```
In [1]: import matplotlib.pyplot as plt
        import pandas as pd
        import numpy as np
        import seaborn as sns
```

Reading the Dataset

```
In [2]: df = pd.read_csv("DoctorVisits.csv")
```

```
In [4]: df.head(15)
```

```
 1     2   1  female  0.19  0.45   1   2   1   yes   no
 2     3   1    male  0.19  0.90   3   0   0    no   no
 3     4   1    male  0.19  0.15   1   0   0    no   no
 4     5   1    male  0.19  0.45   2   5   1    no   no
 5     6   1  female  0.19  0.35   5   1   9    no   no
 6     7   1  female  0.19  0.55   4   0   2    no   no
 7     8   1  female  0.19  0.15   3   0   6    no   no
 8     9   1  female  0.19  0.65   2   0   5   yes   no
 9    10   1    male  0.19  0.15   1   0   0   yes   no
10    11   1    male  0.19  0.45   1   0   0    no   no
11    12   1    male  0.19  0.25   2   0   2    no   no
12    13   2    male  0.19  0.55   3  13   1    no   no
13    14   1    male  0.19  0.45   4   7   6    no   no
```

displaying complete information

In [5]:

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 5190 entries, 0 to 5189
Data columns (total 13 columns):
 #   Column      Non-Null Count  Dtype  
---  ------      --------------  -----  
 0   Unnamed: 0  5190 non-null   int64  
 1   visits      5190 non-null   int64  
 2   gender      5190 non-null   object 
 3   age         5190 non-null   float64
 4   income      5190 non-null   float64
 5   illness     5190 non-null   int64  
 6   reduced     5190 non-null   int64  
 7   health      5190 non-null   int64  
 8   private     5190 non-null   object 
 9   freepoor    5190 non-null   object 
 10  freerepat   5190 non-null   object 
 11  nchronic    5190 non-null   object 
 12  lchronic    5190 non-null   object 
dtypes: float64(2), int64(5), object(6)
memory usage: 527.2+ KB
```

In [7]:

```
df["illness"].value_counts()
```

Out[7]:

```
1    1638
0    1554
2     946
3     542
4     274
5     236
Name: illness, dtype: int64
```

In [8]:

```
df["gender"].value_counts()
```

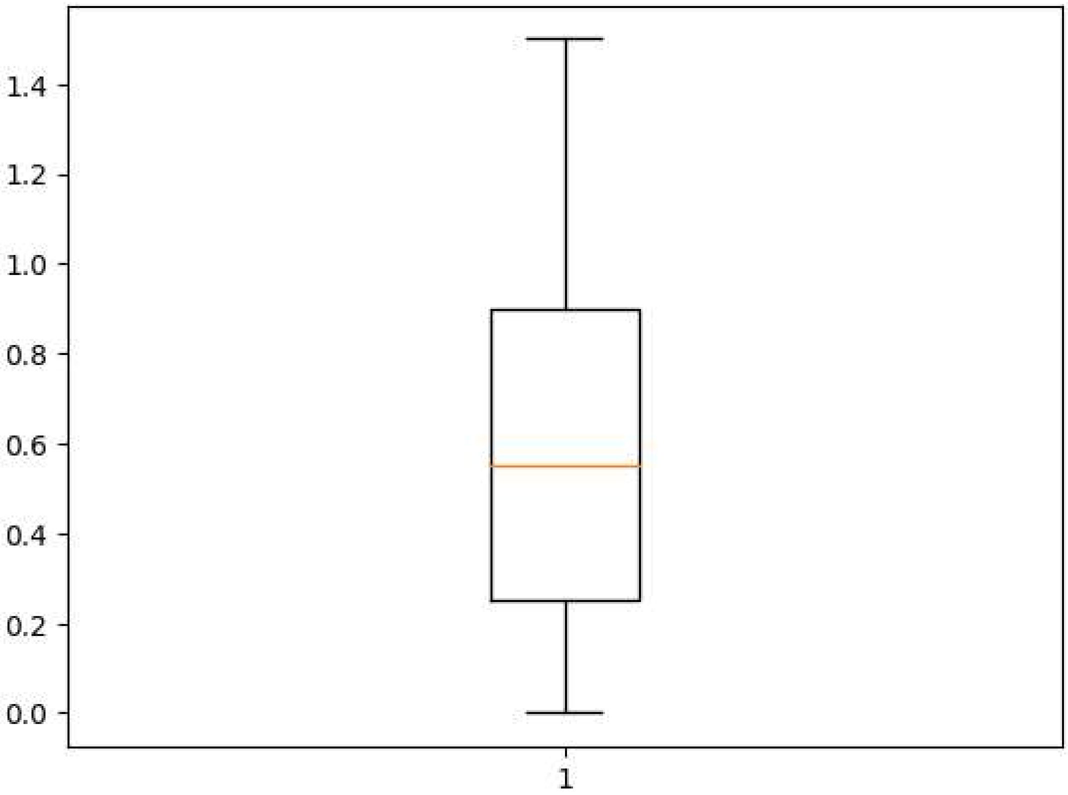
Out[8]:

```
female    2702
male      2488
Name: gender, dtype: int64
```

visualize and analyze the maximum,minimum and medium

In [9]:

```
y = list(df.income)
plt.boxplot(y)
plt.show()
```



find out the no of days of reduced activity of male and female seperately due to illness

```
In [10]: df.groupby(['gender','reduced']).mean()
```

```
C:\Users\kodid\AppData\Local\Temp\ipykernel_7444\1883727358.py:1: FutureWarni
ng: The default value of numeric_only in DataFrameGroupBy.mean is deprecated.
In a future version, numeric_only will default to False. Either specify numer
ic_only or select only columns which should be valid for the function.
  df.groupby(['gender','reduced']).mean()
```

Out[10]:

		Unnamed: 0	visits	age	income	illness	health
gender	**reduced**						
female	**0**	2524.038512	0.229322	0.465755	0.482735	1.462144	1.115098
	1	1985.768421	0.400000	0.325684	0.542105	2.242105	1.610526
	2	1622.618182	0.672727	0.391455	0.560182	2.236364	1.781818
	3	997.311111	1.333333	0.403111	0.516000	2.733333	1.733333
	4	1237.740741	0.851852	0.458889	0.466667	2.222222	2.074074
	5	1169.055556	1.444444	0.401667	0.614444	2.222222	2.500000
	6	1382.545455	1.363636	0.426364	0.622727	2.363636	1.363636
	7	1034.846154	1.384615	0.436154	0.473462	2.653846	2.230769
	8	1883.090909	1.090909	0.471818	0.404545	2.181818	4.000000
	9	1349.000000	0.500000	0.570000	0.825000	3.000000	1.000000
	10	1099.428571	2.142857	0.512857	0.421429	2.571429	2.000000
	12	1661.000000	2.000000	0.720000	0.250000	3.500000	5.500000
	13	906.000000	4.000000	0.720000	0.300000	4.500000	3.500000
	14	1392.112069	1.543103	0.551724	0.427586	2.534483	4.112069
male	**0**	3008.911019	0.136007	0.344703	0.694398	1.099585	0.924850
	1	2485.158537	0.304878	0.286220	0.676341	1.743902	1.256098
	2	2007.679245	0.471698	0.343585	0.653019	2.358491	1.547170
	3	1909.068966	0.724138	0.334138	0.741379	2.137931	1.689655
	4	1424.000000	0.722222	0.309444	0.869444	2.055556	2.000000
	5	1437.272727	1.136364	0.331818	0.570455	2.272727	2.818182
	6	562.000000	0.833333	0.340000	0.591667	2.500000	2.000000
	7	1716.750000	0.750000	0.314167	0.655000	2.583333	4.333333
	8	680.666667	1.333333	0.365000	0.833333	2.666667	2.000000
	9	1375.400000	2.200000	0.310000	0.392000	2.400000	2.000000
	10	1543.200000	1.800000	0.480000	0.590000	2.600000	4.600000
	11	355.500000	5.000000	0.320000	1.000000	1.500000	0.500000
	12	781.500000	2.000000	0.370000	0.515000	1.500000	1.000000
	13	508.666667	4.000000	0.510000	0.350000	3.333333	2.333333
	14	1236.069444	1.555556	0.476806	0.598611	2.375000	3.527778

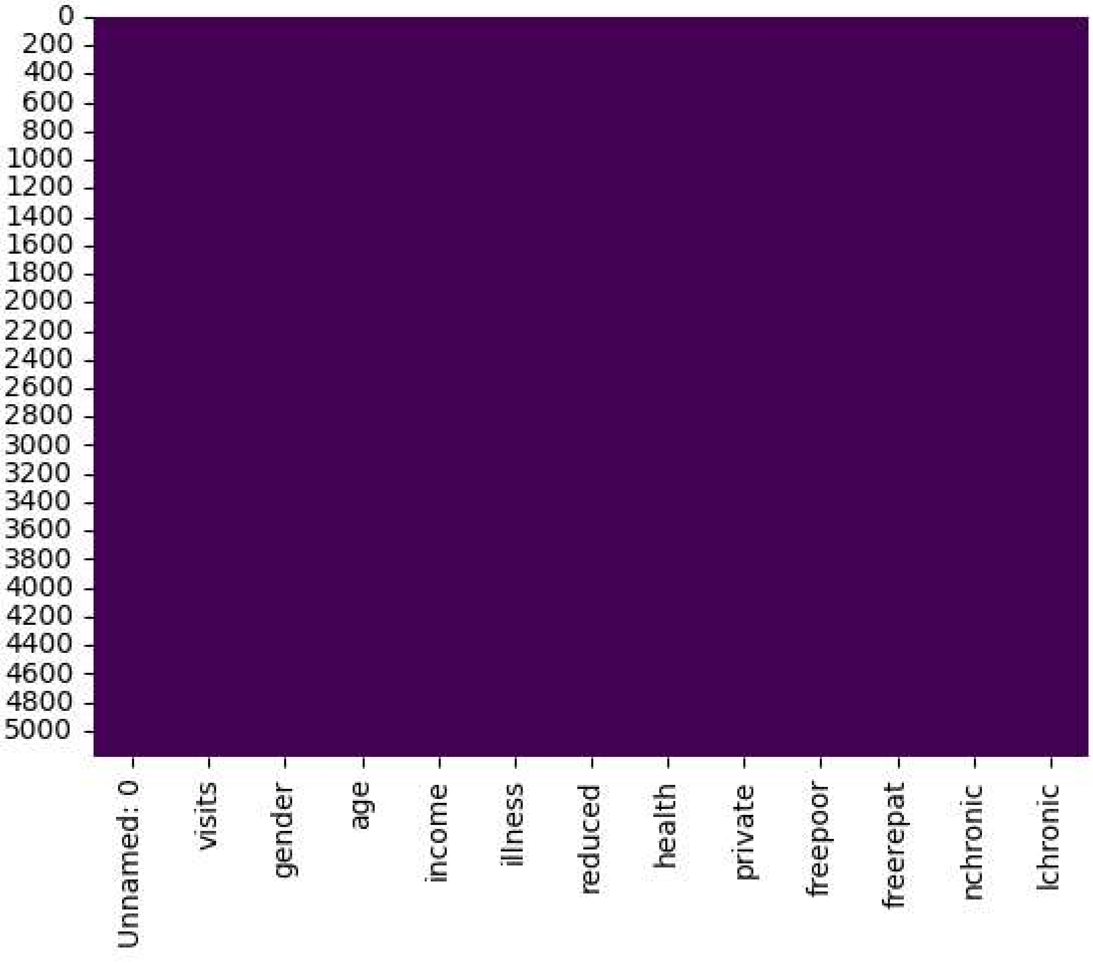
visualizing is there any missing value

In [11]:

```
sns.heatmap(df.isnull(),cbar=False,cmap='viridis')
```

Out[11]:

```
<AxesSubplot: >
```

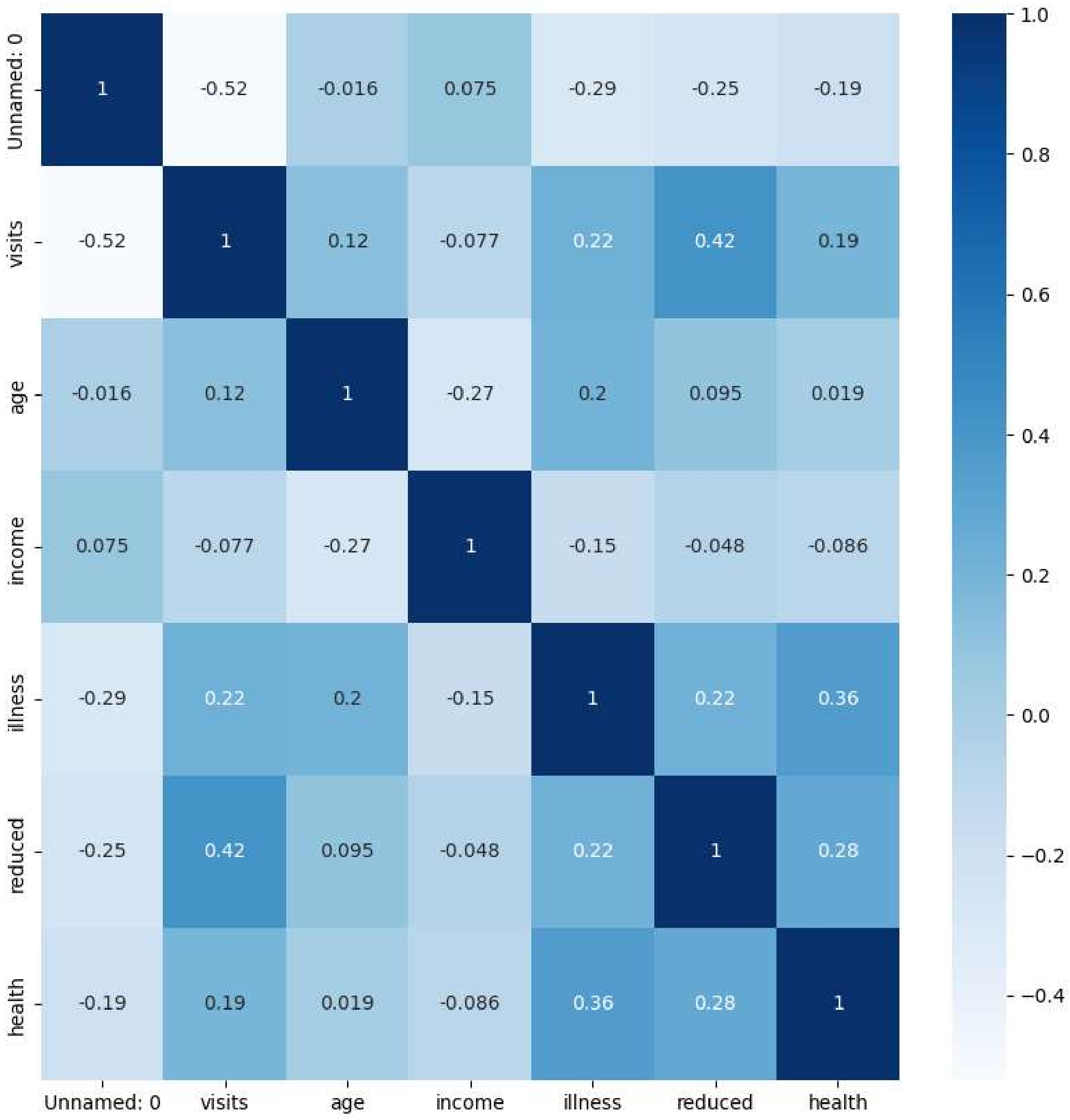


Finding out the correlation between variables in the dataset

```
In [13]: plt.figure(figsize=(10,10))
         sns.heatmap(df.corr(),cbar=True,annot=True,cmap='Blues')
```

```
C:\Users\kodid\AppData\Local\Temp\ipykernel_7444\183792097.py:2: FutureWarnin
g: The default value of numeric_only in DataFrame.corr is deprecated. In a fu
ture version, it will default to False. Select only valid columns or specify
the value of numeric_only to silence this warning.
  sns.heatmap(df.corr(),cbar=True,annot=True,cmap='Blues')
```

```
Out[13]: <AxesSubplot: >
```



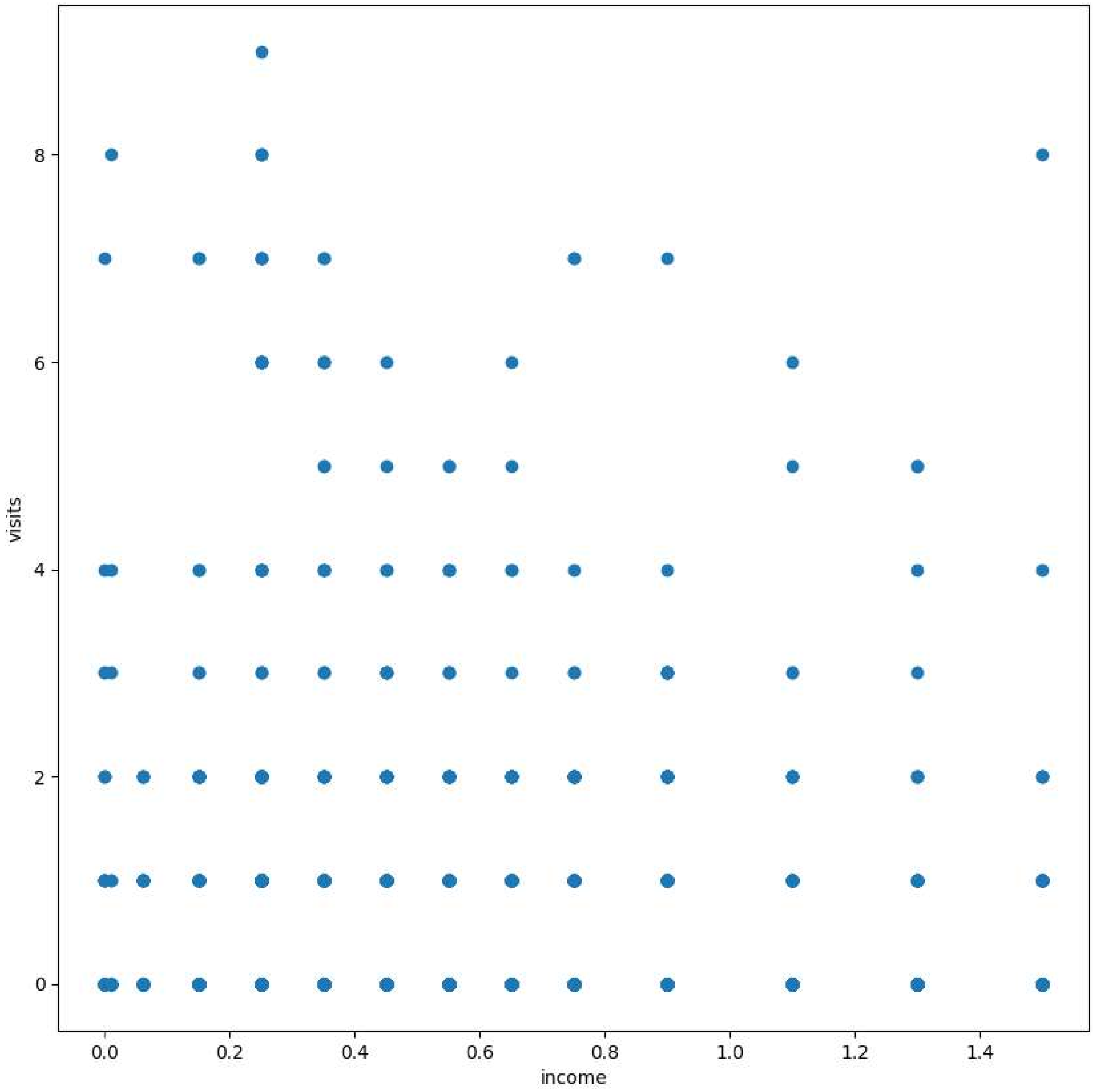
Analyse how the income of a patient affects the no of visits to the hospital

In [14]:

```
plt.figure(figsize=(10,10))
plt.scatter(x='income',y='visits',data=df)
plt.xlabel('income')
plt.ylabel('visits')
```

Out[14]:

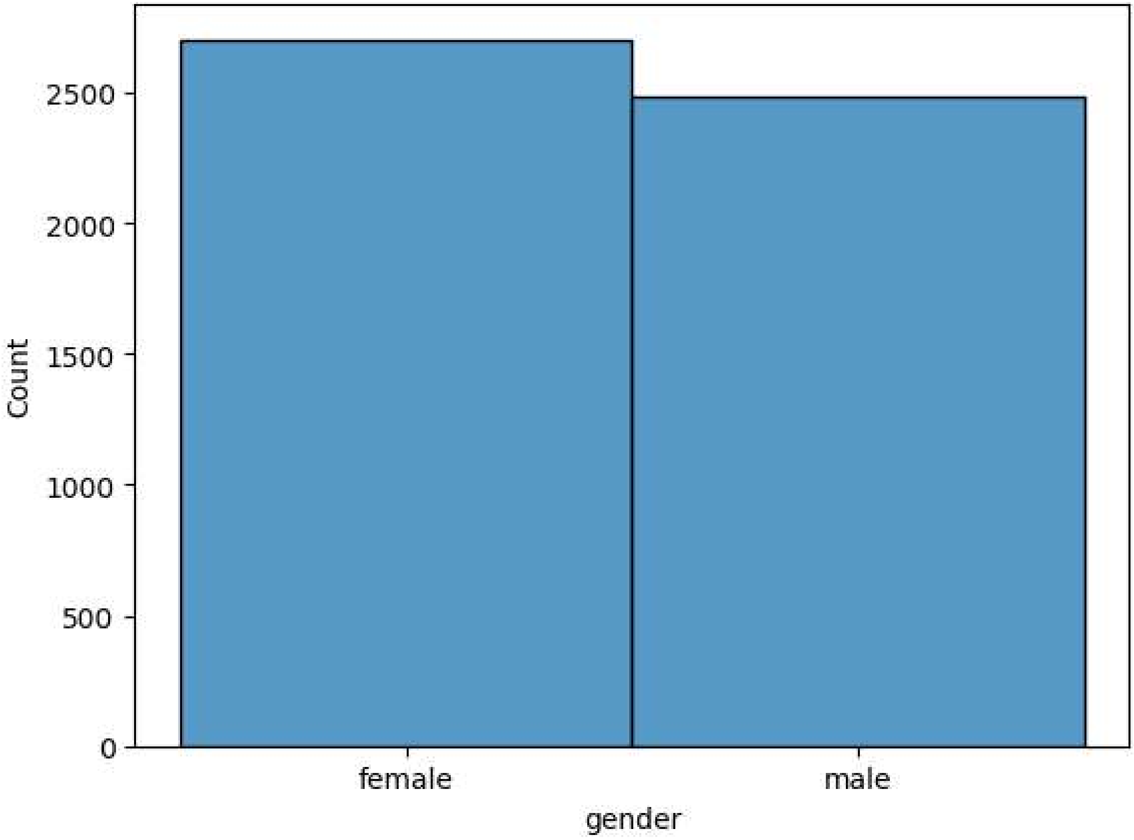
```
Text(0, 0.5, 'visits')
```



count and visusalize the no of males and females affected by illness

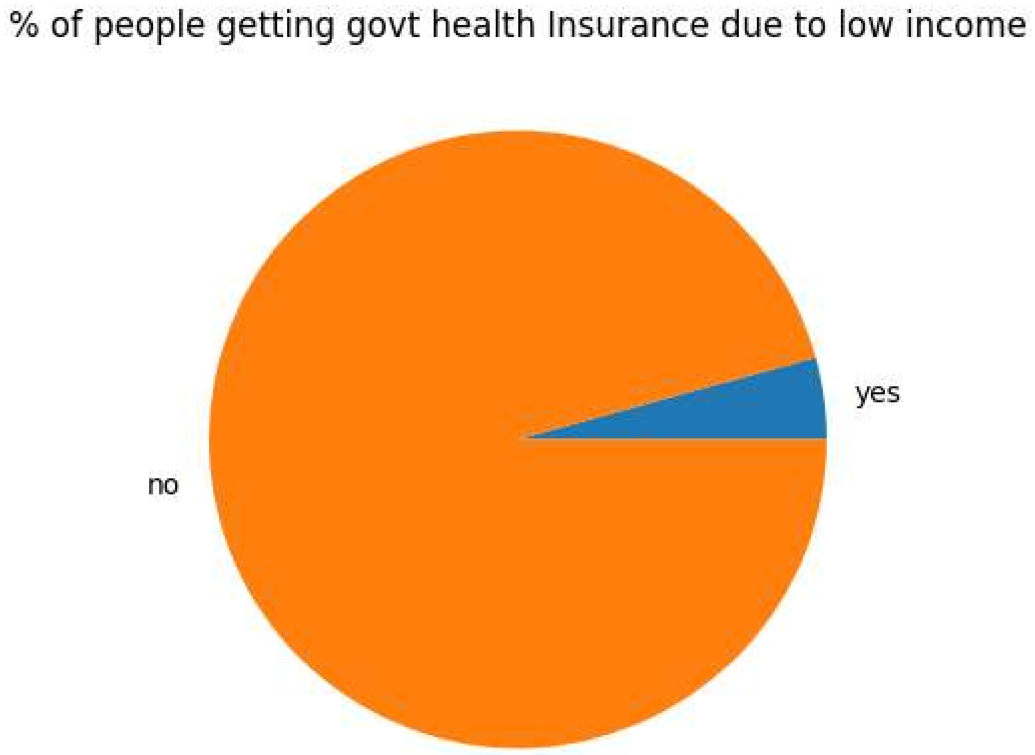
```
In [15]: sns.histplot(df.gender,bins=2)
```

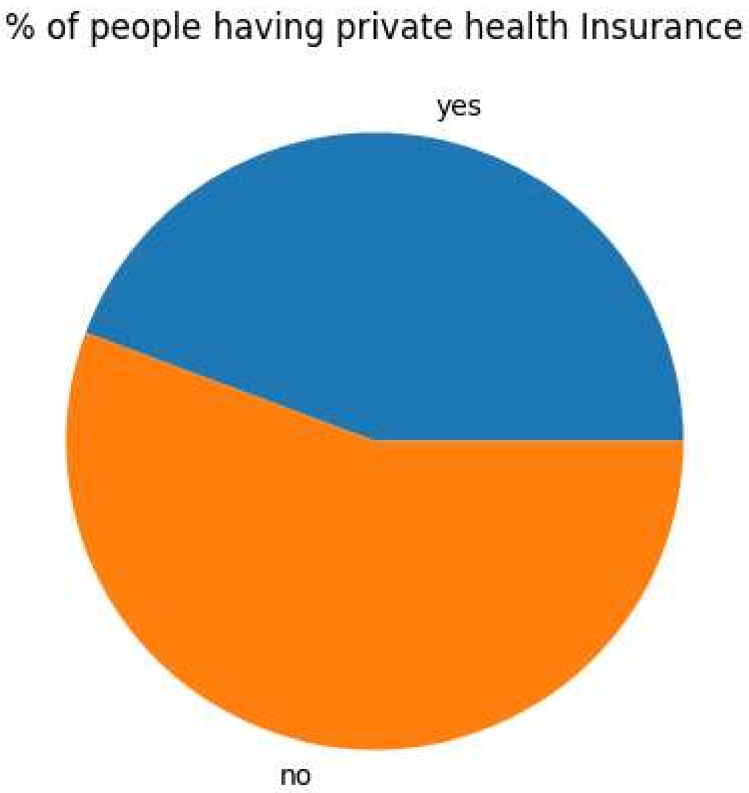
```
Out[15]: <AxesSubplot: xlabel='gender', ylabel='Count'>
```

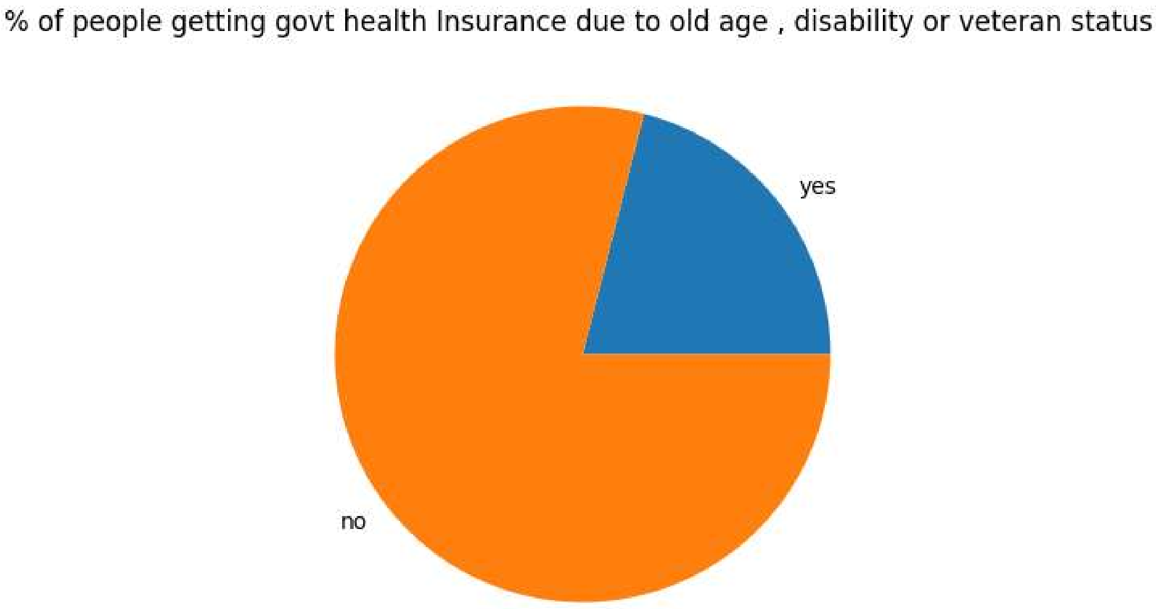


visualize the percentage of people getting govt health insurance due to low income due to old age and also the percentage of people having private health

In [18]:
```
# % of people getting govt insurance due to low income
label = ['yes','no']
Y = df[df['freepoor']=='yes']
N = df[df['freepoor']=='no']
x = [Y.shape[0],N.shape[0]]
plt.figure(figsize=(5,5))
plt.pie(x,labels=label)
plt.title("% of people getting govt health Insurance due to low income")
plt.show()
# % of people having Private Insurance
Y = df[df['private']=='yes']
N = df[df['private']=='no']
x =[Y.shape[0],N.shape[0]]
plt.figure(figsize=(5,5))
plt.pie(x,labels=label)
plt.title("% of people having private health Insurance")
plt.show()
# % of people getting govt Insurance due to old age, disability or veteran sta
Y = df[df['freerepat']=='yes']
N = df[df['freerepat']== 'no']
x = [Y.shape[0],N.shape[0]]
plt.figure(figsize=(5,5))
plt.pie(x,labels=label)
plt.title("% of people getting govt health Insurance due to old age , disabili
plt.show()
```


% of people getting govt health Insurance due to low income

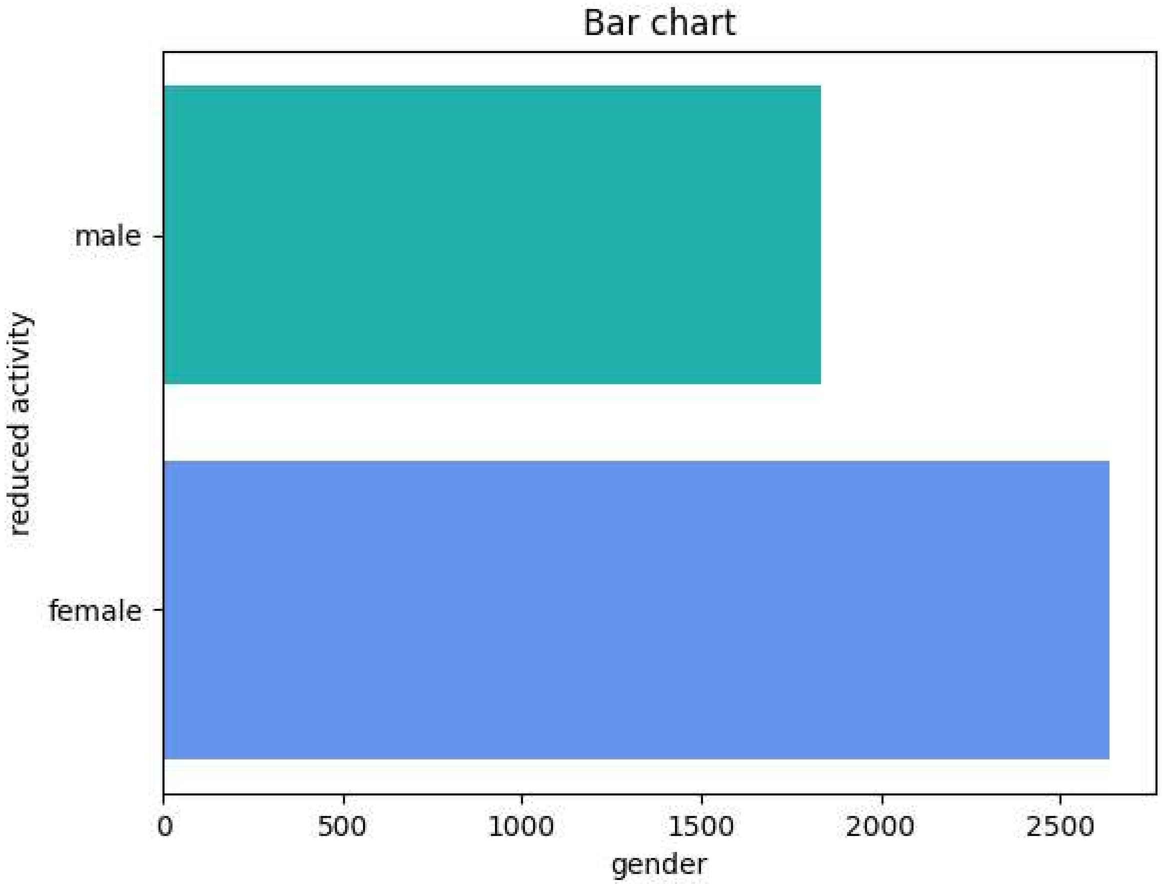

% of people having private health Insurance


% of people getting govt health Insurance due to old age , disability or veteran status

plot a horizontal bar chart to analyze the reduced days of activities due to illness based on gender

In [19]:

```python
db = df.groupby('gender')['reduced'].sum().to_frame().reset_index()
#creating the bar chart
plt.barh(db['gender'],db['reduced'],color = ['cornflowerblue','lightseagreen']
plt.title('Bar chart')
plt.xlabel('gender')
plt.ylabel('reduced activity')
plt.show()
```


Bar chart
male
female
reduced activity
gender