NAME : DHEVISHREE GN REG NUM : 22MID0136 LAB 12

In [2]:

```
import pandas as pd
import numpy as np
import io
 # Create a CSV file
csv_data = """Name,Age,City,Salary,Education
 Alice,25,New York,70000,Bachelors
 Bob,30,Los Angeles,85000,Masters
 Charlie,35,Chicago,92000,PhD
 David,28,Houston,75000,Bachelors
 Eve,32,Phoenix,88000,Masters
 """
```

In [7]:

```
 # String as a File
df = pd.read_csv(io.StringIO(csv_data)) # Initialize a StringIO object with an existing string, and then read f
df.to_csv(r"C:\Users\dhevi\Downloads\employee_data.csv", index=False) #writes the contents of a DataFrame to a
```

In [8]:

```
 data = pd.read_csv(r"C:\Users\dhevi\Downloads\Housing.csv") # Reads the CSV file into a DataFrame
 print(data.head()) # Displays the first 5 rows of the DataFrame
```

```
      price  area  bedrooms  bathrooms  stories mainroad guestroom basement  \
0  13300000  7420         4          2        3      yes        no       no   
1  12250000  8960         4          4        4      yes        no       no   
2  12250000  9960         3          2        2      yes        no      yes   
3  12215000  7500         4          2        2      yes        no      yes   
4  11410000  7420         4          1        2      yes       yes      yes   

  hotwaterheating airconditioning  parking prefarea furnishingstatus  
0              no             yes        2      yes        furnished  
1              no             yes        3       no        furnished  
2              no              no        2      yes   semi-furnished  
3              no             yes        3      yes        furnished  
4              no             yes        2       no        furnished  
```

In [9]:

```
 print(data.info()) # Provides a summary of the DataFrame, including data types and non-null values
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 546 entries, 0 to 545
Data columns (total 13 columns):
 #   Column            Non-Null Count  Dtype 
---  ------            --------------  ----- 
 0   price             546 non-null    int64 
 1   area              546 non-null    int64 
 2   bedrooms          546 non-null    int64 
 3   bathrooms         546 non-null    int64 
 4   stories           546 non-null    int64 
 5   mainroad          546 non-null    object
 6   guestroom         546 non-null    object
 7   basement          546 non-null    object
 8   hotwaterheating   546 non-null    object
 9   airconditioning   546 non-null    object
 10  parking           546 non-null    int64 
 11  prefarea          546 non-null    object
 12  furnishingstatus  546 non-null    object
dtypes: int64(6), object(7)
memory usage: 55.6+ KB
None
```

In [10]:

```
print(data.shape) # Displays Rows and columns
```

```
(546, 13)
```

In [11]:

```
 df = pd.read_csv("employee_data.csv") # reading data from a CSV file. It automatically parses the file, recogn
 print(df)
```

```
      Name  Age         City  Salary  Education
0    Alice   25     New York   70000  Bachelors
1      Bob   30  Los Angeles   85000    Masters
2  Charlie   35      Chicago   92000        PhD
3    David   28      Houston   75000  Bachelors
4      Eve   32      Phoenix   88000    Masters
```

In [17]:

```
chunk_size = 100
count = 1
#sets chunksize to 100, so instead of loading the entire file at once, it reads and processes the data in smalle
for chunk in pd.read_csv(r"C:\Users\dhevi\Downloads\Housing.csv", chunksize=chunk_size):
    #chunks of 100 rows each
    print(f"DataFrame Chunk {count}:")
    print(chunk)
    count += 1
```

```
DataFrame Chunk 1:
       price  area  bedrooms  bathrooms  stories mainroad guestroom basement  \
0   13300000  7420         4          2        3      yes        no       no   
1   12250000  8960         4          4        4      yes        no       no   
2   12250000  9960         3          2        2      yes        no      yes   
3   12215000  7500         4          2        2      yes        no      yes   
4   11410000  7420         4          1        2      yes       yes      yes   
..       ...   ...       ...        ...      ...      ...       ...      ...   
95   6300000  4100         3          2        3      yes        no       no   
96   6300000  9000         3          1        1      yes        no      yes   
97   6300000  6400         3          1        1      yes       yes      yes   
98   6293000  6600         3          2        3      yes        no       no   
99   6265000  6000         4          1        3      yes       yes      yes   

   hotwaterheating airconditioning  parking prefarea furnishingstatus  
0               no             yes        2      yes        furnished  
1               no             yes        3       no        furnished  
2               no              no        2      yes   semi-furnished  
3               no             yes        3      yes        furnished  
4               no             yes        2       no        furnished  
..             ...             ...      ...      ...              ...  
95              no             yes        2       no   semi-furnished  
96              no              no        1      yes        furnished  
97              no             yes        1      yes   semi-furnished  
98              no             yes        0      yes      unfurnished  
99              no              no        0      yes      unfurnished  

[100 rows x 13 columns]
DataFrame Chunk 2:
       price  area  bedrooms  bathrooms  stories mainroad guestroom basement  \
100  6230000  6600         3          2        1      yes        no      yes   
101  6230000  5500         3          1        3      yes        no       no   
102  6195000  5500         3          2        4      yes       yes       no   
103  6195000  6350         3          2        3      yes       yes       no   
104  6195000  5500         3          2        1      yes       yes      yes   
..       ...   ...       ...        ...      ...      ...       ...      ...   
195  4970000  4410         4          3        2      yes        no      yes   
196  4970000  7686         3          1        1      yes       yes      yes   
197  4956000  2800         3          2        2       no        no      yes   
198  4935000  5948         3          1        2      yes        no       no   
199  4907000  4200         3          1        2      yes        no       no   

    hotwaterheating airconditioning  parking prefarea furnishingstatus  
100              no             yes        0      yes      unfurnished  
101              no              no        1      yes      unfurnished  
102              no             yes        1       no   semi-furnished  
103              no             yes        0       no        furnished  
104              no              no        2      yes        furnished  
..              ...             ...      ...      ...              ...  
195              no              no        2       no   semi-furnished  
196             yes              no        0       no   semi-furnished  
197              no             yes        1       no   semi-furnished  
198              no             yes        0       no   semi-furnished  
199              no              no        1       no        furnished  

[100 rows x 13 columns]
DataFrame Chunk 3:
       price  area  bedrooms  bathrooms  stories mainroad guestroom basement  \
200  4900000  4520         3          1        2      yes        no      yes   
201  4900000  4095         3          1        2       no       yes      yes   
202  4900000  4120         2          1        1      yes        no      yes   
203  4900000  5400         4          1        2      yes        no       no   
204  4900000  4770         3          1        1      yes       yes      yes   
..       ...   ...       ...        ...      ...      ...       ...      ...   
295  4200000  2325         3          1        2       no        no       no   
296  4200000  4600         3          2        2      yes        no       no   
297  4200000  3640         3          2        2      yes        no      yes   
298  4200000  5800         3          1        1      yes        no       no   
299  4200000  7000         3          1        1      yes        no       no   

    hotwaterheating airconditioning  parking prefarea furnishingstatus  
200              no             yes        0       no   semi-furnished  
201              no             yes        0       no   semi-furnished  
202              no              no        1       no   semi-furnished  
203              no              no        0       no   semi-furnished  
204              no              no        0       no   semi-furnished  
..              ...             ...      ...      ...              ...  
295              no              no        0       no   semi-furnished  
296              no             yes        1       no   semi-furnished  
297              no              no        0       no      unfurnished  
298             yes              no        2       no   semi-furnished  
299              no              no        3       no        furnished  

[100 rows x 13 columns]
```

```
DataFrame Chunk 4:
       price  area  bedrooms  bathrooms  stories mainroad guestroom basement  \
300  4200000  4079         3          1        3      yes        no       no   
301  4200000  3520         3          1        2      yes        no       no   
302  4200000  2145         3          1        3      yes        no       no   
303  4200000  4500         3          1        1      yes        no      yes   
304  4193000  8250         3          1        1      yes        no      yes   
..       ...   ...       ...        ...      ...      ...       ...      ...   
395  3500000  3600         6          1        2      yes        no       no   
396  3500000  3640         2          1        1      yes        no       no   
397  3500000  5900         2          1        1      yes        no       no   
398  3500000  3120         3          1        2      yes        no       no   
399  3500000  7350         2          1        1      yes        no       no   

    hotwaterheating airconditioning  parking prefarea furnishingstatus  
300              no              no        0       no   semi-furnished  
301              no              no        0      yes   semi-furnished  
302              no              no        1      yes      unfurnished  
303              no              no        0       no        furnished  
304              no              no        3       no   semi-furnished  
..              ...             ...      ...      ...              ...  
395              no              no        1       no      unfurnished  
396              no              no        1       no   semi-furnished  
397              no              no        1       no        furnished  
398              no              no        1       no      unfurnished  
399              no              no        1       no   semi-furnished  

[100 rows x 13 columns]
DataFrame Chunk 5:
       price   area  bedrooms  bathrooms  stories mainroad guestroom basement  \
400  3500000   3512         2          1        1      yes        no       no   
401  3500000   9500         3          1        2      yes        no       no   
402  3500000   5880         2          1        1      yes        no       no   
403  3500000  12944         3          1        1      yes        no       no   
404  3493000   4900         3          1        2       no        no       no   
..       ...    ...       ...        ...      ...      ...       ...      ...   
495  2730000   4000         3          1        2      yes        no       no   
496  2695000   4000         2          1        1      yes        no       no   
497  2660000   3934         2          1        1      yes        no       no   
498  2660000   2000         2          1        2      yes        no       no   
499  2660000   3630         3          3        2       no       yes       no   

    hotwaterheating airconditioning  parking prefarea furnishingstatus  
400              no              no        1      yes      unfurnished  
401              no              no        3      yes      unfurnished  
402              no              no        0       no      unfurnished  
403              no              no        0       no      unfurnished  
404              no              no        0       no      unfurnished  
..              ...             ...      ...      ...              ...  
495              no              no        1       no      unfurnished  
496              no              no        0       no      unfurnished  
497              no              no        0       no      unfurnished  
498              no              no        0       no   semi-furnished  
499              no              no        0       no      unfurnished  

[100 rows x 13 columns]
DataFrame Chunk 6:
       price  area  bedrooms  bathrooms  stories mainroad guestroom basement  \
500  2660000  2800         3          1        1      yes        no       no   
501  2660000  2430         3          1        1       no        no       no   
502  2660000  3480         2          1        1      yes        no       no   
503  2660000  4000         3          1        1      yes        no       no   
504  2653000  3185         2          1        1      yes        no       no   
505  2653000  4000         3          1        2      yes        no       no   
506  2604000  2910         2          1        1       no        no       no   
507  2590000  3600         2          1        1      yes        no       no   
508  2590000  4400         2          1        1      yes        no       no   
509  2590000  3600         2          2        2      yes        no      yes   
510  2520000  2880         3          1        1       no        no       no   
511  2520000  3180         3          1        1       no        no       no   
512  2520000  3000         2          1        2      yes        no       no   
513  2485000  4400         3          1        2      yes        no       no   
514  2485000  3000         3          1        2       no        no       no   
515  2450000  3210         3          1        2      yes        no      yes   
516  2450000  3240         2          1        1       no       yes       no   
517  2450000  3000         2          1        1      yes        no       no   
518  2450000  3500         2          1        1      yes       yes       no   
519  2450000  4840         2          1        2      yes        no       no   
520  2450000  7700         2          1        1      yes        no       no   
521  2408000  3635         2          1        1       no        no       no   
522  2380000  2475         3          1        2      yes        no       no   
523  2380000  2787         4          2        2      yes        no       no   
524  2380000  3264         2          1        1      yes        no       no   
```

```
525  2345000  3640         2          1        1      yes        no       no
526  2310000  3180         2          1        1      yes        no       no
527  2275000  1836         2          1        1       no        no      yes
528  2275000  3970         1          1        1       no        no       no
529  2275000  3970         3          1        2      yes        no      yes
530  2240000  1950         3          1        1       no        no       no
531  2233000  5300         3          1        1       no        no       no
532  2135000  3000         2          1        1       no        no       no
533  2100000  2400         3          1        2      yes        no       no
534  2100000  3000         4          1        2      yes        no       no
535  2100000  3360         2          1        1      yes        no       no
536  1960000  3420         5          1        2       no        no       no
537  1890000  1700         3          1        2      yes        no       no
538  1890000  3649         2          1        1      yes        no       no
539  1855000  2990         2          1        1       no        no       no
540  1820000  3000         2          1        1      yes        no      yes
541  1767150  2400         3          1        1       no        no       no
542  1750000  3620         2          1        1      yes        no       no
543  1750000  2910         3          1        1       no        no       no
544  1750000  3850         3          1        2      yes        no       no
545  9240000  7800         3          2        2      yes        no       no

    hotwaterheating airconditioning  parking prefarea furnishingstatus
500              no              no        0       no      unfurnished
501              no              no        0       no      unfurnished
502              no              no        1       no   semi-furnished
503              no              no        0       no   semi-furnished
504              no             yes        0       no      unfurnished
505              no             yes        0       no      unfurnished
506              no              no        0       no      unfurnished
507              no              no        0       no      unfurnished
508              no              no        0       no      unfurnished
509              no              no        1       no        furnished
510              no              no        0       no      unfurnished
511              no              no        0       no      unfurnished
512              no              no        0       no        furnished
513              no              no        0       no      unfurnished
514              no              no        0       no   semi-furnished
515              no              no        0       no      unfurnished
516              no              no        1       no      unfurnished
517              no              no        1       no      unfurnished
518              no              no        0       no      unfurnished
519              no              no        0       no      unfurnished
520              no              no        0       no      unfurnished
521              no              no        0       no      unfurnished
522              no              no        0       no        furnished
523              no              no        0       no        furnished
524              no              no        0       no      unfurnished
525              no              no        0       no      unfurnished
526              no              no        0       no      unfurnished
527              no              no        0       no   semi-furnished
528              no              no        0       no      unfurnished
529              no              no        0       no      unfurnished
530             yes              no        0       no      unfurnished
531              no             yes        0      yes      unfurnished
532              no              no        0       no      unfurnished
533              no              no        0       no      unfurnished
534              no              no        0       no      unfurnished
535              no              no        1       no      unfurnished
536              no              no        0       no      unfurnished
537              no              no        0       no      unfurnished
538              no              no        0       no      unfurnished
539              no              no        1       no      unfurnished
540              no              no        2       no      unfurnished
541              no              no        0       no   semi-furnished
542              no              no        0       no      unfurnished
543              no              no        0       no        furnished
544              no              no        0       no      unfurnished
545              no              no        1      yes   semi-furnished
```

```
In [26]: new_data = pd.DataFrame([[9240000,7800,3,2,2,'yes','no','no','no','no',1,'yes','semi-furnished']], columns=['pr
         #Appending new data to an existing CSV file is done by using the mode='a' and header=False parameters in the to_
         new_data.to_csv(r'C:\Users\dhevi\Downloads\Housing.csv', mode='a', header=False, index=False)
         df_appended = pd.read_csv(r"C:\Users\dhevi\Downloads\Housing.csv")
         print(df_appended)
```

```
        price  area  bedrooms  bathrooms  stories mainroad guestroom basement  \
0    13300000  7420         4          2        3      yes        no       no   
1    12250000  8960         4          4        4      yes        no       no   
2    12250000  9960         3          2        2      yes        no      yes   
3    12215000  7500         4          2        2      yes        no      yes   
4    11410000  7420         4          1        2      yes       yes      yes   
..        ...   ...       ...        ...      ...      ...       ...      ...   
542   1750000  3620         2          1        1      yes        no       no   
543   1750000  2910         3          1        1       no        no       no   
544   1750000  3850         3          1        2      yes        no       no   
545   9240000  7800         3          2        2      yes        no       no   
546   9240000  7800         3          2        2      yes        no       no   

    hotwaterheating airconditioning  parking prefarea furnishingstatus  
0                no             yes        2      yes        furnished  
1                no             yes        3       no        furnished  
2                no              no        2      yes   semi-furnished  
3                no             yes        3      yes        furnished  
4                no             yes        2       no        furnished  
..              ...             ...      ...      ...              ...  
542              no              no        0       no      unfurnished  
543              no              no        0       no        furnished  
544              no              no        0       no      unfurnished  
545              no              no        1      yes   semi-furnished  
546              no              no        1      yes   semi-furnished  

[547 rows x 13 columns]
```

In [27]:

```
numeric_df = pd.DataFrame(np.random.randint(10, 100, size=(50, 3)), columns=['A', 'B', 'C'])
numeric_df.to_csv(r"C:\Users\dhevi\Downloads\numeric_data.csv", index=False) # writes the contents of a DataFra
numeric_df_read = pd.read_csv(r"C:\Users\dhevi\Downloads\numeric_data.csv")
print(numeric_df_read)
```

```
     A   B   C
0   96  88  69
1   44  28  28
2   79  94  61
3   47  87  31
4   21  46  70
5   42  36  42
6   23  73  22
7   59  52  63
8   16  46  94
9   61  97  86
10  59  94  64
11  26  14  26
12  77  40  78
13  30  72  29
14  52  78  56
15  71  90  91
16  68  96  80
17  46  54  65
18  79  20  58
19  17  73  16
20  64  68  73
21  47  83  93
22  98  70  84
23  51  43  79
24  90  97  72
25  65  59  11
26  36  34  19
27  57  62  18
28  48  76  14
29  83  19  47
30  41  89  99
31  37  25  95
32  20  12  40
33  11  89  72
34  41  40  32
35  40  80  61
36  11  29  50
37  92  65  89
38  15  74  68
39  27  52  22
40  45  65  76
41  78  99  51
42  66  47  52
43  35  40  77
44  25  60  65
45  97  48  71
46  94  82  95
47  42  67  72
48  73  74  56
49  40  27  53
```

In [30]:

```
text_data = {
    'Product': ['Laptop', 'Mouse', 'Keyboard', 'Monitor'],
    'Description': ['High-performance laptop', 'Wireless ergonomic mouse', 'Mechanical keyboard', '4K ultra-wide
 }
text_df = pd.DataFrame(text_data)
text_df.to_csv(r"C:\Users\dhevi\Downloads\text_data.csv", index=False) # writes the contents of a DataFrame to a
text_df_read = pd.read_csv(r"C:\Users\dhevi\Downloads\text_data.csv")
print(text_df_read)
```

```
    Product               Description
0    Laptop   High-performance laptop
1     Mouse  Wireless ergonomic mouse
2  Keyboard       Mechanical keyboard
3   Monitor     4K ultra-wide monitor
```

In [ ]: