In [2]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import warnings
warnings.filterwarnings('ignore')
```

In [4]:

```
df=pd.read_csv('Downloads/Heart_Disease_Prediction.csv')
```

In [5]:

```
df.head()
```

Out[5]:

	Age	Sex	Chest pain type	BP	Cholesterol	FBS over 120	EKG results	Max HR	Exercise angina	ST depression	Slope of ST	Numb vesse flu
0	70	1	4	130	322	0	2	109	0	2.4	2	
1	67	0	3	115	564	0	2	160	0	1.6	2	
2	57	1	2	124	261	0	0	141	0	0.3	1	
3	64	1	4	128	263	0	0	105	1	0.2	2	
4	74	0	2	120	269	0	2	121	1	0.2	1	

In [6]:

```
df.isnull().sum()
```

Out[6]:

```
Age                       0
Sex                       0
Chest pain type           0
BP                        0
Cholesterol               0
FBS over 120              0
EKG results               0
Max HR                    0
Exercise angina           0
ST depression             0
Slope of ST               0
Number of vessels fluro   0
Thallium                  0
Heart Disease             0
dtype: int64
```

In [7]:

```
print(df.info())
```

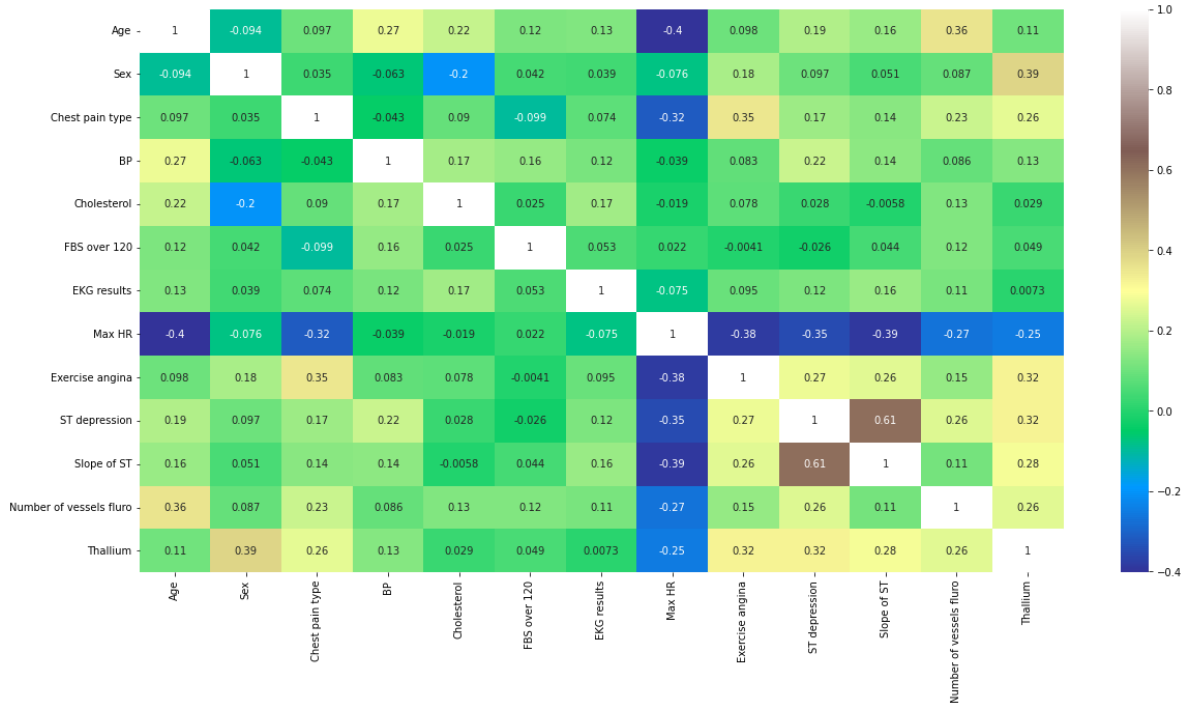
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 270 entries, 0 to 269
Data columns (total 14 columns):
 #   Column                    Non-Null Count  Dtype  
---  ------                    --------------  -----  
 0   Age                       270 non-null    int64  
 1   Sex                       270 non-null    int64  
 2   Chest pain type           270 non-null    int64  
 3   BP                        270 non-null    int64  
 4   Cholesterol               270 non-null    int64  
 5   FBS over 120              270 non-null    int64  
 6   EKG results               270 non-null    int64  
 7   Max HR                    270 non-null    int64  
 8   Exercise angina           270 non-null    int64  
 9   ST depression             270 non-null    float64
 10  Slope of ST               270 non-null    int64  
 11  Number of vessels fluro   270 non-null    int64  
 12  Thallium                  270 non-null    int64  
 13  Heart Disease             270 non-null    object 
dtypes: float64(1), int64(12), object(1)
memory usage: 29.7+ KB
None
```

In [9]:

```
plt.figure(figsize=(20,10))
sns.heatmap(df.corr(), annot=True, cmap='terrain')
```

Out[9]:

<AxesSubplot:>

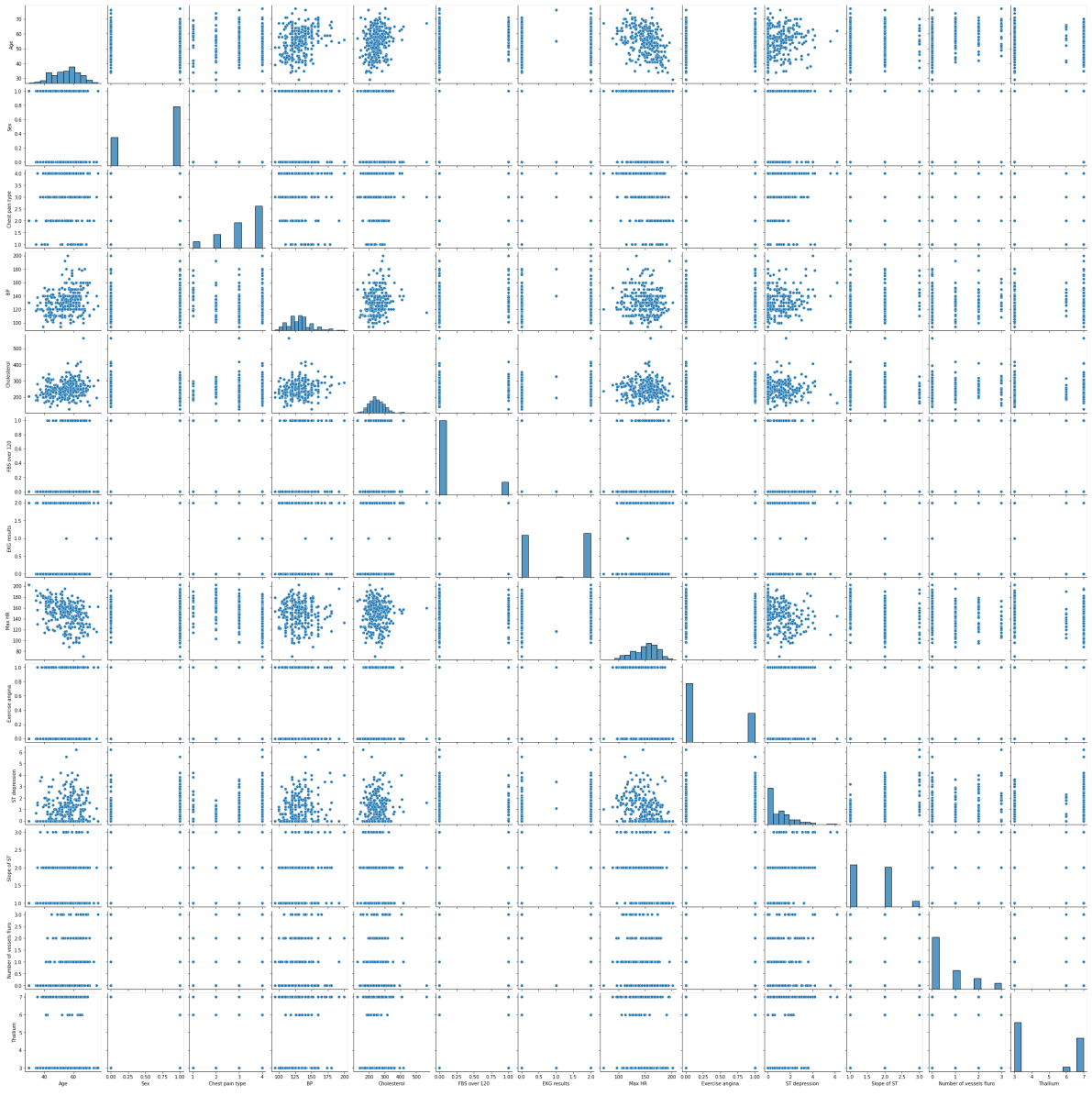


In [10]:

```
sns.pairplot(data=df)
```

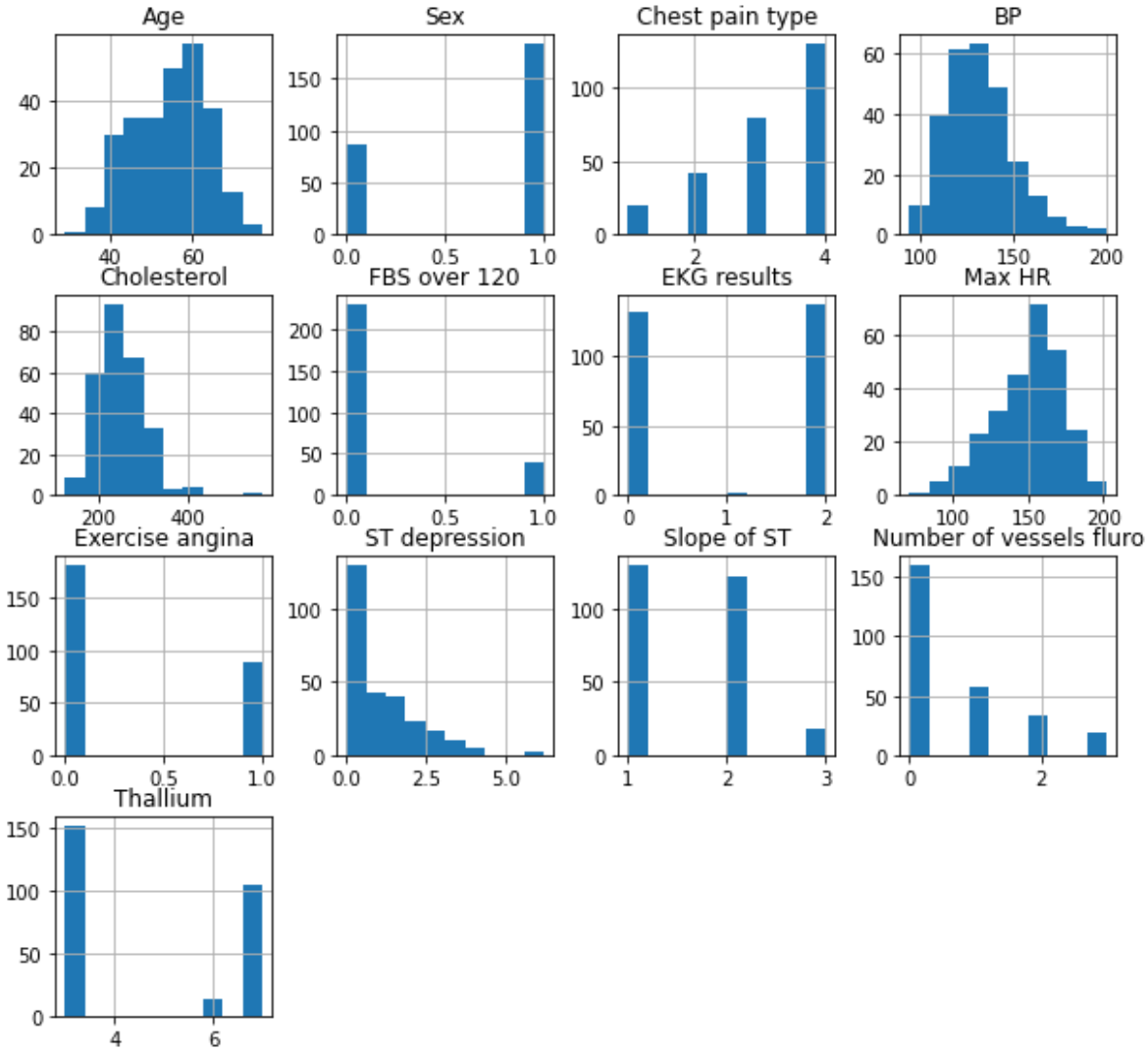
Out[10]:

```
<seaborn.axisgrid.PairGrid at 0x2059aec2448>
```



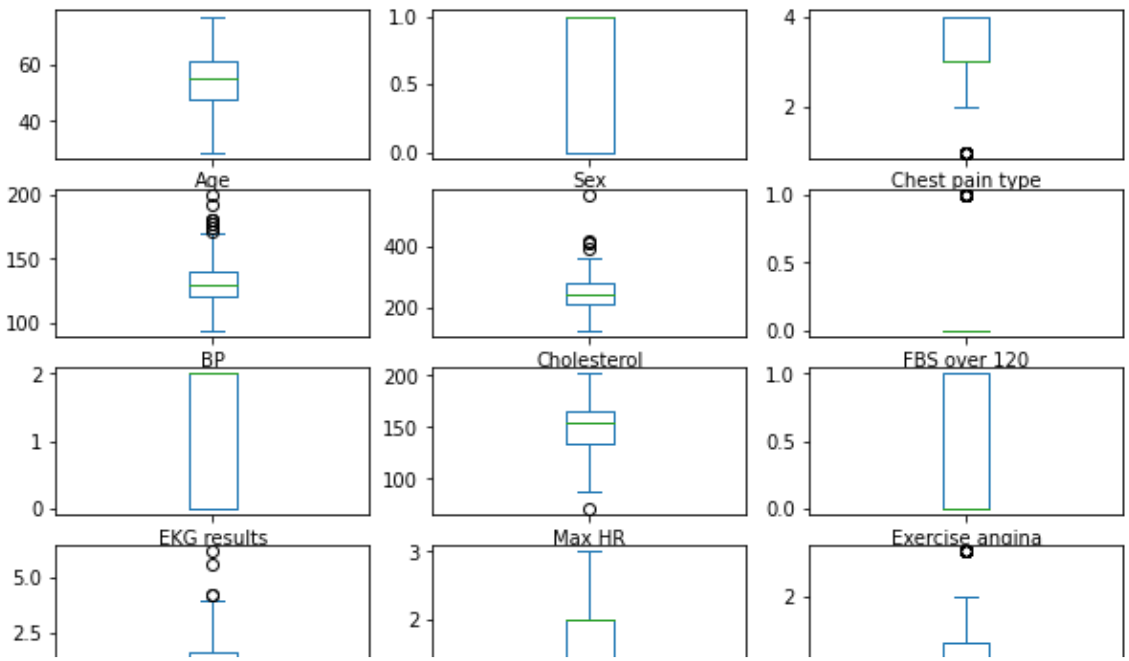
In [11]:

```
df.hist(figsize=(10,12), layout=(5,4));
```



In [13]:

```
df.plot(kind='box', subplots=True, layout=(6,3), figsize=(10,10))
plt.show()
```

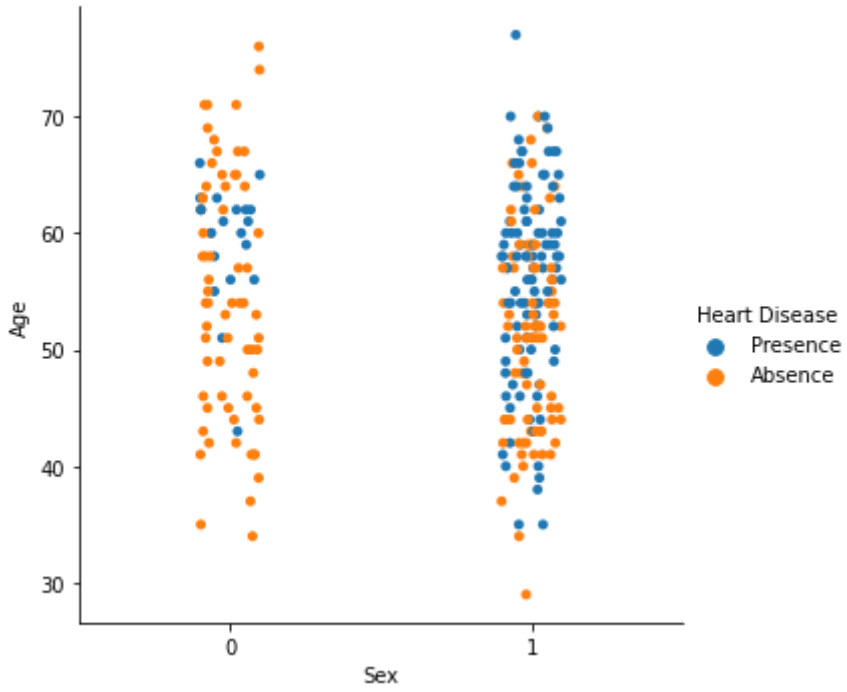


In [19]:

```
sns.catplot(data=df, x='Sex', y='Age', hue='Heart Disease', palette='tab10')
```

Out[19]:

```
<seaborn.axisgrid.FacetGrid at 0x205a367dcc8>
```

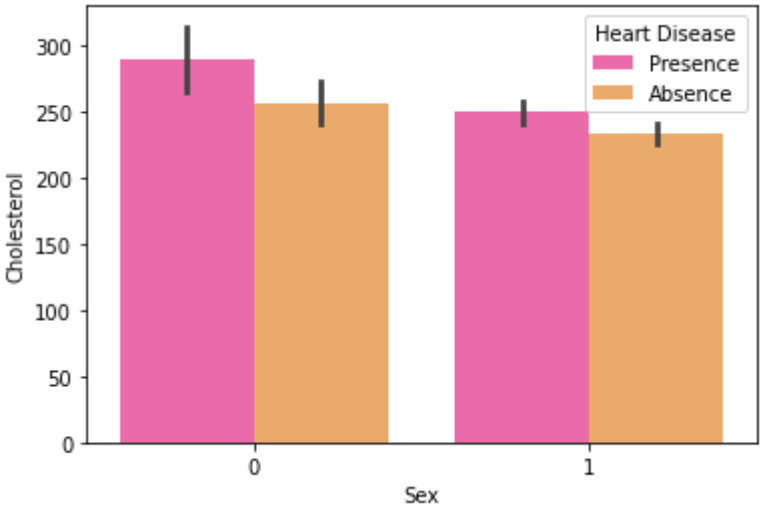


In [20]:

```
sns.barplot(data=df, x='Sex', y='Cholesterol', hue='Heart Disease', palette='spring')
```

Out[20]:

```
<AxesSubplot:xlabel='Sex', ylabel='Cholesterol'>
```



In [21]:

```
df['Sex'].value_counts()
```

Out[21]:

```
1    183
0     87
Name: Sex, dtype: int64
```

In [22]:

```
df['Chest pain type'].value_counts()
```

Out[22]:

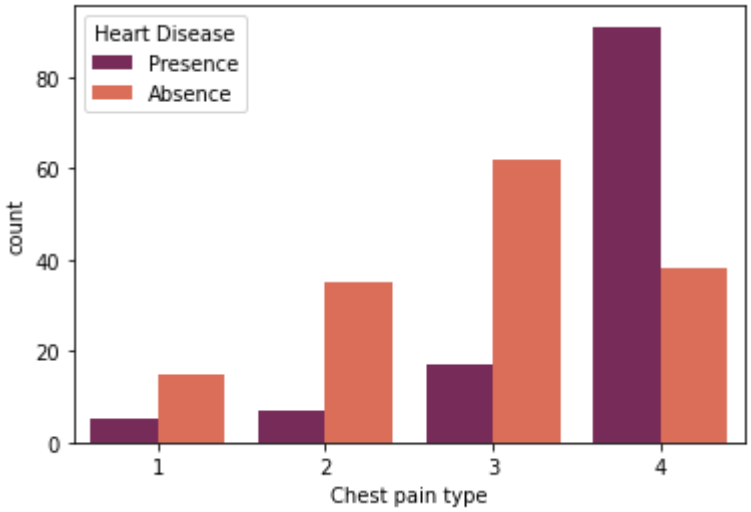
```
4    129
3     79
2     42
1     20
Name: Chest pain type, dtype: int64
```

In [23]:

```
sns.countplot(x='Chest pain type', hue='Heart Disease' , data=df, palette='rocket')
```

Out[23]:

```
<AxesSubplot:xlabel='Chest pain type', ylabel='count'>
```



In [24]:

```
gen = pd.crosstab(df['Sex'], df['Heart Disease'])
print(gen)
```

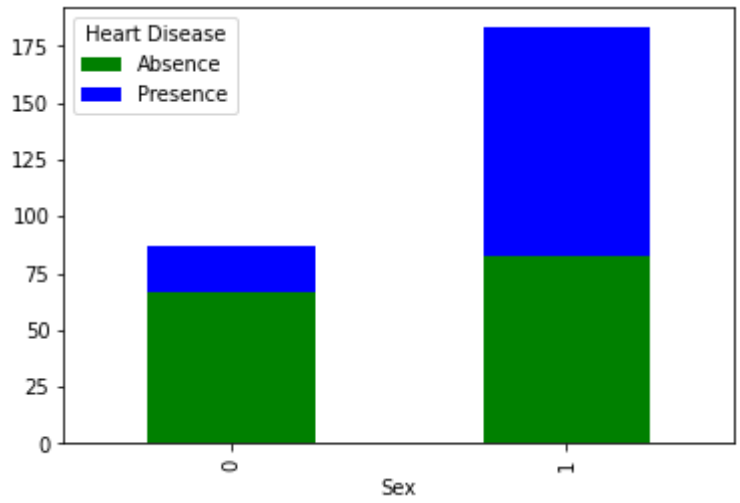
```
Heart Disease  Absence  Presence
Sex
0                   67        20
1                   83       100
```

In [25]:

```
gen.plot(kind='bar', stacked='True', color=['green','blue'],grid=False)
```

Out[25]:

```
<AxesSubplot:xlabel='Sex'>
```



In [ ]:

```

```

In [ ]:

```

```