COMSATS UNIVERSITY

WAH CAMPUS

Tittle: Formula 1 Case Study

Submitted By

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Class/Section: *BSCS/6d*

Submitted To

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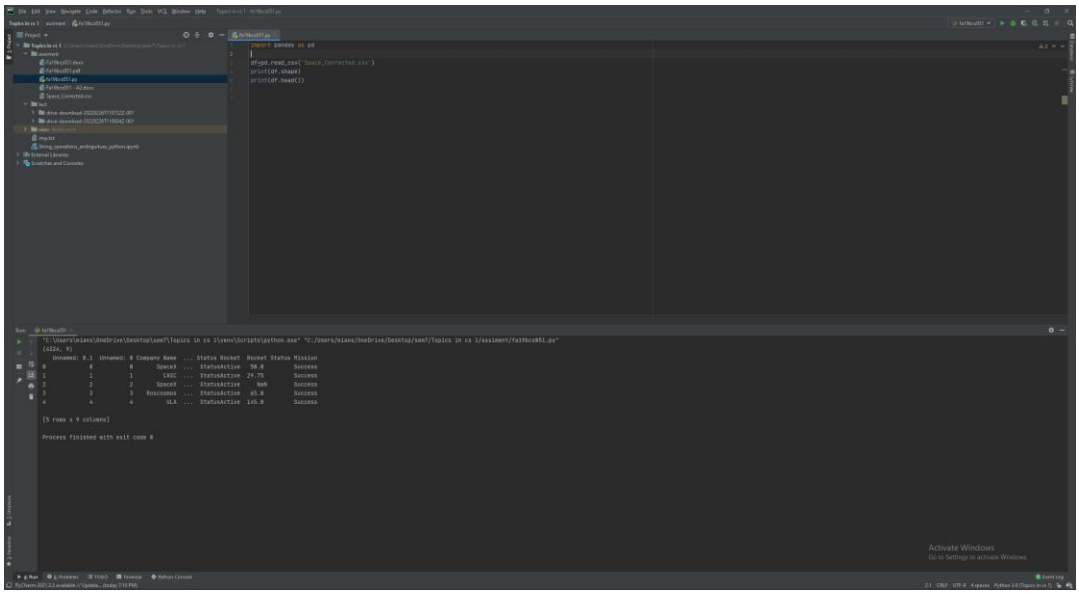
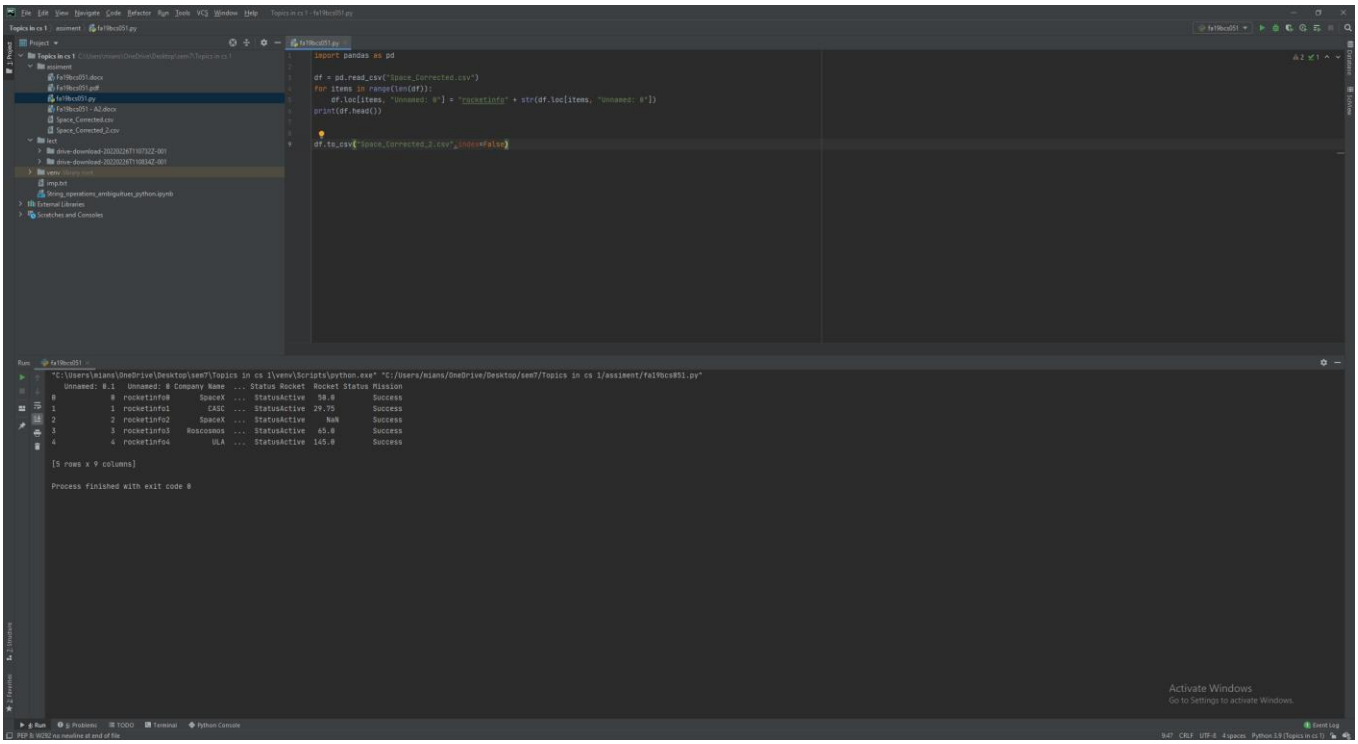
Date of Submission: *27/03/2022*

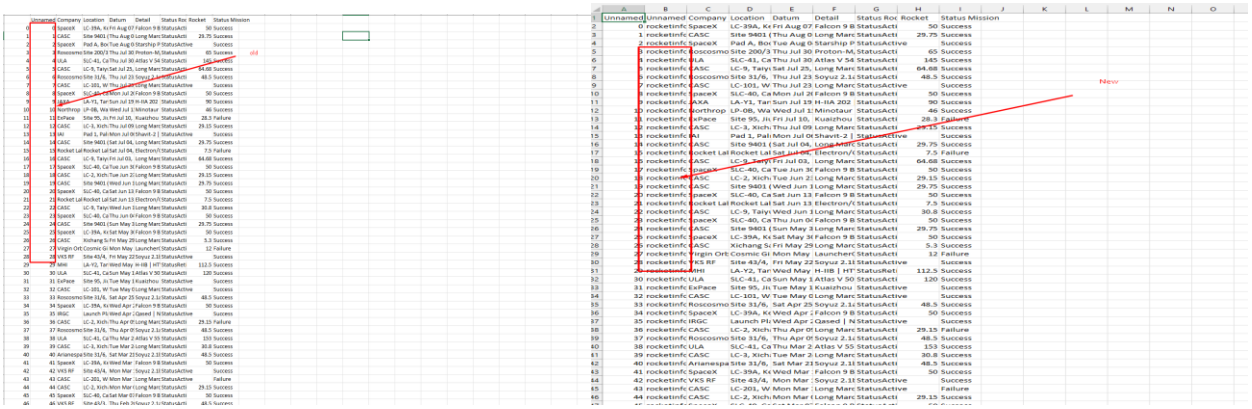
Read using Data Frame



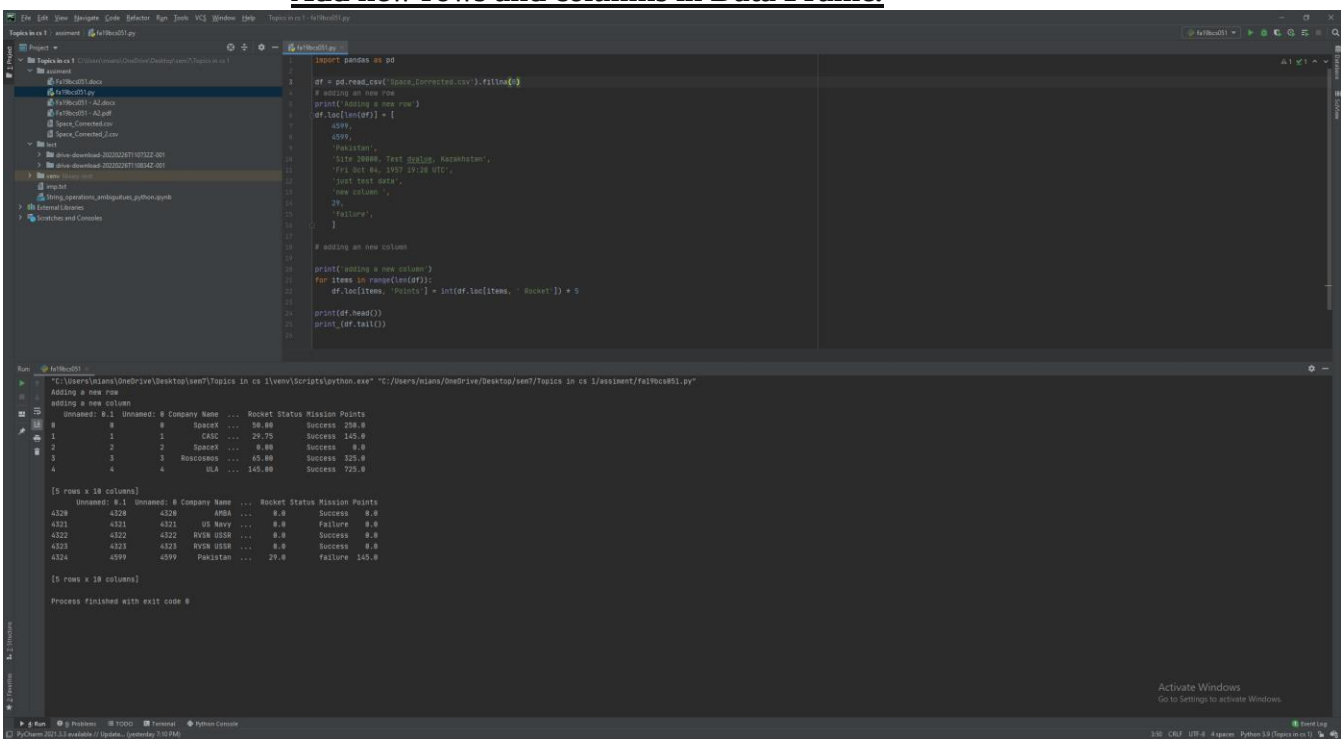
```
import pandas as pd
df=pd.read_csv('Space_Corrected.csv')
print(df.shape)
print(df.head())
```

Assign a particular value to a specific row or a column in a Data Frame.





Add new rows and columns in Data Frame.

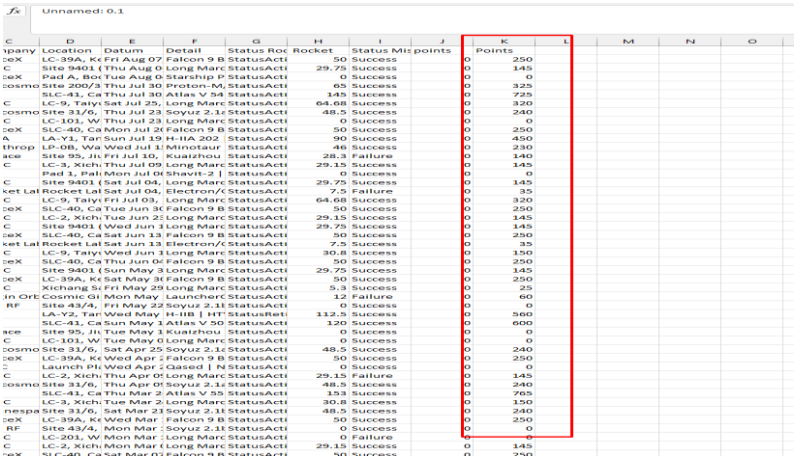


```python
import pandas as pd

df = pd.read_csv('Space_Corrected.csv').fillna(0)
# adding an new row
print('Adding a new row')
df.loc[len(df)] = [
    4599,
    4599,
    'Pakistan',
    'Site 20000, Test dvalue, Kazakhstan',
    'Fri Oct 04, 1957 19:28 UTC',
    'just test data',
    'new column ',
    29,
    'failure',
    ]

# adding an new column

print('adding a new column')
for items in range(len(df)):
    df.loc[items, 'Points'] = int(df.loc[items, ' Rocket']) * 5

print(df.head())
print (df.tail())
```

New row added

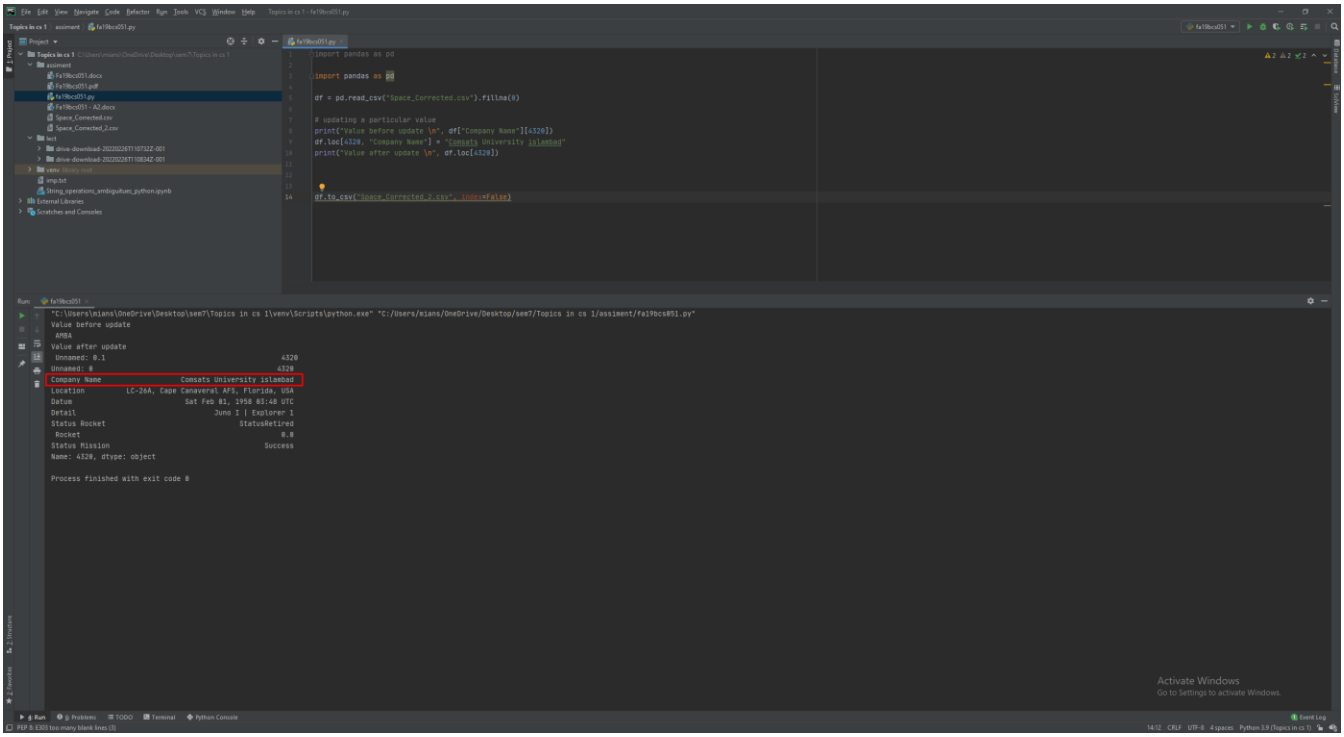
4321	4319	4319	US Navy	LC-18A, Ca	Wed Feb (	Vanguard	StatusReti	0	Failure	0	0
4322	4320	4320	AMBA	LC-26A, Ca	Sat Feb 01	Juno I | Ex	StatusReti	0	Success	0	0
4323	4321	4321	US Navy	LC-18A, Ca	Fri Dec 06,	Vanguard	StatusReti	0	Failure	0	0
4324	4322	4322	RVSN USS	Site 1/5, B	Sun Nov 0	Sputnik 8k	StatusReti	0	Success	0	0
4325	4323	4323	RVSN USS	Site 1/5, B	Fri Oct 04,	Sputnik 8k	StatusReti	0	Success	0	0
4326	4599	4599	Pakistan	Site 20000	Fri Oct 04,	just test d	new colur	29	failure	0	145
4327											
4328											

New Column added



Unnamed: 0.1	Company Name	Location	Datum	Detail	Status Rocket	Rocket	Status Mission	points	Points
0	SpaceX	LC-39A, Kennedy Space Center, Florida, USA	Fri Aug 07, 2020	Falcon 9 Block 5	StatusActive	50	Success	0	250
1	CASC	Site 9401 (SLS-2), Jiuquan Satellite Launch Center, China	Thu Aug 06, 2020	Long March 2D	StatusActive	29.75	Success	0	145
2	SpaceX	Pad A, Boca Chica, Texas, USA	Tue Aug 04, 2020	Starship Prototype	StatusActive	0	Success	0	0
3	Roscosmos	Site 200/39, Baikonur Cosmodrome, Kazakhstan	Thu Jul 30, 2020	Proton-M/Briz-M	StatusActive	65	Success	0	325
4	ULA	SLC-41, Cape Canaveral AFS, Florida, USA	Thu Jul 30, 2020	Atlas V 541	StatusActive	145	Success	0	725
5	CASC	LC-9, Taiyuan Satellite Launch Center, China	Sat Jul 25, 2020	Long March 4B	StatusActive	64.68	Success	0	320
6	Roscosmos	Site 31/6, Baikonur Cosmodrome, Kazakhstan	Thu Jul 23, 2020	Soyuz 2.1a	StatusActive	48.5	Success	0	240
7	CASC	LC-101, Wenchang Satellite Launch Center, China	Thu Jul 23, 2020	Long March 5	StatusActive	0	Success	0	0
8	SpaceX	SLC-40, Cape Canaveral AFS, Florida, USA	Mon Jul 20, 2020	Falcon 9 Block 5	StatusActive	50	Success	0	250
9	ArianeGroup	LA-Y1, Tanegashima Space Center, Japan	Sun Jul 19, 2020	H-IIA 202	StatusActive	90	Success	0	450
10	Northrop	LP-0B, Wallops Flight Facility, Virginia, USA	Wed Jul 15, 2020	Minotaur I	StatusActive	46	Success	0	230
11	Arianespace	Site 95, Jiuquan Satellite Launch Center, China	Fri Jul 10, 2020	Kuaizhou	StatusActive	28.3	Failure	0	140
12	CASC	LC-3, Xichang Satellite Launch Center, China	Thu Jul 09, 2020	Long March 3B	StatusActive	29.15	Success	0	145
13		Pad 1, Palmachim Air Force Base, Israel	Mon Jul 06, 2020	Shavit-2	StatusActive	0	Success	0	0
14	CASC	Site 9401 (SLS-2), Jiuquan Satellite Launch Center, China	Sat Jul 04, 2020	Long March 2D	StatusActive	29.75	Success	0	145
15	Rocket Lab	Rocket Lab Launch Complex 1, Mahia Peninsula, New Zealand	Sat Jul 04, 2020	Electron/Curie	StatusActive	7.5	Failure	0	35
16	CASC	LC-9, Taiyuan Satellite Launch Center, China	Fri Jul 03, 2020	Long March 4B	StatusActive	64.68	Success	0	320
17	SpaceX	SLC-40, Cape Canaveral AFS, Florida, USA	Thu Jun 30, 2020	Falcon 9 Block 5	StatusActive	50	Success	0	250
18	CASC	LC-2, Xichang Satellite Launch Center, China	Tue Jun 23, 2020	Long March 3B	StatusActive	29.15	Success	0	145
19	CASC	Site 9401 (SLS-2), Jiuquan Satellite Launch Center, China	Wed Jun 17, 2020	Long March 2D	StatusActive	29.75	Success	0	145
20	SpaceX	SLC-40, Cape Canaveral AFS, Florida, USA	Sat Jun 13, 2020	Falcon 9 Block 5	StatusActive	50	Success	0	250
21	Rocket Lab	Rocket Lab Launch Complex 1, Mahia Peninsula, New Zealand	Sat Jun 13, 2020	Electron/Curie	StatusActive	7.5	Success	0	35
22	CASC	LC-9, Taiyuan Satellite Launch Center, China	Wed Jun 10, 2020	Long March 4B	StatusActive	30.8	Success	0	150
23	SpaceX	SLC-40, Cape Canaveral AFS, Florida, USA	Thu Jun 04, 2020	Falcon 9 Block 5	StatusActive	50	Success	0	250
24	CASC	Site 9401 (SLS-2), Jiuquan Satellite Launch Center, China	Sun May 31, 2020	Long March 2D	StatusActive	29.75	Success	0	145
25	SpaceX	LC-39A, Kennedy Space Center, Florida, USA	Sat May 30, 2020	Falcon 9 Block 5	StatusActive	50	Success	0	250
26	CASC	Xichang Satellite Launch Center, China	Fri May 29, 2020	Long March 3B	StatusActive	5.3	Success	0	25
27	Internal Organisation	Cosmic Girl, Mid Orbit	Mon May 25, 2020	Launcher One	StatusActive	12	Failure	0	60
28	RFA	Site 43/4, Woomera Test Range, Australia	Fri May 22, 2020	Soyuz 2.1b	StatusActive	0	Success	0	0
29		LA-Y2, Tanegashima Space Center, Japan	Wed May 20, 2020	H-IIB | HTV-9	StatusRetired	112.5	Success	0	560
30	ULA	SLC-41, Cape Canaveral AFS, Florida, USA	Sun May 17, 2020	Atlas V 501	StatusActive	120	Success	0	600
31	Arianespace	Site 95, Jiuquan Satellite Launch Center, China	Tue May 12, 2020	Kuaizhou	StatusActive	0	Success	0	0
32	CASC	LC-101, Wenchang Satellite Launch Center, China	Tue May 05, 2020	Long March 5	StatusActive	0	Success	0	0
33	Roscosmos	Site 31/6, Baikonur Cosmodrome, Kazakhstan	Sat Apr 25, 2020	Soyuz 2.1a	StatusActive	48.5	Success	0	240
34	SpaceX	LC-39A, Kennedy Space Center, Florida, USA	Wed Apr 22, 2020	Falcon 9 Block 5	StatusActive	50	Success	0	250
35		Launch Pad A, Cape Canaveral AFS, Florida, USA	Wed Apr 22, 2020	Qased | Nanoracks NG-18	StatusActive	0	Success	0	0
36	CASC	LC-2, Xichang Satellite Launch Center, China	Thu Apr 09, 2020	Long March 3B	StatusActive	29.15	Failure	0	145
37	Roscosmos	Site 31/6, Baikonur Cosmodrome, Kazakhstan	Thu Apr 09, 2020	Soyuz 2.1a	StatusActive	48.5	Success	0	240
38		SLC-41, Cape Canaveral AFS, Florida, USA	Thu Mar 26, 2020	Atlas V 551	StatusActive	153	Success	0	765
39	CASC	LC-3, Xichang Satellite Launch Center, China	Tue Mar 24, 2020	Long March 3B	StatusActive	30.8	Success	0	150
40	Arianespace	Site 31/6, Baikonur Cosmodrome, Kazakhstan	Sat Mar 21, 2020	Soyuz 2.1b	StatusActive	48.5	Success	0	240
41	SpaceX	LC-39A, Kennedy Space Center, Florida, USA	Wed Mar 18, 2020	Falcon 9 Block 5	StatusActive	50	Success	0	250
42	RFA	Site 43/4, Woomera Test Range, Australia	Mon Mar 16, 2020	Soyuz 2.1b	StatusActive	0	Success	0	0
43	CASC	LC-201, Wenchang Satellite Launch Center, China	Mon Mar 16, 2020	Long March 8	StatusActive	0	Failure	0	0
44	CASC	LC-2, Xichang Satellite Launch Center, China	Mon Mar 02, 2020	Long March 3B	StatusActive	29.15	Success	0	145
45	SpaceX	SLC-40, Cape Canaveral AFS, Florida, USA	Sat Mar 07, 2020	Falcon 9 Block 5	StatusActive	50	Success	0	250

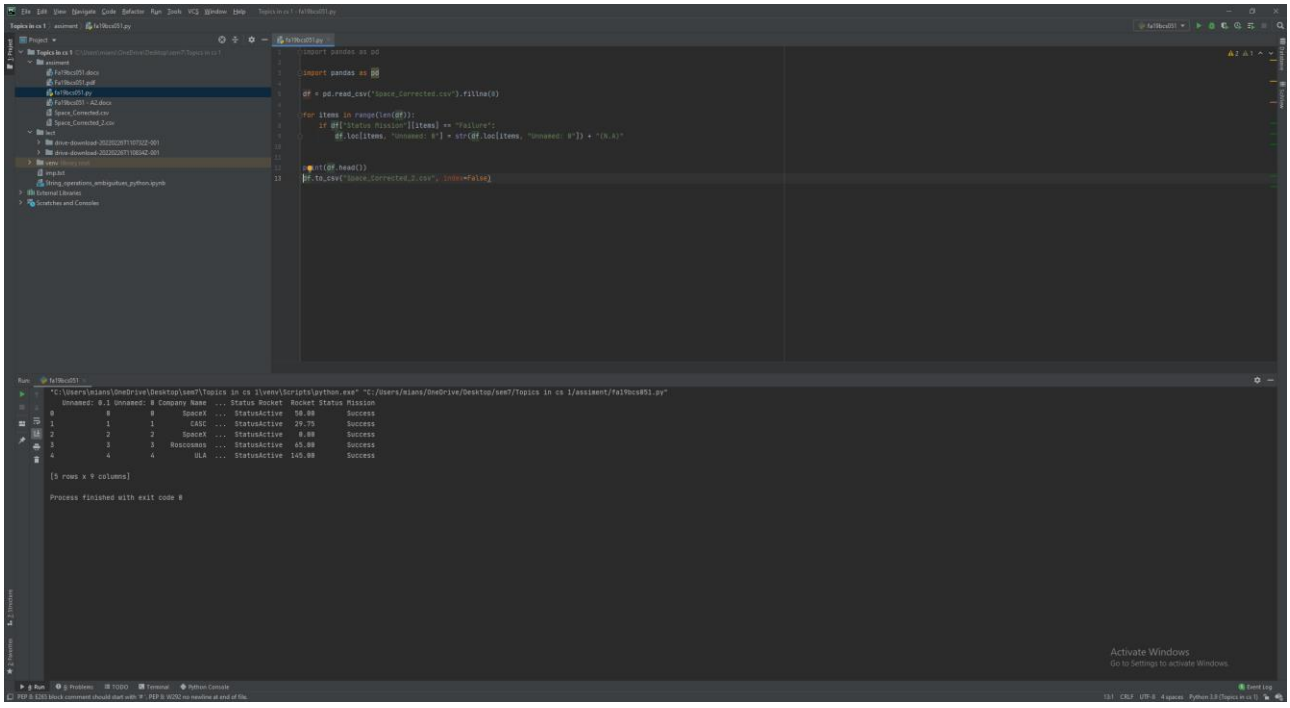
Update or modify a particular value



```
import pandas as pd

import pandas as pd

df = pd.read_csv("Space_Corrected.csv").fillna(0)

# updating a particular value
print("Value before update \n", df["Company Name"][4320])
df.loc[4320, "Company Name"] = "Comsats University islambad"
print("Value after update \n", df.loc[4320])
```

update or modify a particular row or a column.

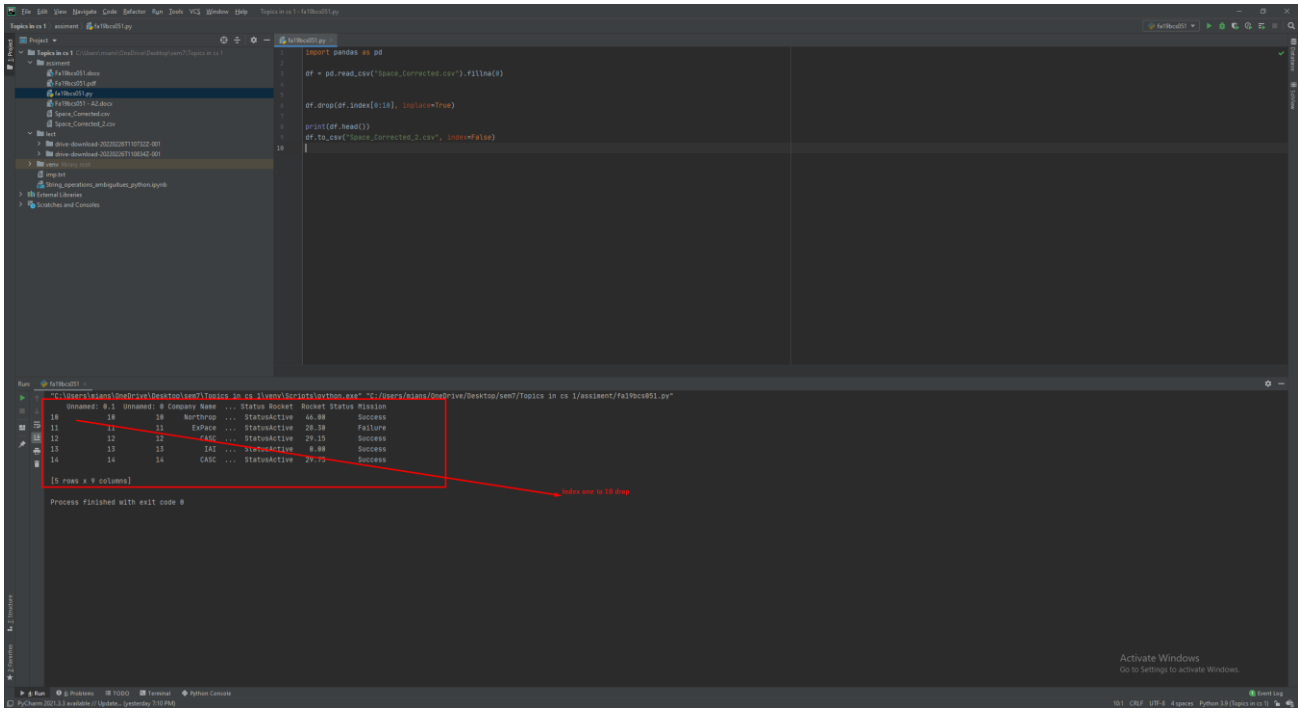
Updating column nu#2



```python
import pandas as pd

df = pd.read_csv("Space_Corrected.csv").fillna(0)

for items in range(len(df)):
    if df["Status Mission"][items] == "Failure":
        df.loc[items, "Unnamed: 0"] = str(df.loc[items, "Unnamed: 0"]) + "(N.A)"


print(df.head())
df.to_csv("Space_Corrected_2.csv", index=False)
```

Delete rows and any column as per your understanding.

Deleting row 1-10




import pandas as pd
df = pd.read_csv("Space_Corrected.csv").fillna(0)
df.drop(df.index[0:10], inplace=True)
print(df.head())
df.to_csv("Space_Corrected_2.csv", index=False)

```python
import pandas as pd

df = pd.read_csv('Space_Corrected.csv').fillna(0)
print(df.shape)
print(df.head())
print('Assigning a Particular value to column at index2')
for items in range(len(df)):
    df.loc[items, 'Unnamed: 0'] = 'rocketinfo' + str(df.loc[items,
            'Unnamed: 0'])
print(df.head())

# adding an new row

print('Adding a new row')
df.loc[len(df)] = [
    4599,
    4599,
    'Pakistan',
    'Site 20000, Test dvalue, Kazakhstan',
    'Fri Oct 04, 1957 19:28 UTC',
    'just test data',
    'new column ',
    29,
    'failure',
    ]

# adding an new column

print('adding a new column')
for items in range(len(df)):
    df.loc[items, 'Points'] = int(df.loc[items, ' Rocket']) * 5

print(df.head())
print (df.tail())

# updating a particular value

print('Updating company name for index 4320\n')
print ('Value before update \n', df['Company Name'][4320])
df.loc[4320, 'Company Name'] = 'Comsats University islambad'
print ('Value after update \n', df.loc[4320])

# updating row 2

print('Updating row2')
for items in range(len(df)):
    if df['Status Mission'][items] == 'Failure':
        df.loc[items, 'Unnamed: 0'] = str(df.loc[items, 'Unnamed: 0']) \
            + '(N.A)'
print('Dropping rows 0 to 10')
df.drop(df.index[0:10], inplace=True)

print(df.head())
df.to_csv('Space_Corrected_2.csv', index=False)
```

References:

All Space Missions from 1957 | Kaggle