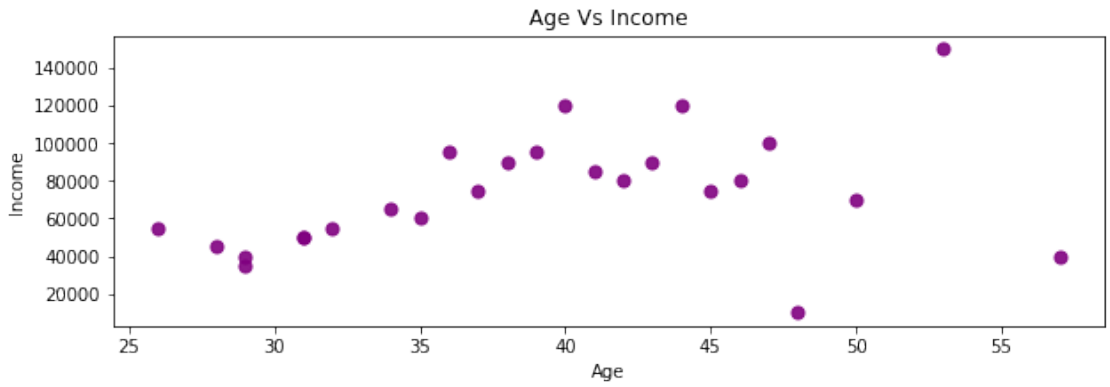
Using Pandas

```
import numpy as np
import pandas as pd

person= pd.read_csv('person.csv')
```

1).ScatterPlot

```
person.plot.scatter(x='Age',y='Income',title='Age Vs
Income',color='purple',figsize=(10,3),s=50,alpha=0.9)

# As we can see in below garph that age of person increasing with
Income which means that
# as Age of person increseing with the Income of him/her
```

```
<AxesSubplot:title={'center':'Age Vs Income'}, xlabel='Age',
ylabel='Income'>
```



2).Line

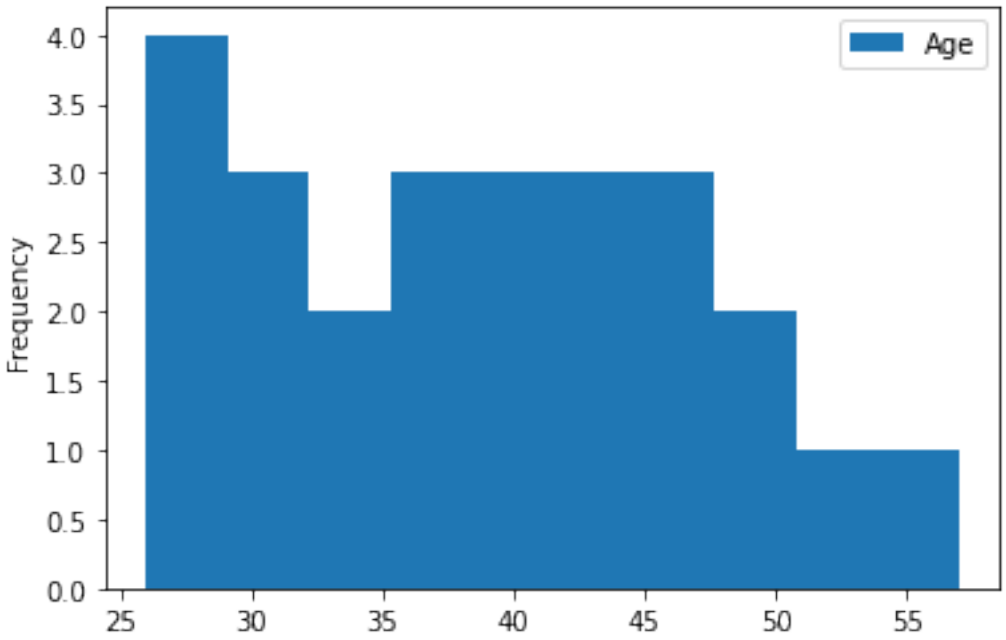
```
person.head(20).plot.line(y='Income',title='Income',color='red')

# Income of person is increasing trend with short period of time
```

```
<AxesSubplot:title={'center':'Income'}>
```

3).Histrogram

```
person.plot.hist(y='Age')

# Highest frequency of age is between 25 to 28 and Lowest frequency of
age is between 50 to 55
# It means the younger people are more than the aged people
```

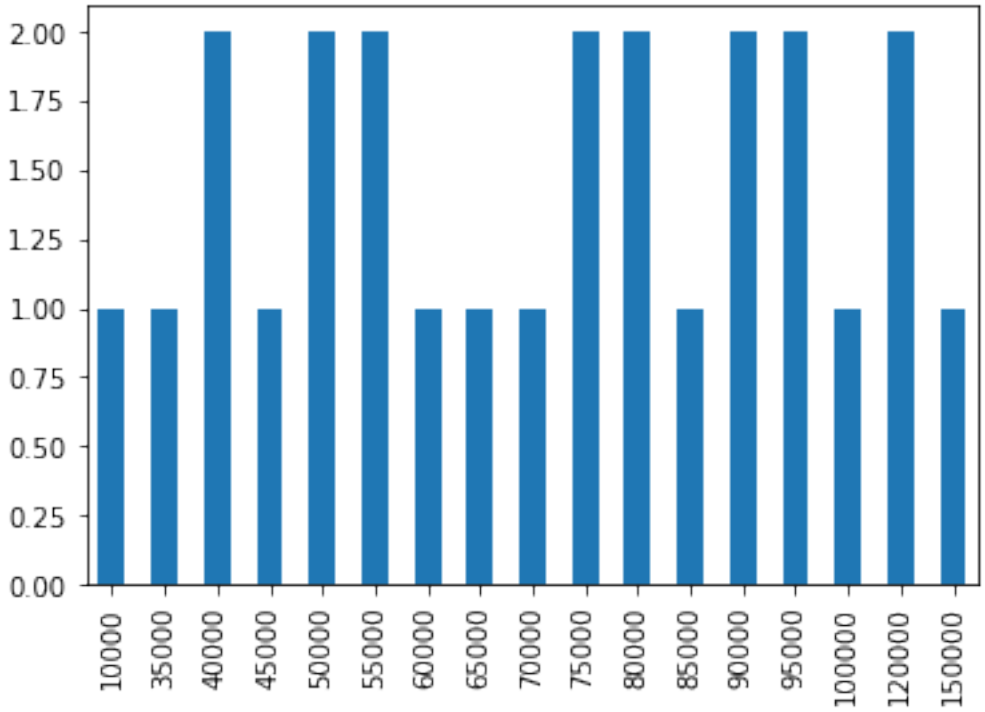
```
<AxesSubplot:ylabel='Frequency'>
```



4).(i)Bar

```
person['Income'].value_counts().sort_index().plot.bar()

# Most of the person has higher income than the other of them
# and there are lot of people which lay in each range of Income
```

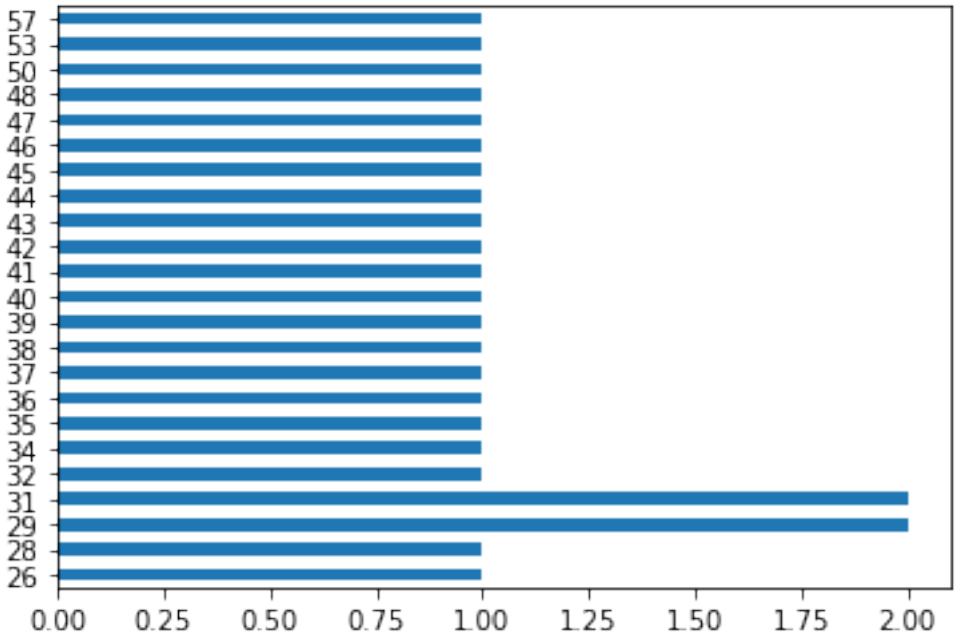
```
<AxesSubplot:>
```



(ii).Barh

```
person['Age'].value_counts().sort_index().plot.barh()

# Most of the person has higher income than the other them
# and there are lot of people which lie in each range of Income
```

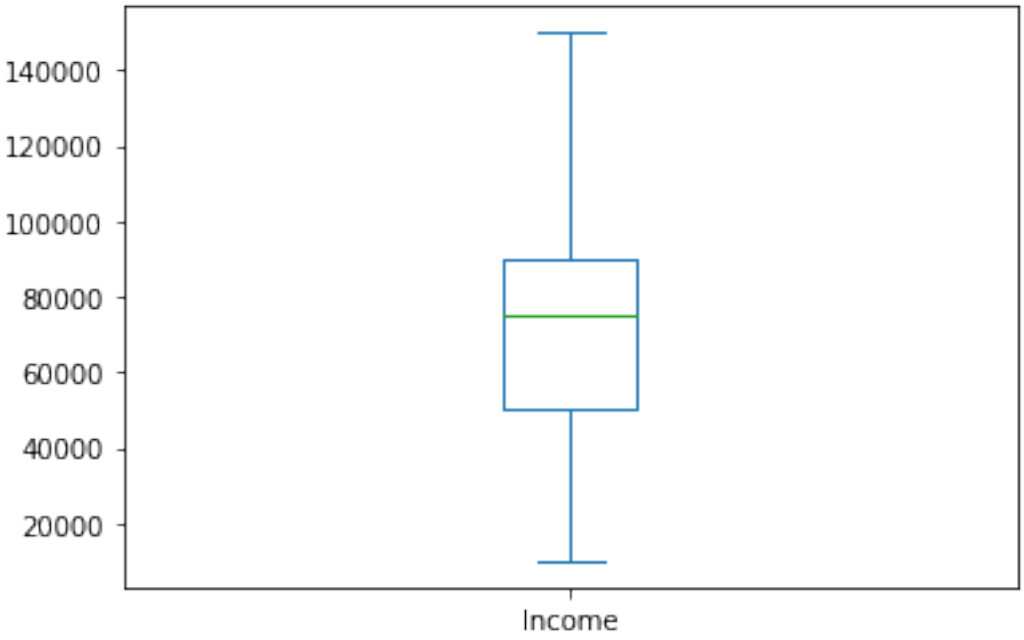
```
<AxesSubplot:>
```



5).Boxplot

```
person['Income'].plot.box()

#In the below graph the medain value is 80000 and most of people
income lie in lower quartile
```

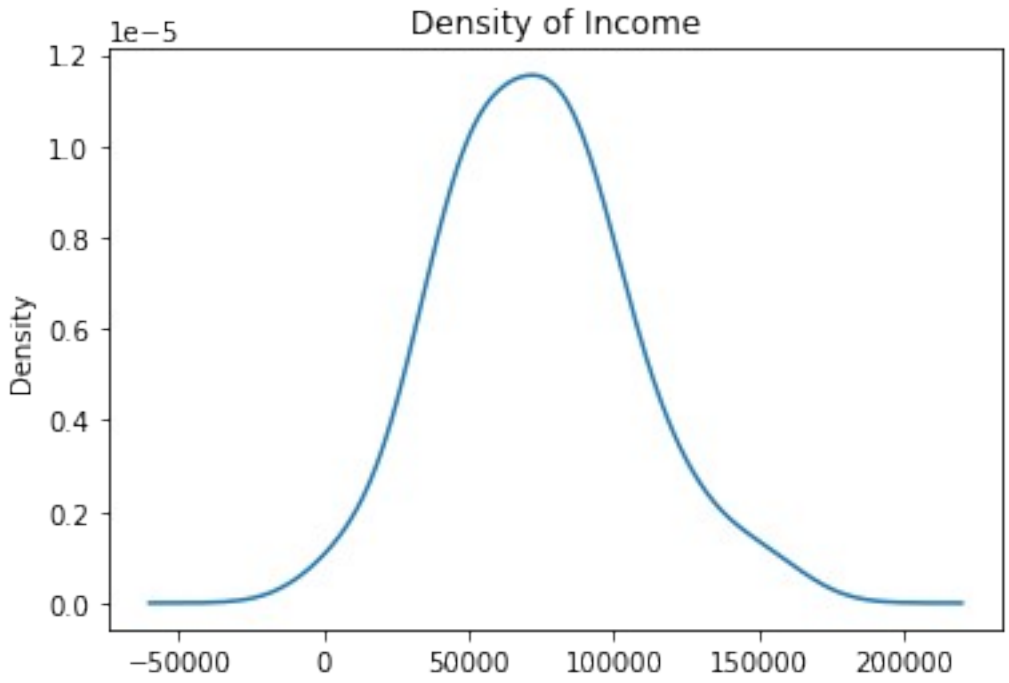
```
<AxesSubplot:>
```



6).Densityplot

```
person['Income'].plot.kde(x='Income',title='Density of Income')

# As we can see from graph that most of the people having income
between 50000 to 100000
# and there is no skew which mean that mean and median are same
```

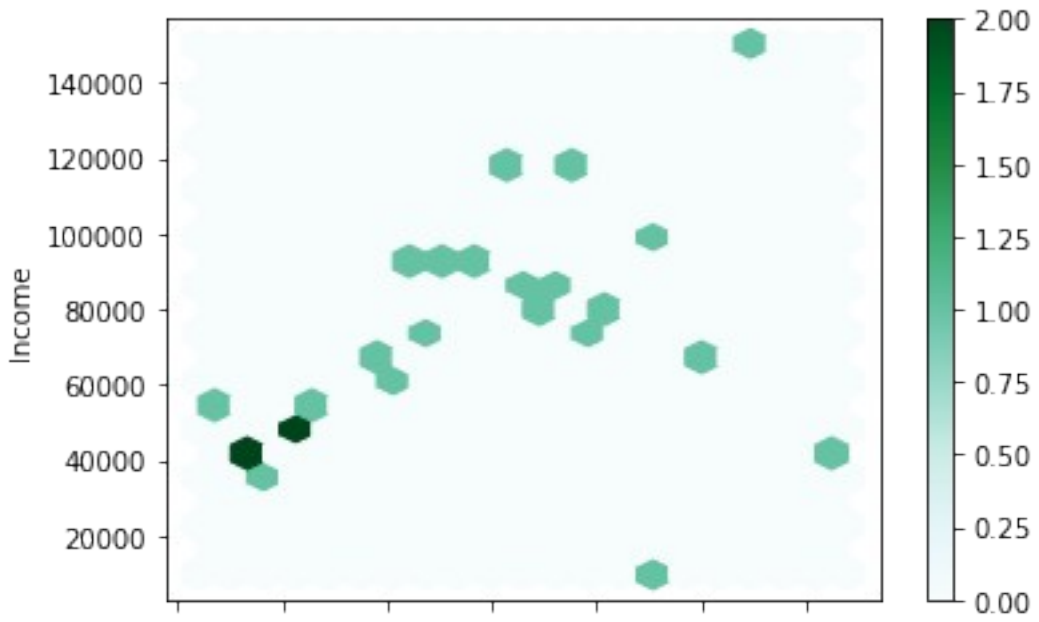
```
<AxesSubplot:title={'center':'Density of Income'}, ylabel='Density'>
```



7).Hexbin plot

```
person.plot.hexbin(x='Age',y='Income',gridsize=20)

# In the below graph most peoples income lie in the range 40000-50000
# which is why the hexagonal bin is darker compare to other bins
```

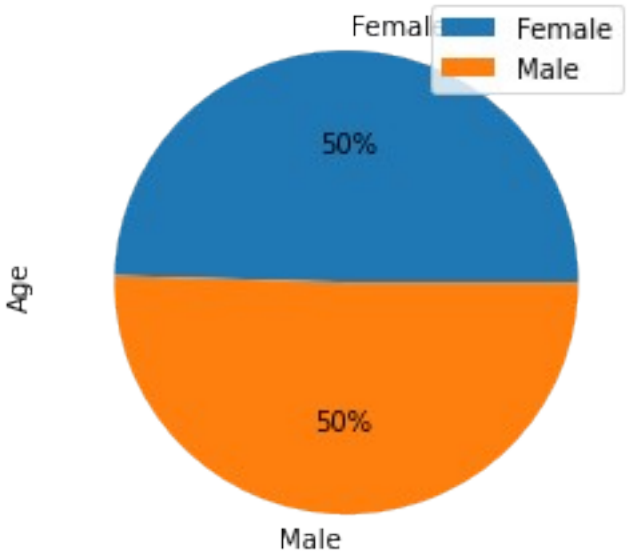
```
<AxesSubplot:xlabel='Age', ylabel='Income'>
```



8).Pie chart

```
person.groupby(['Gender']).sum().plot.pie(y='Age', autopct='%1.0f%%')

# we can see in below graph that male and female are have same
frequency
```

```
<AxesSubplot:ylabel='Age'>
```

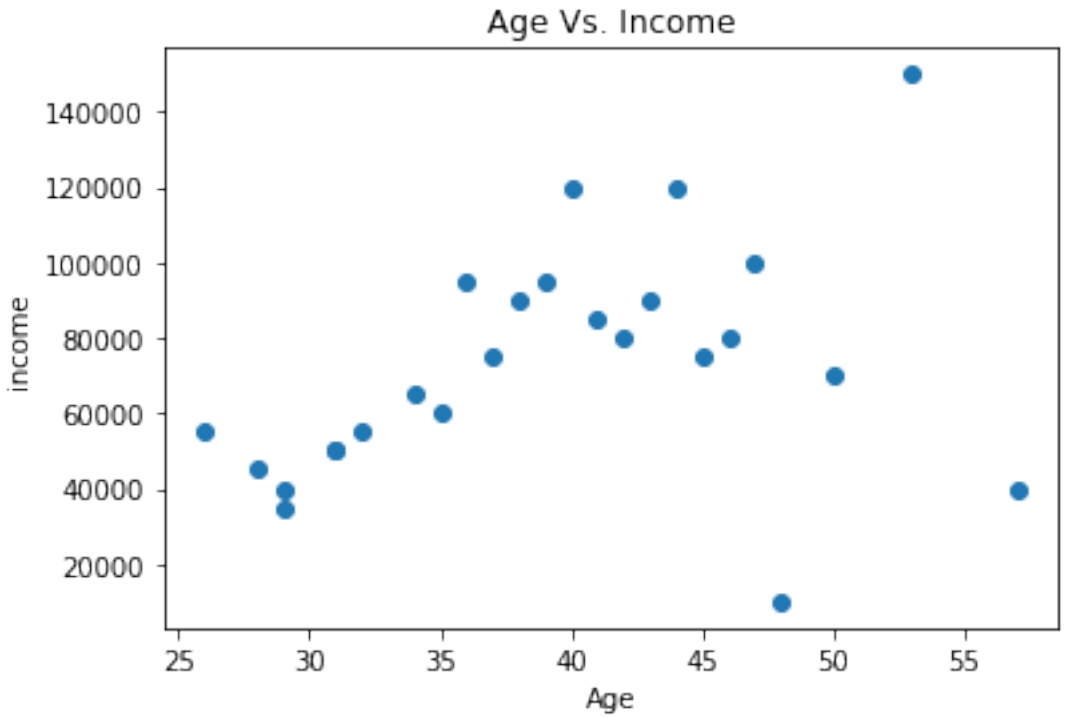


 # Using Matplotlib

```
import matplotlib.pyplot as plt
```

1).(i)ScatterPlot

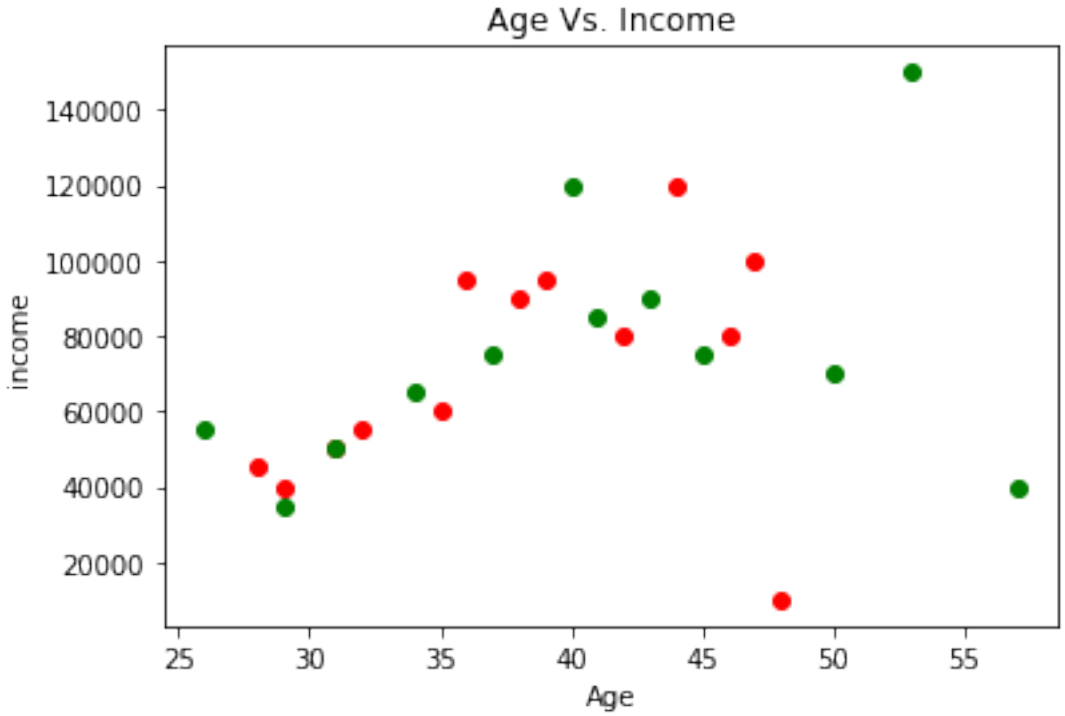
```
fig,ax=plt.subplots()
ax.scatter(person['Age'],person['Income'])
ax.set_title('Age Vs. Income')
ax.set_xlabel('Age')
ax.set_ylabel('income')

# As we can see in below garph that age of person increasing with
Income which means that
# as Age of person increseing with the Income of him/her

Text(0, 0.5, 'income')
```



(ii).Scatterplot

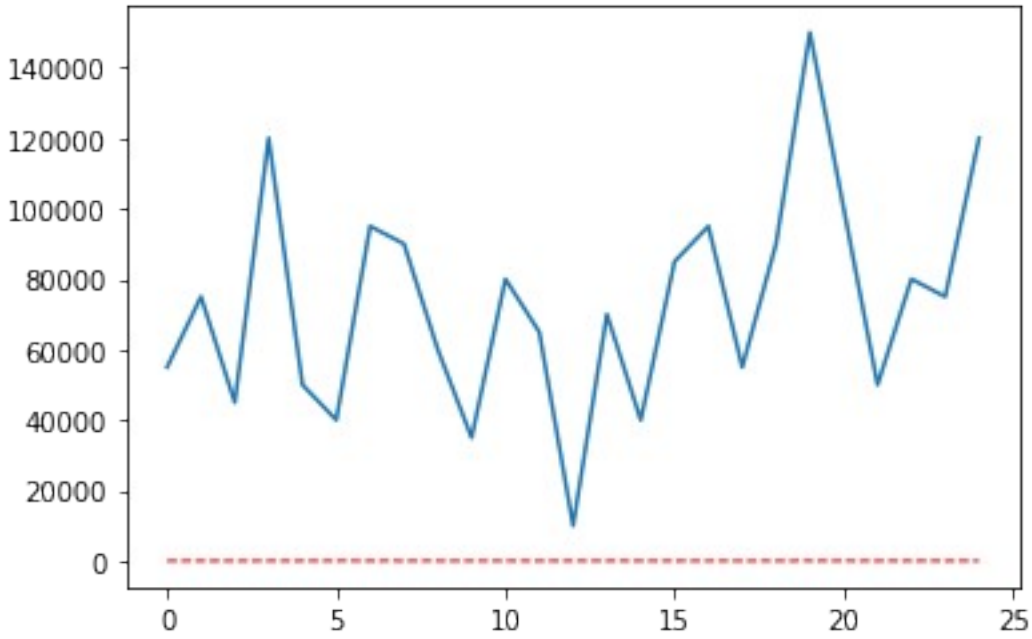
```
fig,ax=plt.subplots()
colors={"Male":'r',"Female":'g'}
for i in range(len(person['Age'])):
  ax.scatter(person['Age'][i],person['Income']
[i],color=colors[person['Gender'][i]])
ax.set_title('Age Vs. Income')
ax.set_xlabel('Age')
ax.set_ylabel('income')

# As we can see in below garph that age of person increasing with
Income which means that
# as Age of person increseing with the Income of him/her
```

```
Text(0, 0.5, 'income')
```



2).Line Plot

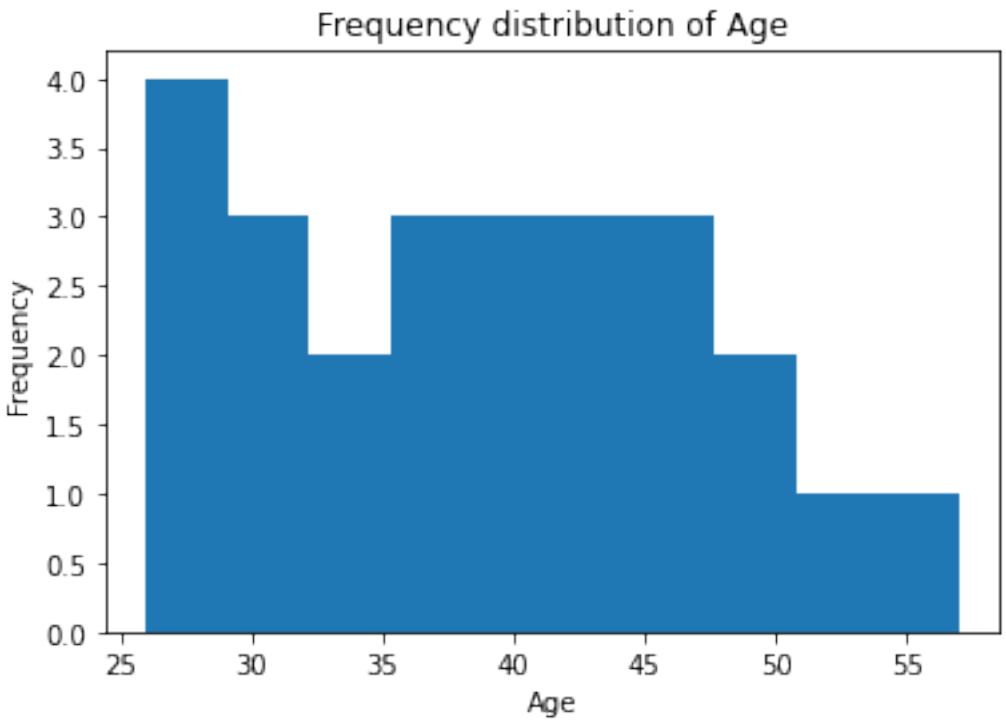
```
plt.plot(person['Age'],color='red',linestyle='--',linewidth='1')
plt.plot(person['Income'])
plt.show()

#Income of person is increasing trend with age as shown in graph
```



3).Histogram plot

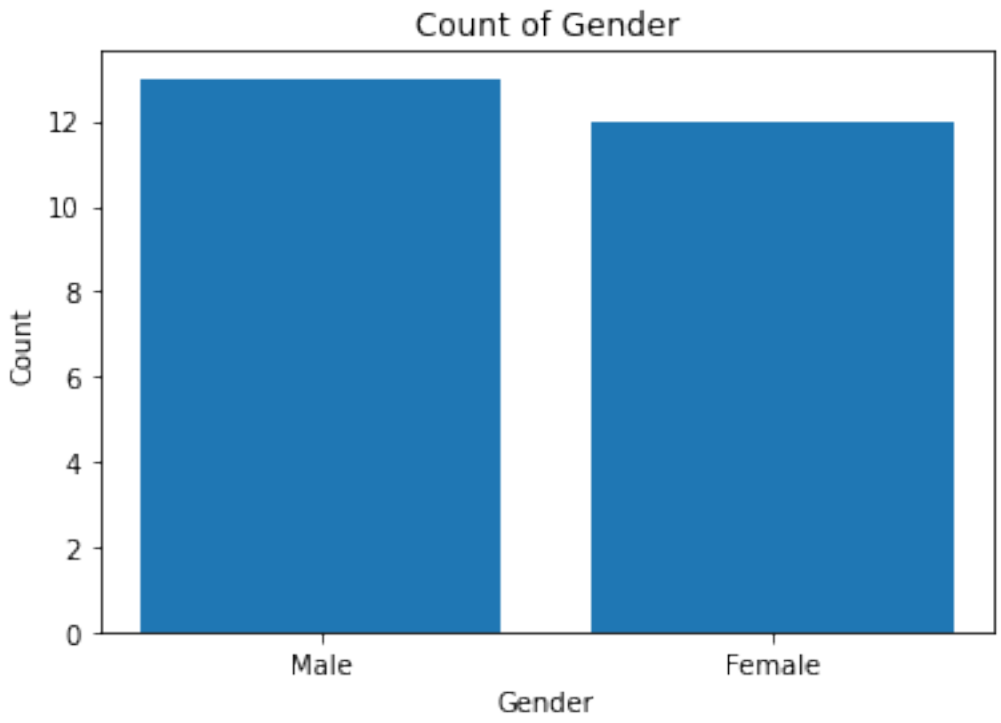
```
plt.hist(person['Age'])
plt.title('Frequency distribution of Age')
plt.xlabel('Age')
plt.ylabel('Frequency')

# Highest frequency of age is between 25 to 28 and Lowest frequency of
age is between 50 to 55
# It means the younger people are more than the aged people
```

```
Text(0, 0.5, 'Frequency')
```



4).Bar plot

```
data =person['Gender'].value_counts()
x=data.index
y=data.values
plt.bar(x,y)
plt.title('Count of Gender')
plt.xlabel('Gender')
plt.ylabel('Count')

# Number of male greater that number of Female as shown in graph

Text(0, 0.5, 'Count')
```



5).Pie chart

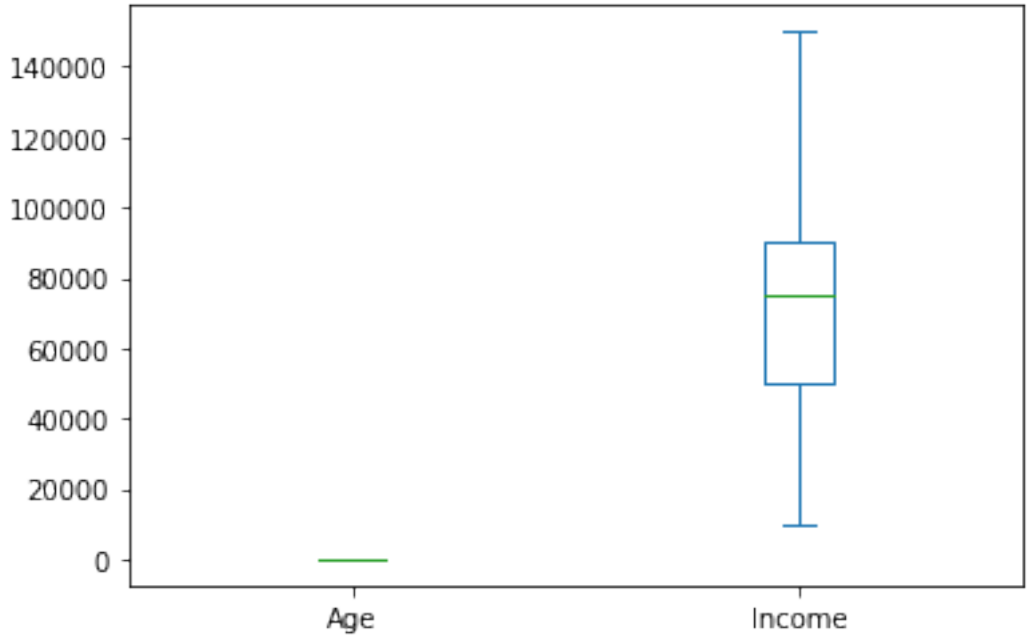
```
data =person['Gender'].value_counts()
x=data.index
y=data.values

plt.pie(y,labels=x)

# we can see in below graph that male and female are have same
frequency

([<matplotlib.patches.Wedge at 0x7ff517f92520>,
  <matplotlib.patches.Wedge at 0x7ff517f92a00>],
 [Text(-0.06906950569907239, 1.0978294054098232, 'Male'),
  Text(0.06906940291286497, -1.0978294118765723, 'Female')])
```

6).Box plot

```
person.plot.box(['Age','income'])
```

```
#In the below graph the medain value is 80000 and most of people
income lie in lower quartile
```

```
<AxesSubplot:>
```



7).hexbin

```
plt.hexbin(x=person['Age'], y=person['Income'], gridsize=15, bins=10,
xscale='linear', yscale='linear', marginals=False)

# In the below graph most peoples income lie in the range 60000-80000
and 20000-40000
# in this incomes are represented by different color of hexagonal bin
```

```
<matplotlib.collections.PolyCollection at 0x7ff517ec0c40>
```