In [1]:
```
import pandas as pd
```

In [2]:
```
df=pd.read_csv('Students1.csv')
df
```

Out[2]:

	Rank	Name	Age	Gender	Background	Python	Machine_Learning
0	Rank 1	Ravi	23	Male	Tech	89	95
1	Rank 2	Chandni	22	Female	Non-Tech	78	83
2	Rank 3	Gyanesh	25	Male	Tech	70	80
3	Rank 4	Rahul	22	Male	Tech	68	75
4	Rank 5	Kartik	23	Male	Tech	60	70
5	Rank 6	Pratiksha	24	Female	Non-Tech	58	55
6	Rank 7	Maya	22	Female	Non-Tech	55	50
7	Rank 8	Shani	21	Male	Tech	50	50
8	Rank 9	Neelam	24	Female	Non-Tech	50	47
9	Rank 10	Mangal	22	Male	Non-Tech	45	46

In [3]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10 entries, 0 to 9
Data columns (total 7 columns):
 #   Column            Non-Null Count  Dtype 
---  ------            --------------  ----- 
 0   Rank              10 non-null     object
 1   Name              10 non-null     object
 2   Age               10 non-null     int64 
 3   Gender            10 non-null     object
 4   Background        10 non-null     object
 5   Python            10 non-null     int64 
 6   Machine_Learning  10 non-null     int64 
dtypes: int64(3), object(4)
memory usage: 688.0+ bytes
```

here memory used by columns ==>688.0 bytes

In [4]:
```
df.memory_usage()
```

Out[4]:
```
Index               128
Rank                 80
Name                 80
Age                  80
Gender               80
Background           80
Python               80
Machine_Learning     80
dtype: int64
```

If we change datatype int64 to int8 then we can reduce the memory

In [6]:
```
df['Age']=df['Age'].astype('int8')
df['Python']=df['Python'].astype('int8')
df['Machine_Learning']=df['Machine_Learning'].astype('int8')
```

In [7]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 10 entries, 0 to 9
Data columns (total 7 columns):
 #   Column            Non-Null Count  Dtype 
---  ------            --------------  ----- 
 0   Rank              10 non-null     object
 1   Name              10 non-null     object
 2   Age               10 non-null     int8  
 3   Gender            10 non-null     object
 4   Background        10 non-null     object
 5   Python            10 non-null     int8  
 6   Machine_Learning  10 non-null     int8  
dtypes: int8(3), object(4)
memory usage: 478.0+ bytes
```

before changing data type memory usage is 688.0 bytes

after changing data type memory usage is 478.0 bytes

In [8]:
```
df.memory_usage()
```

Out[8]:
```
Index               128
Rank                 80
Name                 80
Age                  10
Gender               80
Background           80
Python               10
Machine_Learning     10
dtype: int64
```

Adding 'Students1.csv' file on mysql server

In [11]:
```
import csv
#!pip install pymysql
import pymysql as pm
mydb=pm.connect(host='localhost',user='root',password='',database='pooja')

with open('Students1.csv') as file:
    csvfile=csv.reader(file,delimiter=',')
    all_value=[]
    for i in csvfile:
        values=(i[0],i[1],i[2],i[3],i[4],i[5],i[6])
        all_value.append(values)

qr="INSERT INTO `studenttask3`(`Rank`,`Name`,`Age`,`Gender`,`Background`,`Python`,`Machine_Learning`) VALUES(%s

mycursor=mydb.cursor()
mycursor.executemany(qr,all_value)
mydb.commit()
```

getting data from mysql server

In [12]:
```
import pandas as pd
import pymysql as pm
mydb=pm.connect(host='localhost',user='root',password='',database='pooja')
sql_select_query="SELECT * FROM studenttask3"
cursor=mydb.cursor()
cursor.execute(sql_select_query)
#get all records
records=cursor.fetchall()
print(cursor.rowcount)
list1=[]
for row in records:
    list1.append(row)
#print(list1)
df1=pd.DataFrame(list1)
print(df1)

mydb.commit()
```

```
11
         0           1   2       3           4   5   6
0     Rank        Name   0  Gender  Background   0   0
1   Rank 1        Ravi  23    Male        Tech  89  95
2   Rank 2    Chandni  22  Female    Non-Tech  78  83
3   Rank 3    Gyanesh  25    Male        Tech  70  80
4   Rank 4      Rahul  22    Male        Tech  68  75
5   Rank 5     Kartik  23    Male        Tech  60  70
6   Rank 6  Pratiksha  24  Female    Non-Tech  58  55
7   Rank 7       Maya  22  Female    Non-Tech  55  50
8   Rank 8      Shani  21    Male        Tech  50  50
9   Rank 9     Neelam  24  Female    Non-Tech  50  47
10  Rank 10    Mangal  22    Male    Non-Tech  45  46
```

Adding index column on server and fetching all data from server

In [24]:
```
import pandas as pd
import pymysql as pm
mydb=pm.connect(host='localhost',user='root',password='',database='pooja')
sql_select_query="SELECT * FROM studenttask3"
cursor=mydb.cursor()
cursor.execute(sql_select_query)
#get all records
records=cursor.fetchall()
print(cursor.rowcount)
list1=[]
for row in records:
    list1.append(row)
#print(list1)
df1=pd.DataFrame(list1)
print(df1)

mydb.commit()
```

```
11
     0         1           2   3       4           5   6   7
0    1      Rank        Name   0  Gender  Background   0   0
1    2    Rank 1        Ravi  23    Male        Tech  89  95
2    3    Rank 2    Chandni  22  Female    Non-Tech  78  83
3    4    Rank 3    Gyanesh  25    Male        Tech  70  80
4    5    Rank 4      Rahul  22    Male        Tech  68  75
5    6    Rank 5     Kartik  23    Male        Tech  60  70
6    7    Rank 6  Pratiksha  24  Female    Non-Tech  58  55
7    8    Rank 7       Maya  22  Female    Non-Tech  55  50
8    9    Rank 8      Shani  21    Male        Tech  50  50
9   10    Rank 9     Neelam  24  Female    Non-Tech  50  47
10  11   Rank 10     Mangal  22    Male    Non-Tech  45  46
```

In [25]:
```
df1.columns=df.iloc[0]
```

In [26]:
```
df1
```

Out[26]:

	1	Rank	Name	0	Gender	Background	0	0
0	1	Rank	Name	0	Gender	Background	0	0
1	2	Rank 1	Ravi	23	Male	Tech	89	95
2	3	Rank 2	Chandni	22	Female	Non-Tech	78	83
3	4	Rank 3	Gyanesh	25	Male	Tech	70	80
4	5	Rank 4	Rahul	22	Male	Tech	68	75
5	6	Rank 5	Kartik	23	Male	Tech	60	70
6	7	Rank 6	Pratiksha	24	Female	Non-Tech	58	55
7	8	Rank 7	Maya	22	Female	Non-Tech	55	50
8	9	Rank 8	Shani	21	Male	Tech	50	50
9	10	Rank 9	Neelam	24	Female	Non-Tech	50	47
10	11	Rank 10	Mangal	22	Male	Non-Tech	45	46

In [ ]:
```

```

In [ ]:
```

```