 B1015 CCAFS LC-40 --2024-03-28 07:03:15-- https://cf-courses-data.s3.us.cloud-object-storage.appdomain.clou Task 10 d/IBM-DS0321EN-SkillsNetwork/labs/module 3/spacex dash app.py Rank the count of landing outcomes (such as Failure (drone ship) or Success (ground pad)) between the date 2010-06-04 and 2017-03-20, in descending order Resolving cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud (cf-courses-data.s3.u [40]: # Define the SQL query to rank the count of landing outcomes s.cloud-object-storage.appdomain.cloud)... 169.63.118.104, 169.63.118.104 SELECT "Landing_Outcome", COUNT(*) AS outcome_count FROM SPACEXTABLE WHERE "Date" BETWEEN '2010-06-04' AND '2017-03-20' Connecting to cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud (cf-courses-data. GROUP BY "Landing_Outcome" ORDER BY outcome_count DESC; s3.us.cloud-object-storage.appdomain.cloud) 169.63.118.104 :443... connected. # Execute the SOL query HTTP request sent, awaiting response... 200 OK cursor.execute(sal query) Length: 2110 (2.1K) [text/x-python] # Fetch all the result: results = cursor.fetchall() Saving to: 'spacex dash app.py' # Print the ranked Landina outcomes print("Landing Outcomes (between 2010-06-04 and 2017-03-20) in descending order:") for rank, (landing_outcome, count) in enumerate(results, start=1): print(f"{rank}. {landing_outcome}: {count}") 100%[======>] spacex dash app.py 2.06K --.-KB/s Landing Outcomes (between 2010-06-04 and 2017-03-20) in descending order: 1. No attempt: 10 2. Success (drone ship): 5 3. Failure (drone ship): 5 2024-03-28 07:03:15 (502 MB/s) - 'spacex dash app.py' saved [2110/2110] 4. Success (ground pad): 3 Controlled (ocean): 3 Uncontrolled (ocean): 2

P Go Live 4

7. Failure (parachute): 2 8. Precluded (drone ship): 1

Initialized (additional servers needed) Python | Idle Mem: 445.38 / 6144.00 MB



THANK YOU

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Links:

https://github.com/deepakmundey/Data-Science.git

Scientific findings presentation.pptx

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