CHRIST
(DEEMED TO BE UNIVERSITY)
DELHI-NCR, INDIA

Advance Python Programming

MCA-372

Assignment – 01

BY

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SUBMITTED TO

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SCHOOL OF SCIENCES

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3D Axes :

3D Axes

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

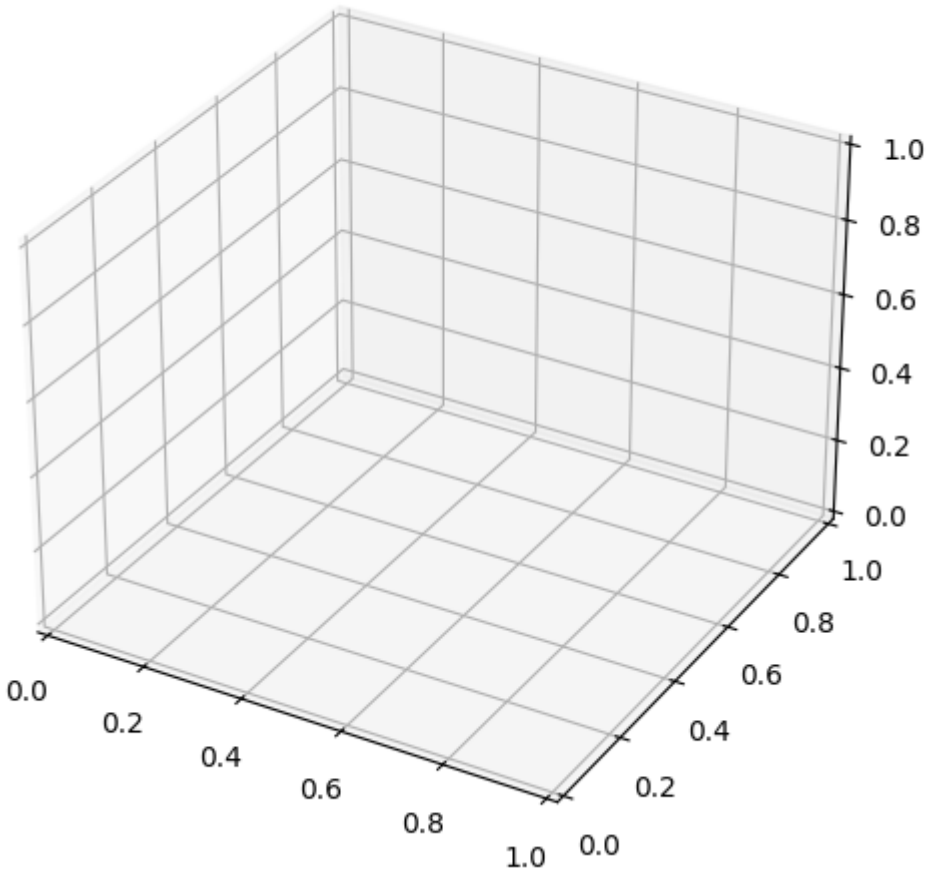
[11] ✓ 0.0s Python

```
data = pd.read_csv("./marksheet.csv")
```

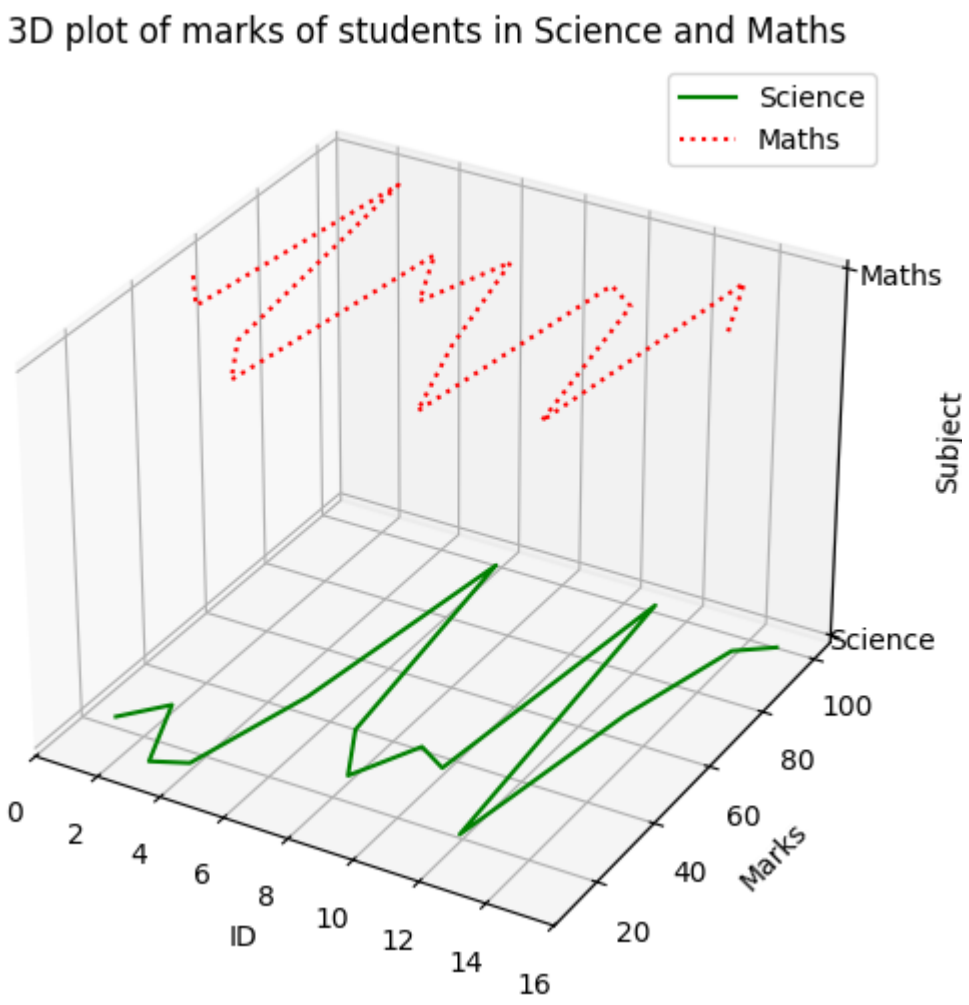
[12] ✓ 0.0s Python

```
import matplotlib.pyplot as plt
from mpl_toolkits.mplot3d import Axes3D

fig = plt.figure(figsize=(8,6))
ax = fig.add_subplot(111,projection='3d')
```

[13] ✓ 0.5s Python

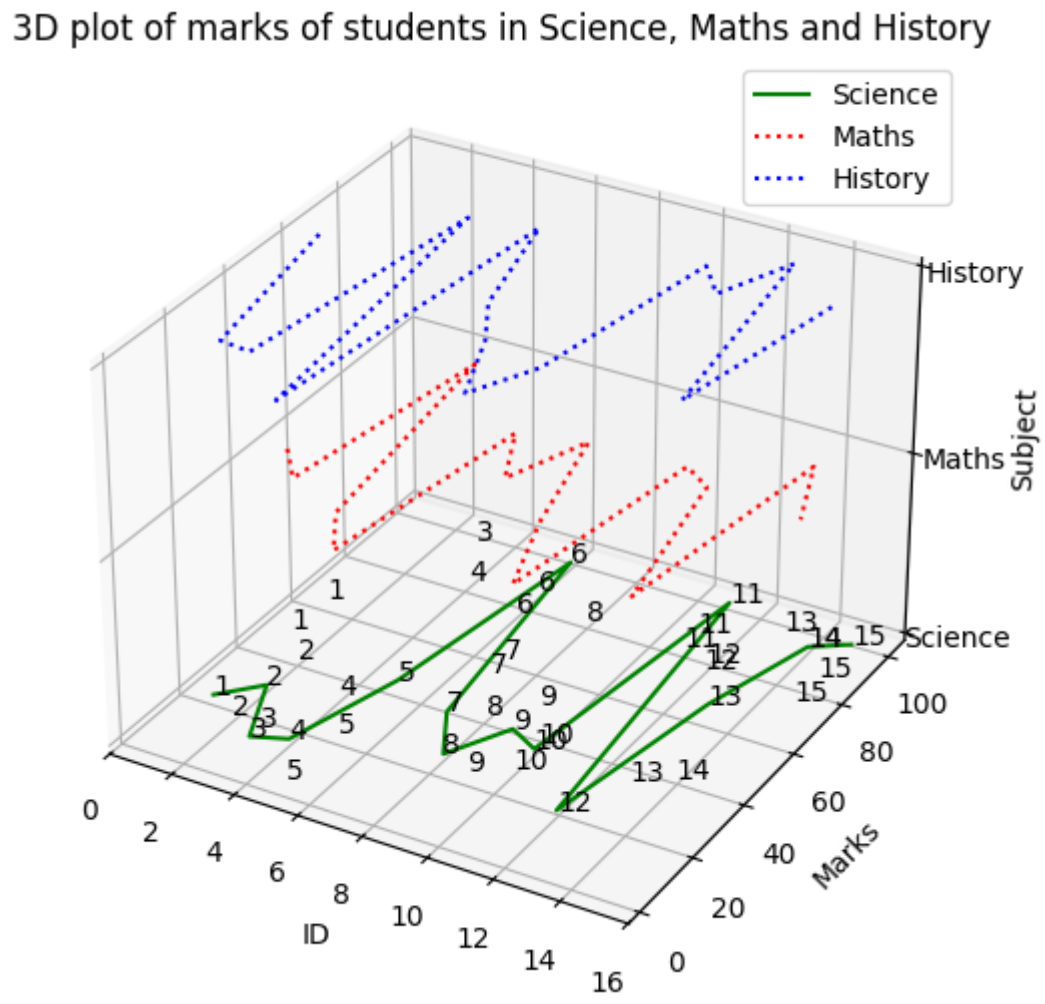


```
import matplotlib.pyplot as plt
import numpy as np
from mpl_toolkits.mplot3d import Axes3D

fig = plt.figure(figsize=(8,6))
ax = fig.add_subplot(111,projection='3d')

z_sci = np.zeros(len(data['id']))
z_math = np.ones(len(data['id']))

ax.plot(data['id'],data['Science'],z_sci,color='green',label='Science')
ax.plot(data['id'],data['Maths'],z_math,color='red',linestyle='dotted',label='
Maths')

ax.set_xlabel("ID")
ax.set_ylabel("Marks")
ax.set_zlabel("Subject")
plt.title("3D plot of marks of students in Science and Maths")

ax.legend()
plt.show()
```



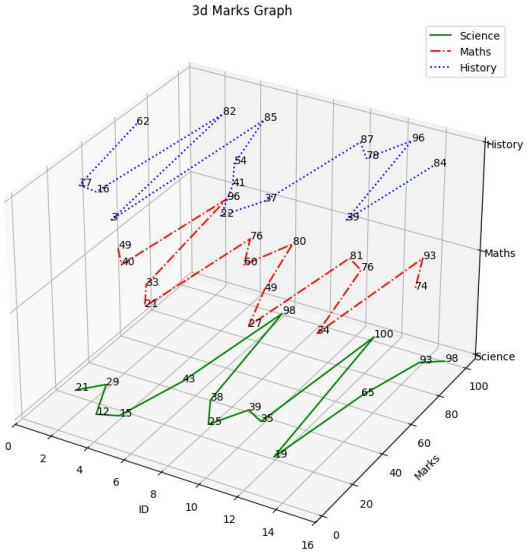

```
z_sci = np.zeros(len(data['id']))
z_math = np.ones(len(data['id']))
z_hist = np.full(len(data['id']),2)

fig = plt.figure(figsize=(8,6))
ax = fig.add_subplot(111,projection='3d')

ax.plot(data['id'],data['Science'],z_sci,color='green',label='Science')
ax.plot(data['id'],data['Maths'],z_math,color='red',linestyle='dotted',label='
Maths')
ax.plot(data['id'],data['History'],z_hist,color='blue',linestyle='dotted',labe
l='History')

ax.set_xlabel("ID")
ax.set_ylabel("Marks")
ax.set_zlabel("Subject")
```

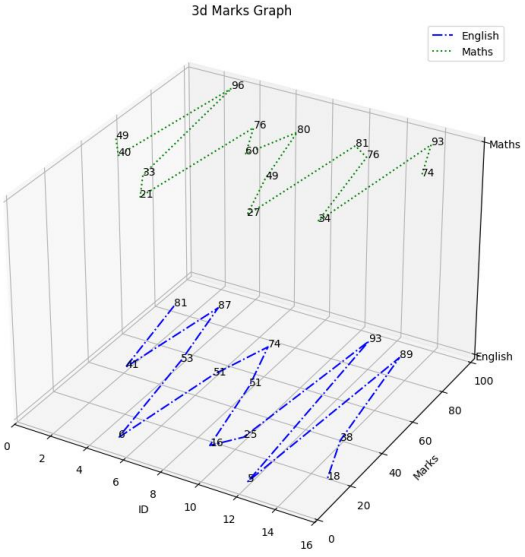
```
for i in range(len(data['id'])):
    ax.text(data['id'].values[i],data['Science'].values[i],z_sci[i],data['id']
.values[i])
    ax.text(data['id'].values[i],data['Maths'].values[i],z_sci[i],data['id'].v
alues[i])
    ax.text(data['id'].values[i],data['History'].values[i],z_sci[i],data['id']
.values[i])

ax.set_zticks([0,1,2])
ax.set_zticklabels(['Science','Maths','History'])
plt.title("3D plot of marks of students in Science, Maths and History")

ax.legend()
plt.show()
```




```
from mpl_toolkits.mplot3d import Axes3D
fig=plt.figure(figsize=(20,15))
ax=fig.add_subplot(121,projection='3d')
ax1=fig.add_subplot(122,projection='3d')
```

```
z_sci =np.zeros(len(data['id']))
z_maths=np.ones(len(data['id']))
z_hist=np.multiply(z_maths,2)

ax.plot(data['id'],data['Science'],z_sci,color='green',label='Science')
ax.plot(data['id'],data['Maths'],z_maths,color='red',linestyle="dashdot",label
='Maths')
ax.plot(data['id'],data['History'],z_hist,color='blue',linestyle="dotted",labe
l='History')


ax1.plot(data['id'],data['English'],z_sci,color='blue',linestyle="dashdot",lab
el='English')
ax1.plot(data['id'],data['Maths'],z_maths,color='green',linestyle="dotted",lab
el='Maths')

for i in range(len(data['id'])):
    ax.text(data['id'].values[i],data['Science'].values[i],z_sci[i],data['Scie
nce'].values[i])
    ax.text(data['id'].values[i],data['Maths'].values[i],z_maths[i],data['Math
s'].values[i])
    ax.text(data['id'].values[i],data['History'].values[i],z_hist[i],data['His
tory'].values[i])
    ax1.text(data['id'].values[i],data['English'].values[i],z_sci[i],data['Eng
lish'].values[i])
    ax1.text(data['id'].values[i],data['Maths'].values[i],z_maths[i],data['Mat
hs'].values[i])

ax.set_xlabel('ID')
ax1.set_xlabel('ID')

ax.set_ylabel('Marks')
ax1.set_ylabel('Marks')

ax.set_zticks([0,1,2])
ax1.set_zticks([0,1,])

ax.set_zticklabels(["Science","Maths","History"])
ax1.set_zticklabels(["English","Maths"])

ax.set_title('3d Marks Graph')
ax1.set_title('3d Marks Graph')

ax.legend()
ax1.legend()

plt.show()
```


3d Marks Graph
Science
Maths
History
ID
Marks


3d Marks Graph
English
Maths
ID
Marks