Darshan UNIVERSITY
योग: कर्मसु कौशलम्

# Data Mining

# Lab - 4

**Name:** Harmik Rathod

**Enrollment No:** 24010101680

## Step 1. Import the necessary libraries

In [2]:
```
import pandas as pd
```

## Step 2. Import the dataset from this address.

## Step 3. Assign it to a variable called chipo.

In [5]:
```
chipo=pd.read_csv("https://raw.githubusercontent.com/justmarkham/DAT8/master/data/c
```

## Step 4. See the first 10 entries

In [6]:
```
chipo.head(10)
```

Out[6]:

| | order_id | quantity | item_name | choice_description | item_price |
|---|---|---|---|---|---|
| **0** | 1 | 1 | Chips and Fresh Tomato Salsa | NaN | $2.39 |
| **1** | 1 | 1 | Izze | [Clementine] | $3.39 |
| **2** | 1 | 1 | Nantucket Nectar | [Apple] | $3.39 |
| **3** | 1 | 1 | Chips and Tomatillo-Green Chili Salsa | NaN | $2.39 |
| **4** | 2 | 2 | Chicken Bowl | [Tomatillo-Red Chili Salsa (Hot), [Black Beans... | $16.98 |
| **5** | 3 | 1 | Chicken Bowl | [Fresh Tomato Salsa (Mild), [Rice, Cheese, Sou... | $10.98 |
| **6** | 3 | 1 | Side of Chips | NaN | $1.69 |
| **7** | 4 | 1 | Steak Burrito | [Tomatillo Red Chili Salsa, [Fajita Vegetables... | $11.75 |
| **8** | 4 | 1 | Steak Soft Tacos | [Tomatillo Green Chili Salsa, [Pinto Beans, Ch... | $9.25 |
| **9** | 5 | 1 | Steak Burrito | [Fresh Tomato Salsa, [Rice, Black Beans, Pinto... | $9.25 |

## Step 5. What is the number of observations in the dataset?

In [12]:
```
# Solution 1

chipo.shape[0]
```

Out[12]: 4622

In [14]:
```
# Solution 2

chipo.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 4622 entries, 0 to 4621
Data columns (total 5 columns):
 #   Column              Non-Null Count  Dtype 
---  ------              --------------  ----- 
 0   order_id            4622 non-null   int64 
 1   quantity            4622 non-null   int64 
 2   item_name           4622 non-null   object
 3   choice_description  3376 non-null   object
 4   item_price          4622 non-null   object
dtypes: int64(2), object(3)
memory usage: 180.7+ KB
```

## Step 6. What is the number of columns in the dataset?

In [11]:
```
chipo.shape[1]
```

Out[11]:
```
5
```

## Step 7. Print the name of all the columns.

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

Out[16]:
```
Index(['order_id', 'quantity', 'item_name', 'choice_description',
       'item_price'],
      dtype='object')
```

## Step 8. How is the dataset indexed?

In [18]:
```
chipo.index
```

Out[18]:
```
RangeIndex(start=0, stop=4622, step=1)
```

## Step 9. Number of Unique Items ?

In [27]:
```
chipo["item_name"].nunique()
```

Out[27]:
```
50
```

## Step 10. Which was the most-ordered item?

In [41]:
```
chipo.groupby("item_name").sum(numeric_only=True).sort_values(by="quantity",ascendi
```

Out[41]:

| item_name | order_id | quantity |
|---|---|---|
| **Chicken Bowl** | 713926 | 761 |

## Step 11. How many items were orderd in total?

In [49]:
```
chipo['quantity'].sum()
```

Out[49]:
```
4972
```

## Step 12. Turn the item price into a float

### Step 12.a. Check the item price type

In [54]:
```
chipo['item_price'].dtype
```

Out[54]:
```
dtype('O')
```

### Step 12.b. Create a lambda function and change the type of item price

In [55]:
```
dollarizer=lambda x:float(x[1:-1])
chipo.item_price =chipo.item_price.apply(dollarizer)
```

### Step 12.c. Check the item price type

In [56]:
```
chipo['item_price'].dtype
```

Out[56]:
```
dtype('float64')
```

## Step 14. How much was the revenue for the period in the dataset?

In [57]:
```
(chipo['quantity']*chipo['item_price']).sum()
```

Out[57]:
```
39237.02
```

## Step 15. How many orders were made ?

In [63]:
```
chipo['order_id'].nunique()
```

Out[63]:
```
1834
```

## Step 17. How many different choice descriptions are there?

In [65]:
```
chipo['choice_description'].nunique()
```

Out[65]:
```
1043
```

## Step 18. What items have been ordered more than 100 times?

In [115…
```
chipo.groupby('item_name').sum().quantity.loc[lambda x: x>100]
```

Out[115…
```
item_name
Bottled Water                  211
Canned Soda                    126
Canned Soft Drink              351
Chicken Bowl                   761
Chicken Burrito                591
Chicken Salad Bowl             123
Chicken Soft Tacos             120
Chips                          230
Chips and Fresh Tomato Salsa   130
Chips and Guacamole            506
Side of Chips                  110
Steak Bowl                     221
Steak Burrito                  386
Name: quantity, dtype: int64
```

## Step 19. What is the average revenue amount per order?

In [125…
```
# Solution 1

chipo['item_revenue']=chipo['quantity']*chipo['item_price']
chipo.groupby('order_id')['item_revenue'].sum().mean()
```

Out[125…
```
21.39423118865867
```

In [ ]:
```
# Solution 2
```