In [1]:
```
# 1a. Use pandas to create a student marksheet with Student ID, Name, and marks obtained in 6 subjects

import pandas as pd
```

In [2]:
```
# store column headers in a list

col_names = ['Student ID', 'Name', 'Marks1', 'Marks2', 'Marks3', 'Marks4', 'Marks5', 'Marks6']

#add header row to the dataframe

df = pd.DataFrame(columns = col_names)
```

In [3]:
```
#view the dataframe

df
```

Out[3]:

	Student ID	Name	Marks1	Marks2	Marks3	Marks4	Marks5	Marks6

In [4]:
```
# adding student details to the dataframe with help of dictionary and append()

stud1 = {'Student ID':2, 'Name':'E', 'Marks1':45, 'Marks2':67, 'Marks3':53, 'Marks4':99, 'Marks5':74, 'Marks6':82}
df=df.append(stud1, ignore_index=True)
```

In [5]:
```
df
```

Out[5]:

	Student ID	Name	Marks1	Marks2	Marks3	Marks4	Marks5	Marks6
0	2	E	45	67	53	99	74	82

In [6]:
```
# adding student details to the dataframe with help of another dataframe and concat()

stud1 = pd.DataFrame({'Student ID':[5], 'Name':['D'], 'Marks1':[32], 'Marks2':[55], 'Marks3':[64], 'Marks4':[63], 'Marks5
':[71], 'Marks6':[77]})
df=pd.concat([df, stud1], axis=0, ignore_index=True)
```

In [7]:
```
df
```

Out[7]:

	Student ID	Name	Marks1	Marks2	Marks3	Marks4	Marks5	Marks6
0	2	E	45	67	53	99	74	82
1	5	D	32	55	64	63	71	77

In [8]:
```
# adding student details to the dataframe with loc[] attribute using row index

df.loc[2] = [4,'A',39,51,76,80,78,91]
```

In [9]:
```
df
```

Out[9]:

	Student ID	Name	Marks1	Marks2	Marks3	Marks4	Marks5	Marks6
0	2	E	45	67	53	99	74	82
1	5	D	32	55	64	63	71	77
2	4	A	39	51	76	80	78	91

In [10]:
```
# adding student details to the first row of dataframe with loc[] attribute as -1

df.loc[-1] = [8,'V',65,67,72,75,66,81]
```

In [11]:
```
df
```

Out[11]:

	Student ID	Name	Marks1	Marks2	Marks3	Marks4	Marks5	Marks6
0	2	E	45	67	53	99	74	82
1	5	D	32	55	64	63	71	77
2	4	A	39	51	76	80	78	91
-1	8	V	65	67	72	75	66	81

In [12]:
```
#rectifying indices

df.index = df.index + 1

df = df.sort_index()
```

In [13]:
```
df
```

Out[13]:

	Student ID	Name	Marks1	Marks2	Marks3	Marks4	Marks5	Marks6
0	8	V	65	67	72	75	66	81
1	2	E	45	67	53	99	74	82
2	5	D	32	55	64	63	71	77
3	4	A	39	51	76	80	78	91

In [14]:
```
# 1b Use pandas to get the name and ID of the student with the highest percentage of marks

sum=df['Marks1']+df['Marks2']+df['Marks3']+df['Marks4']+df['Marks5']+df['Marks6']
print(sum)
```

```
0    426
1    420
2    362
3    415
dtype: object
```

In [15]:
```
per=sum/6
print(per)
```

```
0         71
1         70
2    60.3333
3    69.1667
dtype: object
```

In [16]:
```
#assigning the percentage values as a dataframe column

df["per"]=per

print(df)
```

```
  Student ID Name Marks1 Marks2 Marks3 Marks4 Marks5 Marks6      per
0          8    V     65     67     72     75     66     81       71
1          2    E     45     67     53     99     74     82       70
2          5    D     32     55     64     63     71     77  60.3333
3          4    A     39     51     76     80     78     91  69.1667
```

In [17]:
```
#print the Student ID and Name of the row where the percentage is the highest among all the percentage values

print(df[['Student ID','Name']][df.per == df.per.max()])
```

```
  Student ID Name
0          8    V
```

In [18]:
```
# 1c. Use pandas to identify the student who got lowest marks in more than 2 subjects.
```

In [22]:
```
# 1d. Write the dataframe to a csv file

df.to_csv("file.csv")
```