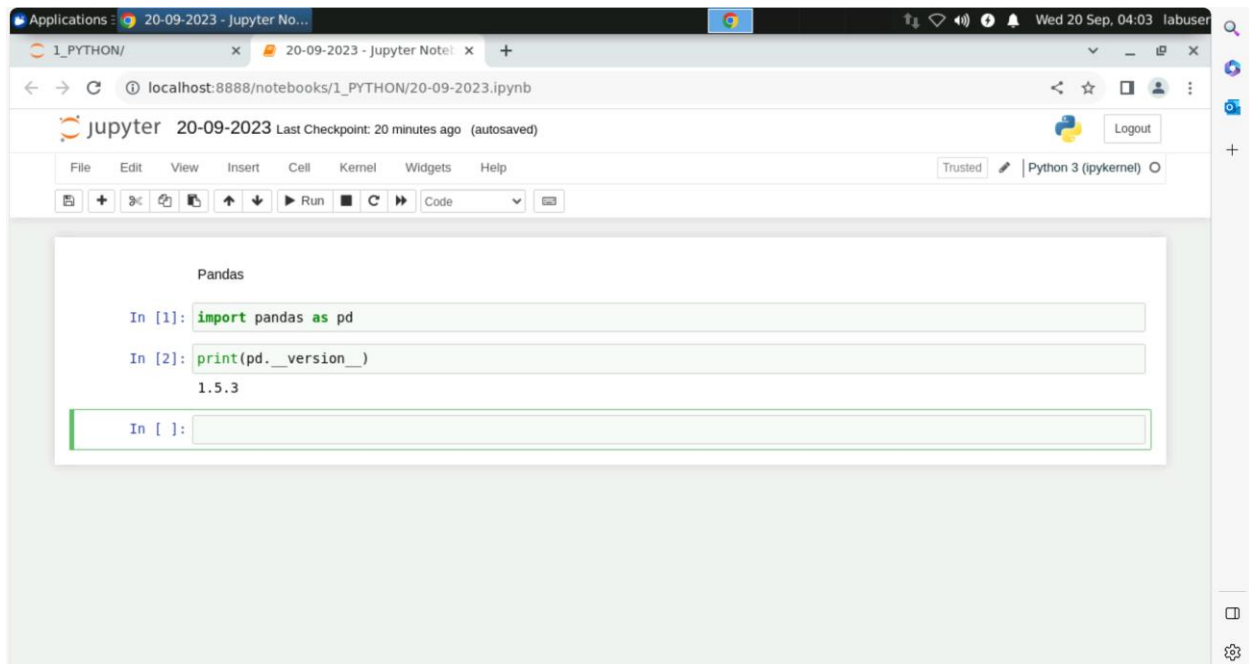


Pandas

<https://pandas.pydata.org/docs/>



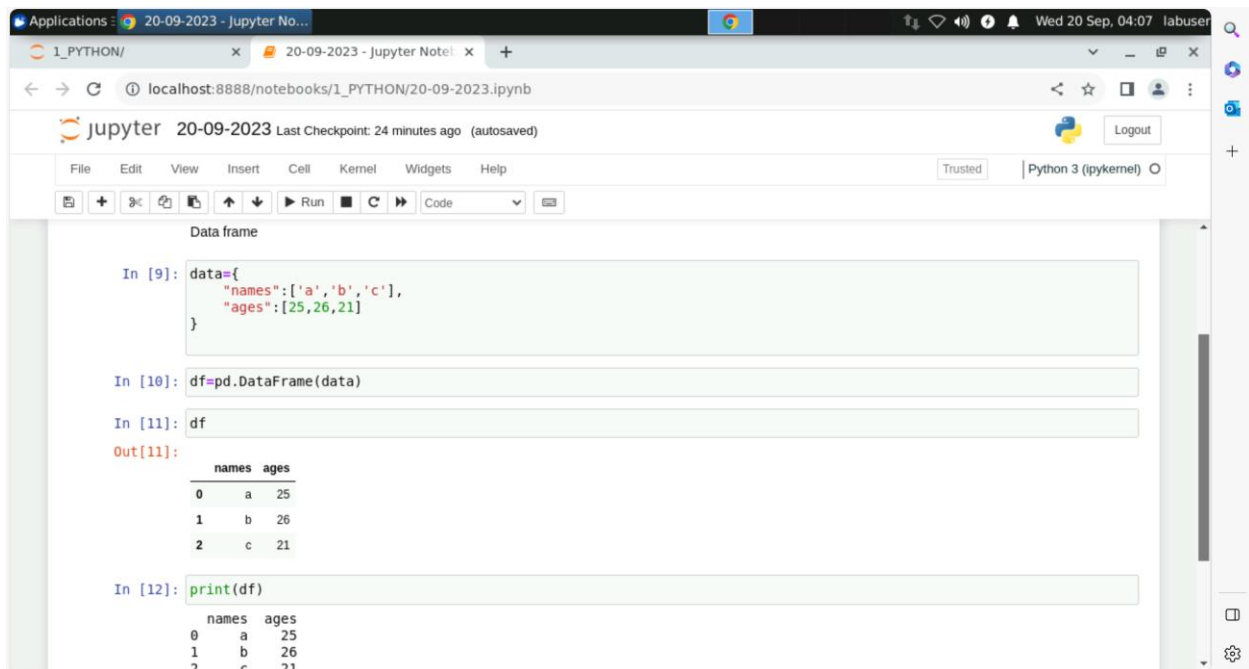
The screenshot shows a Jupyter Notebook interface in a web browser. The browser's address bar displays 'localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb'. The Jupyter interface includes a top bar with the date '20-09-2023' and a 'Last Checkpoint: 20 minutes ago (autosaved)' message. Below this is a menu bar with options: File, Edit, View, Insert, Cell, Kernel, Widgets, and Help. A toolbar contains icons for file operations and a 'Run' button. The main area shows a code cell with the following content:

```
Pandas

In [1]: import pandas as pd

In [2]: print(pd.__version__)
1.5.3

In [ ]:
```



The screenshot shows the same Jupyter Notebook interface, but the code cell now contains the following content:

```
Data frame

In [9]: data={
        "names":["a","b","c"],
        "ages":[25,26,21]
      }

In [10]: df=pd.DataFrame(data)

In [11]: df
Out[11]:
   names  ages
0     a    25
1     b    26
2     c    21

In [12]: print(df)
```

The output of the code cell is a DataFrame with two columns, 'names' and 'ages', and three rows of data. The output is displayed as a table:

	names	ages
0	a	25
1	b	26
2	c	21

Applications: 20-09-2023 - Jupyter No... Wed 20 Sep, 04:09 labuser

1_PYTHON/ 20-09-2023 - Jupyter Note... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

jupyter 20-09-2023 Last Checkpoint: 26 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
names ages
0      a   25
1      b   26
2      c   21
```

In [13]: df.head(2)

Out[13]:

```
names ages
0      a   25
1      b   26
```

In [14]: df.tail(1)

Out[14]:

```
names ages
2      c   21
```

In []:

Applications: 20-09-2023 - Jupyter No... Wed 20 Sep, 04:11 labuser

1_PYTHON/ 20-09-2023 - Jupyter Note... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

jupyter 20-09-2023 Last Checkpoint: 28 minutes ago (autosaved) Logout

File Edit View Insert Cell Kernel Widgets Help Notebook saved Trusted Python 3 (ipykernel)

In [15]: df.describe()

Out[15]:

```
ages
count  3.000000
mean   24.000000
std     2.645751
min     21.000000
25%    23.000000
50%    25.000000
75%    25.500000
max     26.000000
```

In []:

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1_PYTHON/ 20-09-2023 - Jupyter Note... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

Jupyter 20-09-2023 Last Checkpoint: 29 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
In [16]: df.dtypes
Out[16]: names    object
         ages     int64
         dtype: object

In [18]: df.info()
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 3 entries, 0 to 2
Data columns (total 2 columns):
#   Column  Non-Null Count  Dtype
---  ---
0    names    3 non-null      object
1    ages     3 non-null      int64
dtypes: int64(1), object(1)
memory usage: 180.0+ bytes
```

In []:

Applications: 20-09-2023 - Jupyter No... Wed 20 Sep, 04:20 labuser

1_PYTHON/ 20-09-2023 - Jupyter Note... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

Jupyter 20-09-2023 Last Checkpoint: 37 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

memory usage: 180.0+ bytes

```
In [19]: df.columns=["emp_name","age"]
In [20]: df
Out[20]:
   emp_name  age
0         a   25
1         b   26
2         c   21

In [22]: df2=df.rename(columns={"emp_name":"emp_first_name","age":"emp_age"})
In [23]: df2
Out[23]:
   emp_first_name  emp_age
0              a        25
1              b        26
2              c        21
```

Applications: 20-09-2023 - Jupyter No... Wed 20 Sep, 04:23 labuser

1_PYTHON/ 20-09-2023 - Jupyter Note... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

Jupyter 20-09-2023 Last Checkpoint: 40 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
In [23]: df2
```

```
Out[23]:
```

	emp_first_name	emp_age
0	a	25
1	b	26
2	c	21

```
In [24]: dept=["Sales","Marketing","IT"]
```

```
In [25]: df["company"]=dept
```

```
In [26]: df
```

```
Out[26]:
```

	emp_name	age	company
0	a	25	Sales
1	b	26	Marketing
2	c	21	IT

```
In [ ]:
```

Applications: 20-09-2023 - Jupyter No... Wed 20 Sep, 04:27 labuser

1_PYTHON/ 20-09-2023 - Jupyter Note... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

Jupyter 20-09-2023 Last Checkpoint: 44 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
0      id      age      company
```

	emp_name	age	company
1	b	26	Marketing
2	c	21	IT

```
In [29]: df.dtypes
```

```
Out[29]: emp_name    object
```

```
age          int64
```

```
company      object
```

```
dtype: object
```

```
In [32]: df3=df.convert_dtypes()
```

```
In [33]: df3.dtypes
```

```
Out[33]: emp_name    string
```

```
age          Int64
```

```
company      string
```

```
dtype: object
```

```
In [ ]:
```

Applications: 20-09-2023 - Jupyter No... Wed 20 Sep, 04:35 labuser

1_PYTHON/ 20-09-2023 - Jupyter Note... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

jupyter 20-09-2023 Last Checkpoint: an hour ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
Out[37]: emp_name    object
         age        float64
         company    object
         dtype: object

In [39]: df4.shape
Out[39]: (3, 3)

In [40]: df4.shape[0]
Out[40]: 3

In [41]: df4.shape[1]
Out[41]: 3

In [ ]:
```

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1_PYTHON/ 20-09-2023 - Jupyter Note... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

jupyter 20-09-2023 Last Checkpoint: an hour ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
In [42]: technologies = {
         'Courses': ["Spark", "PySpark", "Hadoop", "Python", "pandas"],
         'Fee' : [20000, 25000, 26000, 22000, 24000],
         'Duration': ['30day', '40days', '35days', '40days', '60days'],
         'Discount': [1000, 2300, 1200, 2500, 2000]
         }

In [44]: c_df=pd.DataFrame(technologies)

In [47]: c_df
Out[47]:
```

	Courses	Fee	Duration	Discount
0	Spark	20000	30day	1000
1	PySpark	25000	40days	2300
2	Hadoop	26000	35days	1200
3	Python	22000	40days	2500
4	pandas	24000	60days	2000

```
In [ ]:
```


Applications : 20-09-2023 - Jupyter No... Wed 20 Sep, 04:49 labuser

1_PYTHON/ 20-09-2023 - Jupyter Note... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

Jupyter 20-09-2023 Last Checkpoint: an hour ago (autosaved) Logout

File Edit View Insert Cell Kernel Widgets Help Notebook saved Trusted Python 3 (ipykernel)

```
r2 PySpark
r3 Hadoop
r4 Python
r5 pandas

In [59]: c_df.loc[:,["Courses","Fee"]]
Out[59]:
```

	Courses	Fee
r1	Spark	20000
r2	PySpark	25000
r3	Hadoop	26000
r4	Python	22000
r5	pandas	24000

```
In [ ]:
```

Applications : 20-09-2023 - Jupyter No... Wed 20 Sep, 04:51 labuser

1_PYTHON/ 20-09-2023 - Jupyter Note... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

Jupyter 20-09-2023 Last Checkpoint: an hour ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
r5 pandas 24000

In [60]: c_df.loc[c_df['Fee']>=22000]
Out[60]:
```

	Courses	Fee	Duration	Discount
r2	PySpark	25000	40days	2300
r3	Hadoop	26000	35days	1200
r4	Python	22000	40days	2500
r5	pandas	24000	60days	2000

```
In [61]: c_df.loc[c_df['Fee']==22000]
Out[61]:
```

	Courses	Fee	Duration	Discount
r4	Python	22000	40days	2500

```
In [ ]:
```

Applications: 20-09-2023 - Jupyter No... | Wed 20 Sep, 04:53 | labuser

1_PYTHON/ | 20-09-2023 - Jupyter Note... | localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

jupyter 20-09-2023 Last Checkpoint: an hour ago (unsaved changes) | Python 3 (ipykernel)

File Edit View Insert Cell Kernel Widgets Help

In [61]: `c_df.loc[c_df['Fee']==22000]`

Out[61]:

	Courses	Fee	Duration	Discount
r4	Python	22000	40days	2500

In [64]: `c_df.query("Courses=='PySpark'")`

Out[64]:

	Courses	Fee	Duration	Discount
r2	PySpark	25000	40days	2300

In [65]: `c_df.query("Courses!='PySpark'")`

Out[65]:

	Courses	Fee	Duration	Discount
r1	Spark	20000	30day	1000
r3	Hadoop	26000	35days	1200
r4	Python	22000	40days	2500
r5	pandas	24000	60days	2000

`c_df=c_df.drop(['Discount'], axis=1)` ----- TO DROP A COLUMN

Applications: 20-09-2023 - Jupyter No... | Wed 20 Sep, 04:59 | labuser

1_PYTHON/ | 20-09-2023 - Jupyter Note... | localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

jupyter 20-09-2023 Last Checkpoint: an hour ago (unsaved changes) | Python 3 (ipykernel)

File Edit View Insert Cell Kernel Widgets Help

KeyError: ["Discount"] not found in axis

In [74]: `c_df`

Out[74]:

	Courses	Fee	Duration
r1	Spark	20000	30day
r2	PySpark	25000	40days
r3	Hadoop	26000	35days
r4	Python	22000	40days
r5	pandas	24000	60days

In []:

Applications: [1_PYTHON - File Manag... 20-09-2023 - Jupyter No... Wed 20 Sep, 05:42 labuser

1_PYTHON/ 20-09-2023 - Jupyter Note... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

Jupyter 20-09-2023 Last Checkpoint: 2 hours ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
In [75]: emp_df=pd.read_csv("emp.csv")
```

```
In [76]: emp_df
```

Out[76]:

	First Name	Gender	Start Date	Last Login Time	Salary	Bonus %	Senior Management	Team
0	Douglas	Male	8/6/1993	12:42 PM	97308	6.945	True	Marketing
1	Thomas	Male	3/31/1996	6:53 AM	61933	4.170	True	NaN
2	Maria	Female	4/23/1993	11:17 AM	130590	11.858	False	Finance
3	Jerry	Male	3/4/2005	1:00 PM	138705	9.340	True	Finance
4	Larry	Male	1/24/1998	4:47 PM	101004	1.389	True	Client Services
...
995	Henry	NaN	11/23/2014	6:09 AM	132483	16.655	False	Distribution
996	Phillip	Male	1/31/1984	6:30 AM	42392	19.675	False	Finance
997	Russell	Male	5/20/2013	12:39 PM	96914	1.421	False	Product
998	Larry	Male	4/20/2013	4:45 PM	60500	11.985	False	Business Development
999	Albert	Male	5/15/2012	6:24 PM	129949	10.169	True	Sales

1000 rows x 8 columns

Applications: [1_PYTHON - File Manag... 20-09-2023 - Jupyter No... Wed 20 Sep, 05:45 labuser

1_PYTHON/ 20-09-2023 - Jupyter Note... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

Jupyter 20-09-2023 Last Checkpoint: 2 hours ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
In [78]: emp_df.shape
```

Out[78]: (1000, 8)

```
In [80]: emp_df.describe()
```

Out[80]:

	Salary	Bonus %
count	1000.000000	1000.000000
mean	90662.181000	10.207555
std	32923.693342	5.528481
min	35013.000000	1.015000
25%	62613.000000	5.401750
50%	90428.000000	9.838500
75%	118740.250000	14.838000
max	149908.000000	19.944000

In []:

Applications: [1_PYTHON - File Manag... 20-09-2023 - Jupyter No... Wed 20 Sep, 05:59 labuser

1_PYTHON/ 20-09-2023 - Jupyter Noteb... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

jupyter 20-09-2023 Last Checkpoint: 2 hours ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
In [87]: emp_df.isnull().sum()
Out[87]: First Name      67
Gender      145
Start Date      0
Last Login Time 0
Salary          0
Bonus %         0
Senior Management 67
Team           43
dtype: int64

In [89]: emp_df['Gender']=emp_df['Gender'].fillna("No Gender")

In [90]: emp_df['Gender']
Out[90]: 0      Male
1      Male
2     Female
3      Male
4      Male
...
995   No Gender
996      Male
997      Male
```

Applications: [1_PYTHON - File Manag... 20-09-2023 - Jupyter No... Wed 20 Sep, 06:00 labuser

1_PYTHON/ 20-09-2023 - Jupyter Noteb... localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

jupyter 20-09-2023 Last Checkpoint: 2 hours ago (autosaved) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
997      Male
998      Male
999      Male
Name: Gender, Length: 1000, dtype: object

In [91]: emp_df.isnull().sum()
Out[91]: First Name      67
Gender          0
Start Date      0
Last Login Time 0
Salary          0
Bonus %         0
Senior Management 67
Team           43
dtype: int64

In [ ]:
```

Applications : [1_PYTHON - File Manag... 20-09-2023 - Jupyter No... Wed 20 Sep, 06:23 labuser

1_PYTHON/ x 20-09-2023 - Jupyter Note: x +

localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

jupyter 20-09-2023 Last Checkpoint: a few seconds ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
Bonus % 0
Senior Management 67
Team 43
dtype: int64

In [101]: emp_df['Senior Management'].fillna(emp_df['Senior Management'].mode()[0], inplace=True)

In [102]: emp_df.isnull().sum()
Out[102]: First Name 67
Gender 0
Start Date 0
Last Login Time 0
Salary 0
Bonus % 0
Senior Management 0
Team 43
dtype: int64

In [ ]:
```

Applications : [1_PYTHON - File Manag... 20-09-2023 - Jupyter No... Wed 20 Sep, 06:35 labuser

1_PYTHON/ x 20-09-2023 - Jupyter Note: x +

localhost:8888/notebooks/1_PYTHON/20-09-2023.ipynb

jupyter 20-09-2023 Last Checkpoint: 12 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
Out[102]: First Name 0/
Gender 0
Start Date 0
Last Login Time 0
Salary 0
Bonus % 0
Senior Management 0
Team 43
dtype: int64

saving as .csv file

In [106]: emp_df.to_csv("Final_emp_df")

In [108]: emp_df.groupby(["Gender"]).count()
Out[108]:
```

	First Name	Start Date	Last Login Time	Salary	Bonus %	Senior Management	Team
Gender							
Female	400	431	431	431	431	431	418
Male	395	424	424	424	424	424	398
No Gender	138	145	145	145	145	145	141

Applications: [1_PYTHON - File Manag... 20-09-2023(Numpy) - Ju... Wed 20 Sep, 06:46 labuser

1_PYTHON/ x 20-09-2023(Numpy) - Jupy x +

localhost:8888/notebooks/1_PYTHON/20-09-2023(Numpy).ipynb

Jupyter 20-09-2023(Numpy) Last Checkpoint: 2 minutes ago (autosaved) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

NUMPY

```
In [1]: import numpy as np
In [2]: arr=np.array([10,20,30])
In [3]: arr
Out[3]: array([10, 20, 30])
In [5]: arr2=np.array([[10,20,30],[11,12,13]])
In [6]: arr2
Out[6]: array([[10, 20, 30],
               [11, 12, 13]])
In [ ]: |
```

Applications: [1_PYTHON - File Manag... 20-09-2023(Numpy) - Ju... Wed 20 Sep, 06:52 labuser

1_PYTHON/ x 20-09-2023(Numpy) - Jupy x +

localhost:8888/notebooks/1_PYTHON/20-09-2023(Numpy).ipynb

Jupyter 20-09-2023(Numpy) Last Checkpoint: 8 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
[11, 12, 13]])
In [16]: arr.ndim
Out[16]: 1
In [17]: arr2.ndim
Out[17]: 2
In [18]: arr3=np.array([[[1,23,33],[2,22,54],[5,6,8]],[[10,20,30],[25,22,55],[50,60,80]]])
In [19]: arr3
Out[19]: array([[[ 1, 23, 33],
                  [ 2, 22, 54],
                  [ 5,  6,  8]],
                [[10, 20, 30],
                  [25, 22, 55],
                  [50, 60, 80]]])
In [21]: arr3.ndim
Out[21]: 3
```

Applications : [1_PYTHON - File Manag... 20-09-2023(Numpy) - Ju... Wed 20 Sep, 06:53 labuser

1_PYTHON/ x 20-09-2023(Numpy) - Jupy x +

localhost:8888/notebooks/1_PYTHON/20-09-2023(Numpy).ipynb

jupyter 20-09-2023(Numpy) Last Checkpoint: 10 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

Out[21]: 3

```
In [22]: arr
Out[22]: array([10, 20, 30])

In [23]: arr[1]
Out[23]: 20

In [24]: arr[0:1]
Out[24]: array([10])

In [25]: arr[0:2]
Out[25]: array([10, 20])

In [ ]:
```

Applications : [1_PYTHON - File Manag... 20-09-2023(Numpy) - Ju... Wed 20 Sep, 06:56 labuser

1_PYTHON/ x 20-09-2023(Numpy) - Jupy x +

localhost:8888/notebooks/1_PYTHON/20-09-2023(Numpy).ipynb

jupyter 20-09-2023(Numpy) Last Checkpoint: 12 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
In [26]: arr2
Out[26]: array([[10, 20, 30],
               [11, 12, 13]])

In [30]: arr2[0,2]
Out[30]: 30

In [31]: arr2[1,0:2]
Out[31]: array([11, 12])

In [32]: arr3
Out[32]: array([[[ 1, 23, 33],
                  [ 2, 22, 54],
                  [ 5,  6,  8]],
                [[10, 20, 30],
                  [25, 22, 55],
                  [50, 60, 80]]])

In [ ]:
```

Applications: [1_PYTHON - File Manag... 20-09-2023(Numpy) - Ju... Wed 20 Sep, 06:59 labuser

1_PYTHON/ x 20-09-2023(Numpy) - Jupy x +

localhost:8888/notebooks/1_PYTHON/20-09-2023(Numpy).ipynb

Jupyter 20-09-2023(Numpy) Last Checkpoint: 15 minutes ago (autosaved) Logout

File Edit View Insert Cell Kernel Widgets Help Trusted Python 3 (ipykernel)

```
Out[33]: array([[ 1, 23, 33],
               [ 2, 22, 54],
               [ 5,  6,  8]],

            [[10, 20, 30],
             [25, 22, 55],
             [50, 60, 80]])

In [34]: arr3[0,0,2]
Out[34]: 33

In [35]: arr3[0,1,2]
Out[35]: 54

In [36]: arr3[1,0,0:2]
Out[36]: array([10, 20])

In [ ]:
```

Applications: 20-09-2023(Numpy) - Ju... Wed 20 Sep, 08:29 labuser

1_PYTHON/ x 20-09-2023(Numpy) - Jupy x +

localhost:8888/notebooks/1_PYTHON/20-09-2023(Numpy).ipynb

Jupyter 20-09-2023(Numpy) Last Checkpoint: 11 minutes ago (unsaved changes) Logout

File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)

```
In [25]: ar1=np.array([1,2,3])
         ar2=np.array([4,5,6])

In [32]: ar=np.concatenate((ar1,ar2))

In [34]: ar
Out[34]: array([1, 2, 3, 4, 5, 6])

In [37]: temperature_data = [25.3, 26.1, 24.8, 23.5, 27.2]
         pressure_data = [101.2, 100.8, 101.5, 100.2, 101.0]
         humidity_data = [55.2, 54.8, 56.5, 53.7, 55.9]

CREATE NUMPY ARRAY

In [38]: temperature_array=np.array(temperature_data)
         pressure_array=np.array(pressure_data)
         humidity_array=np.array(humidity_data)

FIND AVERAGE

In [ ]:
```

Applications : 20-09-2023(Numpy) - Ju... Wed 20 Sep, 08:29 labuser

1_PYTHON/ 20-09-2023(Numpy) - Jupy x +

localhost:8888/notebooks/1_PYTHON/20-09-2023(Numpy).ipynb

jupyter 20-09-2023(Numpy) Last Checkpoint: 12 minutes ago (autosaved) Logout

File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)

FIND AVERAGE

```
In [ ]:
In [39]: temperature_array
Out[39]: array([25.3, 26.1, 24.8, 23.5, 27.2])
In [40]: temperature_mean=np.mean(temperature_array)
In [41]: temperature_mean
Out[41]: 25.380000000000003
In [43]: pressure_mean=np.mean(pressure_array)
          pressure_mean
Out[43]: 100.94
In [44]: humidity_mean=np.mean(humidity_array)
          humidity_mean
Out[44]: 55.219999999999999
```

Applications : 20-09-2023(Numpy) - Ju... Wed 20 Sep, 08:32 labuser

1_PYTHON/ 20-09-2023(Numpy) - Jupy x +

localhost:8888/notebooks/1_PYTHON/20-09-2023(Numpy).ipynb

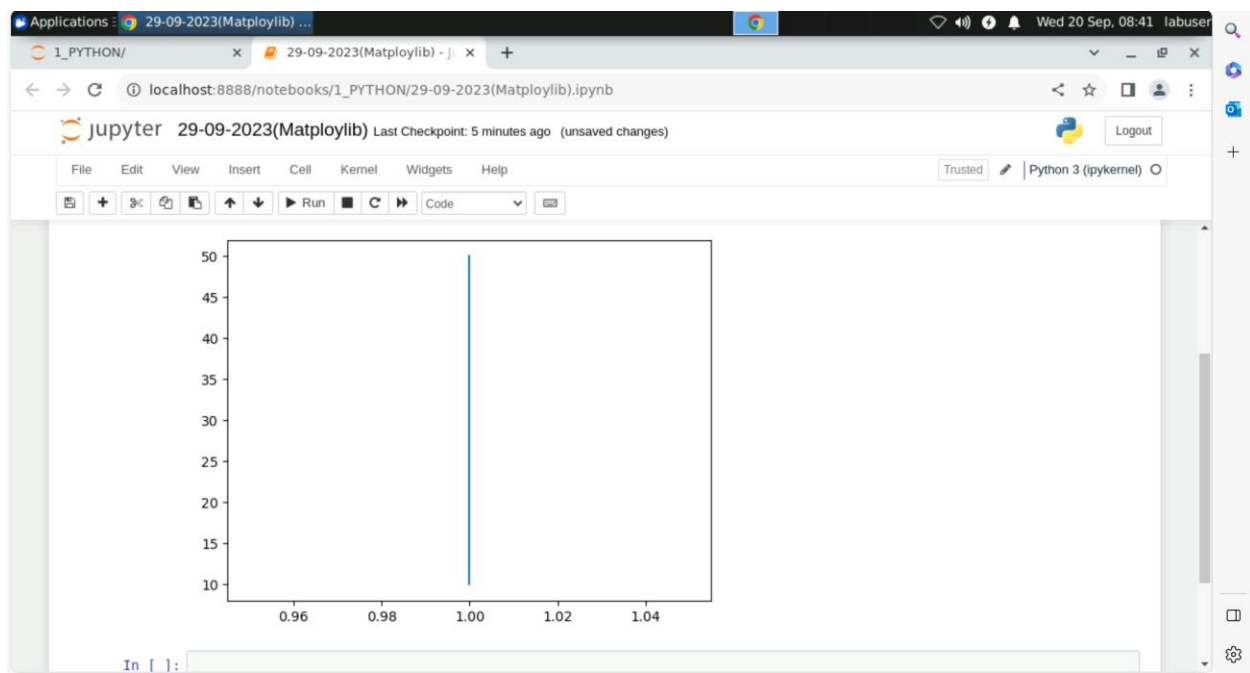
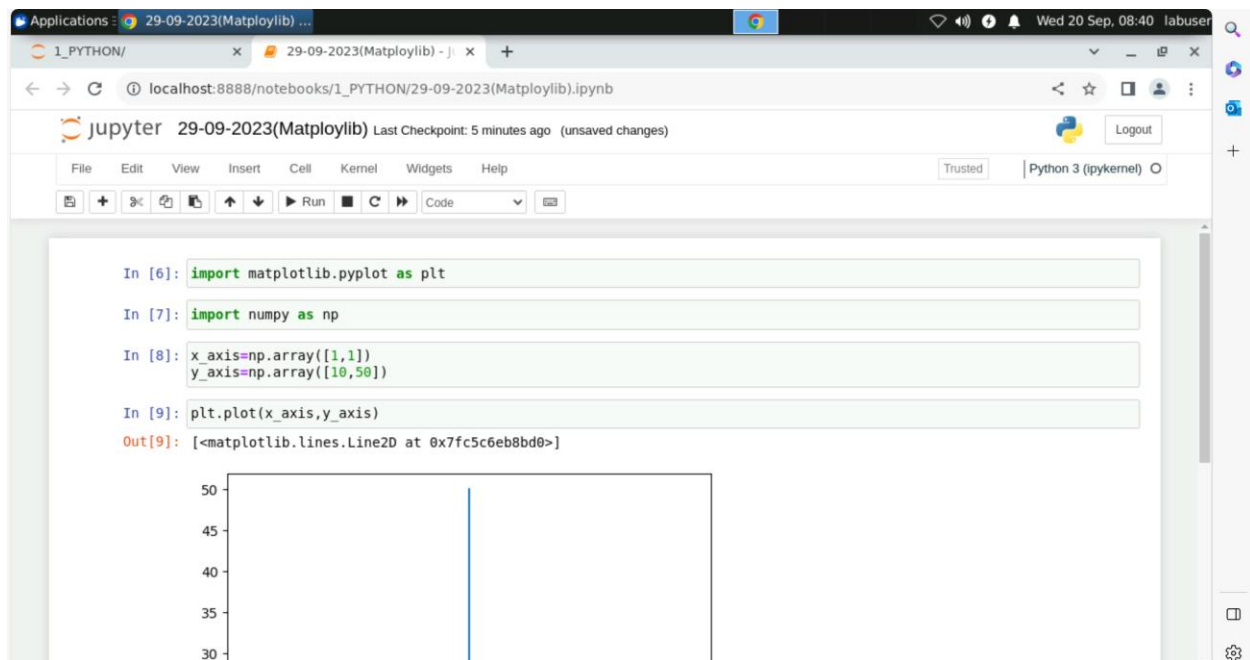
jupyter 20-09-2023(Numpy) Last Checkpoint: 15 minutes ago (unsaved changes) Logout

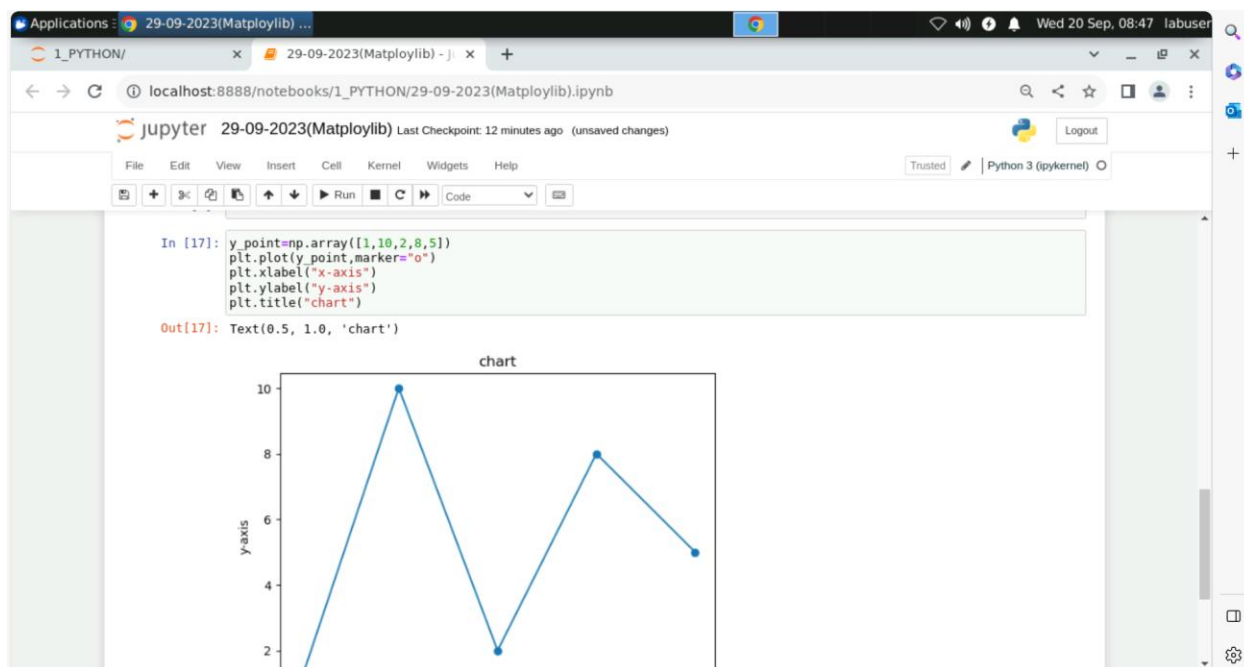
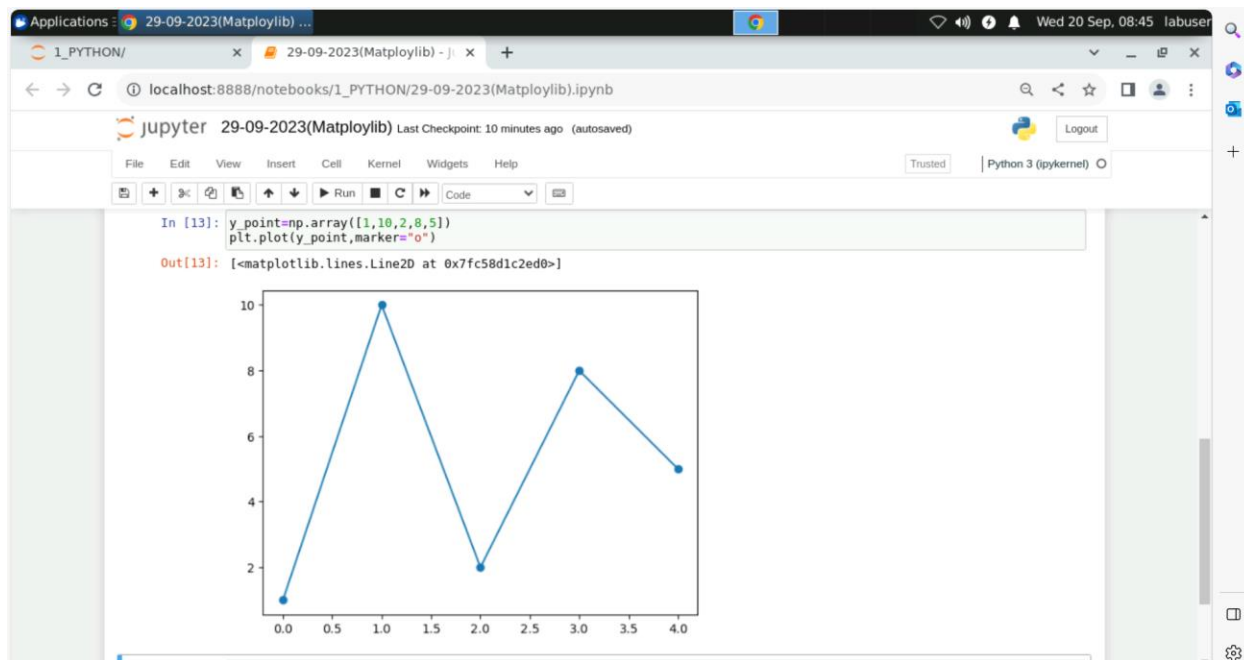
File Edit View Insert Cell Kernel Widgets Help Not Trusted Python 3 (ipykernel)

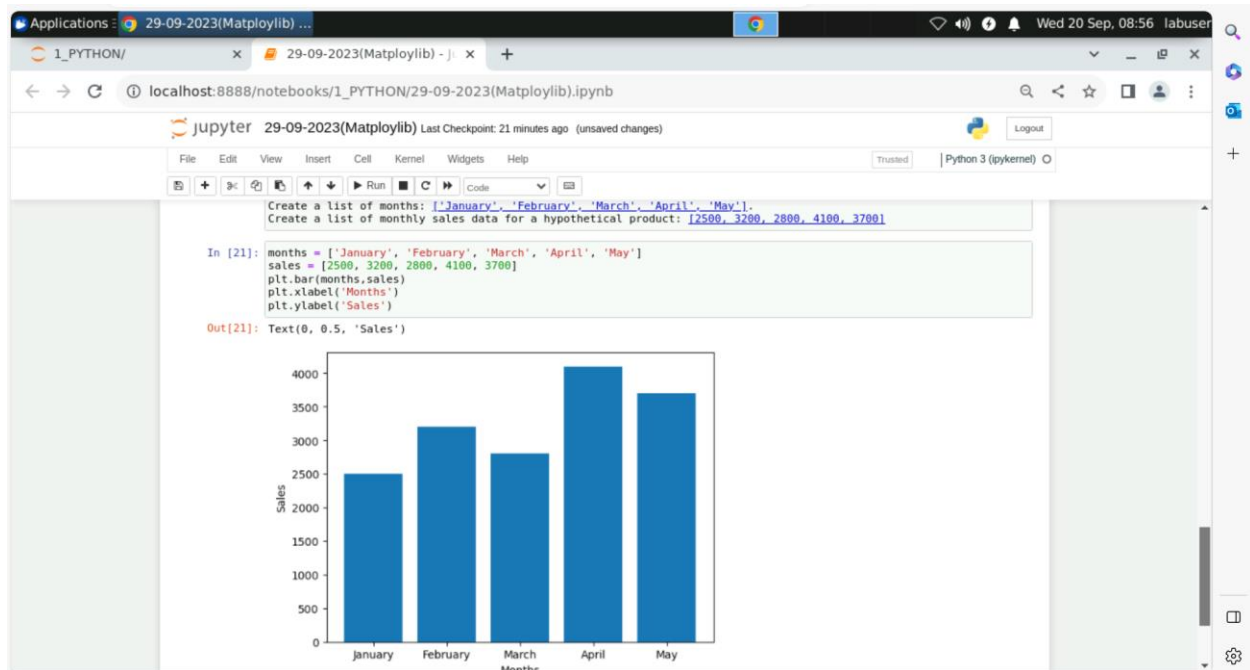
Calculate standard deviation

```
In [48]: temperature_std=np.mean(temperature_array)
          temperature_std
Out[48]: 25.380000000000003
In [49]: pressure_std=np.mean(pressure_array)
          pressure_std
Out[49]: 100.94
In [50]: humidity_std=np.mean(humidity_array)
          humidity_std
Out[50]: 55.219999999999999
In [51]: temperature_min=np.min(temperature_array)
          temperature_min
Out[51]: 23.5
In [53]: temperature_max=np.max(temperature_array)
          temperature_max
Out[53]: 27.2
```

<https://numpy.org/devdocs/reference/index.html>

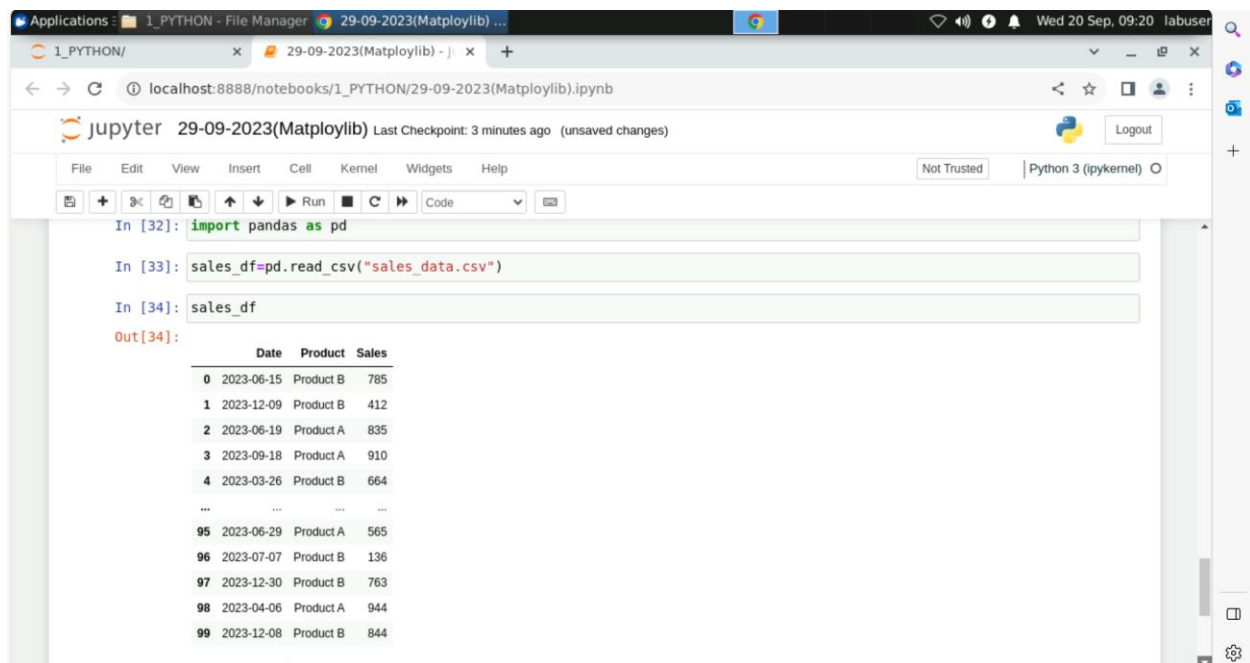






plt.savefig("Bargraph.png")

ACTIVITY:



Applications: 29-09-2023(Matplotlib) ...

1_PYTHON/ 29-09-2023(Matplotlib) - jupyter

localhost:8888/notebooks/1_PYTHON/29-09-2023(Matplotlib).ipynb#Monthly-average-revenue-for-each-product

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```
In [7]: sales_df.isnull().sum()
Out[7]: Date      0
       Product    0
       Sales      0
       dtype: int64
```

Task 3: Data Exploration
Total revenue for the entire dataset
Total quantity sold for each product
Monthly total revenue
Monthly average revenue for each product

```
In [10]: tttotal_revenue = sales_df['Sales'].sum()
In [11]: tttotal_revenue
Out[11]: 53844
In [12]: total_quantity = sales_df.groupby(['Product'])
In [19]: total_quantity['Sales'].sum()
Out[19]: Product
```

Applications: 29-09-2023(Matplotlib) ...

1_PYTHON/ 29-09-2023(Matplotlib) - jupyter

localhost:8888/notebooks/1_PYTHON/29-09-2023(Matplotlib).ipynb#Monthly-average-revenue-for-each-product

jupyter 29-09-2023(Matplotlib) Last Checkpoint: 19 hours ago (unsaved changes) Logout

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```
Product A    21572
Product B    20991
Product C    11281
Name: Sales, dtype: int64
```

```
In [20]: sales_df['Date'] = pd.to_datetime(sales_df['Date'])
In [21]: monthly_total = sales_df.groupby(sales_df['Date'].dt.strftime('%B'))['Sales'].sum()
In [22]: monthly_total
Out[22]: Date
April      7978
August     2554
December   7021
February   1974
January    1867
July       3852
June       7521
March      5386
May        5072
November   2848
October    4804
September  2967
Name: Sales, dtype: int64
```

Applications: 29-09-2023(Matplotlib) ... Thu 21 Sep, 04:34 labuser

1_PYTHON/ 29-09-2023(Matplotlib) - Jupyter 29-09-2023(Matplotlib).ipynb#Monthly-average-revenue-for-each-product

localhost:8888/notebooks/1_PYTHON/29-09-2023(Matplotlib).ipynb#Monthly-average-revenue-for-each-product

Jupyter 29-09-2023(Matplotlib) Last Checkpoint: 19 hours ago (unsaved changes) Logout

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```
In [23]: monthly_avg = sales_df.groupby([(sales_df['Date'].dt.strftime('%B')), 'Product'])['Sales'].sum()

In [24]: monthly_avg
```

Out[24]:

Date	Product	Sales
April	Product A	5649
	Product B	1437
	Product C	892
August	Product A	986
	Product B	1260
	Product C	308
December	Product A	1919
	Product B	4470
	Product C	632
February	Product B	1468
	Product C	506
	Product A	873
January	Product B	873
	Product C	994
	Product A	1296
July	Product B	1499
	Product C	1057
	Product A	1939
June	Product B	3146
	Product C	2436
	Product A	2289
March	Product B	2104
	Product C	993
	Product A	1574

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1_PYTHON/ 29-09-2023(Matplotlib) - Jupyter 29-09-2023(Matplotlib).ipynb#Monthly-average-revenue-for-each-product

localhost:8888/notebooks/1_PYTHON/29-09-2023(Matplotlib).ipynb#Monthly-average-revenue-for-each-product

Jupyter 29-09-2023(Matplotlib) Last Checkpoint: 19 hours ago (autosaved) Logout

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```
In [ ]:
```

March	Product C	2436
	Product A	2289
	Product B	2104
May	Product C	993
	Product A	1574
	Product B	2286
November	Product C	1212
	Product A	2305
	Product B	297
October	Product C	246
	Product A	1862
	Product B	937
September	Product C	2005
	Product A	1753
	Product B	1214

Name: Sales, dtype: int64