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Data Mining

Lab - 2

Step 1. Import the necessary libraries

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

Step 2. Import the dataset from this address.

Step 3. Assign it to a variable called users and use the 'user_id' as index

In [65]:
```
api = "https://raw.githubusercontent.com/justmarkham/DAT8/master/data/u.user"
users = pd.read_csv(api,sep="|", index_col="user_id")
users
```

Out[65]:

user_id	age	gender	occupation	zip_code
1	24	M	technician	85711
2	53	F	other	94043
3	23	M	writer	32067
4	24	M	technician	43537
5	33	F	other	15213
...	...	...	...	...
939	26	F	student	33319
940	32	M	administrator	02215
941	20	M	student	97229
942	48	F	librarian	78209
943	22	M	student	77841

943 rows × 4 columns

Step 4. See the first 25 entries

In [12]:
```
users.head(25)
```

Out[12]:

user_id	age	gender	occupation	zip_code
1	24	M	technician	85711
2	53	F	other	94043
3	23	M	writer	32067
4	24	M	technician	43537
5	33	F	other	15213
6	42	M	executive	98101
7	57	M	administrator	91344
8	36	M	administrator	05201
9	29	M	student	01002
10	53	M	lawyer	90703
11	39	F	other	30329
12	28	F	other	06405
13	47	M	educator	29206
14	45	M	scientist	55106
15	49	F	educator	97301
16	21	M	entertainment	10309
17	30	M	programmer	06355
18	35	F	other	37212
19	40	M	librarian	02138
20	42	F	homemaker	95660
21	26	M	writer	30068
22	25	M	writer	40206
23	30	F	artist	48197
24	21	F	artist	94533
25	39	M	engineer	55107

Step 5. See the last 10 entries

In [13]:
```
users.tail(10)
```

Out[13]:

user_id	age	gender	occupation	zip_code
934	61	M	engineer	22902
935	42	M	doctor	66221
936	24	M	other	32789
937	48	M	educator	98072
938	38	F	technician	55038
939	26	F	student	33319
940	32	M	administrator	02215
941	20	M	student	97229
942	48	F	librarian	78209
943	22	M	student	77841

Step 6. What is the number of observations in the dataset?

In [63]:
```
users.shape[0]
```

Out[63]:
```
943
```

Step 7. What is the number of columns in the dataset?

In [15]:
```
users.shape[1]
```

Out[15]:
```
4
```

Step 8. Print the name of all the columns.

In [16]:
```
users.columns
```

Out[16]:
```
Index(['age', 'gender', 'occupation', 'zip_code'], dtype='object')
```

Step 9. How is the dataset indexed?

In [17]:
```
users.index
```

Out[17]:
```
Index([  1,   2,   3,   4,   5,   6,   7,   8,   9,  10,
       ...
       934, 935, 936, 937, 938, 939, 940, 941, 942, 943],
      dtype='int64', name='user_id', length=943)
```

Step 10. What is the data type of each column?

In [20]:
```
users.dtypes
```

Out[20]:
```
age            int64
gender        object
occupation    object
zip_code      object
dtype: object
```

Step 11. Print only the occupation column

In [21]:
```
users["occupation"]
```

Out[21]:
```
user_id
1         technician
2              other
3             writer
4         technician
5              other
           ...
939          student
940    administrator
941          student
942        librarian
943          student
Name: occupation, Length: 943, dtype: object
```

Step 12. How many different occupations are in this dataset?

In [22]:
```
users["occupation"].value_counts().count()
```

Out[22]:
```
21
```

Step 13. What is the most frequent occupation?

In [69]:
```
users["occupation"].value_counts().idxmax()
# users["occupation"].value_counts().head(1)
```

Out[69]:
```
'student'
```

Step 14. Summarize the DataFrame.

In [25]:
```
users.describe()
```

Out[25]:

	age
count	943.000000
mean	34.051962
std	12.192740
min	7.000000
25%	25.000000
50%	31.000000
75%	43.000000
max	73.000000

Step 15. Summarize all the columns

In [27]:
```
users.describe(include="all")
```

Out[27]:

	age	gender	occupation	zip_code
count	943.000000	943	943	943
unique	NaN	2	21	795
top	NaN	M	student	55414
freq	NaN	670	196	9
mean	34.051962	NaN	NaN	NaN
std	12.192740	NaN	NaN	NaN
min	7.000000	NaN	NaN	NaN
25%	25.000000	NaN	NaN	NaN
50%	31.000000	NaN	NaN	NaN
75%	43.000000	NaN	NaN	NaN
max	73.000000	NaN	NaN	NaN

Step 16. Summarize only the occupation column

In [28]:
```
users['occupation'].describe()
```

Out[28]:
```
count          943
unique          21
top       student
freq          196
Name: occupation, dtype: object
```

Step 17. What is the mean age of users?

In [71]:
```
int(users['age'].mean())
```

Out[71]:
```
34
```

Step 18. What is the age with least occurrence?

In [72]:
```
users['age'].value_counts()[users['age'].value_counts()==users['age'].value_counts(
```

Out[72]:
```
age
7     1
66    1
11    1
10    1
73    1
Name: count, dtype: int64
```