In [1]:

```
import matplotlib.pyplot as plt
import pandas as pd
import numpy as np
import seaborn as sns
```

# Read the dataset

1.Read the dataset

In [2]:

```
df = pd.read_csv("DoctorVisits.csv")
```

In [3]:

```
df.head(15)
```

Out[3]:

	Unnamed: 0	visits	gender	age	income	illness	reduced	health	private	freepoor	freerepat	nchronic	lchronic
0	1	1	female	0.19	0.55	1	4	1	yes	no	no	no	no
1	2	1	female	0.19	0.45	1	2	1	yes	no	no	no	no
2	3	1	male	0.19	0.90	3	0	0	no	no	no	no	no
3	4	1	male	0.19	0.15	1	0	0	no	no	no	no	no
4	5	1	male	0.19	0.45	2	5	1	no	no	no	yes	no
5	6	1	female	0.19	0.35	5	1	9	no	no	no	yes	no
6	7	1	female	0.19	0.55	4	0	2	no	no	no	no	no
7	8	1	female	0.19	0.15	3	0	6	no	no	no	no	no
8	9	1	female	0.19	0.65	2	0	5	yes	no	no	no	no
9	10	1	male	0.19	0.15	1	0	0	yes	no	no	no	no
10	11	1	male	0.19	0.45	1	0	0	no	no	no	no	no
11	12	1	male	0.19	0.25	2	0	2	no	no	yes	no	no
12	13	2	male	0.19	0.55	3	13	1	no	no	no	yes	no
13	14	1	male	0.19	0.45	4	7	6	no	no	no	yes	no
14	15	1	male	0.19	0.25	3	1	0	yes	no	no	yes	no

2. Display complete information about the columns of the dataset such as column name,count,data type and over all memory usage

In [4]:

```
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
```

3.Find out the total no.of people based on their count of illness

In [5]:

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

Out[5]:

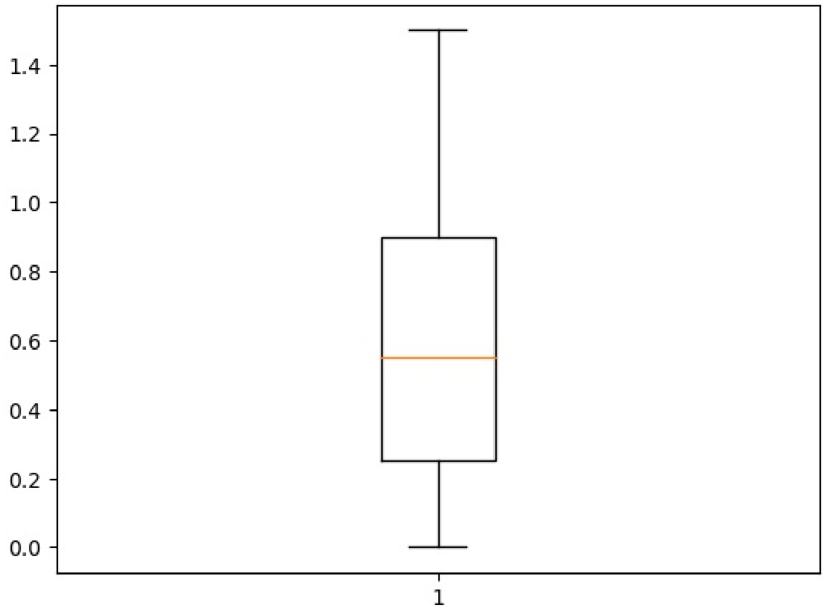
```
1    1638
0    1554
2     946
3     542
4     274
5     236
Name: illness, dtype: int64
```

4.Visualize and analyse the maximum minimum and medium

4.Visualize and analyse the maximum,minimum and medium income

In [6]:

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



5.Find out the no of days of reduced activity of male and female seperatly due to illness

In [7]:

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

```
C:\Users\prath\AppData\Local\Temp\ipykernel_21252\1847069239.py:1: FutureWarning: The default value of numeric_
only in DataFrameGroupBy.mean is deprecated. In a future version, numeric_only will default to False. Either sp
ecify numeric_only or select only columns which should be valid for the function.
  df.groupby(['gender', 'reduced']).mean()
```

Out[7]:

		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

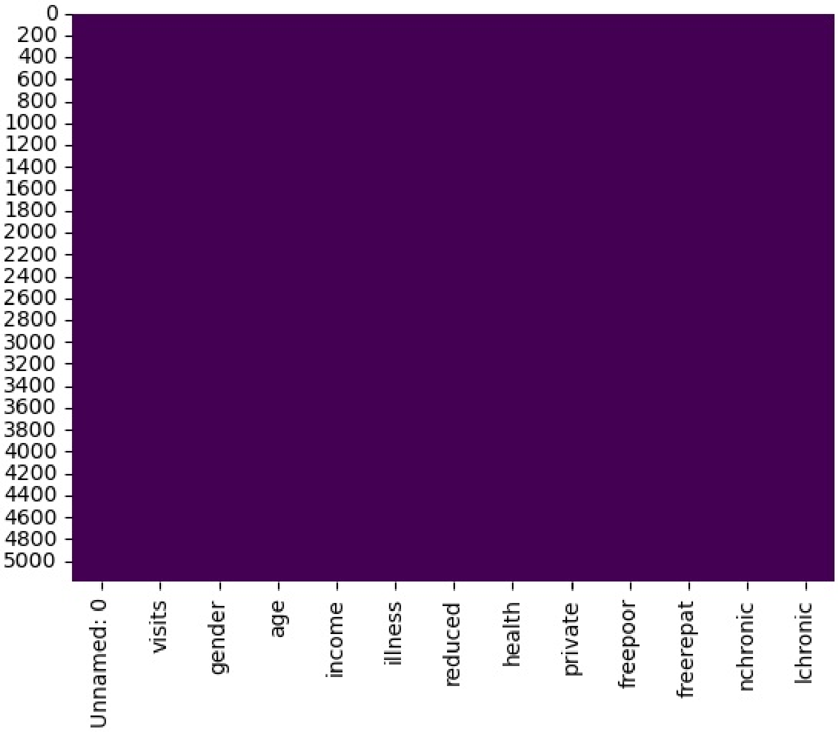
6.Visualize is there is any missing values in the dataset based on a heat map

In [8]:

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

Out[8]:

```
<Axes: >
```



7.Find out the correlation between variables in the given dataset correlation between different variables

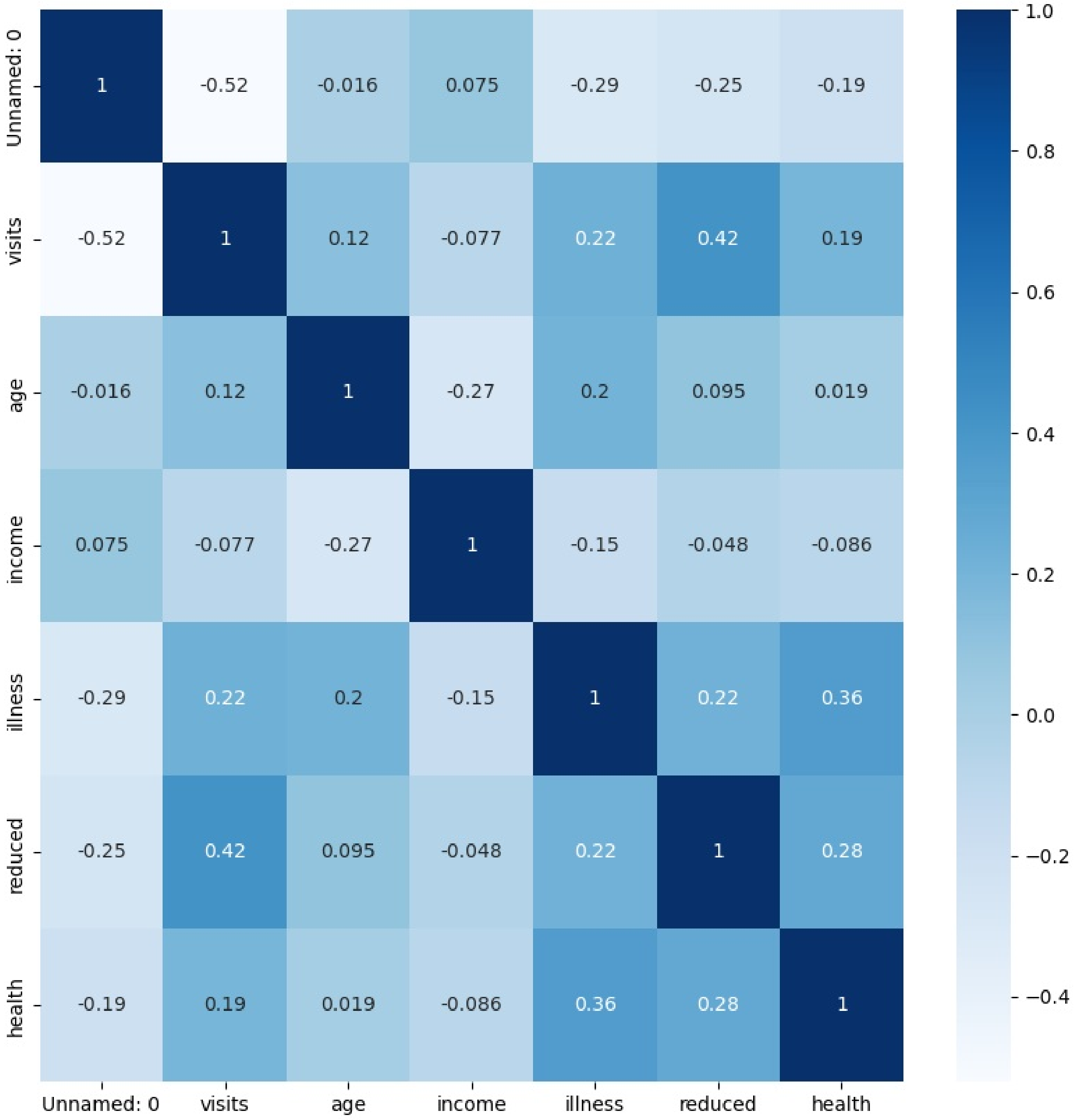
In [9]:

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

```
C:\Users\prath\AppData\Local\Temp\ipykernel_21252\183792097.py:2: FutureWarning: The default value of numeric_o
nly in DataFrame.corr is deprecated. In a future version, it will default to False. Select only valid columns o
r specify the value of numeric_only to silence this warning.
  sns.heatmap(df.corr(),cbar=True,annot=True,cmap='Blues')
```

Out[9]:

```
<Axes: >
```



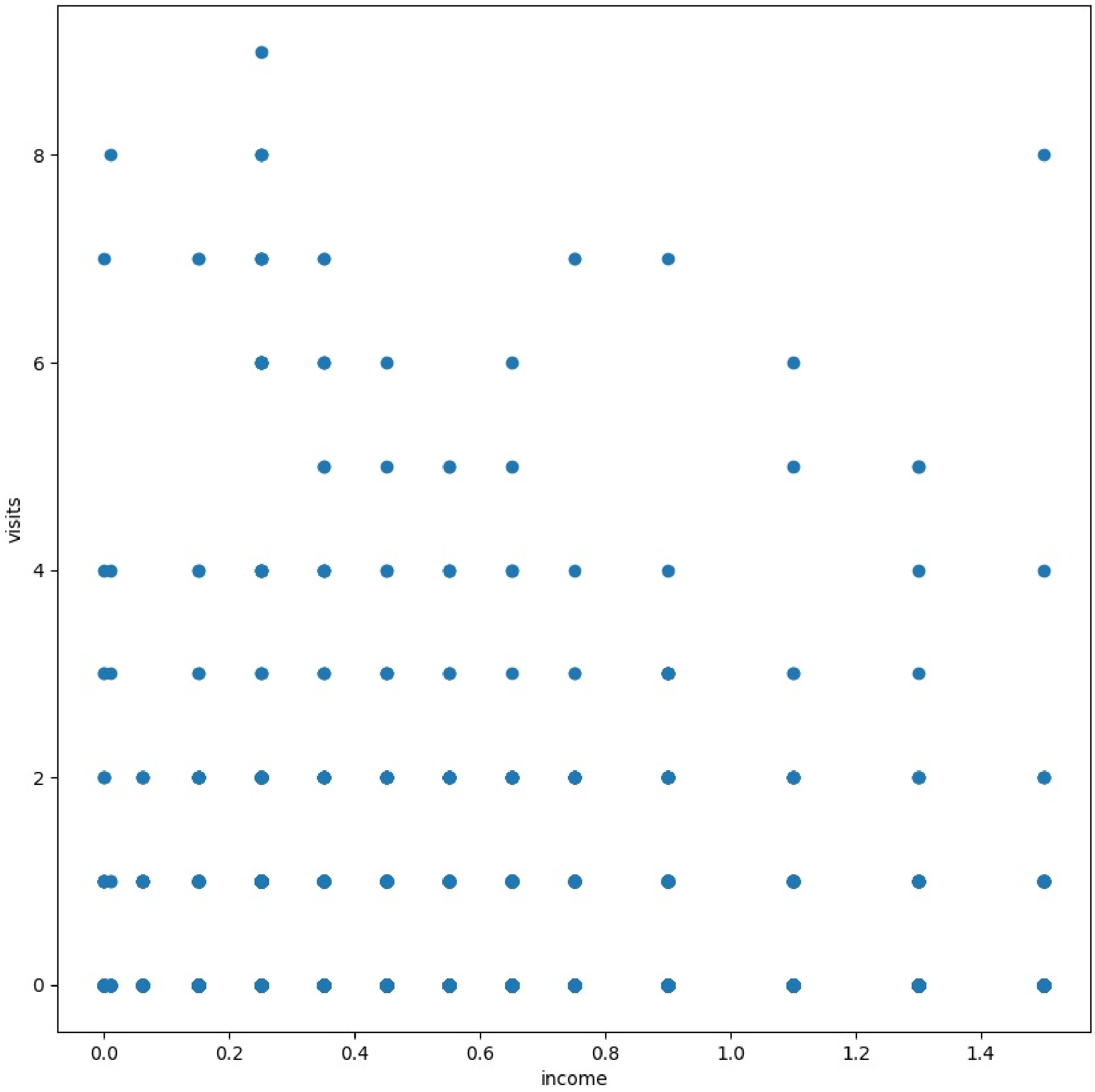
8. Analyse how the income of a patient affects the no of visits to the hospital

In [10]:

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

Out[10]:

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



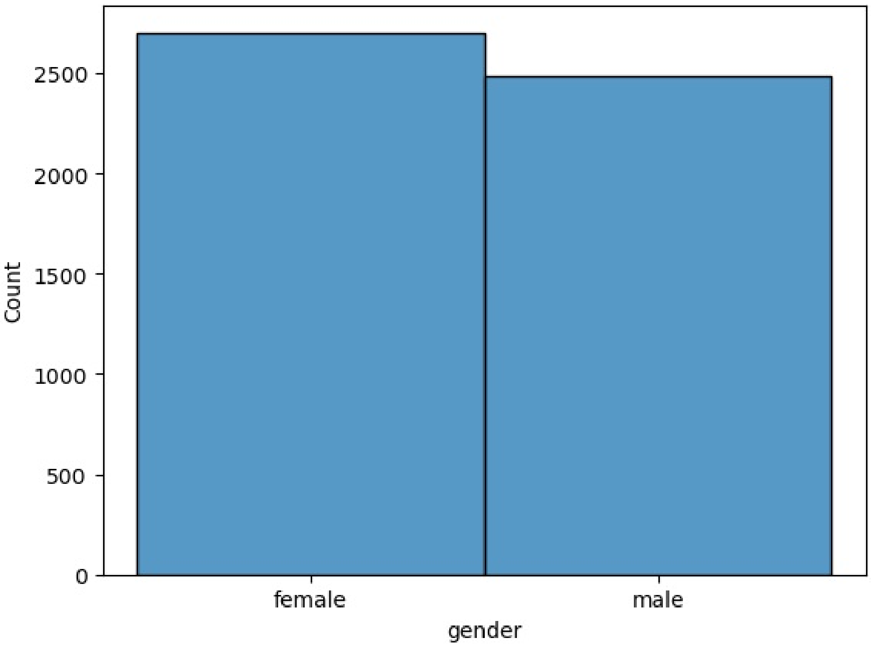
9.Count and visualize the no of males and females affected by illness

In [11]:

```
sns.histplot(df.gender,bins=2)
```

Out[11]:

```
<Axes: xlabel='gender', ylabel='Count'>
```

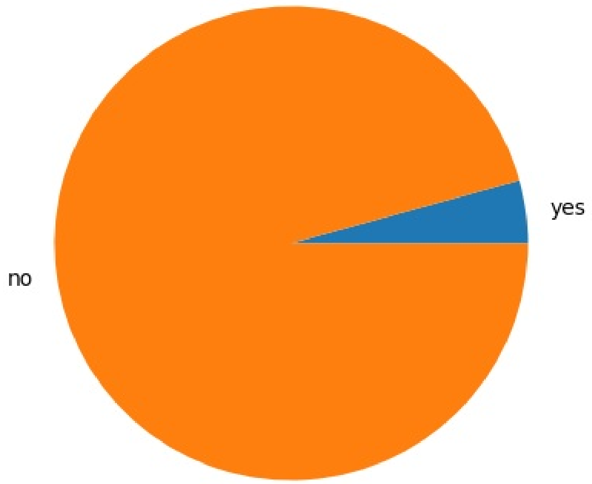


10. Visualize the percentage of people getting govt health insurance due to low income,due to old age and also the percentage of people having private health insurance

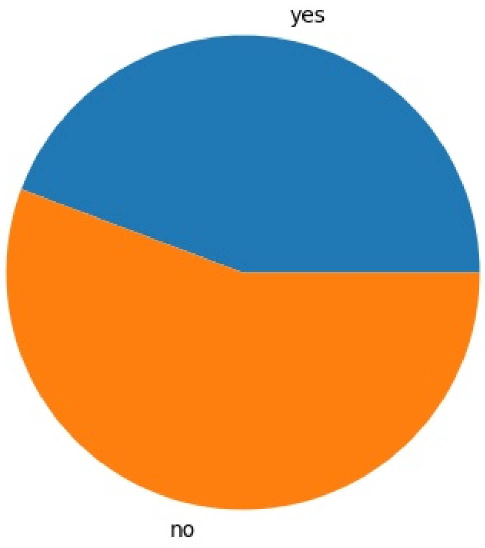
In [12]:

```
# % 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 veyeran status
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,disability or veteran status")
plt.show()
```

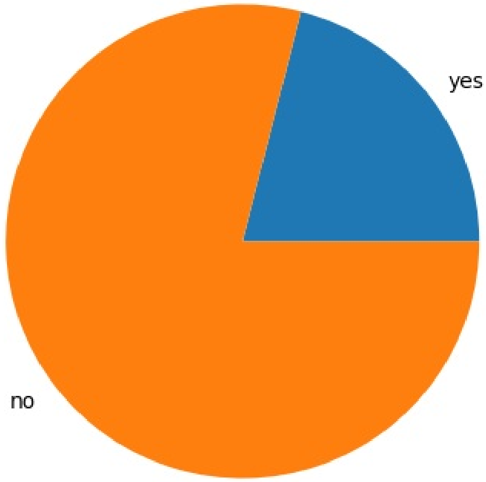
% of people getting govt health insurance due to low income



% of people having private health insurance



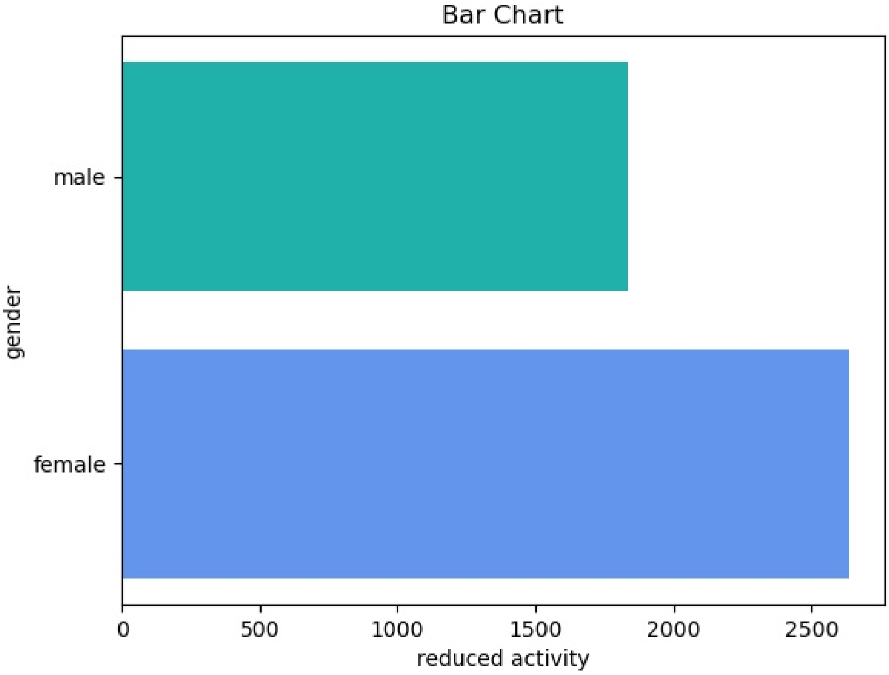
% of people getting govt health insurance due to old age,disability or veteran status



11. Plot a horizontal bar chart to analyse the reduced days of activity due to illness based on gender

```
In [15]: db = df.groupby('gender')['reduced'].sum().to_frame().reset_index()
```

```
#Creating the bar chart
plt.barh(db['gender'],db['reduced'],color = ['cornflowerblue','lightseagreen'])
#Adding the asthetics
plt.title('Bar Chart')
plt.xlabel('reduced activity')
plt.ylabel('gender')
#show the plot
plt.show()
```



In [ ]:

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