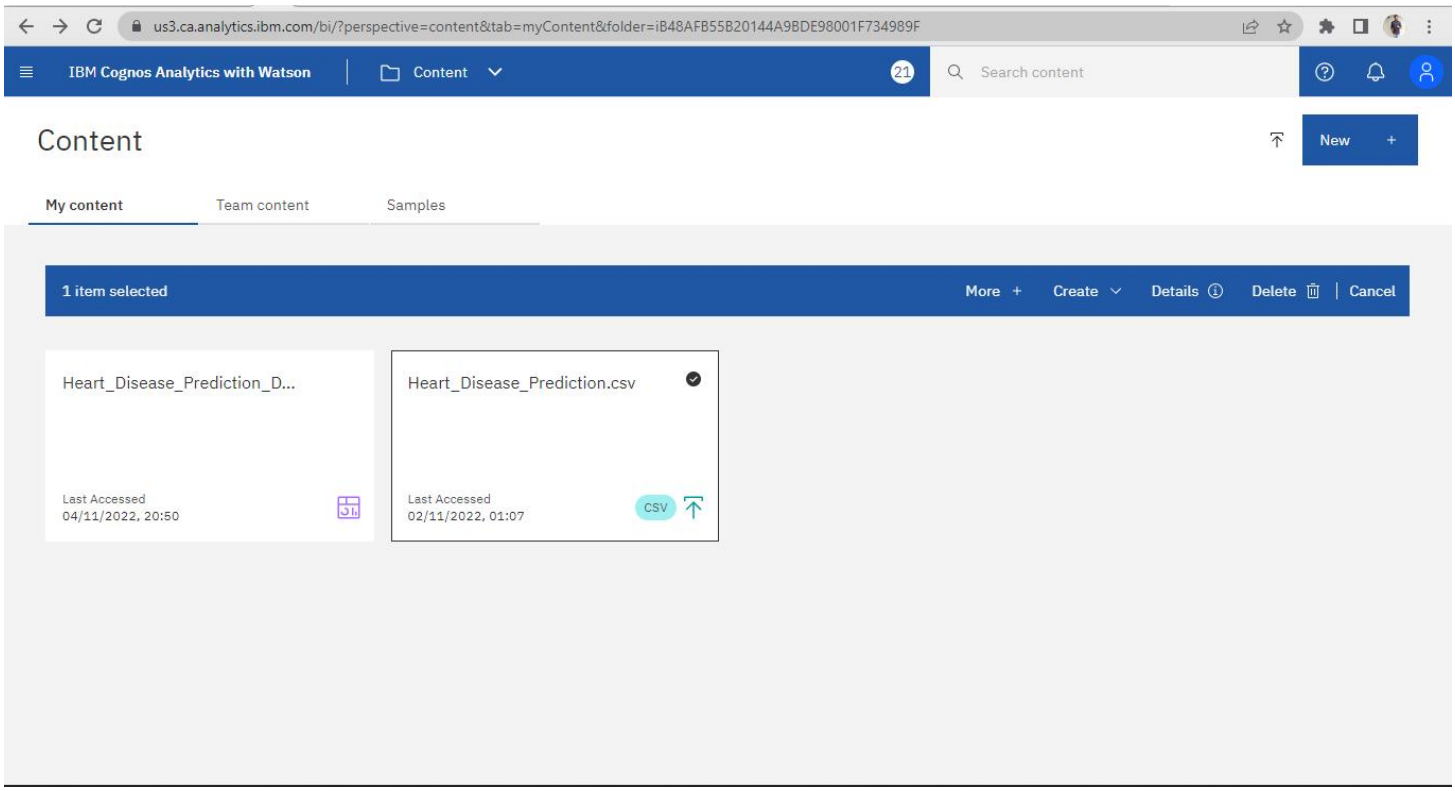
Date	15 November 2022
Team ID	PNT2022TMID30384
Project Name	Visualizing and Predicting Heart Disease with an Interactive Dashboard

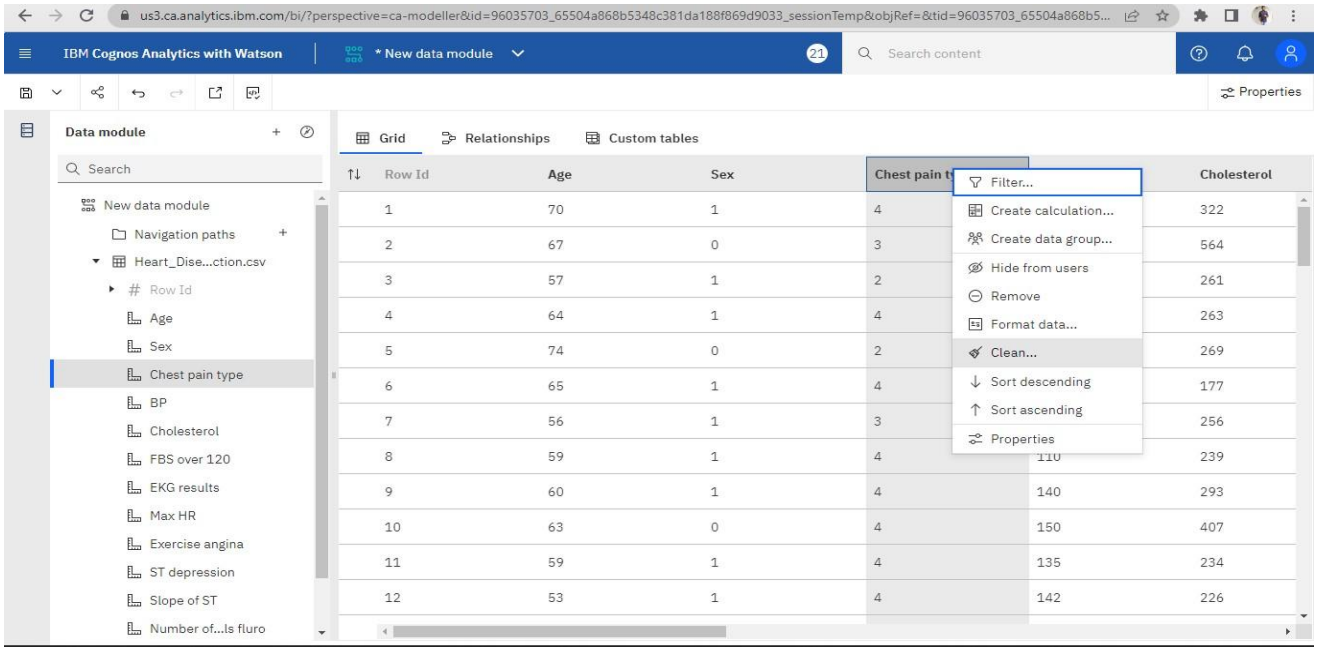
Uploading Heart disease Prediction Dataset Using Cognos

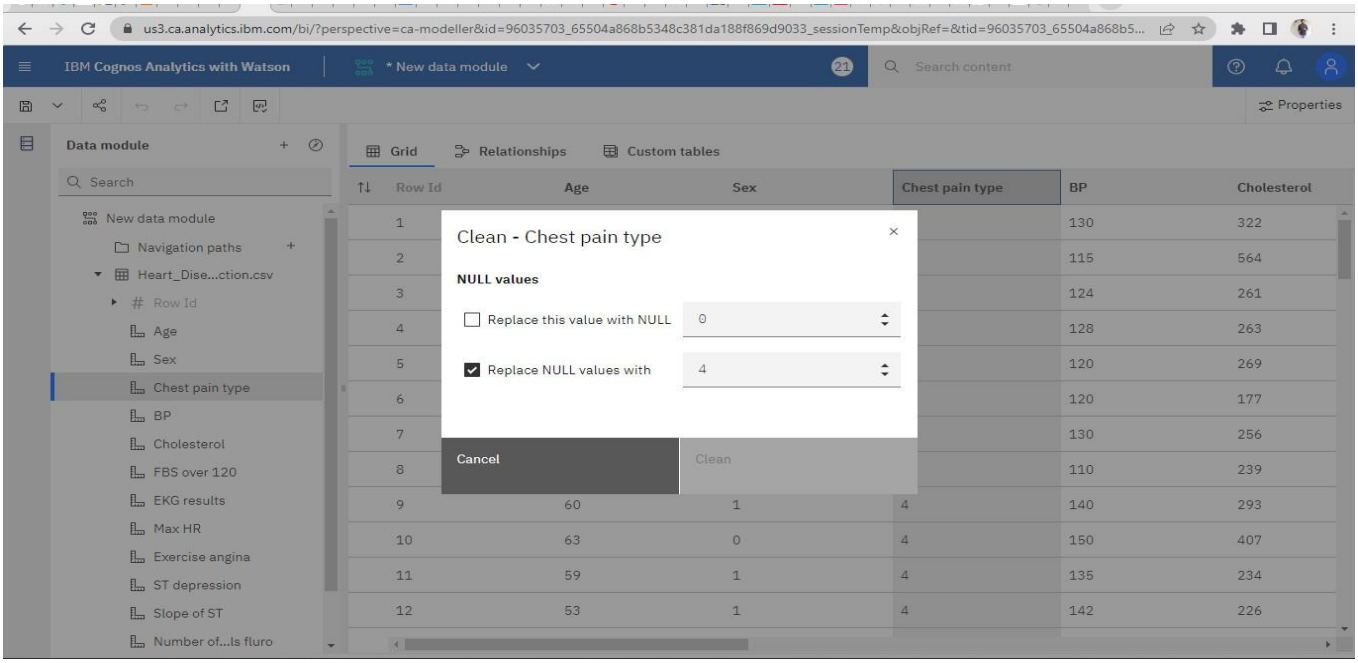
Analysis:USN-1:

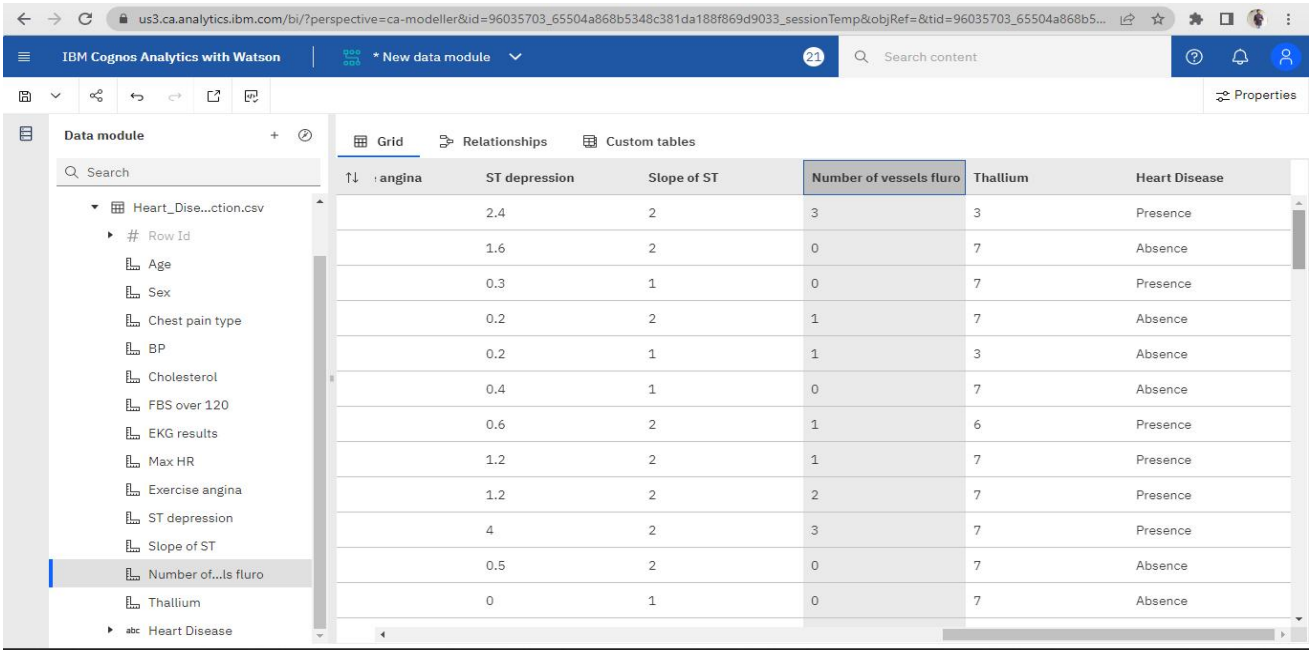
- As a user, I can gather the details of the patients and storing the data set.
- Uploading the dataset of heart_disease_prediction.csv file to IBM Cognos Analytics

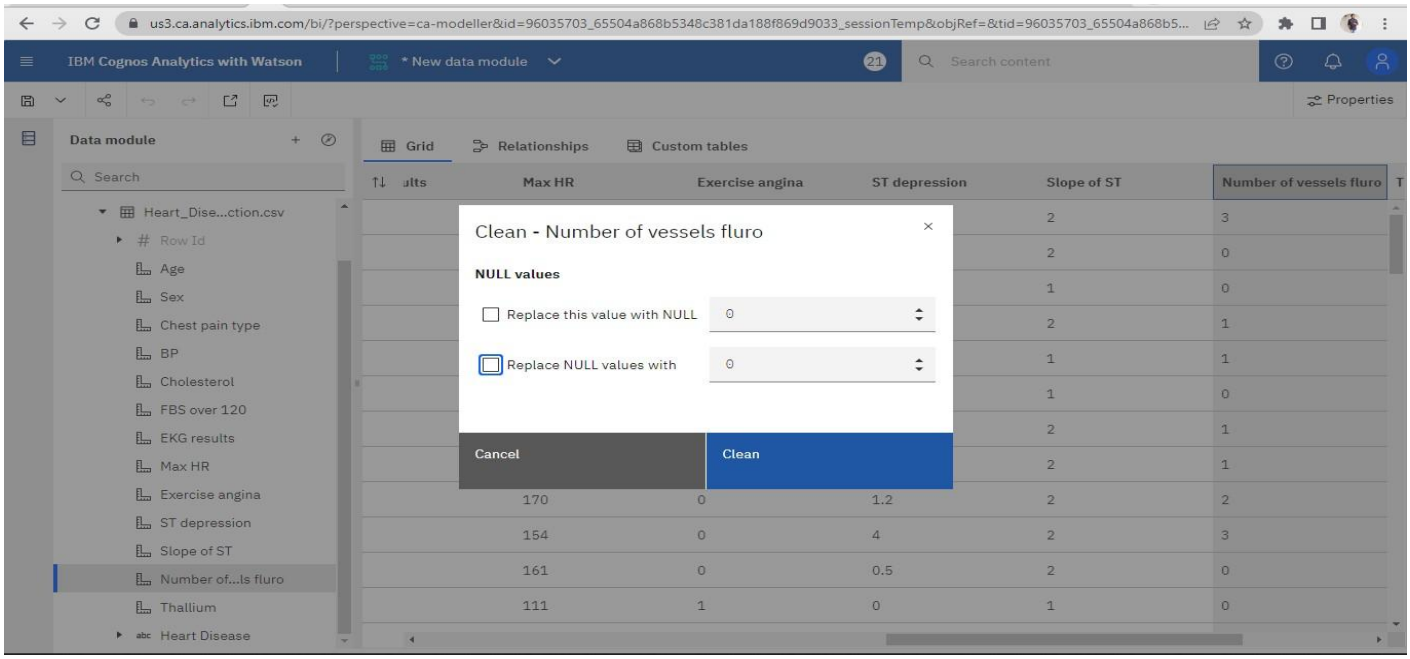


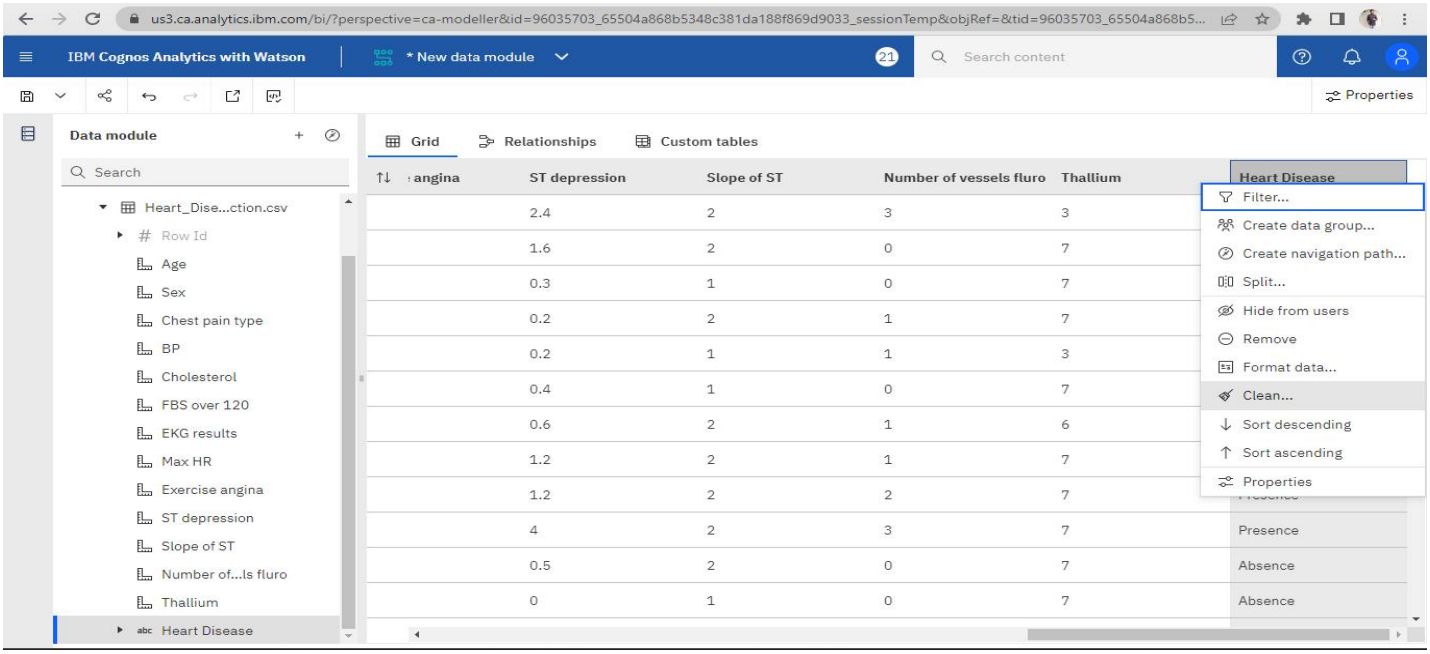
Data Cleaning and Data Processing using Cognos Analytics:USN-2:

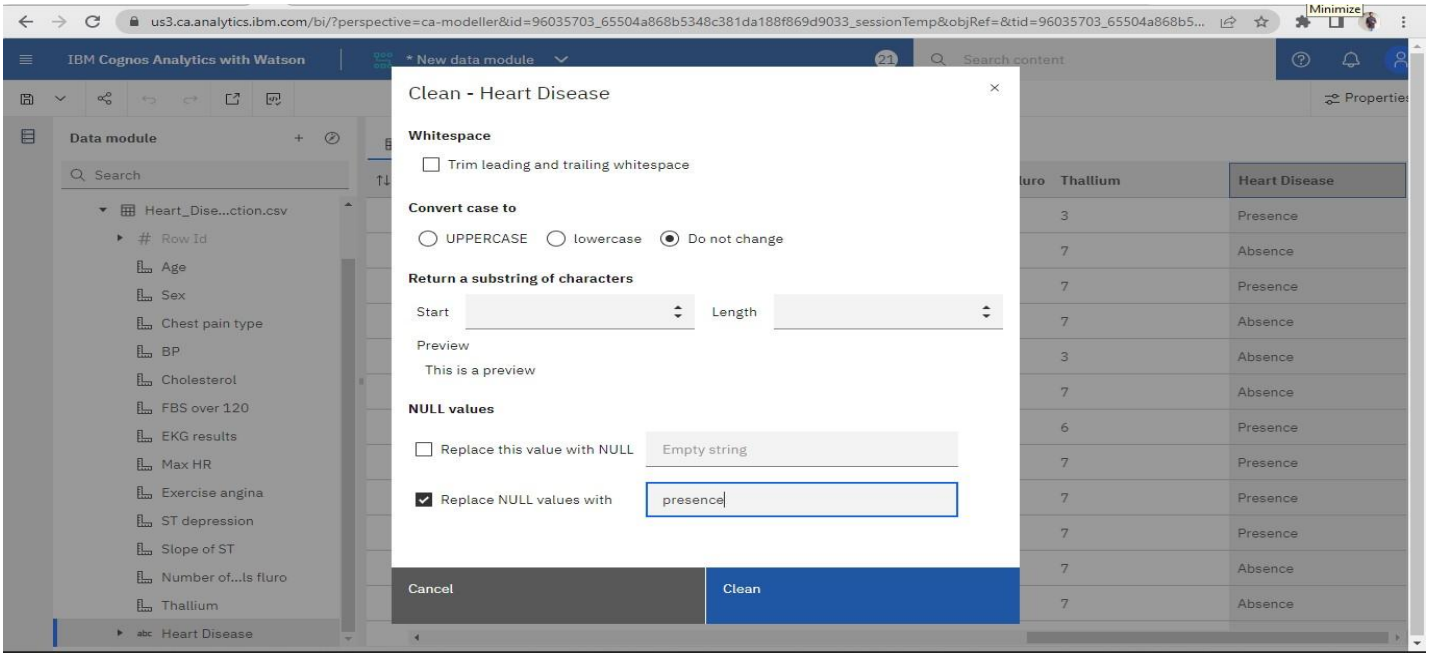


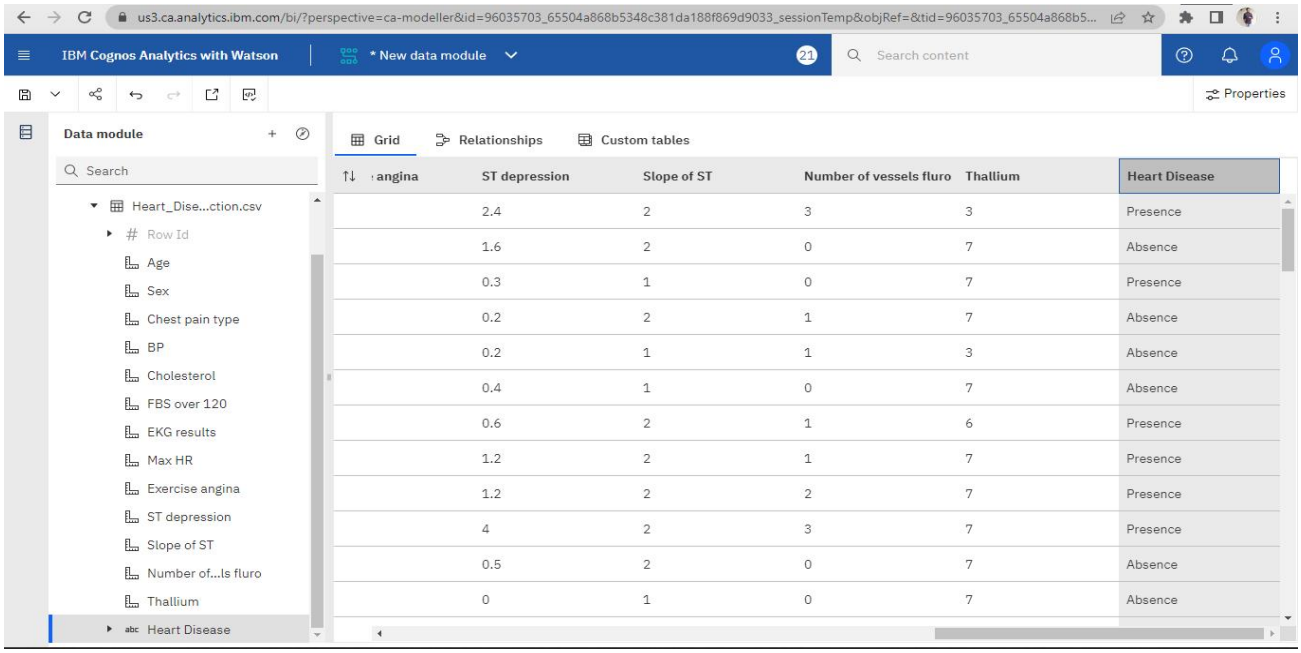



IBM Cognos Analytics with Watson
* New data module
Search content
Properties
Data module
Search
Heart_Dise...ction.csv
Row Id
Age
Sex
Chest pain type
BP
Cholesterol
FBS over 120
EKG results
Max HR
Exercise angina
ST depression
Slope of ST
Number of...ls fluro
Thallium
Heart Disease
Grid
Relationships
Custom tables
angina
ST depression
Slope of ST
Number of vessels fluro
Thallium
Heart Disease
2.4 2 3 3 Presence
1.6 2 0 7 Absence
0.3 1 0 7 Presence
0.2 2 1 7 Absence
0.2 1 1 3 Absence
0.4 1 0 7 Absence
0.6 2 1 6 Presence
1.2 2 1 7 Presence
1.2 2 2 7 Presence
4 2 3 7 Presence
0.5 2 0 7 Absence
0 1 0 7 Absence


IBM Cognos Analytics with Watson
* New data module
Search content
Properties
Data module
Search
Heart_Dise...ction.csv
Row Id
Age
Sex
Chest pain type
BP
Cholesterol
FBS over 120
EKG results
Max HR
Exercise angina
ST depression
Slope of ST
Number of...ls fluro
Thallium
Heart Disease
Grid
Relationships
Custom tables
Max HR
Exercise angina
ST depression
Slope of ST
Number of vessels fluro
Clean - Number of vessels fluro
NULL values
Replace this value with NULL
0
Replace NULL values with
0
Cancel
Clean
170 0 1.2 2 2
154 0 4 2 3
161 0 0.5 2 0
111 1 0 1 0

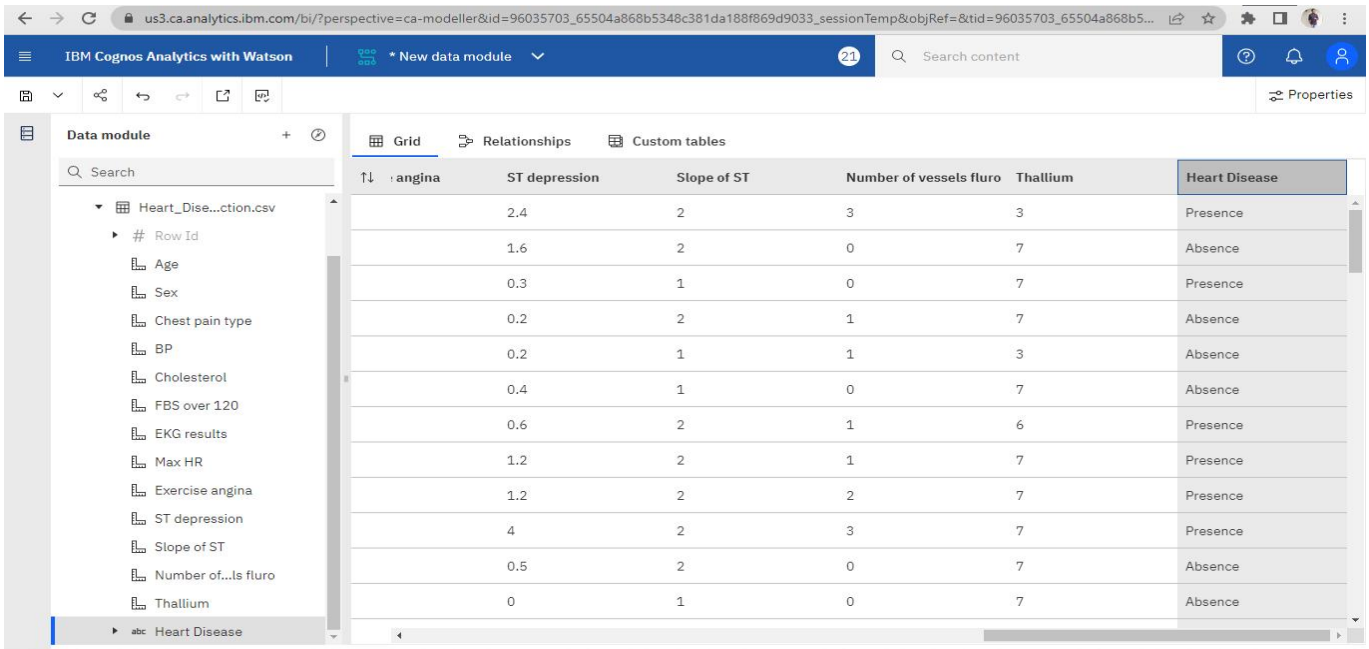

IBM Cognos Analytics with Watson
* New data module
Search content
Properties
Data module
Search
Heart_Dise...ction.csv
Row Id
Age
Sex
Chest pain type
BP
Cholesterol
FBS over 120
EKG results
Max HR
Exercise angina
ST depression
Slope of ST
Number of...ls fluro
Thallium
Heart Disease
Grid
Relationships
Custom tables
angina
ST depression
Slope of ST
Number of vessels fluro
Thallium
Heart Disease
2.4 2 3 3
1.6 2 0 7
0.3 1 0 7
0.2 2 1 7
0.2 1 1 3
0.4 1 0 7
0.6 2 1 6
1.2 2 1 7
1.2 2 2 7
4 2 3 7 Presence
0.5 2 0 7 Absence
0 1 0 7 Absence
Filter...
Create data group...
Create navigation path...
Split...
Hide from users
Remove
Format data...
Clean...
Sort descending
Sort ascending
Properties

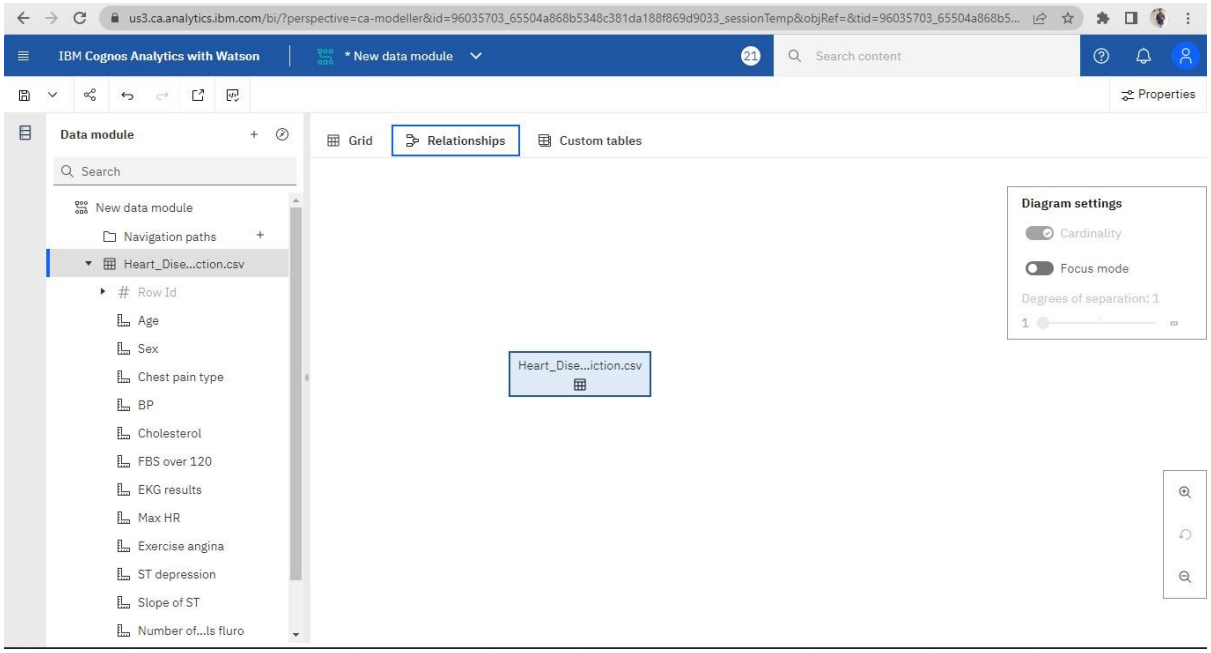

Clean - Heart Disease
Whitespace
Trim leading and trailing whitespace
Convert case to
UPPERCASE
lowercase
Do not change
Return a substring of characters
Start
Length
Preview
This is a preview
NULL values
Replace this value with NULL
Empty string
Replace NULL values with
presence
Cancel
Clean
Minimize



Creating the Data module Using Cognos Analytics USN 3

- As an Analyst, I collect Raw data and create the data module
- The data module create using Heart_Disease_predicition.csv dataset





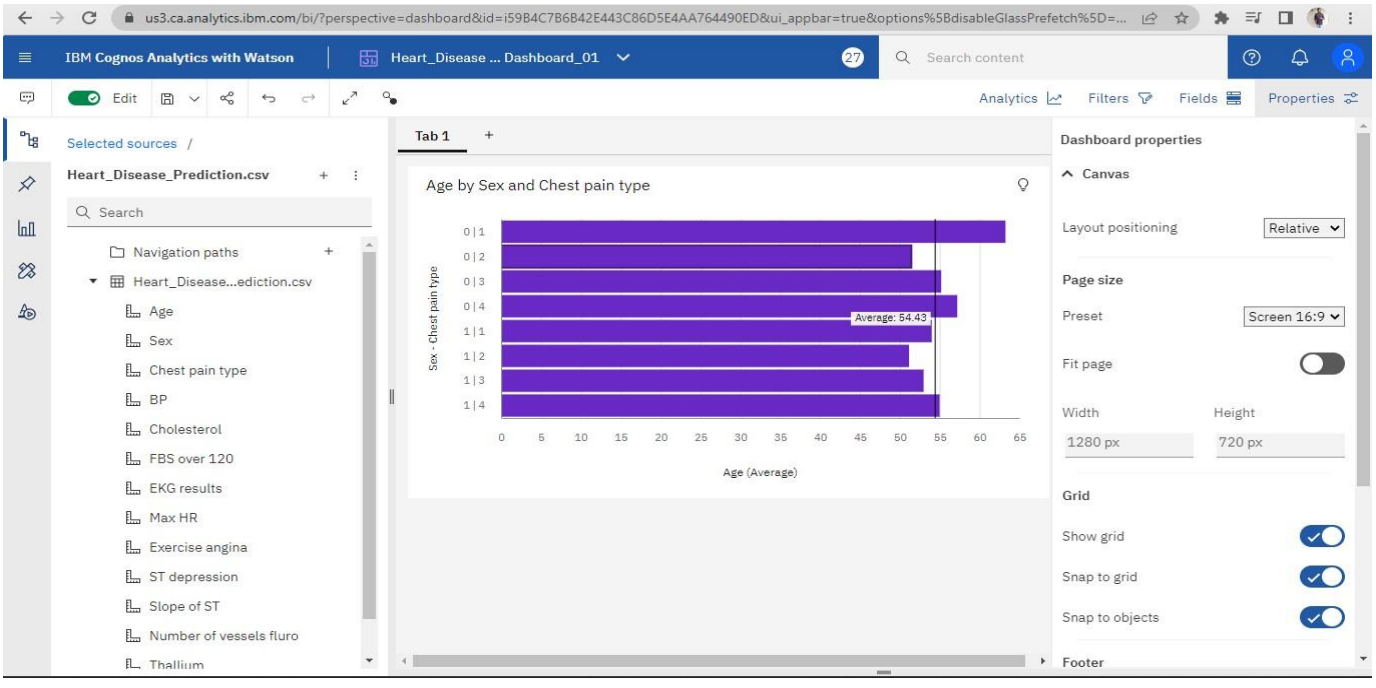
Exploration of Heart disease Prediction Dataset Using Cognos Analysis:

USN-4,5:

- As a Data analyst, I create a predicted model by also preparing story card with usingexplored data.
- As a Data analyst, I will create different types of models in explored data to identify suitablemodel with effectively and efficiently.

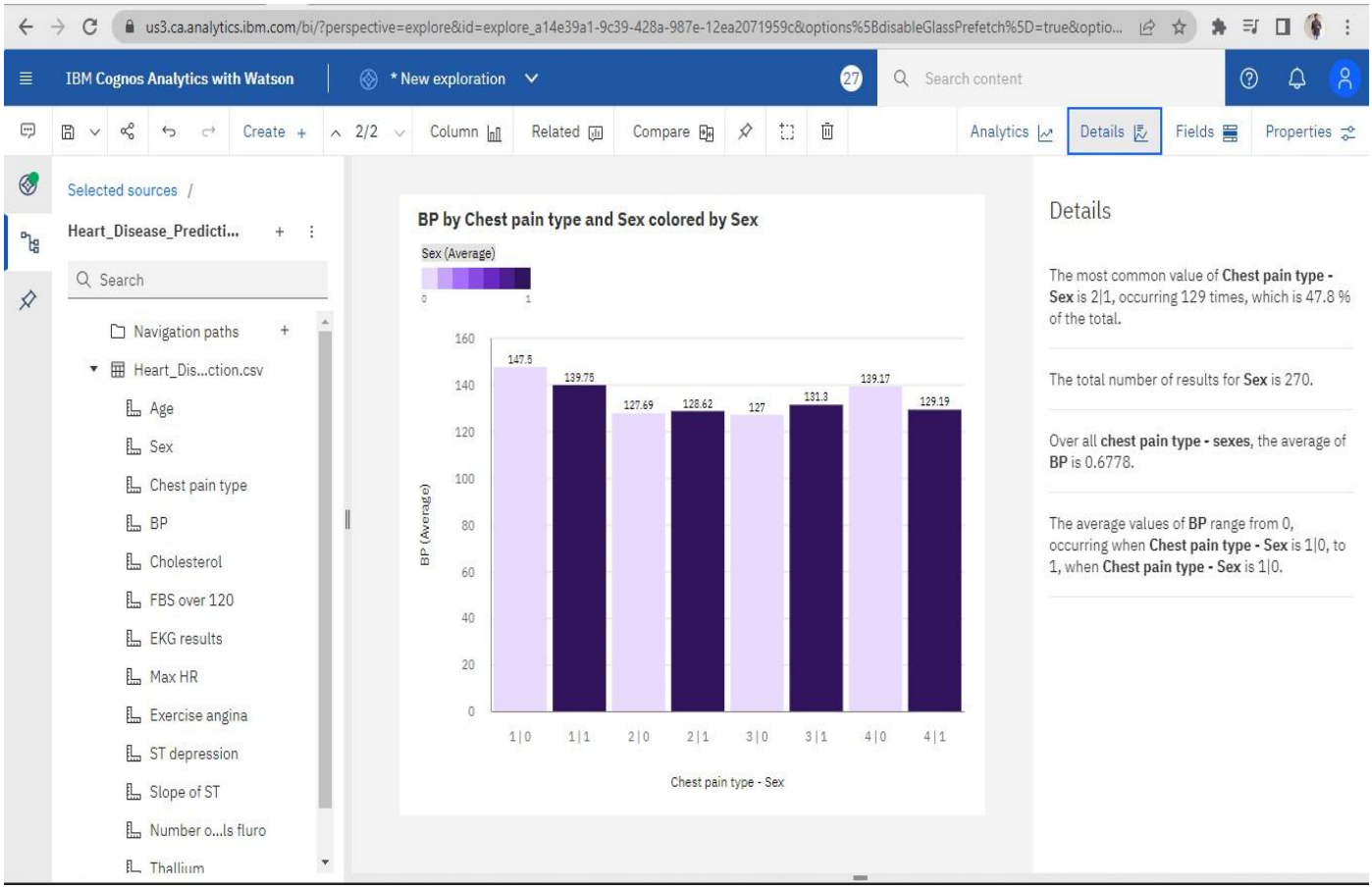
Age By Chest pain type:

- ✓ The most common value of **Chest pain type** is 4, occurring 129 times, which is 47.8 %of the total.
- ✓ Over all **chest pain types**, the average of **Age** is 54.43.
- ✓ The average values of **Age** range from 51.26, occurring when **Chest pain type** is 2,to 55.85, when **Chest pain type** is 1.



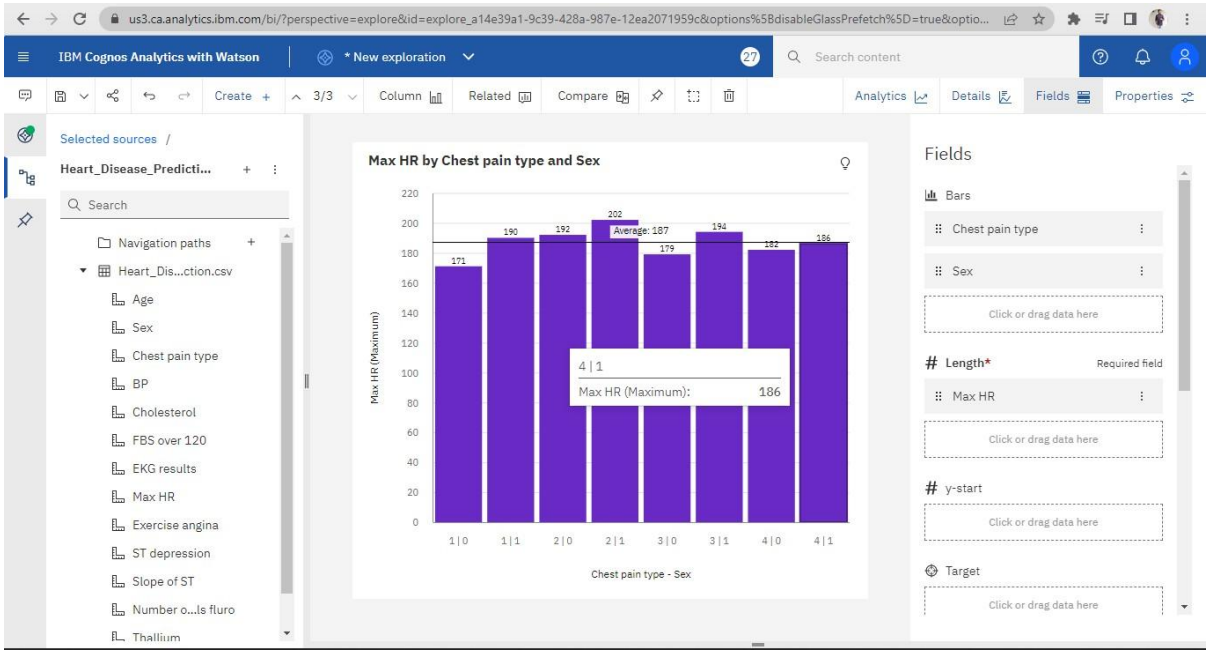
BP by Chest pain type and Sex coloured by Sex:

- The most common value of **Chest pain type - Sex** is 2|1, occurring 129 times, whichis 47.8 %of the total.
- The total number of results for **Sex** is 270.
- Over all **chest pain type - sexes**, the average of **BP** is 0.6778.
- The average values of **BP** range from 0, occurring when **Chest pain type - Sex** is 1|0,to 1, when **Chest pain type - Sex** is 1|0.



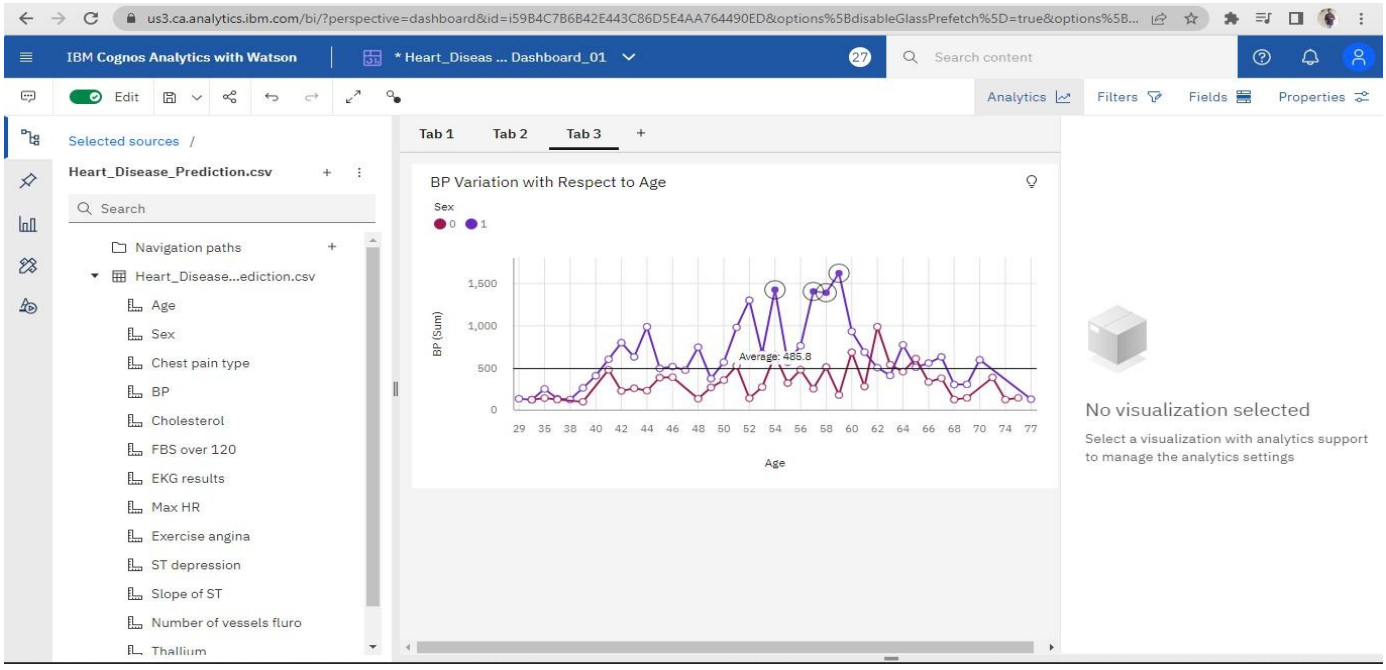
Max HR by Chest pain type and Sex:

- The totals number of results for **Max HR**, across all **chest pain type - sexes**, is 270.
- The most common value of **Chest pain type - Sex** is 2|1, occurring 129 times, whichis 47.8 %of the total.
- The largest value of **Max HR** is 1, occurring when **Chest pain type - Sex** is 1|0.



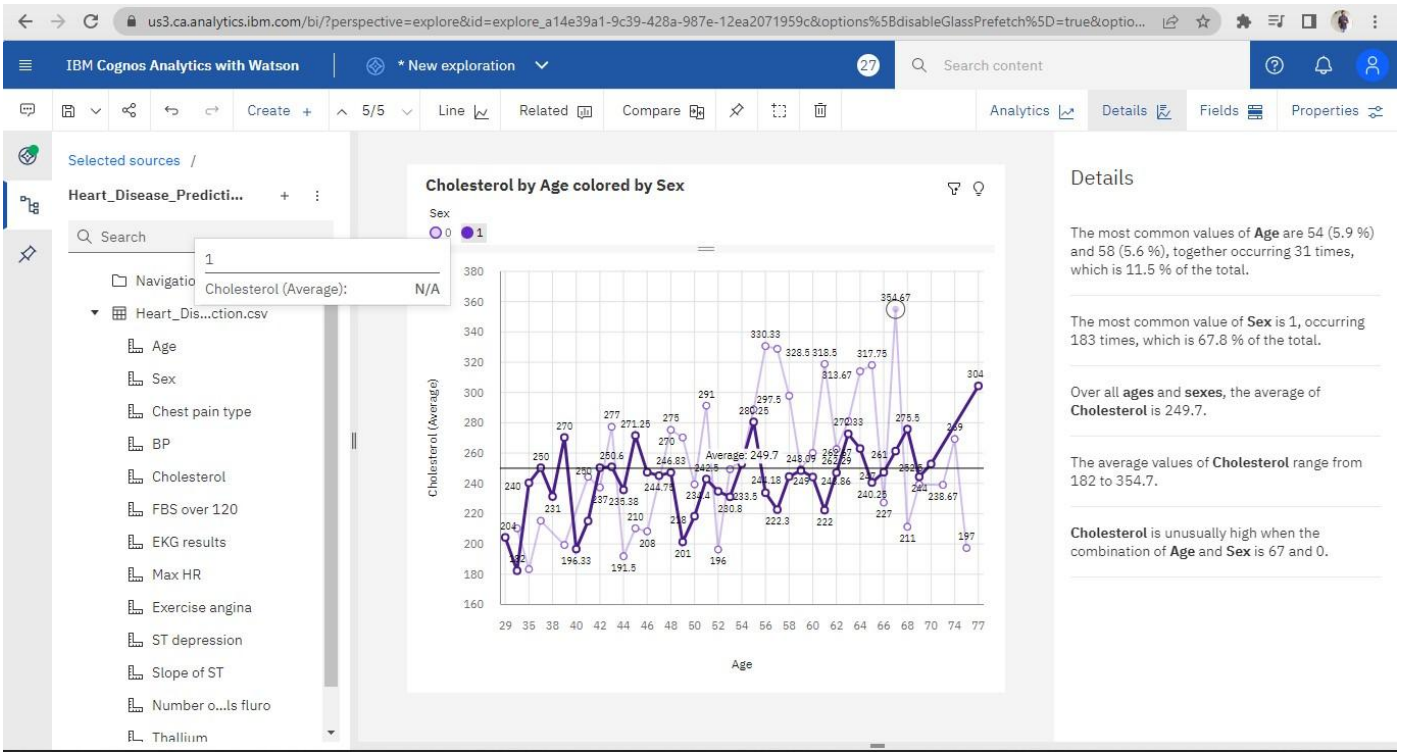
BP by Age:

- The most common values of **Age** are 54 (5.9 %) and 58 (5.6 %), togetheroccurring 31 times, which is 11.5 % of the total.
- Over all **ages**, the average of **BP** is 131.3.
- The average values of **BP** range from 117, occurring when **Age** is 47, to 149.2,when **Age** is59.
- **BP** is unusually high when **Age** is 59.



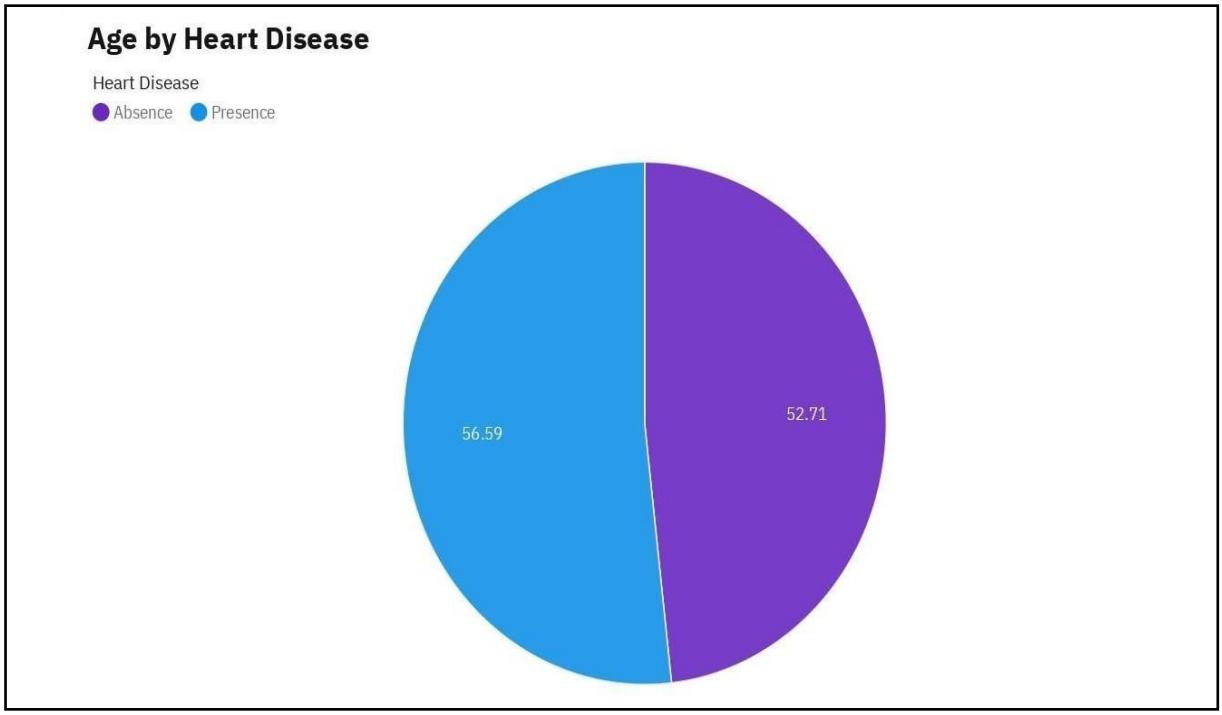
Cholesterol by Age colored by Gender:

- ✓ Over all **ages** and **sexes**, the average of **Cholesterol** is 249.7.
- ✓ The average values of **Cholesterol** range from 182 to 354.7.
- ✓ **Cholesterol** is unusually high when the combination of **Age** and **Sex** is 67 and 0.
- ✓ The most common values of **Age** are 54 (5.9 %) and 58 (5.6 %), togetheroccurring 31 times, which is 11.5 % of the total.
- ✓ The most common value of **Sex** is 1, occurring 183 times, which is 67.8 % of the total.



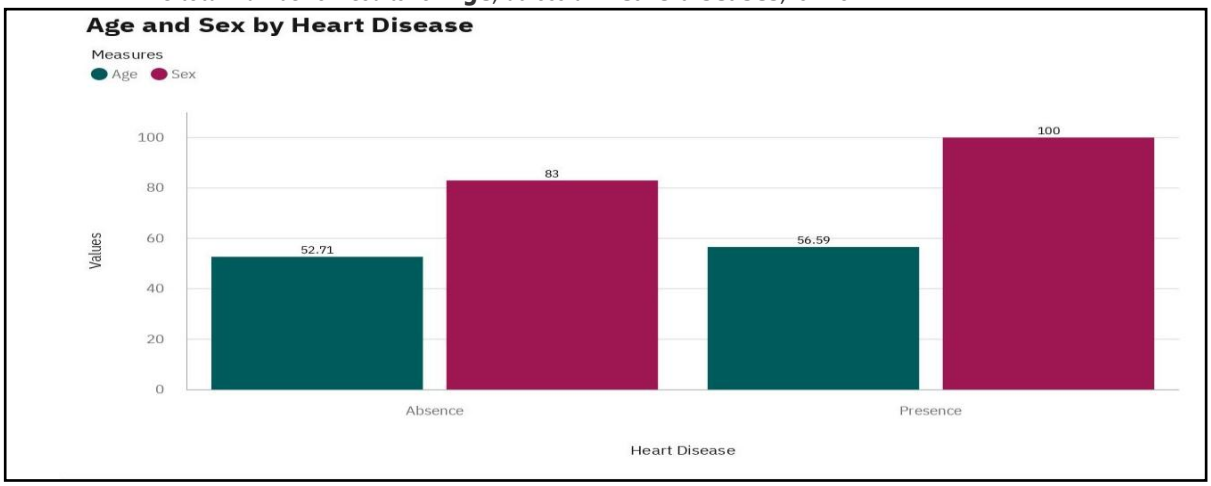
Age By Heart Disease:

- ❖ The most common value of **heart disease** is Absence, occurring 150 times, whichis 55.6% ofthetotal.
- ❖ Over all **heart diseases**, the average of **Age** is 54.43.
- ❖ The average values of **Age** range from 52.71, occurring when **heart disease** is Absence,to 56.59, when **heart disease** is Presence.



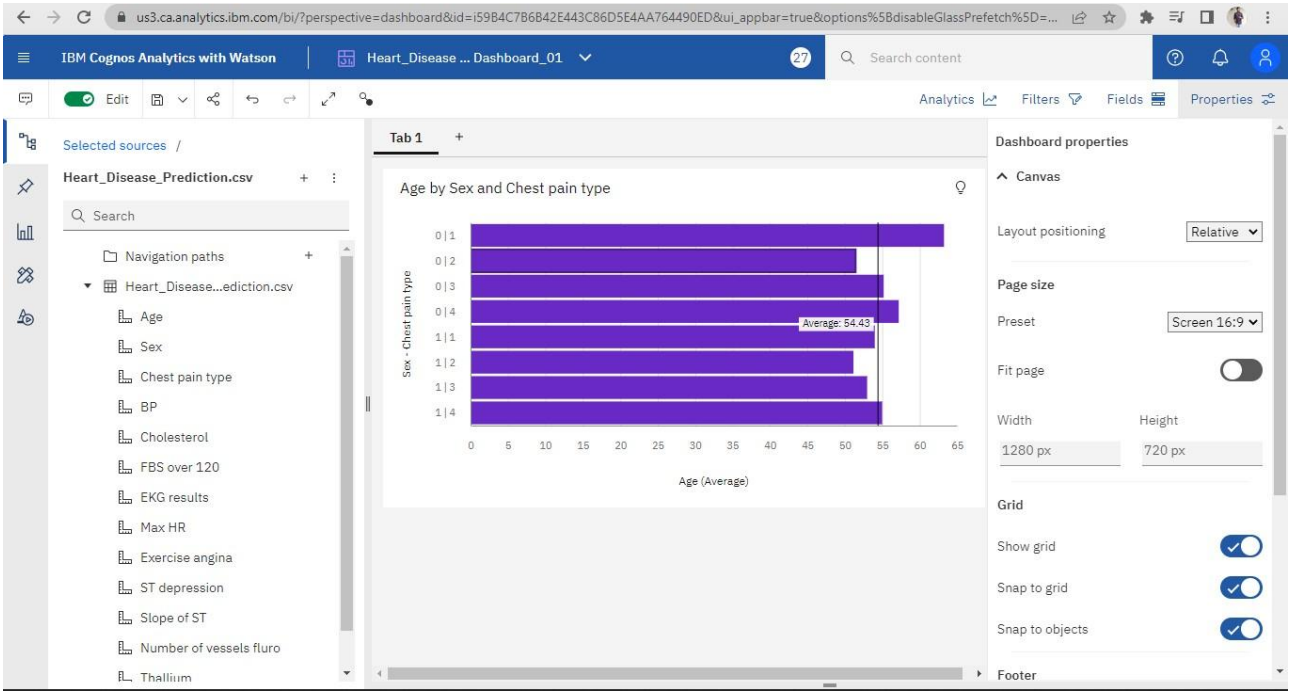
Age and Sex by Heart Disease:

- The total number of results for **Sex**, across all **heart diseases**, is 270.
- Over all **heart diseases**, the average of **Sex** is 0.6778.
- The most common value of **Heart Disease** is Absence, occurring 150 times, whichis 55.6 % ofthetotal.
- The average values of **Age** range from 52.71, occurring when **heart disease** is Absence,to 56.59, when **heart disease** is Presence.
- **Sex** ranges from 83, when **heart disease** is Absence, to 100, when **heart disease** **is Presence.**
- The total number of results for **Age**, across all **heart diseases**, is 270.



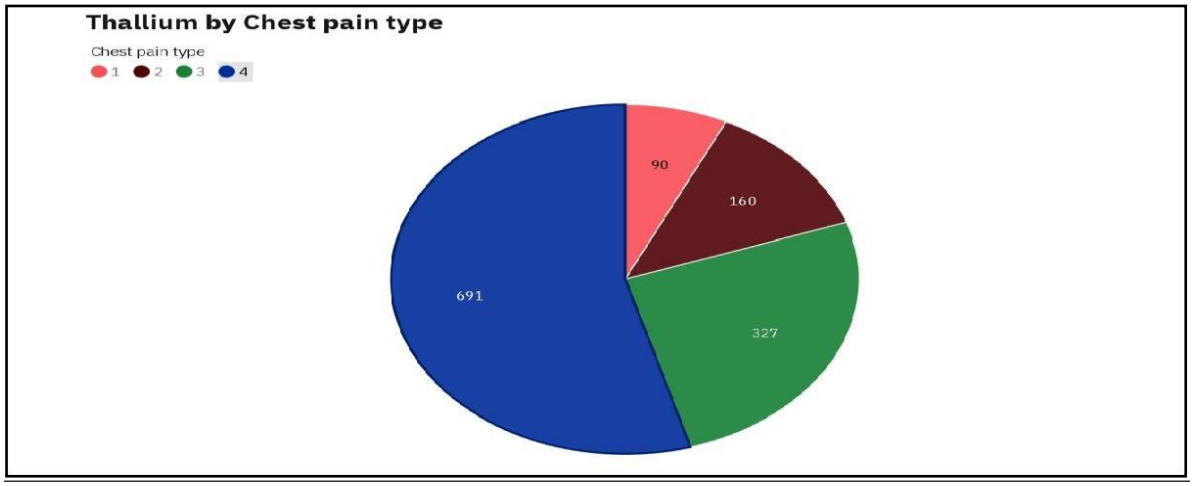
Chest pain type by Chest pain type:

- ✓ The total number of results for **Chest pain type**, across all **chest pain types**, is 270.
- ✓ The most common value of **Chest pain type** is 4, occurring 129 times, which is 47.8 %of the total.
- ✓ The count is unusually high when **Chest pain type** is 4.



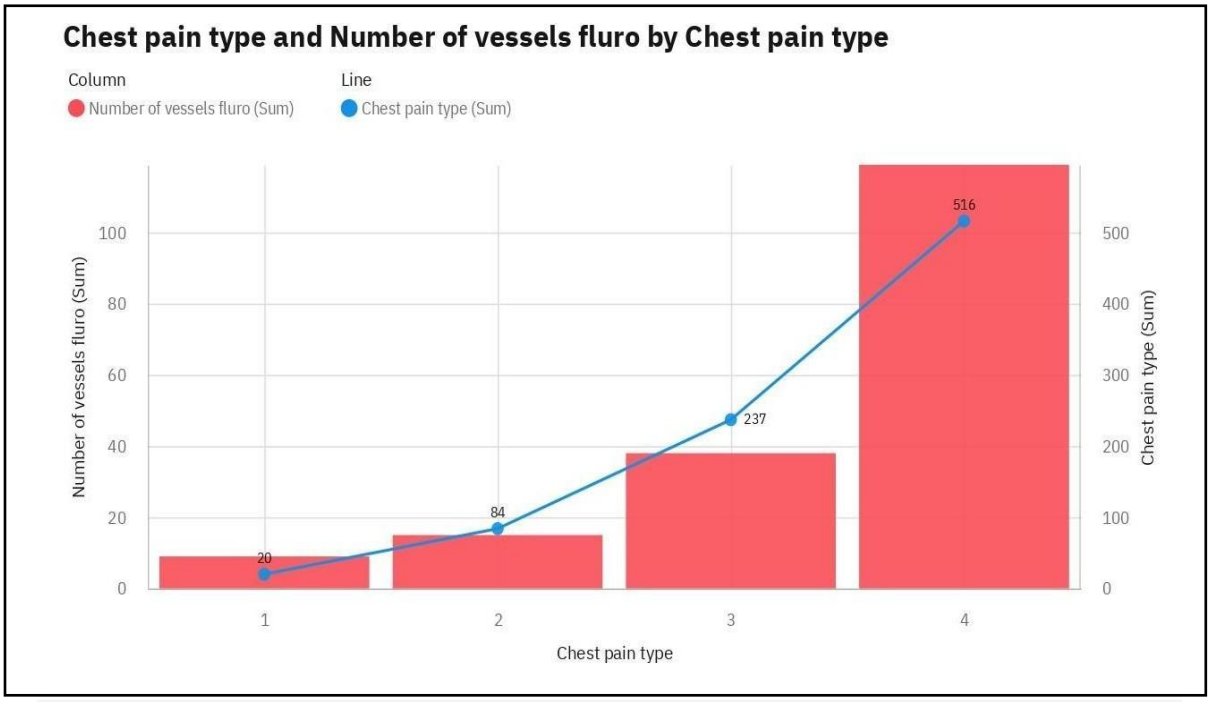
Thallium by Chest pain type:

- Over all **chest pain types**, the sum of **Thallium** is nearly 1500.
- **Thallium** ranges from 90, when **Chest pain type** is 1, to 691, when **Chest pain type** is 4.
- **Thallium** is unusually high when **Chest pain type** is 4.



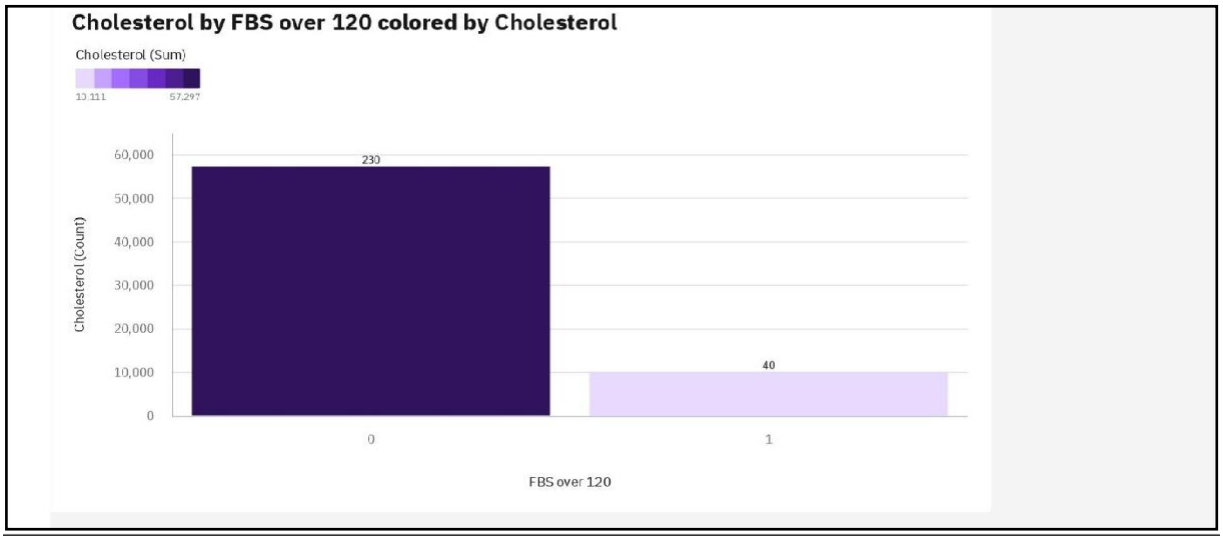
Chest pain type and Number of vessels Fluro by Chest pain type:

- Over all **chest pain types**, the sum of **Number of vessels fluro** is 181.
- **Number of vessels fluro** ranges from 9, when **Chest pain type** is 1, to 119, when **Chest pain type** is 4.
- **Number of vessels fluro** is unusually high when **Chest pain type** is 4.
- Over all **chest pain types**, the sum of **Chest pain type** is 857.
- **Chest pain type** ranges from 20, when **Chest pain type** is 1, to 516, when **Chest pain type** is 4.
- **Chest pain type** is unusually high when **Chest pain type** is 4.



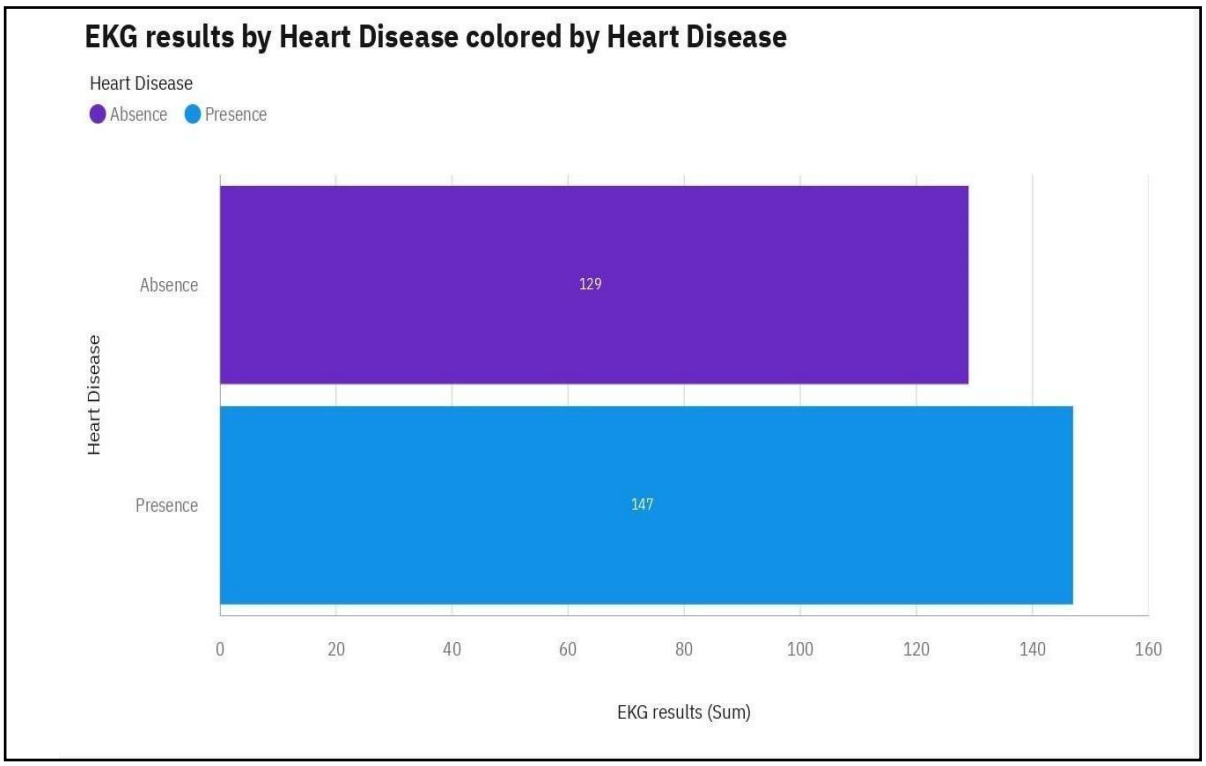
Cholesterol by FBS over 120 coloured by Cholesterol:

- ✓ The total number of results for **Cholesterol** is 270.
- ✓ The most common value of **FBS over 120** is 0, occurring 230 times, which is 85.2 % ofthe total.



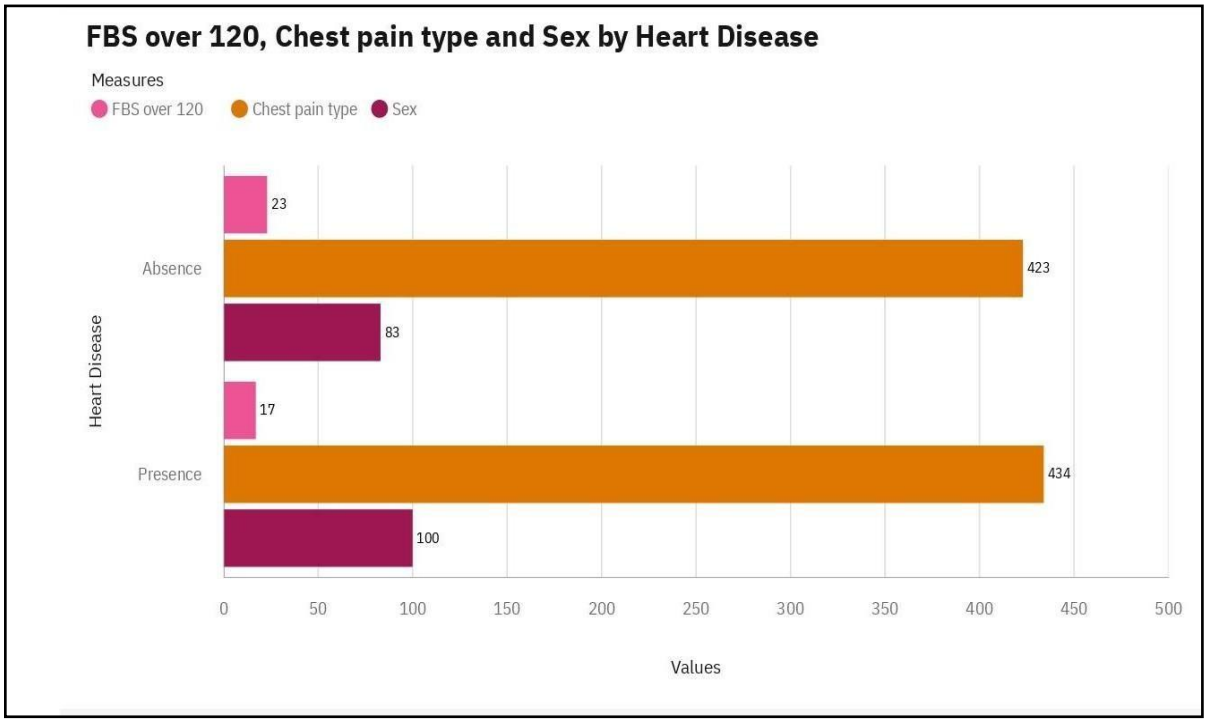
EKG results by heart disease colored by heart disease:

- For **EKG results**, the most significant value of **heart disease** is Presence, whose respective **EKG results** values add up to 147, or 53.3 % of the total.
- Over all **heart diseases** and **heart diseases**, the sum of **EKG results** is 276.
- The summed values of **EKG results** range from 129 to 147.



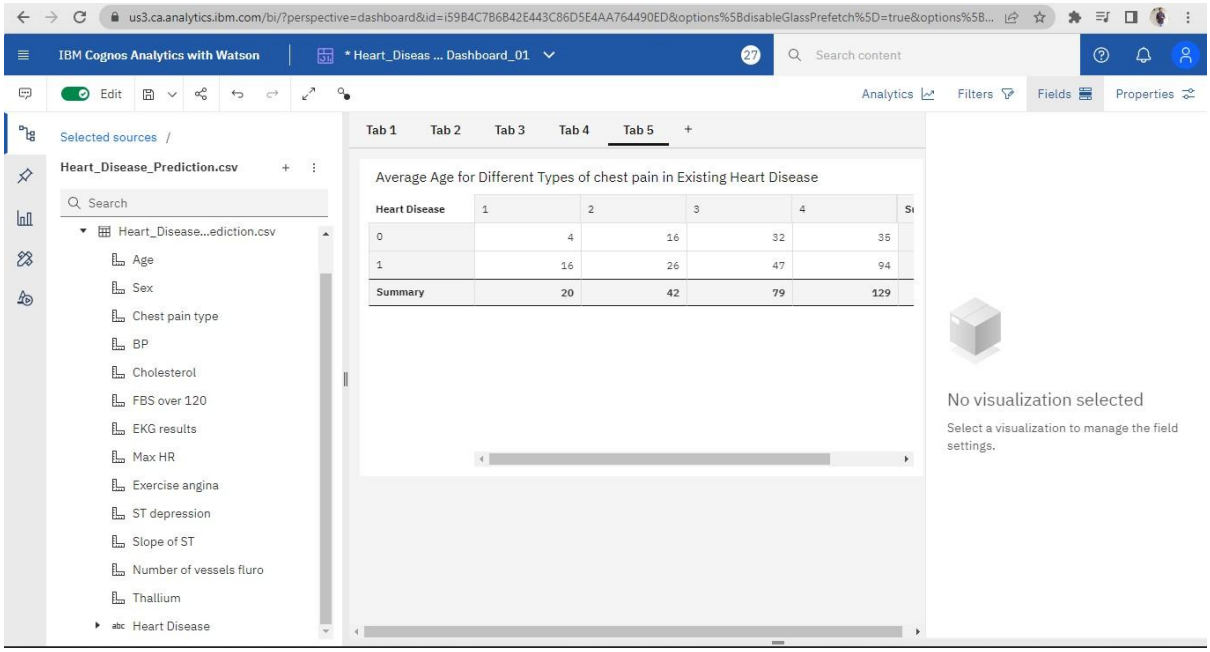
FBS over 120, Chest pain type and Sex by Heart Disease:

- ✓ **FBS over 120** ranges from 17, when **heart disease** is Presence, to 23, when **heart disease** is Absence.
- ✓ **Chest pain type** ranges from 423, when **heart disease** is Absence, to 434, when **heart disease** is Presence.
- ✓ **Sex** ranges from 83, when **heart disease** is Absence, to 100, when **heart disease is Presence.**
- ✓ The total number of results for **Sex**, across all **heart diseases**, is 270.
- ✓ Over all **heart diseases**, the average of **Sex** is 0.6778.
- ✓ The most common value of **heart disease** is Absence, occurring 150 times, whichis 55.6% ofthetotal.
- ✓ The total number of results for **Chest pain type**, across all **heart diseases**, is 270.
- ✓ Over all **heart diseases**, the average of **Chest pain type** is 3.174.
- ✓ The total number of results for **FBS over 120**, across all **heart diseases**, is 270.
- ✓ Over all **heart diseases**, the average of **FBS over 120** is 0.1481.



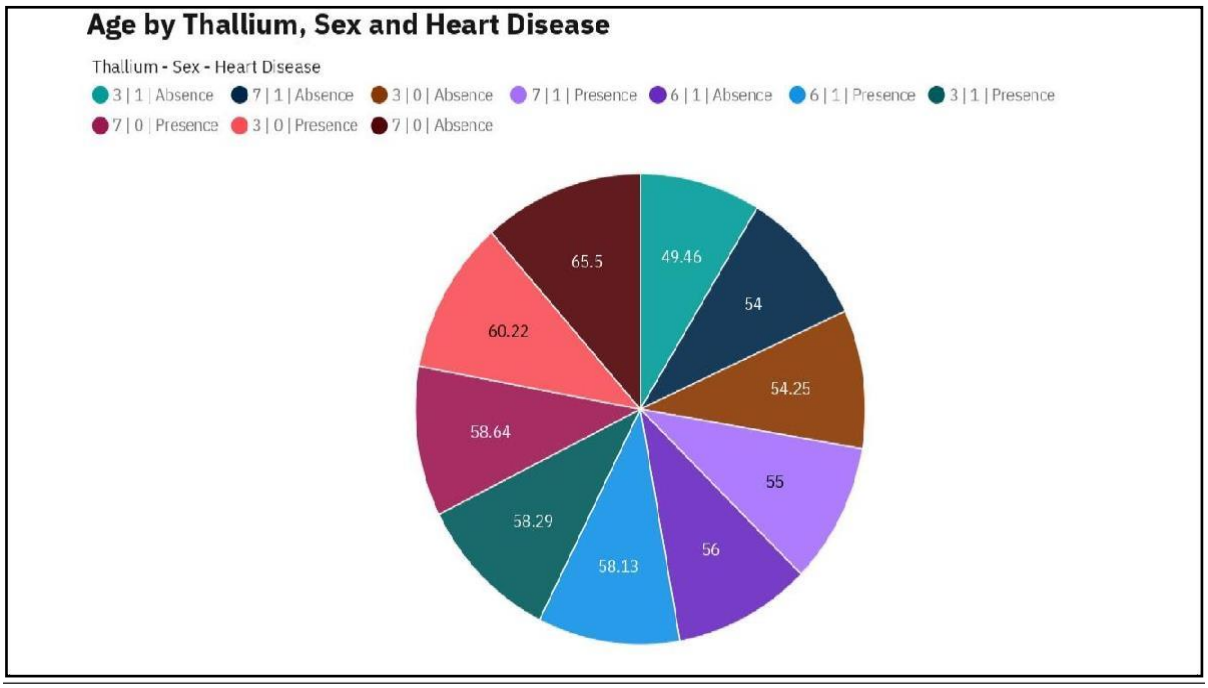
Age and Max HR for Sex:

- ➢ The total number of results for **Age**, across all **sexes**, is 2.
- ➢ The total number of results for **Max HR**, across all **sexes**, is 2.
- ➢ The average values of **Age** range from 53.84, occurring when **Sex** is 1, to 55.68,when **Sex** is0.



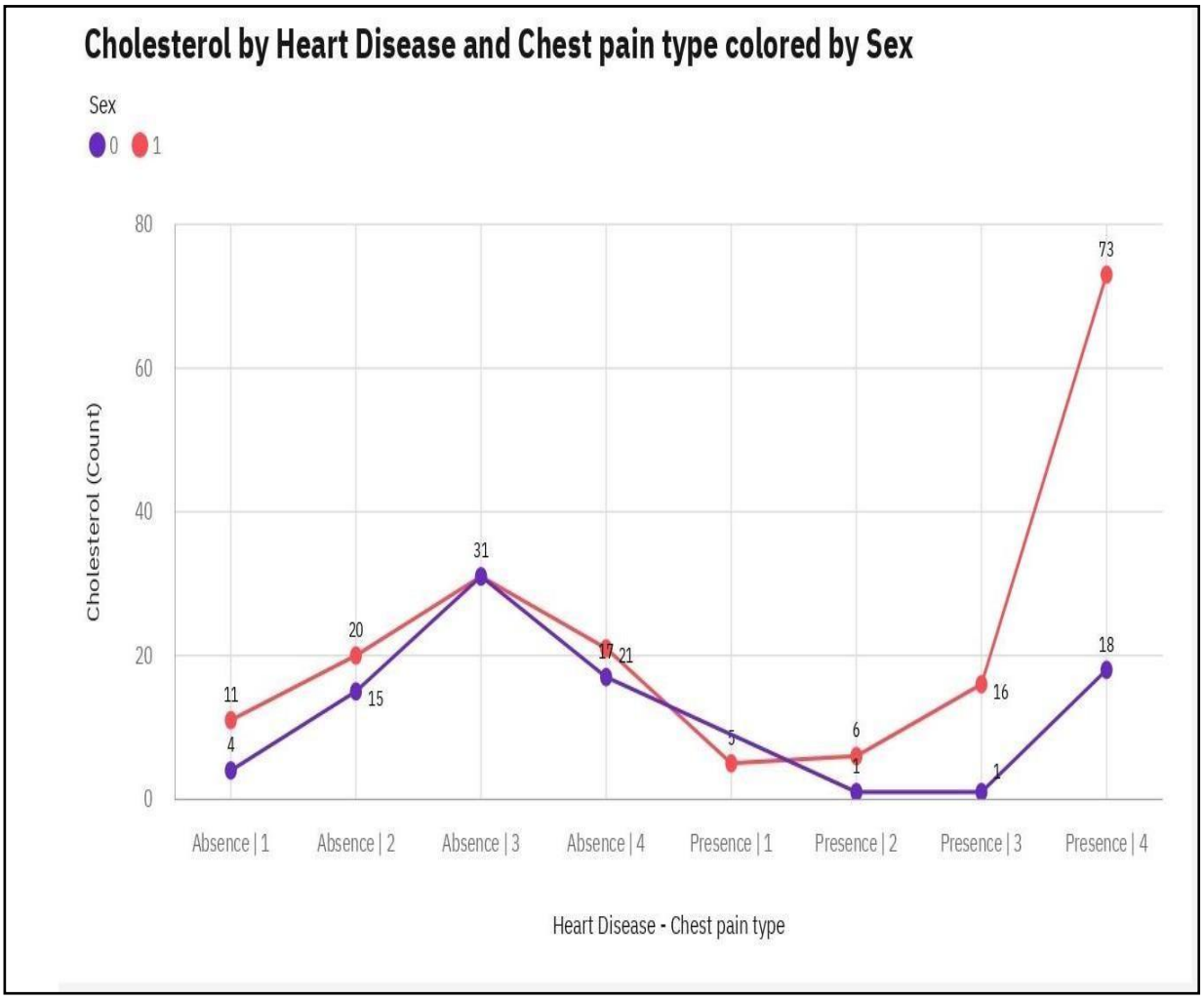
Age by Thallium, Sex and Heart Disease:

- Over all **thallium - sex - heart diseases**, the average of **Age** is 0.3222.
- The average values of **Age** range from 0, occurring when **Thallium - Sex - heart disease** is 3|1|Absence, to 1, when **Thallium - Sex - heart disease** is 3|1|Absence.
- **Age** is unusually low when **Thallium - Sex - heart disease** is 3|1|Absence.
- The most common values of **Thallium - Sex - heart disease** is 3|1|Absence (56.3 %) and 7|1|Absence (38.5 %), together occurring 256 times, which is 94.8 % of the total.



Cholesterol by Heart Disease and Chest pain type colored by Sex:

- ✓ The most common value of **heart disease - Chest pain type** is Absence|1, occurring 150 times, which is 55.6 % of the total.
- ✓ The most common value of **Sex** is Sex_CAT3, occurring 129 times, which is 47.8 % ofthe total.
- ✓ The most common value of **Sex** is 1, occurring 42 times, which is 67.7 % of the total.
- ✓ The total number of results for **Cholesterol**, across all **heart disease - chest pain types**,is 270.

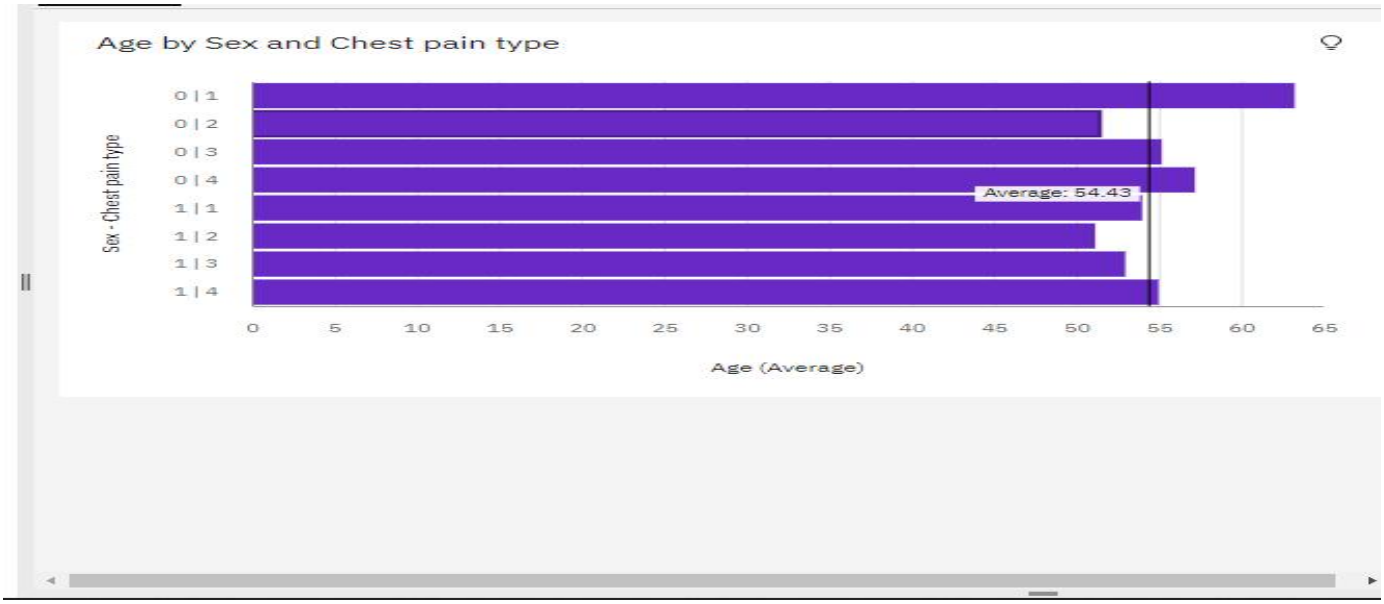


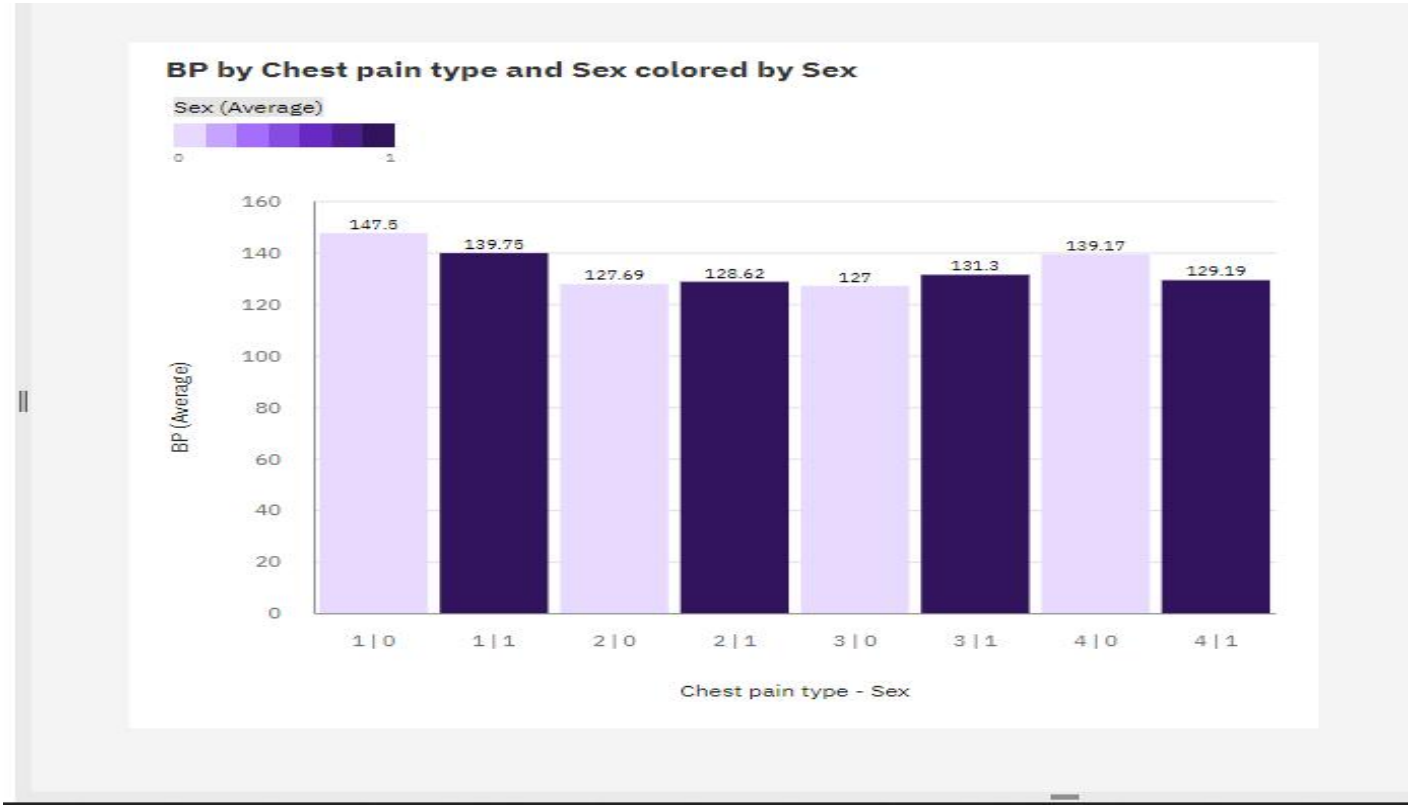
Story card of Heart Disease dataset Analytics using Cognos Analytics

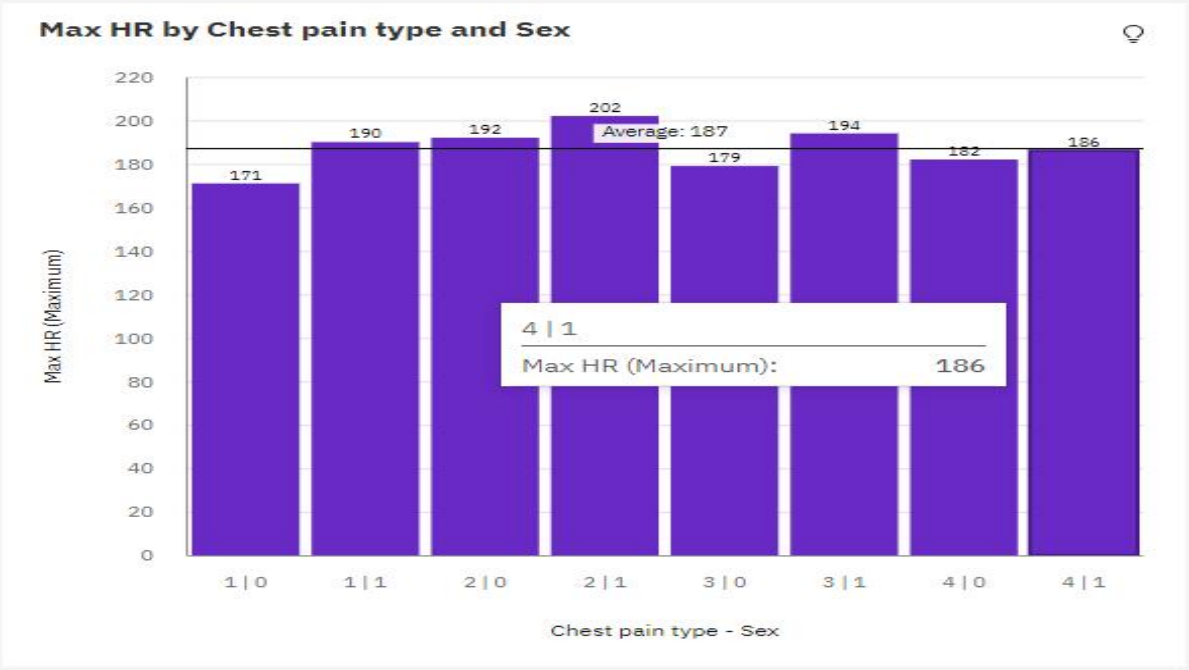
USN:6,7:

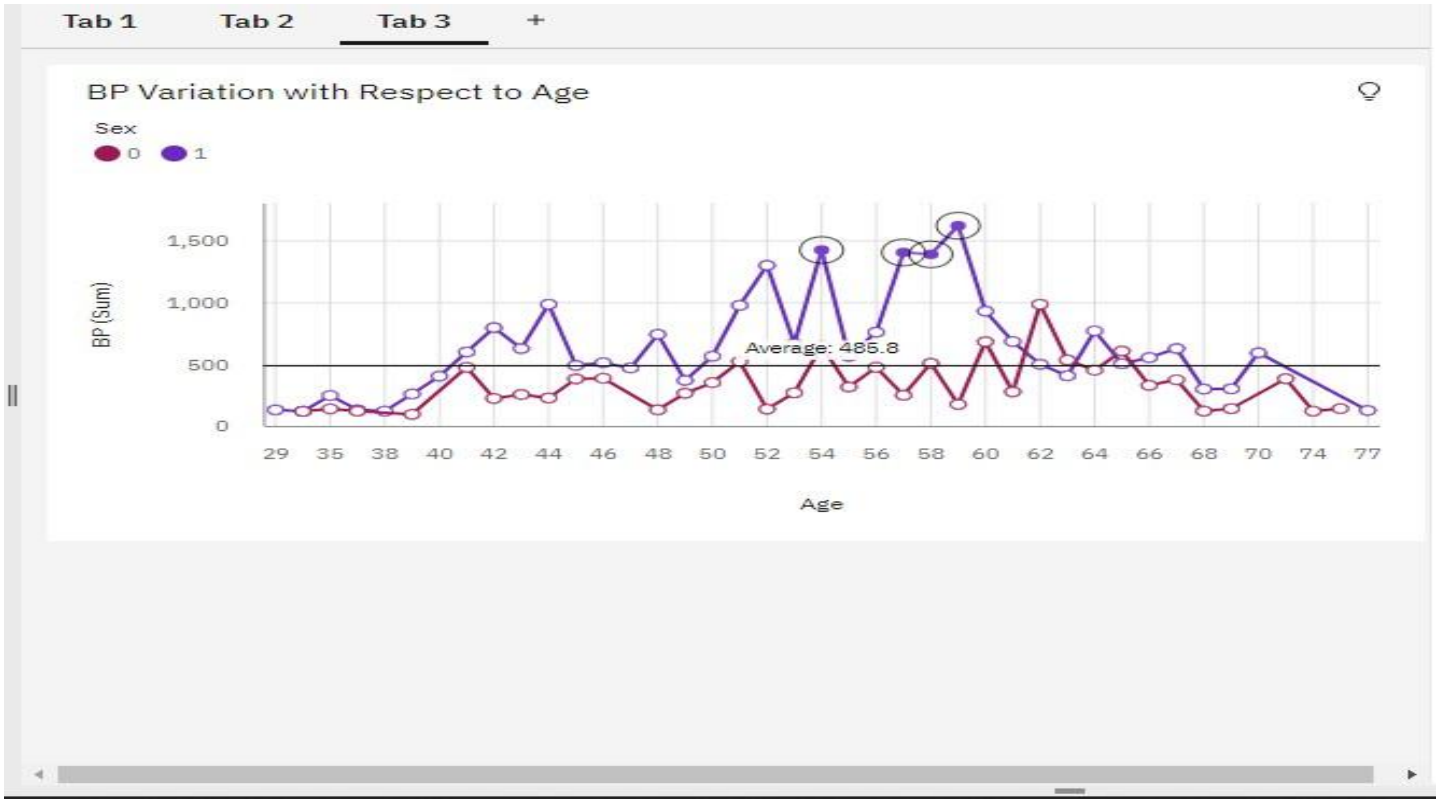
As a Data analyst, I create a predicted model by also preparing story card with using explored data

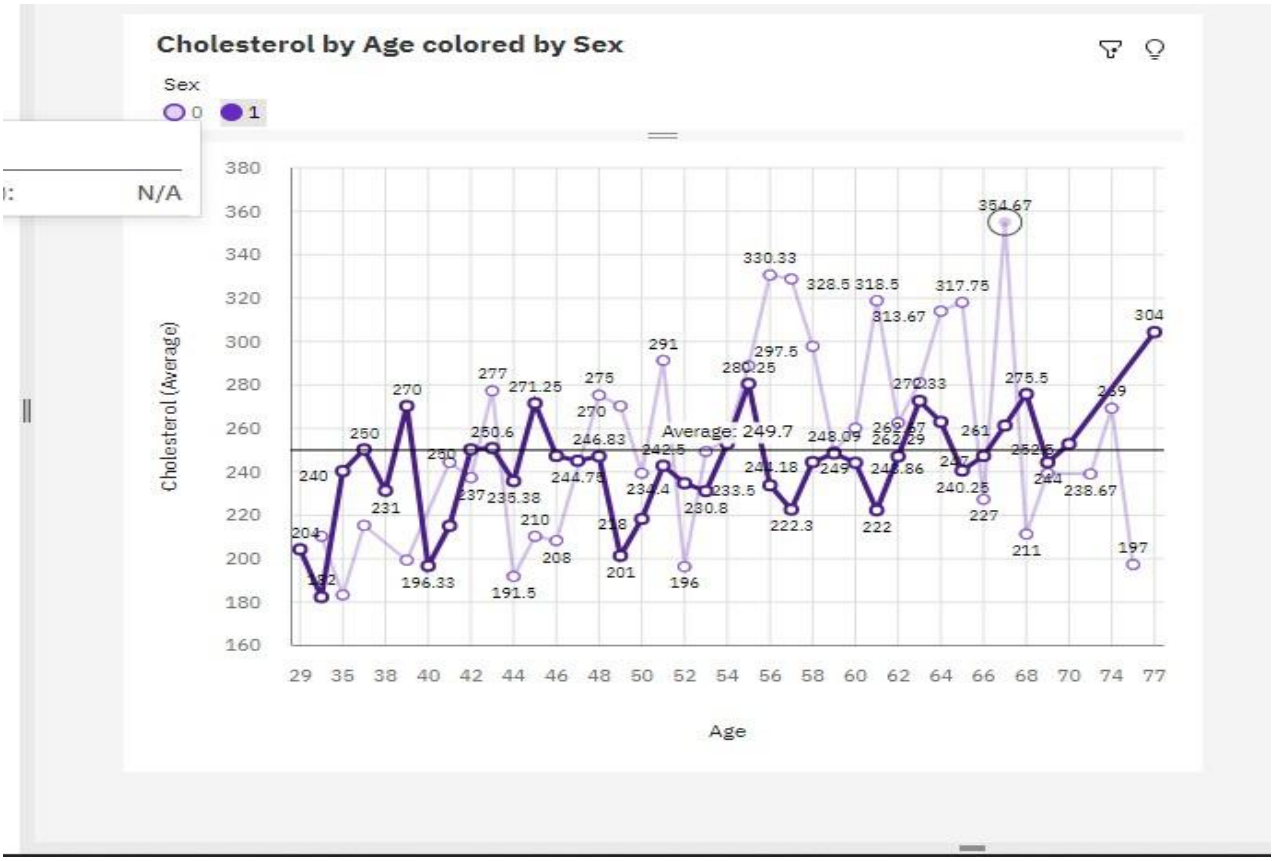
As a Data Analyst, I will analysis of the heart disease patient's datasets

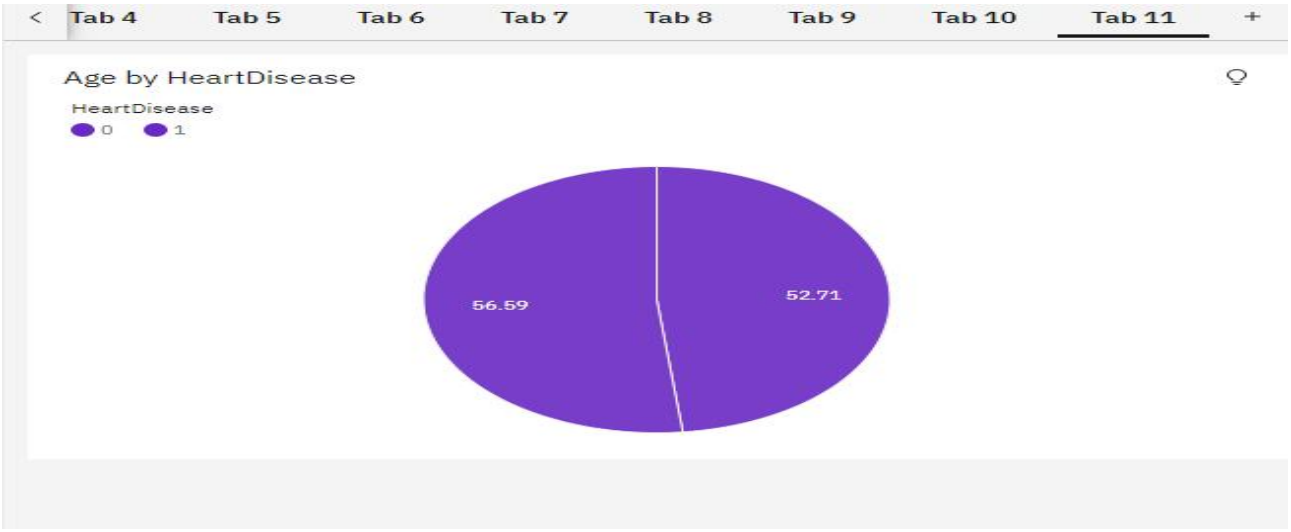


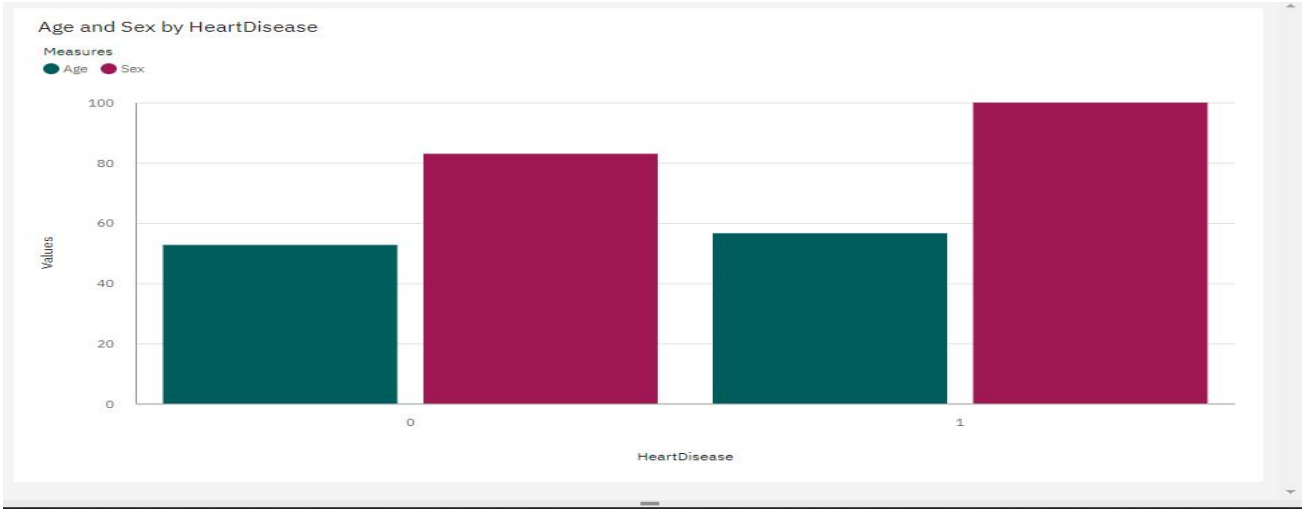


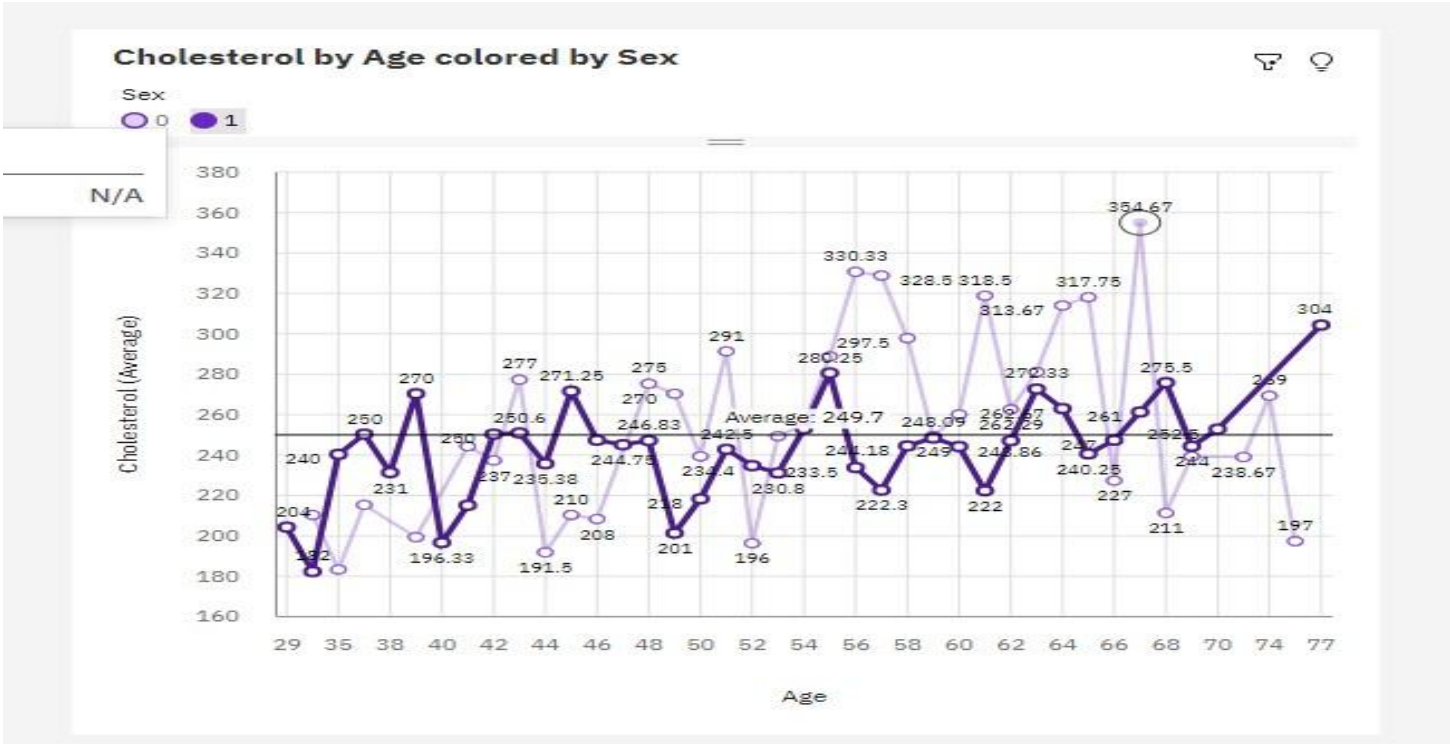

Max HR by Chest pain type and Sex
220
200
180
160
140
120
100
80
60
40
20
0
Max HR (Maximum)
171
190
192
202
Average: 187
179
194
182
186
4 | 1
Max HR (Maximum): 186
1 | 0
1 | 1
2 | 0
2 | 1
3 | 0
3 | 1
4 | 0
4 | 1
Chest pain type - Sex

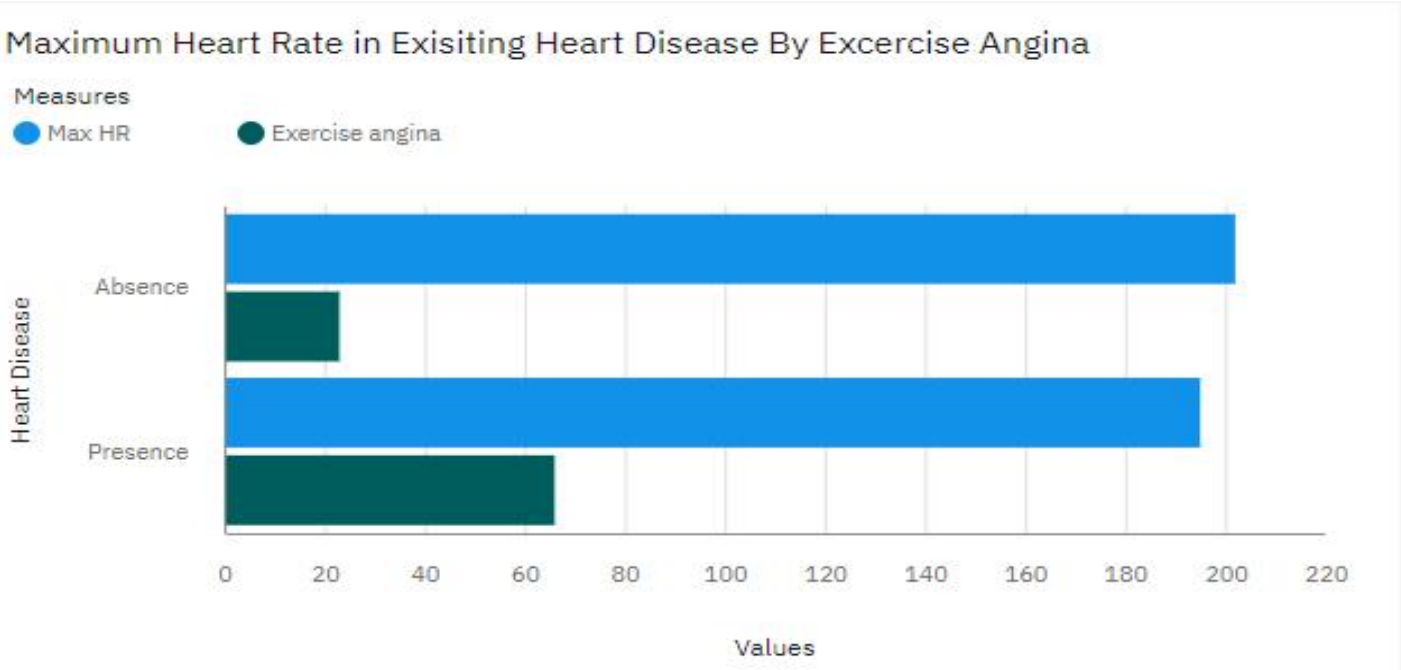
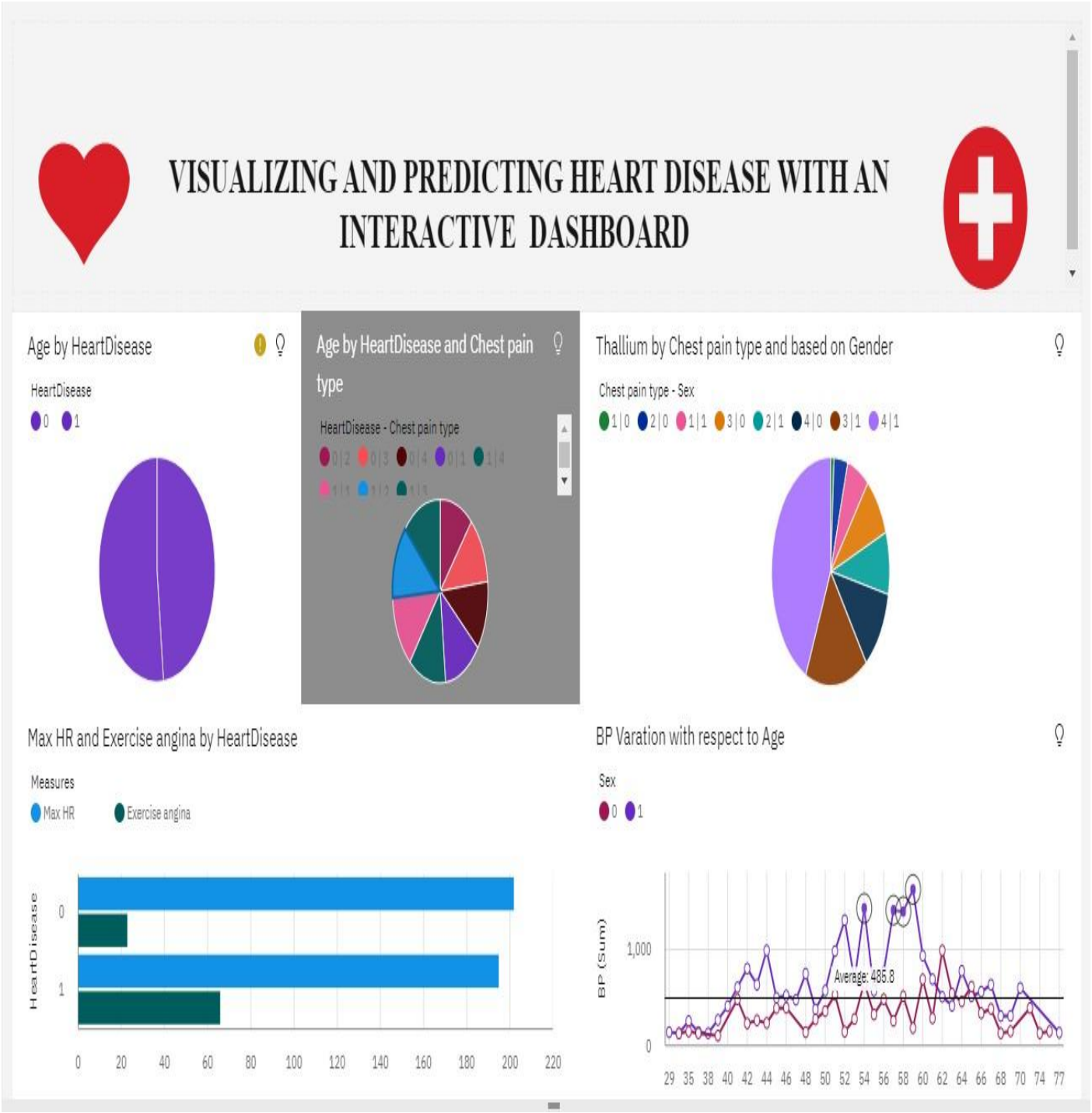

Tab 1
Tab 2
Tab 3
+
BP Variation with Respect to Age
Sex
0
1
1,500
1,000
500
0
BP (Sum)
Average: 485.8
29
35
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
74
77
Age


Cholesterol by Age colored by Sex
Sex
0
1
N/A
Cholesterol (Average)
Age
Average: 249.7


Tab 4
Tab 5
Tab 6
Tab 7
Tab 8
Tab 9
Tab 10
Tab 11
Age by HeartDisease
HeartDisease
0
1
56.59
52.71


Age and Sex by HeartDisease
Measures
Age
Sex
Values
HeartDisease


Cholesterol by Age colored by Sex
Sex
0
1
N/A
Cholesterol (Average)
Age
Average: 249.7
380
360
340
320
300
280
260
240
220
200
180
160
29 35 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 74 77


Maximum Heart Rate in Exisiting Heart Disease By Excercise Angina
Measures
Max HR
Exercise angina
Heart Disease
Absence
Presence
0 20 40 60 80 100 120 140 160 180 200 220
Values

FINAL DASHBOARD