

Heart Failure

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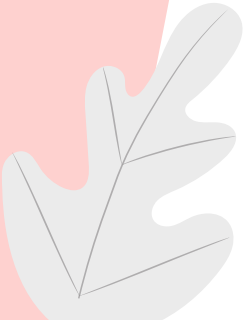
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Overview Heart failure



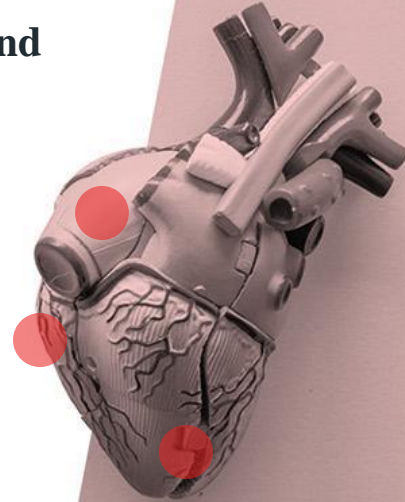
Heart failure is when the heart is unable to pump blood around the body properly.

Causes of heart failure

- coronary heart disease (high cholesterol)
- high blood pressure
- congenital heart disease
- Sometimes anaemia or drinking too much alcohol.

The main symptoms of heart failure are:

- Chest pain (angina)
- breathlessness after activity or at rest
- feeling tired most of the time and finding exercise exhausting
- swollen ankles and legs



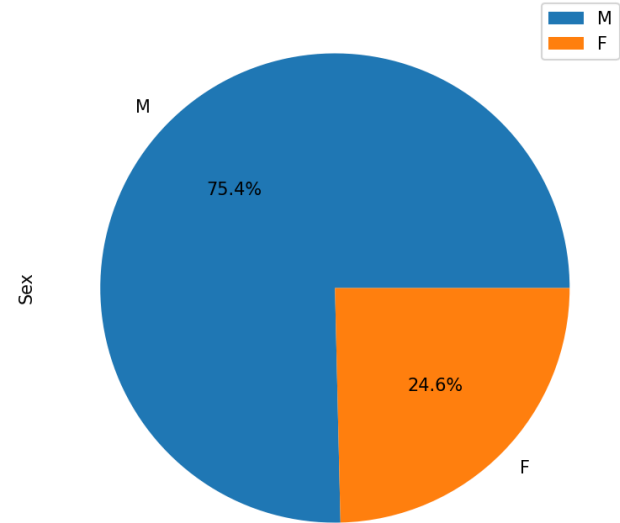
Data structure



Rows: 999

Columns: 12 columns such as:

- **Age**: mean of 54 y
- **Sex**: Male
- **Chest Pain Type**: ASY (Asymptomatic)
- **Resting BP**: mean of 132 /90
- **Cholesterol**: Mean ?

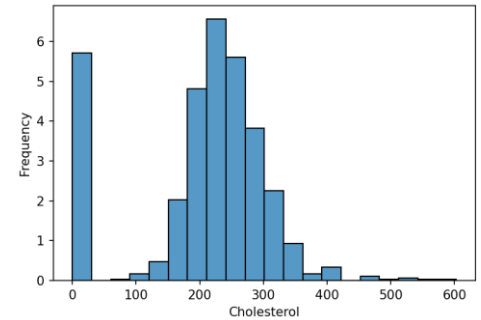


	Age	Sex	ChestPainType	RestingBP	Cholesterol	FastingBS	RestingECG	MaxHR	ExerciseAngina	Oldpeak	ST_Slope	I
294	32	M	TA	95	0	1	Normal	127	N	0.7	Up	
875	58	F	NAP	120	340	0	Normal	172	N	0.0	Up	
954	90	F	ASY	120	220	0	Normal	170	N	0.0	Up	
362	56	M	NAP	155	0	0	ST	99	N	0.0	Flat	

DATA CLEANING

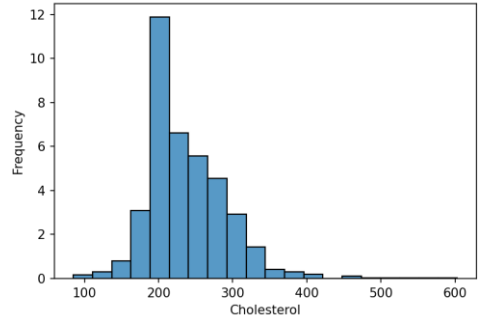


	Age	Sex	ChestPainType	RestingBP	Cholesterol	FastingBS	RestingECG	MaxHR
294	32	M	TA	95	0	1	Normal	127
875	58	F	NAP	120	340	0	Normal	172
954	90	F	ASY	120	220	0	Normal	170
362	56	M	NAP	155	0	0	ST	99



What is the subsense for the value that contains zero ?

- **Mode ? WRONG**, because it is used for categorical values
- **Median ? WRONG**, because it is used for skewed distribution
- **Mean ? Correct**, because it is used for normal distribution

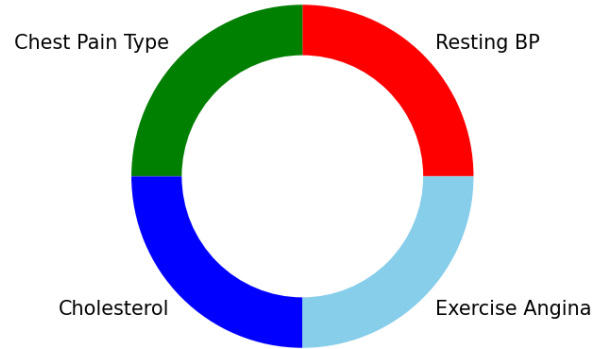


Data Analysis



In the analysis we will take four factors:

- Chest pain type
- Resting BP
- Exercise angina
- Cholesterol

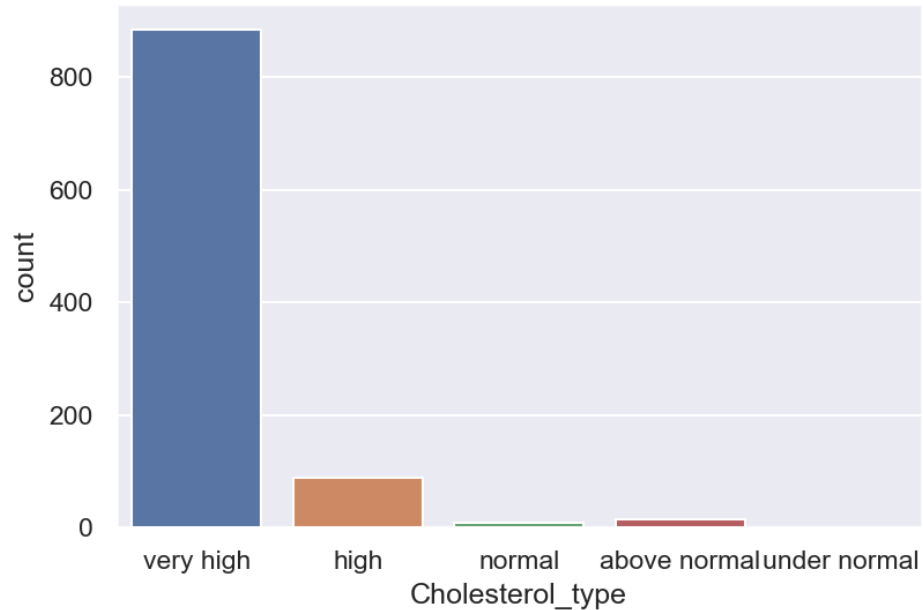


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- ❖ The most patients with chest pain were facing ASA, Asymptomatic with number of 405.
 - ❖ The patients with hypertension ($>140/90$) and heart failure were 492.
 - ❖ The patients who have exercise angina were 337.
 - ❖ The patients who have high cholesterol and above were 529.

THE RESULT



This is a chart showing high cholesterol is the most common cause of the heart failure:



Conclusion



- Heart failure is a serious long term condition that will usually continue to get slowly worse over time
- It severely limit the activities you are able to do and is often eventually fatal.
- It is very important to change your lifestyle to healthy diet to avoid the cholesterol which is the main cause leading to heart failure.
- In the future, we aspire to minimize the occurrence of heart failure by prediction of the causes earlier.