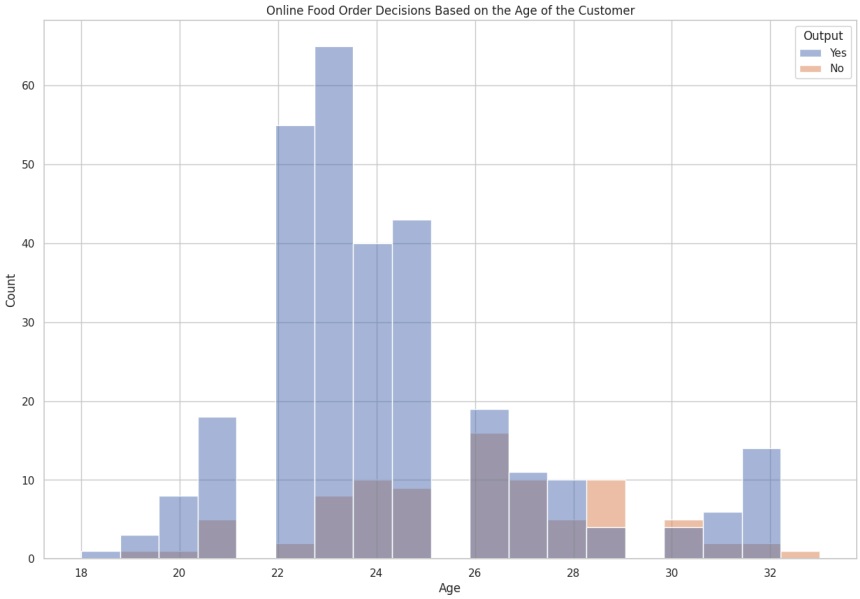
```
import numpy as np
import pandas as pd
import numpy as np
import plotly.express as px
import plotly.graph_objects as go
import matplotlib.pyplot as plt
import seaborn as sns

sns.set_theme(style="whitegrid")

data = pd.read_csv("/content/onlinefoods.csv")
print(data.head())
```

```
   Age  Gender Marital Status Occupation  Monthly Income  \
0   20  Female         Single    Student       No Income
1   24  Female         Single    Student  Below Rs.10000
2   22    Male         Single    Student  Below Rs.10000
3   22  Female         Single    Student       No Income
4   22    Male         Single    Student  Below Rs.10000

  Educational Qualifications  Family size  latitude  longitude  Pin code  \
0              Post Graduate            4   12.9766    77.5993    560001
1                   Graduate            3   12.9770    77.5773    560009
2              Post Graduate            3   12.9551    77.6593    560017
3                   Graduate            6   12.9473    77.5616    560019
4              Post Graduate            4   12.9850    77.5533    560010

  Output   Feedback Unnamed: 12
0    Yes   Positive         Yes
1    Yes   Positive         Yes
2    Yes  Negative          Yes
3    Yes   Positive         Yes
4    Yes   Positive         Yes
```

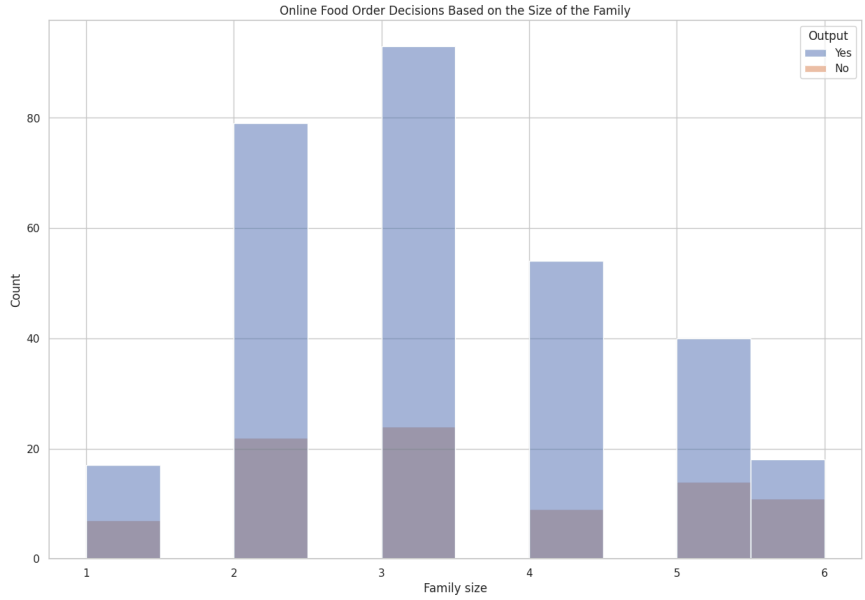
```
print(data.info())
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 388 entries, 0 to 387
Data columns (total 13 columns):
 #   Column                       Non-Null Count  Dtype
---  ------                       --------------  -----
 0   Age                          388 non-null    int64
 1   Gender                       388 non-null    object
 2   Marital Status               388 non-null    object
 3   Occupation                   388 non-null    object
 4   Monthly Income               388 non-null    object
 5   Educational Qualifications   388 non-null    object
 6   Family size                  388 non-null    int64
 7   latitude                     388 non-null    float64
 8   longitude                    388 non-null    float64
 9   Pin code                     388 non-null    int64
 10  Output                       388 non-null    object
 11  Feedback                     388 non-null    object
 12  Unnamed: 12                  388 non-null    object
dtypes: float64(2), int64(3), object(8)
memory usage: 39.5+ KB
None
```

```
plt.figure(figsize=(15, 10))
plt.title("Online Food Order Decisions Based on the Age of the Customer")
sns.histplot(x="Age", hue="Output", data=data)
plt.show()
```



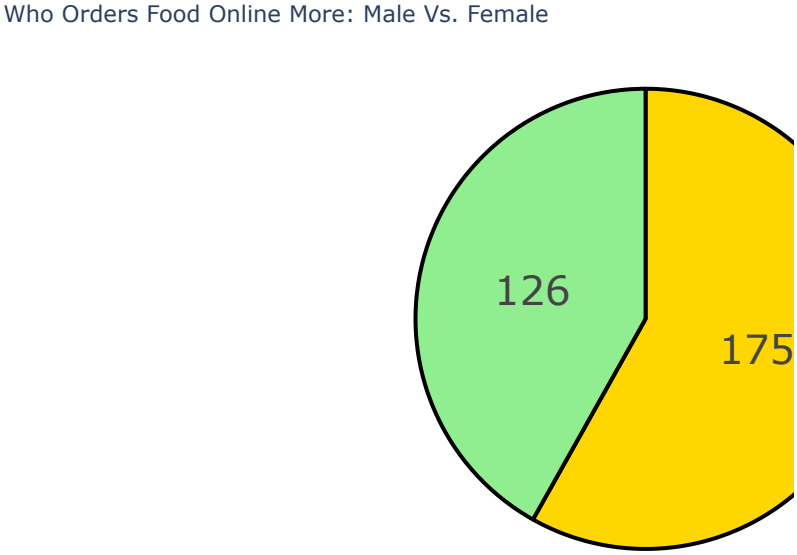

```
plt.figure(figsize=(15, 10))
plt.title("Online Food Order Decisions Based on the Size of the Family")
sns.histplot(x="Family size", hue="Output", data=data)
plt.show()
```



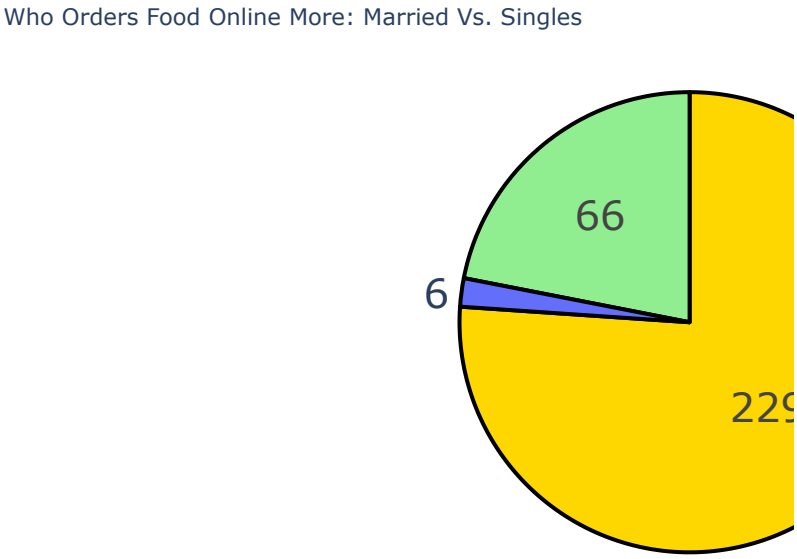

```
buying_again_data = data.query("Output == 'Yes'")
print(buying_again_data.head())
```

```
    Age  Gender Marital Status Occupation  Monthly Income  \
0   20  Female         Single    Student       No Income
1   24  Female         Single    Student  Below Rs.10000
2   22    Male         Single    Student  Below Rs.10000
3   22  Female         Single    Student       No Income
4   22    Male         Single    Student  Below Rs.10000

  Educational Qualifications  Family size  latitude  longitude  Pin code  \
0              Post Graduate            4   12.9766    77.5993    560001
1                   Graduate            3   12.9770    77.5773    560009
2              Post Graduate            3   12.9551    77.6593    560017
3                   Graduate            6   12.9473    77.5616    560019
4              Post Graduate            4   12.9850    77.5533    560010

  Output   Feedback Unnamed: 12
0    Yes   Positive         Yes
1    Yes   Positive         Yes
2    Yes  Negative          Yes
3    Yes   Positive         Yes
4    Yes   Positive         Yes
```

```
gender = buying_again_data["Gender"].value_counts()
label = gender.index
counts = gender.values
colors = ['gold','lightgreen']

fig = go.Figure(data=[go.Pie(labels=label, values=counts)])
fig.update_layout(title_text='Who Orders Food Online More: Male Vs. Female')
fig.update_traces(hoverinfo='label+percent', textinfo='value', textfont_size=30,
                  marker=dict(colors=colors, line=dict(color='black', width=3)))
fig.show()
```



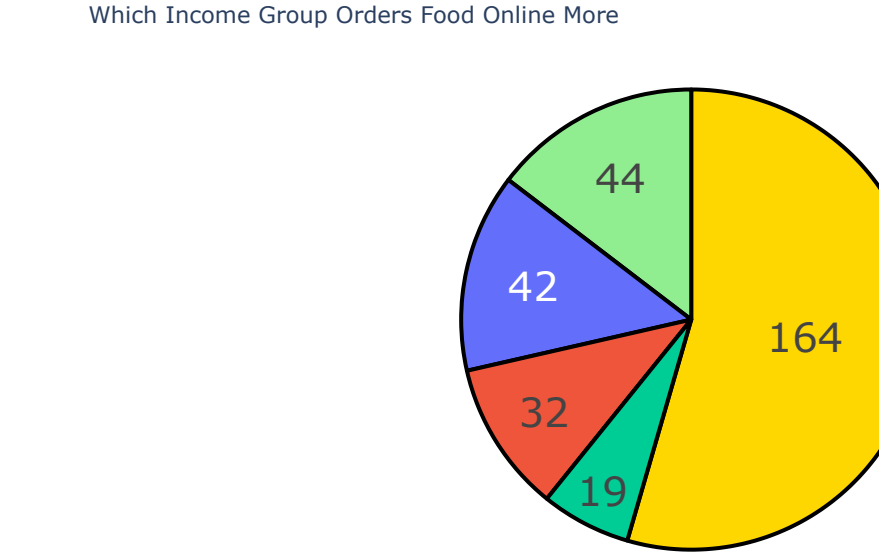

```
marital = buying_again_data["Marital Status"].value_counts()
label = marital.index
counts = marital.values
colors = ['gold','lightgreen']

fig = go.Figure(data=[go.Pie(labels=label, values=counts)])
fig.update_layout(title_text='Who Orders Food Online More: Married Vs. Singles')
fig.update_traces(hoverinfo='label+percent', textinfo='value', textfont_size=30,
                  marker=dict(colors=colors, line=dict(color='black', width=3)))
fig.show()
```




```
sns.palplot(sns.color_palette("hls",8))
```

```
income = buying_again_data["Monthly Income"].value_counts()
label = income.index
counts = income.values
colors = ['gold','lightgreen']
```

```
fig = go.Figure(data=[go.Pie(labels=label, values=counts)])
fig.update_layout(title_text='Which Income Group Orders Food Online More')
fig.update_traces(hoverinfo='label+percent', textinfo='value', textfont_size=30,
                  marker=dict(colors=colors, line=dict(color='black', width=3)))
fig.show()
```

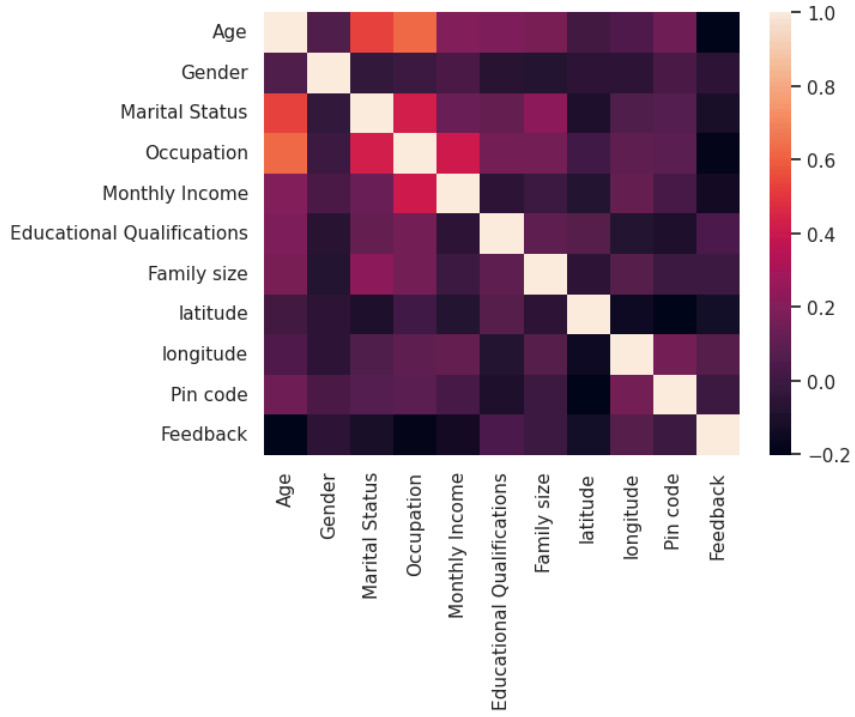



```
data["Gender"] = data["Gender"].map({"Male": 1, "Female": 0})
data["Marital Status"] = data["Marital Status"].map({"Married": 2,
                                                     "Single": 1,
                                                     "Prefer not to say": 0})
data["Occupation"] = data["Occupation"].map({"Student": 1,
                                             "Employee": 2,
                                             "Self Employeed": 3,
                                             "House wife": 4})
data["Educational Qualifications"] = data["Educational Qualifications"].map({"Graduate": 1,
                                                                              "Post Graduate": 2,
                                                                              "Ph.D": 3, "School": 4,
                                                                              "Uneducated": 5})
data["Monthly Income"] = data["Monthly Income"].map({"No Income": 0,
                                                     "25001 to 50000": 5000,
                                                     "More than 50000": 7000,
                                                     "10001 to 25000": 25000,
                                                     "Below Rs.10000": 10000})
data["Feedback"] = data["Feedback"].map({"Positive": 1, "Negative ": 0})
print(data.head())
```

```
   Age  Gender  Marital Status  Occupation  Monthly Income  \
0   20       0               1           1               0
1   24       0               1           1           10000
2   22       1               1           1           10000
3   22       0               1           1               0
4   22       1               1           1           10000

   Educational Qualifications  Family size  latitude  longitude  Pin code  \
0                           2            4   12.9766    77.5993    560001
1                           1            3   12.9770    77.5773    560009
2                           2            3   12.9551    77.6593    560017
3                           1            6   12.9473    77.5616    560019
4                           2            4   12.9850    77.5533    560010

  Output  Feedback Unnamed: 12
0    Yes         1         Yes
1    Yes         1         Yes
2    Yes         0         Yes
3    Yes         1         Yes
4    Yes         1         Yes
```

```
import seaborn as sns
sns.heatmap(data.corr(numeric_only=True))
```

```
<Axes: >
```




```
#splitting data
from sklearn.model_selection import train_test_split
x = np.array(data[["Age", "Gender", "Marital Status", "Occupation",
                   "Monthly Income", "Educational Qualifications",
                   "Family size", "Pin code", "Feedback"]])
y = np.array(data[["Output"]])


# training a machine learning model
from sklearn.ensemble import RandomForestClassifier
xtrain, xtest, ytrain, ytest = train_test_split(x, y,
                                                test_size=0.10,
                                                random_state=42)
model = RandomForestClassifier()
model.fit(xtrain, ytrain)
print(model.score(xtest, ytest))
```

```
0.9487179487179487
<ipython-input-13-38fb2f4106c4>:7: DataConversionWarning:

A column-vector y was passed when a 1d array was expected. Please change the shape of y to (n_samples,), for example using ravel().
```

```
1
print("Enter Customer Details to Predict If the Customer Will Order Again")
2
a = int(input("Enter the Age of the Customer: "))
3
b = int(input("Enter the Gender of the Customer (1 = Male, 0 = Female): "))
```