

Final Deliverables

Date	15 November 2022
Team ID	PPNT2022TMID40507
Project Name	Project - Visualizing and Predicting Heart Diseases with an Interactive Dashboard

Fetch data from external API (Kaggle API). (Ipynb file)

```
[1] !pip install -q kaggle
[4] !mkdir ~/.kaggle #creating a kaggle directory
[5] !cp kaggle.json ~/.kaggle/ #copying json file to folder
[6] !chmod 600 ~/.kaggle/kaggle.json # change the permission
[7] !kaggle datasets download -d sathishkumarp01/heart-disease-prediction
[8] Downloading heart-disease-prediction.zip to /content
[9] !unzip /content/heart-disease-prediction.zip
```

Archive: /content/heart-disease-prediction.zip
replace dataset.csv? [y]es, [n]o, [A]ll, [N]one, [R]ename:

43s completed at 11:44

The screenshot shows the Kaggle website interface. On the left, there's a sidebar with navigation links like 'Create', 'Home', 'Competitions', 'Datasets', 'Code', 'Discussions', 'Learn', 'More', 'Your Work', and 'RECENTLY VIEWED'. Below that is a 'View Active Events' section. The main content area displays a dataset titled 'Heart Disease Prediction' by 'SATHISHKUMAR P01'. It has an 'Edit' button and a 'Download (3 kB)' button. A large image of three overlapping hexagons in green, blue, and purple is displayed. Below the title, there's a 'Pending Actions' section with four items: 'Add a subtitle', 'Add a description', 'Upload an image', and 'Add file information'. At the bottom, there's a 'Usability' section with a score of 2.35 and a 'Show all' button.

SATHISHKUMAR P01 - UPDATED 6 MINUTES AGO - PRIVATE

Heart Disease Prediction

Add a subtitle [Edit](#)



Data Code (0) Discussion (0) Settings

Pending Actions

USABILITY SCORE: 2.35

- Add a subtitle**
Stand out on the listings page with a snappy subtitle
- Add a description**
Share specifics about the context, sources, and inspiration behind your dataset
- Upload an image**
Make your dataset pop with an eye-catching cover image and thumbnail
- Add file information**
Help others navigate your dataset with a description of each file

View Active Events

Kaggle API Gather_The_Data.ipynb dataset.csv

26°C Raining now Show all ENG IN 13:00 11-11-2022

Heart Disease Prediction

Data Code (0) Discussion (0) Settings

dataset.csv (10.11 kB)

Detail Compact Column 10 of 14 columns

About this file

This file does not have a description yet.

# age	# sex	# cp	# trestbps	# chol	# f
29	0	1	94	126	0
70	1	4	130	322	0
67	0	3	115	564	0
57	1	2	124	261	0
64	1	4	128	263	0
74	0	2	120	269	0
65	1	4	120	177	0

Summary

Kaggle API Gather_The_Data.ipynb dataset.csv

26°C Raining now Show all ENG IN 13:00 11-11-2022

IBM DB2 service creation and DB2 connectivity with Cognos. (Pdf file)

The screenshot shows the IBM Cognos Analytics with Watson interface. On the left, under 'Data server connections', there are two entries: 'Heart Disease Prediction Test' (modified 11/11/2022 00:59) and 'Weather Company' (modified 31/03/2022 22:38). The central panel displays the 'Heart Disease Prediction Test' connection details, including its owner (SATHI... 84ad84), creation date (11/11/2022, 00:59), modification date (11/11/2022, 00:59), type (Data Server), and tabs for General, Connections, and Permissions. The right panel shows the 'Heart Disease Prediction Test' connection details again, with tabs for General, Settings, Schemas, and Permissions. Below these panels is a table listing system schemas: AUDIT, DB2INST1, ERRORSCHHEMA, and FGV20212 (status: 1/1). At the bottom, there is a 'Show system schemas' checkbox and a 'Show all' button.

The screenshot shows the IBM Cloud Catalog interface. A search bar at the top contains the query 'db2'. The main area displays a grid of catalog items. One item, 'Analytics Engine By IBM', is highlighted. It includes a brief description: 'Submit your Apache Spark applications as needed and customize the Spark runtimes to satisfy the requirements of your application.' Another item, 'AnonTech ViziVault Platform By Anon Technology, Inc.', is described as managing personal information safely and securely. A third item, 'API Connect By IBM', is described as an enterprise-grade platform for creating, securing, managing, sharing, monetizing, and analyzing custom APIs. The sidebar on the left lists categories such as Containers, Networking, Storage, AI / Machine Learning, Analytics, Blockchain, and Database. The bottom of the screen shows a taskbar with various icons and a system tray indicating the date and time as 11-11-2022 13:09.

Heart Disease Prediction | Kaggle | My IBM | Home | Catalog - IBM Cloud

IBM Cloud Search resources and products... Catalog Manage SATHISHKUMAR P's Ac...

Sell on IBM Cloud Catalog settings

Catalog

Search: db2

- Db2
- Db2 Warehouse
- SAP NetWeaver(ABAP stack) with DB2 standard system

Containers (9)

Networking (30)

Storage (20)

AI / Machine Learning (17)

Analytics (10)

Blockchain (1)

Database (2)

Analytics Engine
By IBM

Submit your Apache Spark applications as needed and customize the Spark runtimes to satisfy the requirements of your application.

Lite • Free • HIPAA Enabled • IAM-enabled • Service Endpoint Supported • IBM supported

AnonTech ViziVault Platform
By Anon Technology, Inc.

Manage personal information as-a-service safely, securely, and in compliance with data privacy regulations using ViziVault

Lite • Free • HIPAA Enabled • IAM-enabled • Third party supported

API Connect
By IBM

An enterprise-grade platform for creating, securing, managing, sharing, monetizing, and analyzing custom APIs located on-premises and on the cloud.

Lite • Free • EU Supported • IAM-enabled • IBM supported

26°C Raining now Show all 13:05 ENG IN 11-11-2022

Heart Disease Prediction | Kaggle | My IBM | Home | Db2 - IBM Cloud

IBM Cloud Search resources and products... Catalog Manage SATHISHKUMAR P's Ac...

Catalog /

Db2

A fully managed, highly-performant relational data store running the enterprise-class Db2 database engine.

Create About

Type: Service
Provider: IBM
Last updated: 11/10/2022
Category: Databases
Compliance: EU Supported, HIPAA Enabled, IAM-enabled
Location: Sydney, Frankfurt, London, Dallas, Sao Paulo

Select a location: Dallas (us-south)

Select a pricing plan:
Displayed prices do not include tax. Monthly prices shown are for country or location: United States

Plan	Features	Pricing
Lite	200 MB of data storage 5 simultaneous connections Shared multitenant system	Free

The Free plan provides a free Db2 service for development and evaluation. The plan has a set amount of limitations as shown. You can continue using the free plan for as long as needed, however, users are asked to re-extend their free account every 90 days by email. If you do not re-extend, your free account is cleaned out a further 90 days later. This helps provide free resources for everyone.

I have read and agree to the following license agreements:
[Terms](#)

Create Add to estimate Show all

26°C Raining now 13:05 ENG IN 11-11-2022

The screenshot shows the IBM Cloud Resource list interface. On the left, there is a sidebar with various service categories like Compute, Containers, Networking, Storage, AI / Machine Learning, Analytics, Blockchain, and Databases. A single resource, "Db2-9m", is listed under the Databases category. The resource details are as follows:

Name	Group	Location	Product	Status	Tags
Db2-9m	Default	Dallas	Db2	Active	-

At the bottom of the sidebar, there is a message: "Waiting for 684d0d47.akstat.io...". Below the sidebar, there are two tabs: "Kaggle_API_Gat...ipynb" and "dataset.csv". The system tray at the bottom right shows the date as 11-11-2022.

This screenshot shows the IBM Cloud Resource list interface with more resources listed in the sidebar. The sidebar categories include Compute, Containers, Networking, Storage, AI / Machine Learning, Analytics, Blockchain, and Databases. Multiple resources are listed under each category, indicated by a plus sign (+) next to the category name. For example, under "Compute (0+)", there are multiple resources. The system tray at the bottom right shows the date as 11-11-2022.

Heart Disease Prediction | Kaggle | My IBM | Home | Service Details - IBM Cloud | IBM Db2 on Cloud

Resource list / Db2-9m Active Add tags

Manage Getting started

Getting started Where can I find my credentials? Get your username and password by clicking the "Service Credentials" link to the left and selecting "New Credentials". Don't see this menu on the left? Click on "Manage in IBM Cloud" to open the IBM Cloud dashboard.

Go to UI Getting started docs

Need help? Submit a IBM Cloud Support Case to our team.

Support case

https://cloud.ibm.com/services/dashdb-for-transactions/crn%3Av1%3Abluemix%3Apublic%3Adashdb-for-transactions%3Aus-south%3Aa%2F36665efecddc49c8981cef62e8d0880%3A027252a2-9c6...

26°C Raining now Show all 13:02 11-11-2022

Heart Disease Prediction | Kaggle | My IBM | Home | Service Details - IBM Cloud | IBM Db2 on Cloud

IBM Db2 on Cloud

Overview In-flight executions Connections Table performance

Resource usage

Last 1 hour

Storage (0M / 0M) current value

Storage usage (%)

Time: 12:02 PM, 12:20 PM, 12:40 PM, 01:02 PM

SQL

dataset.csv

26°C Raining now Show all 13:02 11-11-2022

The screenshot shows the IBM Cloud Service Details page for a service named 'Db2-9m'. The 'Service credentials' tab is selected. A table lists one credential entry:

Key name	Date created
Service credentials-1	2022-11-11 12:14 PM

Below the table, the credential content is displayed as JSON:

```
{ "connection": { "cli": { "arguments": [ "-u", "fgv20212", "-p", "sc8FV5808hM9iAud", "-ssl", "-sslcAFile", "2ce1ab40-7379-45d8-a40c-38dcfaf95d0", "-authenticationDatabase", "admin", "-host", "98538591-7217-4024-b027-8baa776ffad1.c3n41cmd0nqnrik39u98g.databases.appdomain.cloud:30875" ] } }}
```

The screenshot shows the same IBM Cloud Service Details page for 'Db2-9m', but the credential content is now fully expanded. The JSON object is shown in its entirety, revealing the detailed arguments for the connection.

```
{ "connection": { "cli": { "arguments": [ "-u", "fgv20212", "-p", "sc8FV5808hM9iAud", "-ssl", "-sslcAFile", "2ce1ab40-7379-45d8-a40c-38dcfaf95d0", "-authenticationDatabase", "admin", "-host", "98538591-7217-4024-b027-8baa776ffad1.c3n41cmd0nqnrik39u98g.databases.appdomain.cloud:30875" ] } }}
```

K Heart Disease Prediction | Kaggle X My IBM X Home X Service Details - IBM Cloud X IBM Db2 on Cloud X

bpe61bfd0365e9u4psdglite.db2.cloud.ibm.com/cm%3Av1%3Abluemix%3Apublic%3Adashdb-for-transactions%3Aus-south%3Aa%2F36665fecddc4f9c8981ce62e0d0880%3A027252a2-9c64..

IBM Db2 on Cloud

Load Data Load History Tables Views Indexes Aliases MQTs Sequences Application objects

Source Target Define Finalize

You are loading the file Heart_Disease_Prediction.csv into FGV20212.HEARTDISEASE

Review settings

Summary

Code page: 1208 (Default)
Separator: , (Default)
Time format: HH:MM:SS (Default)
Date format: YYYY-MM-DD (Default)
Timestamp format: YYYY-MM-DD HH:MM:SS (Default)
String delimiter: (Default)

Option

Maximum number of warnings
1000

Back Begin Load

Kaggle_API_Gat...ipynb dataset.csv Show all

26°C Raining now ENG IN 13:02 11-11-2022

K Heart Disease Prediction | Kaggle X My IBM X Home X Service Details - IBM Cloud X IBM Db2 on Cloud X

bpe61bfd0365e9u4psdglite.db2.cloud.ibm.com/cm%3Av1%3Abluemix%3Apublic%3Adashdb-for-transactions%3Aus-south%3Aa%2F36665fecddc4f9c8981ce62e0d0880%3A027252a2-9c64..

IBM Db2 on Cloud

Load Data Load History Tables Views Indexes Aliases MQTs Sequences Application objects

My computer Target
Heart_Disease_Prediction.csv FGV20212.HEARTDISEASE

View Table Load More Data

Status Settings Errors 0 Warnings 0

The data load job succeeded.
You can now work with your data.

270 270 0
Rows read Rows loaded Rows rejected

Start time 11/11/2022 1:03:06 PM
End time 11/11/2022 1:03:20 PM

No errors

Kaggle_API_Gat...ipynb dataset.csv Show all

26°C Raining now ENG IN 13:03 11-11-2022

K Heart Disease Prediction | Kaggle | My IBM | Home | Service Details - IBM Cloud | IBM Db2 on Cloud

IBM Cognos Analytics with Watson

Data server connections

Name	Modified
Heart Disease Prediction Test	11/11/2022 00:59
Weather Company	31/03/2022 22:38

Heart Disease Prediction Test

Owner: SATHI ... 84ad84 | Created: 11/11/2022, 00:59 | Modified: 11/11/2022, 00:59 | Type: Data Server

General Connections Permissions

Name	Modified
Heart Disease Predi ... Test	11/11/2022 01:19

Heart Disease Prediction Test

Owner: SATHI ... 84ad84 | Created: 11/11/2022, 00:59 | Modified: 11/11/2022, 01:19 | Type: Connection

General Settings Schemas Permissions

Connection details

Authentication method:

- Connect anonymously
- Prompt for the user ID and password
- Use an external namespace
- Use the following signon:

Test Success Save

File Kaggle_API_Gat...ipynb dataset.csv Show all

26°C Raining now ENG IN 13:01 11-11-2022

K Heart Disease Prediction | Kaggle | My IBM | Home | Service Details - IBM Cloud | IBM Db2 on Cloud

IBM Db2 on Cloud

Load Data Load History Tables Views Indexes Aliases MQTs Sequences Application objects

Source Target Define Finalize

You are loading the file Heart_Disease_Prediction.csv into FGV20212.HEARTDISEASE

Code page (character encoding): 1208 (UTF-8) Separator: , Header in first row: Time & date format: Detect data types:

AGE	SEX	CHEST_PAIN_TYPE	BP	CHOLESTEROL	FBS_OVER_120	EKG_RESULTS	MAX_HR	EXERCISE_SMALLINT
SMALLINT	SMALLINT	SMALLINT	SMALLINT	SMALLINT	SMALLINT	SMALLINT	SMALLINT	SMALLINT
1	70	1	4	130	322	0	2	109
2	67	0	3	115	564	0	2	160
3	57	1	2	124	261	0	0	141
4	64	1	4	128	263	0	0	105
5	74	0	2	120	269	0	2	121
6	65	1	4	120	177	0	0	140
7	56	1	3	130	256	1	2	142
8	59	1	4	110	239	0	2	142
9	60	1	4	140	293	0	2	170
10	63	0	4	150	407	0	2	154

Back Next

File Kaggle_API_Gat...ipynb dataset.csv Show all

26°C Raining now ENG IN 13:02 11-11-2022

K Heart Disease Prediction | Kaggle | My IBM | Home | Unlock the power of IBM Cloud | Perspective

IBM Cognos Analytics with Watson

Data server connections

Name	Modified
Heart Disease Prediction Test	11/11/2022 00:59
Weather Company	31/03/2022 22:38

Heart Disease Prediction Test

Owner: SATHI ... 84ad84 | Created: 11/11/2022, 00:59 | Modified: 11/11/2022, 00:59 | Type: Data Server

General Connections Permissions

Name	Modified
Heart Disease Predi ... Test	11/11/2022 01:19

Heart Disease Prediction Test

Owner: SATHI ... 84ad84 | Created: 11/11/2022, 00:59 | Modified: 11/11/2022, 01:19 | Type: Connection

General Settings Schemas Permissions

Schemas

Status	Schema name	Tables loaded
AUDIT		
DB2INST1		
ERRORSCHEMA		
FGV20212		1 / 1

Show system schemas

File Kaggle_API_Gat...ipynb dataset.csv Show all

26°C Raining now ENG IN 13:09 11-11-2022

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.

The screenshot shows the IBM Cognos Analytics with Watson Content interface. The top navigation bar includes 'My IBM' (with a profile icon), 'Content' (with a close icon), and a '+' button. The URL in the address bar is 'us3.ca.analytics.ibm.com/bi/?perspective=content&tab=myContent&folder=i5AFA40E983CE4C28A56DF222D1C596C0'. The main header has 'IBM Cognos Analytics with Watson' on the left, a 'Content' dropdown in the center, and a search bar 'Search content' on the right. Below the header, there are three tabs: 'My content' (selected), 'Team content', and 'Samples'. A blue 'New +' button is located on the right side of the header. The main content area is titled 'Content' and displays a list of uploaded files. The table has columns for 'Name', 'Type', and 'Last Accessed'. The files listed are:

Name	Type	Last Accessed
50_Startups.csv	Uploaded file	15/09/2022, 08:39
Bank Analysis Dashboard	Dashboard	19/09/2022, 01:35
bank.csv	Uploaded file	19/09/2022, 00:03
bikebuyer.csv	Uploaded file	14/09/2022, 09:02
Heart_Disease_Prediction.csv	Uploaded file	30/10/2022, 01:19
Olympic Events.xlsx	Uploaded file	08/09/2022, 10:19
Olympic Medals.xlsx	Uploaded file	08/09/2022, 10:19

Data Cleaning and Data Processing using Cognos Analytics:

USN-2:

- As an Analyst, I will check the data set and clean the dataset to create an efficient model.
- To Data cleaning the null values in heart_disease_prediction.csv Dataset.

The screenshot shows the IBM Cognos Analytics interface with a data grid. The data module is 'Heart_Disease_prediction.csv'. The 'Chest pain type' column has many null values, which are highlighted in the image.

Row Id	Age	Sex	Chest pain type	BP	Cholesterol	FBS over 120
1	70	1	Null	130	322	0
2	67	0	3	115	564	0
3	57	1	2	124	261	0
4	64	1	4	128	263	0
5	74	0	2	120	269	0
6	65	1	4	120	177	0
7	56	1	3	130	256	1
8	59	1	4	110	239	0
9	60	1	Null	140	293	0
10	63	0	4	150	407	0
11	59	1	4	135	234	0
12	53	1	4	142	226	0
13	44	1	3	140	235	0
14	61	1	1	124	224	0

The screenshot shows the context menu for the 'Chest pain type' column in the data grid. The 'Filter...' option is selected.

Row Id	Age	Sex	Chest pain type	Cholesterol	FBS over 120
1	70	1	Null	322	0
2	67	0	3	564	0
3	57	1	2	261	0
4	64	1	4	263	0
5	74	0	2	269	0
6	65	1	4	177	0
7	56	1	3	256	1
8	59	1	4	239	0
9	60	1	Null	293	0
10	63	0	4	407	0
11	59	1	4	234	0
12	53	1	4	226	0
13	44	1	3	235	0
14	61	1	1	224	0

IBM Cognos Analytics with Watson

New data module

Grid Relationships Custom tables

Row Id	Age	Sex	Chest pain type	BP	Cholesterol	FBS over 120
1	70	1	Null	130	322	0
2			Clean - Chest pain type	115	564	0
3			NULL values	124	261	0
4			<input type="checkbox"/> Replace this value with NULL	128	263	0
5			<input checked="" type="checkbox"/> Replace NULL values with	120	269	0
6			4	120	177	0
7				130	256	1
8				110	239	0
9				140	293	0
10	63	0	4	150	407	0
11	59	1	4	135	234	0
12	53	1	4	142	226	0
13	44	1	3	140	235	0
14	61	1	1	124	224	0

Search content

Properties

NULL values

Replace this value with NULL

Replace NULL values with

Cancel Clean

IBM Cognos Analytics with Watson

New data module

Grid Relationships Custom tables

Row Id	Age	Sex	Chest pain type	BP	Cholesterol	FBS over 120
1	70	1	4	130	322	0
2	67	0	3	115	564	0
3	57	1	2	124	261	0
4	64	1	4	128	263	0
5	74	0	2	120	269	0
6	65	1	4	120	177	0
7	56	1	3	130	256	1
8	59	1	4	110	239	0
9	60	1	4	140	293	0
10	63	0	4	150	407	0
11	59	1	4	135	234	0
12	53	1	4	142	226	0
13	44	1	3	140	235	0
14	61	1	1	124	224	0

IBM Cognos Analytics with Watson

Grid Relationships Custom tables

	Exercise angina	ST depression	Slope of ST	Number of vessels fluro	Thallium	Heart Disease
# Row Id	0	2.4	2	3	3	Presence
Age	0	1.6	2	Null	7	Absence
Sex	0	0.3	1	Null	7	Presence
Chest pain type	1	0.2	2	1	7	Absence
BP	1	0.4	1	Null	7	Absence
Cholesterol	1	0.6	2	1	6	Presence
FBS over 120	1	1.2	2	1	7	Presence
EKG results	0	1.2	2	2	7	Presence
Max HR	0	4	2	3	7	Presence
Exercise angina	0	0.5	2	0	7	Absence
ST depression	1	0	1	0	7	Absence
Slope of ST	0	0	1	0	3	Absence
Number of...ls fluro	0	0	1	0	3	Absence
Thallium	0	0	2	2	3	Presence
Heart Disease	0	2.6	2	2	3	Presence

IBM Cognos Analytics with Watson

Grid Relationships Custom tables

	Exercise angina	ST depression	Slope of ST	Number of vessels fluro	Thallium	Heart Disease
# Row Id	0	2.4	2	3	3	Presence
Age	0	1.6	2	Null	7	Absence
Sex	0	0.3	1	Null	7	Presence
Chest pain type	1	0.2	2	1	7	Absence
BP	1	0.4	1	Null	7	Absence
Cholesterol	1	0.6	2	1	6	Presence
FBS over 120	1	1.2	2	1	7	Presence
EKG results	0	1.2	2	2	7	Presence
Max HR	0	4	2	3	7	Presence
Exercise angina	0	0.5	2	0	7	Absence
ST depression	1	0	1	0	7	Absence
Slope of ST	0	0	1	0	3	Absence
Number of...ls fluro	0	0	1	0	3	Absence
Thallium	0	0	2	2	3	Presence
Heart Disease	0	2.6	2	2	3	Presence

IBM Cognos Analytics with Watson

New data module

Grid Relationships Custom tables

	Exercise angina	ST depression	Slope of ST	Number of vessels fluro	Thallium	Heart Disease
0	2.4	2	3	3	Presence	
0	0	0	Null	7	Absence	
0	0	0	Null	7	Presence	
1	1	1	7	7	Absence	
1	1	1	3	3	Absence	
1	1	1	Null	7	Absence	
1	1	1	6	6	Presence	
1	1	1	7	7	Presence	
0	0	2	3	7	Presence	
0	0	0.5	0	7	Absence	
1	1	0	0	7	Absence	
0	0	0	0	3	Absence	
0	0	2.6	2	2	Presence	

Clean - Number of vessels fluro

NULL values

Replace this value with NULL

Replace NULL values with

Cancel Clean

IBM Cognos Analytics with Watson

New data module

Grid Relationships Custom tables

	Exercise angina	ST depression	Slope of ST	Number of vessels fluro	Thallium	Heart Disease
0	2.4	2	3	3	Presence	
0	1.6	2	0	7	Absence	
0	0.3	1	0	7	Presence	
1	0.2	2	1	7	Absence	
1	0.2	1	1	3	Absence	
0	0.4	1	0	7	Absence	
1	0.6	2	1	6	Presence	
1	1.2	2	1	7	Presence	
0	1.2	2	2	7	Presence	
0	4	2	3	7	Presence	
0	0.5	2	0	7	Absence	
1	0	1	0	7	Absence	
0	0	1	0	3	Absence	
0	2.6	2	2	2	Presence	

IBM Cognos Analytics with Watson

Grid Relationships Custom tables

Exercise angina ST depression Slope of ST Number of vessels fluro Thallium

Filter...

Create data group...
Create navigation path...
Split...
Hide from users
Remove
Format data...
Clean...
Sort descending
Sort ascending
Properties

Presence
Absence

Heart Disease

	Exercise angina	ST depression	Slope of ST	Number of vessels fluro	Thallium
0	2.4	2	3	3	3
0	1.6	2	0	7	
0	0.3	1	0	7	
1	0.2	2	1	7	
1	0.2	1	1	3	
0	0.4	1	0	7	
1	0.6	2	1	6	
1	1.2	2	1	7	
0	1.2	2	2	7	Presence
0	4	2	3	7	Presence
0	0.5	2	0	7	Absence
1	0	1	0	7	Absence
0	0	1	0	3	Absence
0	2.6	2	?	?	Presence

IBM Cognos Analytics with Watson

Grid Relationships Custom tables

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

Heart Disease

	Number of vessels fluro	Thallium	Heart Disease
3	3	Presence	
7	7	Absence	
7	7	Presence	
7	7	Absence	
3	3	Absence	
7	7	Absence	
6	6	Presence	
7	7	Presence	
7	7	Presence	
7	7	Absence	
7	7	Absence	
3	3	Absence	

	Exercise angina	ST depression	Slope of ST	Number of vessels fluro	Thallium	Heart Disease
	1	3.4	3	0	7	Presence
# Row Id	1	0.9	2	0	7	Presence
Age	1	0	1	2	7	Presence
Sex	1	1.9	1	1	7	Presence
Chest pain type	0	0	1	0	3	Presence
BP	0	0	1	0	3	Absence
Cholesterol	0	0	1	0	3	Absence
FBS over 120	0	0	1	0	7	Presence
EKG results	0	0	1	0	3	Absence
Max HR	0	0	1	0	3	Absence
Exercise angina	1	0.4	1	0	3	Absence
ST depression	0	0	1	0	7	Presence
Slope of ST	0	0	1	0	7	Absence
Number of...ls fluro	0	2.2	2	1	6	Presence
Thallium	0	0	1	0	3	Absence
Heart Disease						

Creating The Data Module using Cognos Analytics:

USN-3:

- As an Analyst I will also correct the raw data and create a data module.
- I will Create the data module using heart_disease_prediction.csv Dataset.

	Exercise angina	ST depression	Slope of ST	Number of vessels fluro	Thallium	Heart Disease
	1	3.4	3	0	7	Presence
# Row Id	1	0.9	2	0	7	Presence
Age	1	0	1	2	7	Presence
Sex	1	1.9	1	1	7	Presence
Chest pain type	0	0	1	0	3	Presence
BP	0	0	1	0	3	Absence
Cholesterol	0	0	1	0	3	Absence
FBS over 120	0	0	1	0	3	Absence
EKG results	0	0	1	0	7	Presence
Max HR	0	0	1	0	3	Absence
Exercise angina	1	0.4	1	0	3	Absence
ST depression	0	0	1	0	7	Presence
Slope of ST	0	0	1	0	7	Absence
Number of...ls fluro	0	2.2	2	1	6	Presence
Thallium	0	0	1	0	3	Absence
Heart Disease						

IBM Cognos Analytics with Watson

Heart disease Prediction data module

Grid Relationships Custom tables

Preview data

To preview data, select a table, a column in a table, or a folder that contains columns.

Heart disease...data module

- Navigation paths
- Heart_Disease...ction.csv
 - # RowId
 - 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
 - Thalium
- Heart Disease

Properties

IBM Cognos Analytics with Watson

Heart disease Prediction data module

Grid Relationships Custom tables

Diagram settings

Cardinality

Focus mode

Degrees of separation: 1

Heart_Disease...ction.csv

Properties

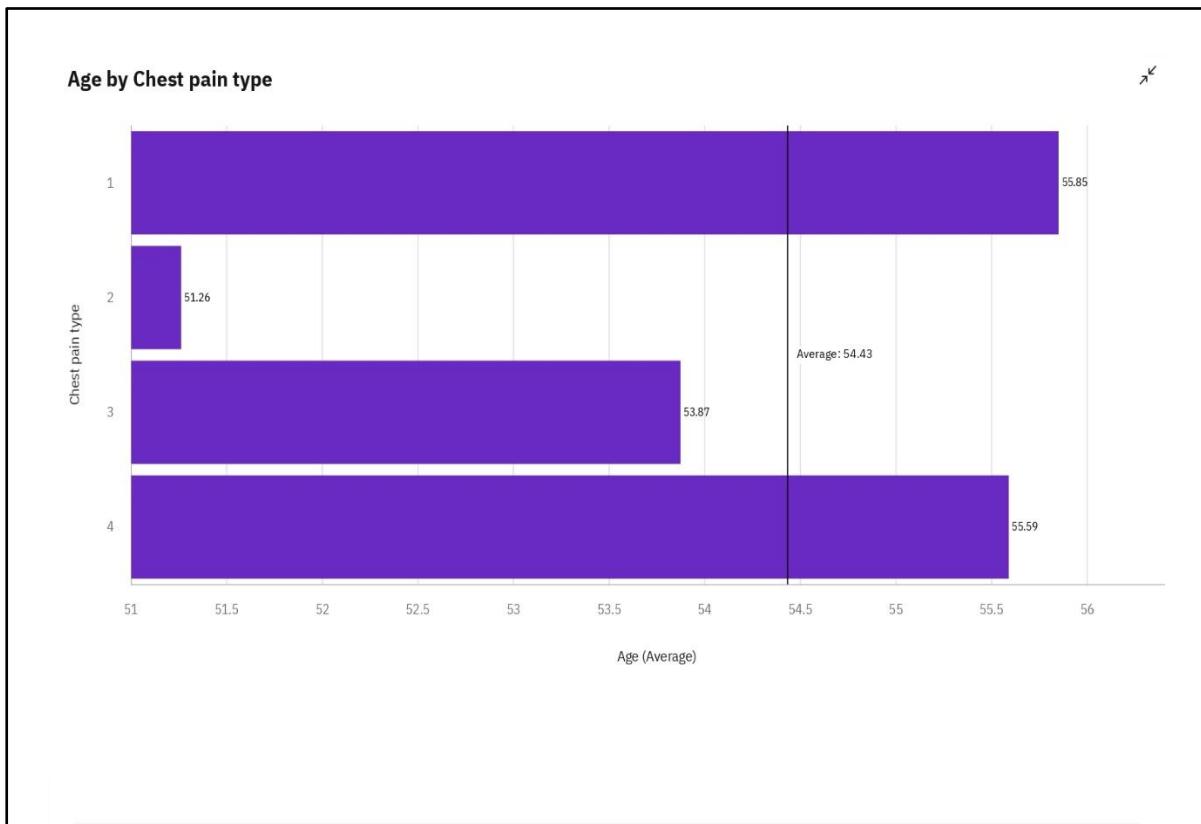
Exploration of Heart disease Prediction Dataset Using Cognos Analysis:

USN-4,5:

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

Age By Chest pain type:

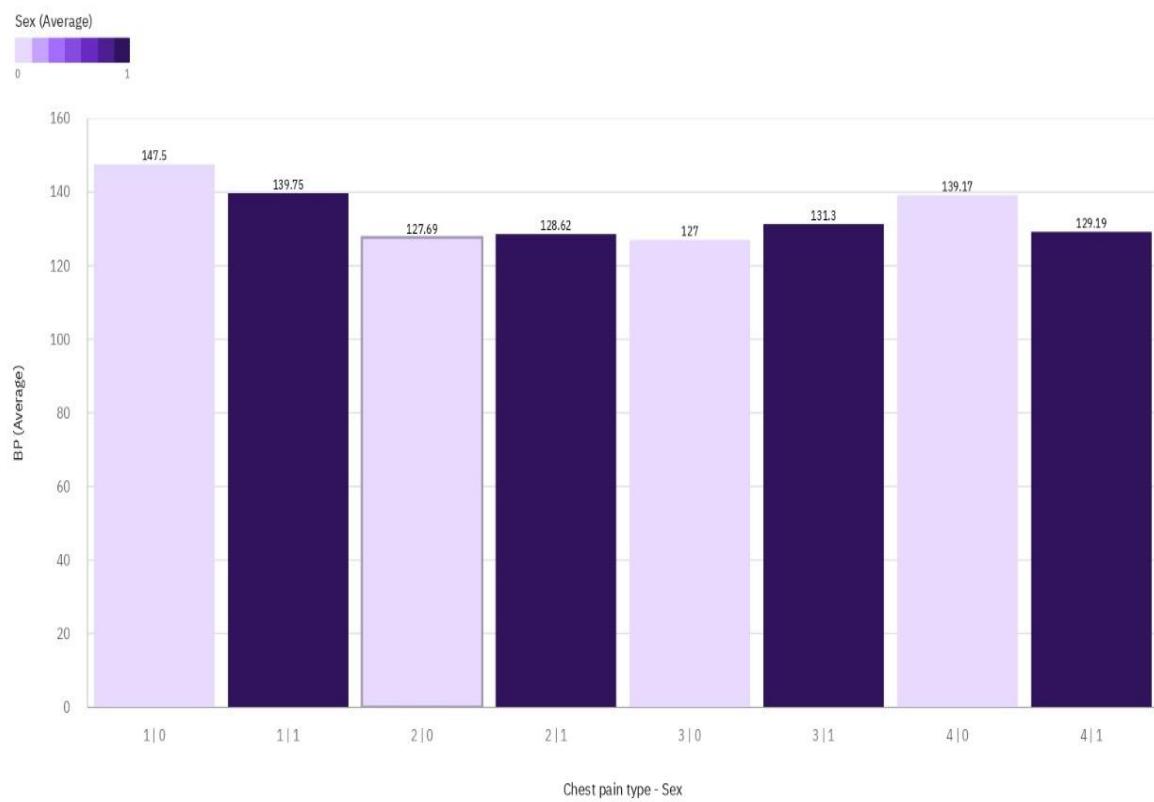
- ✓ The most common value of **Chest pain type** is 4, occurring 129 times, which is 47.8 % of the total.
- ✓ Over all **chest pain types**, the average of **Age** is 54.43.
- ✓ The average values of **Age** range from 51.26, occurring when **Chest pain type** is 2, to 55.85, when **Chest pain type**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



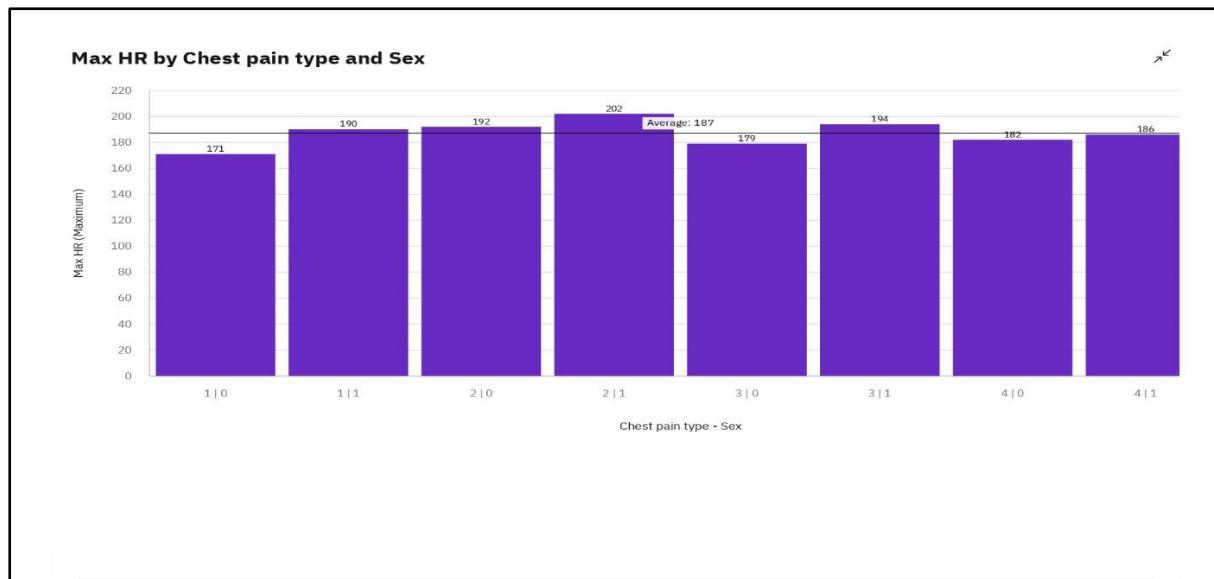
BP by Chest pain type and Sex coloured by Sex:

- The most common value of **Chest pain type - Sex** is 2|1, occurring 129 times, which is 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.

Tab 1

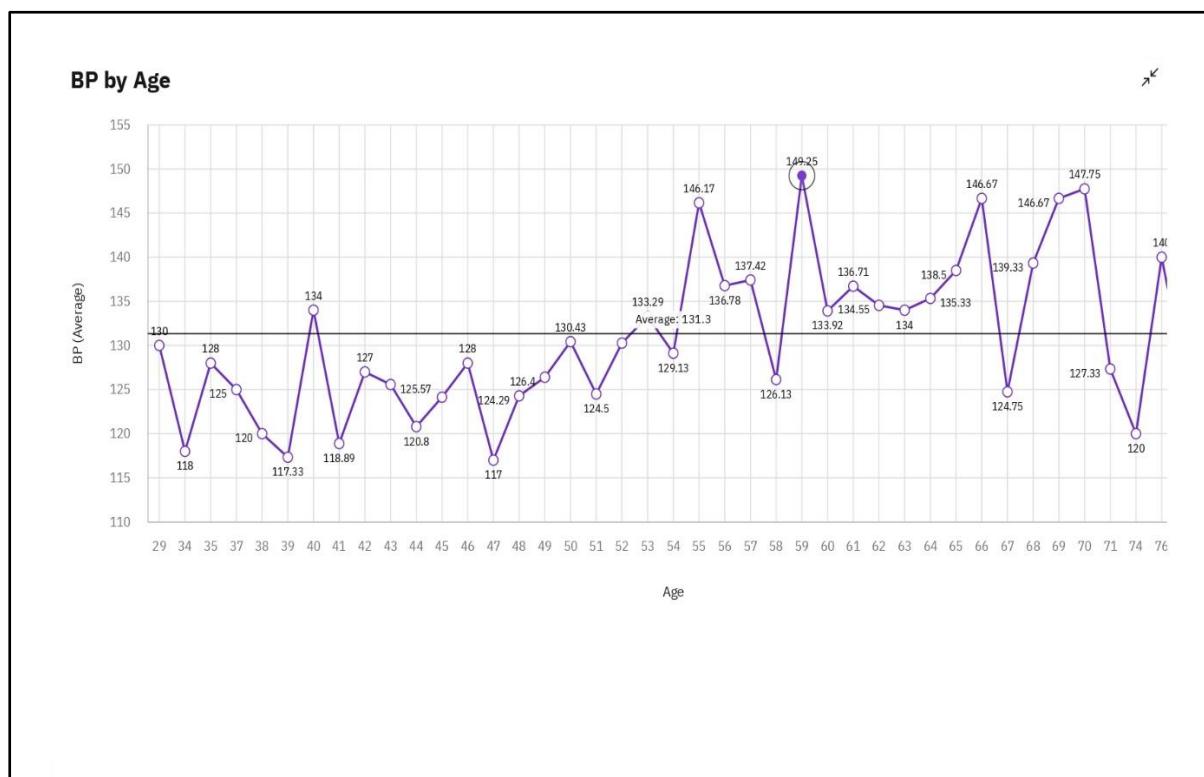
BP by Chest pain type and Sex colored by Sex**Max HR by Chest pain type and Sex:**

- ❖ The total 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, which is 47.8 % of the total.
- ❖ The largest value of **Max HR** is 1, occurring when **Chest pain type - Sex** is 1|0.



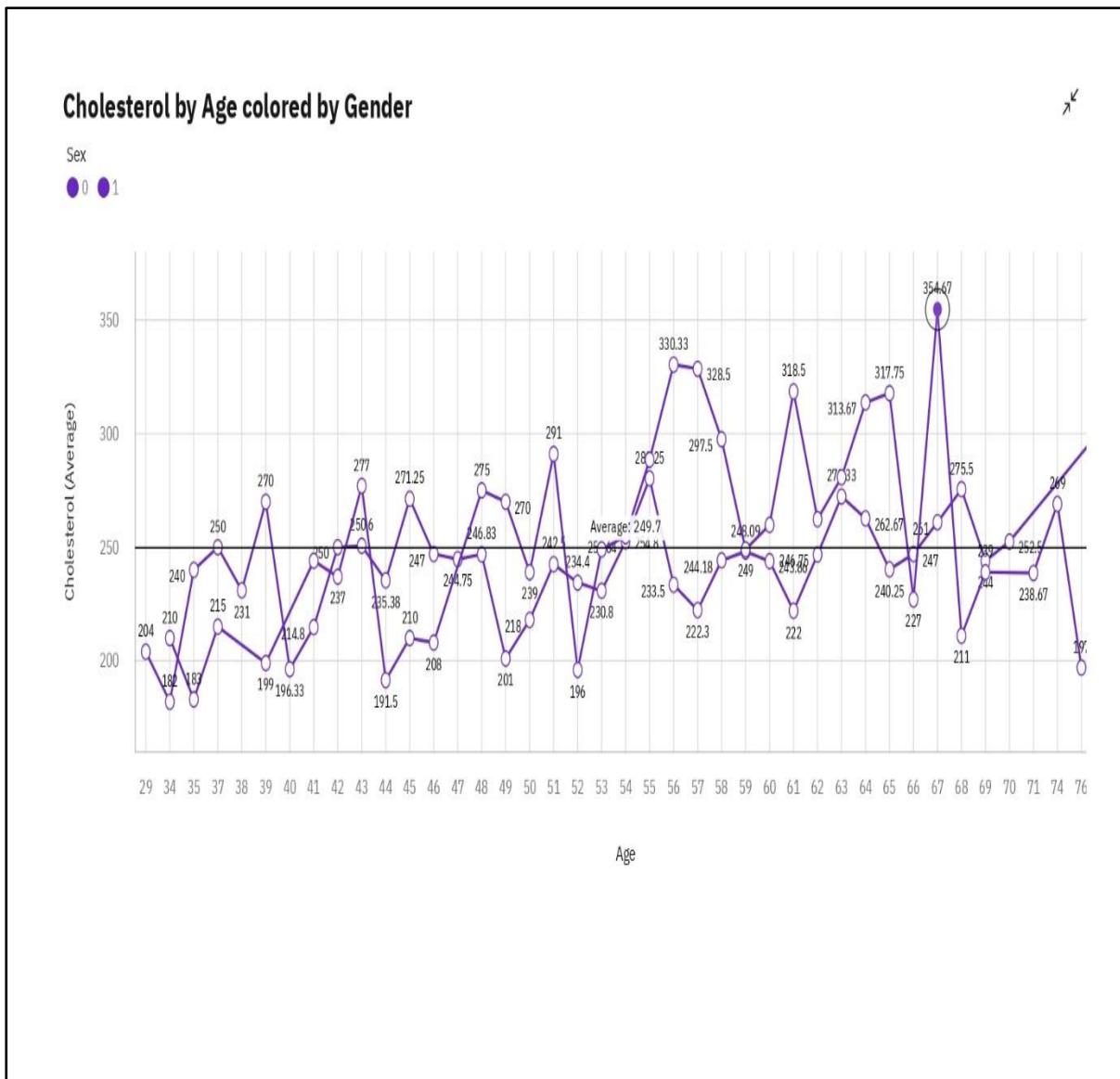
BP by Age:

- The most common values of **Age** are 54 (5.9 %) and 58 (5.6 %), together occurring 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** is 59.
- BP** is unusually high when **Age** is 59.



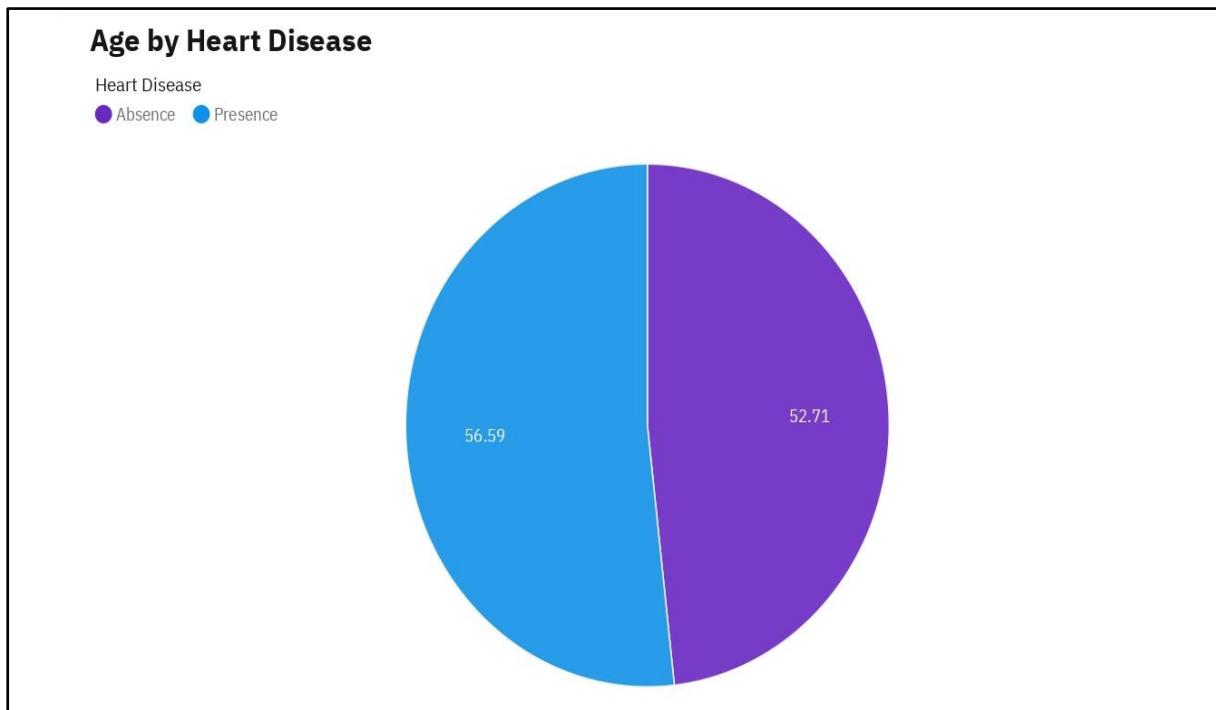
Cholesterol by Age colored by Gender:

- ✓ 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 %), together occurring 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, which is 55.6 % of the total.
- ❖ 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.

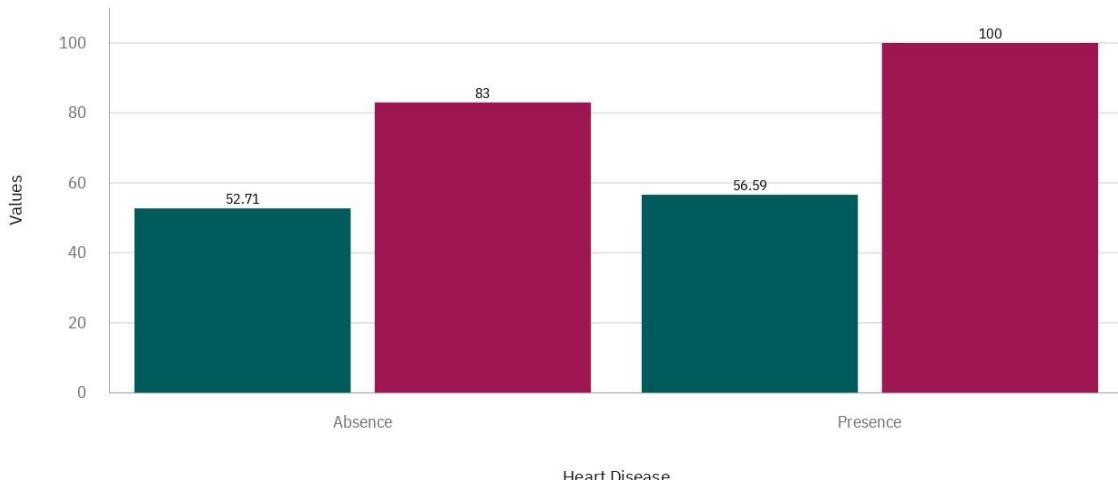


Age and Sex by Heart Disease:

- 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, which is 55.6 % of the total.
- 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.

Age and Sex by Heart Disease

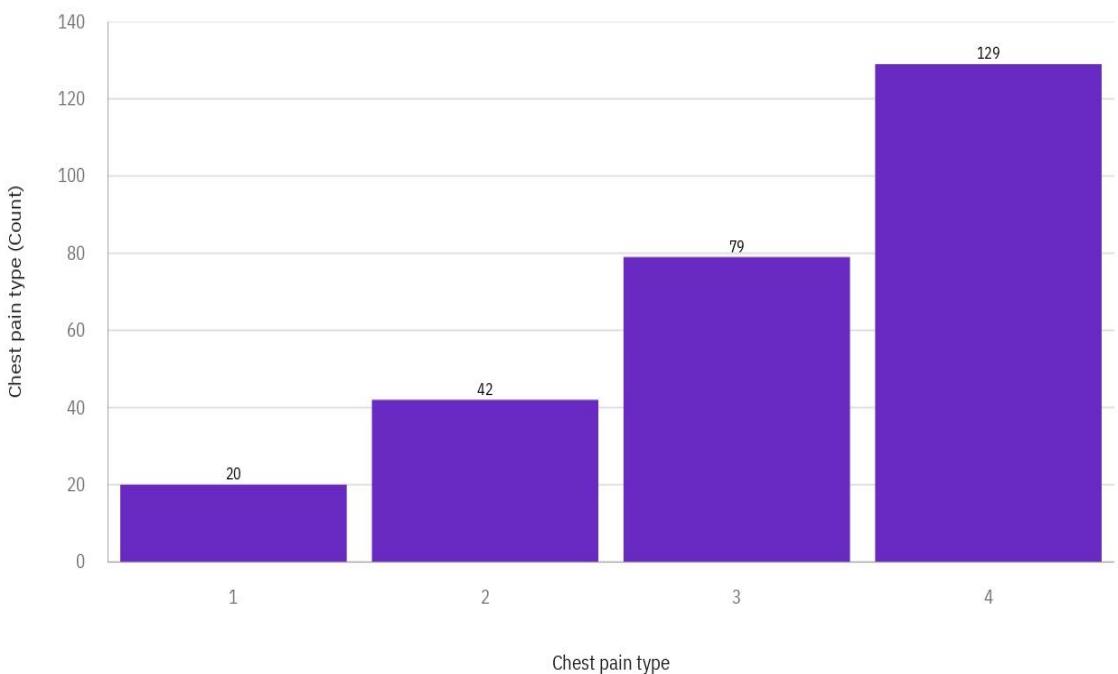
Measures
● Age ● Sex



Chest pain type by Chest pain type:

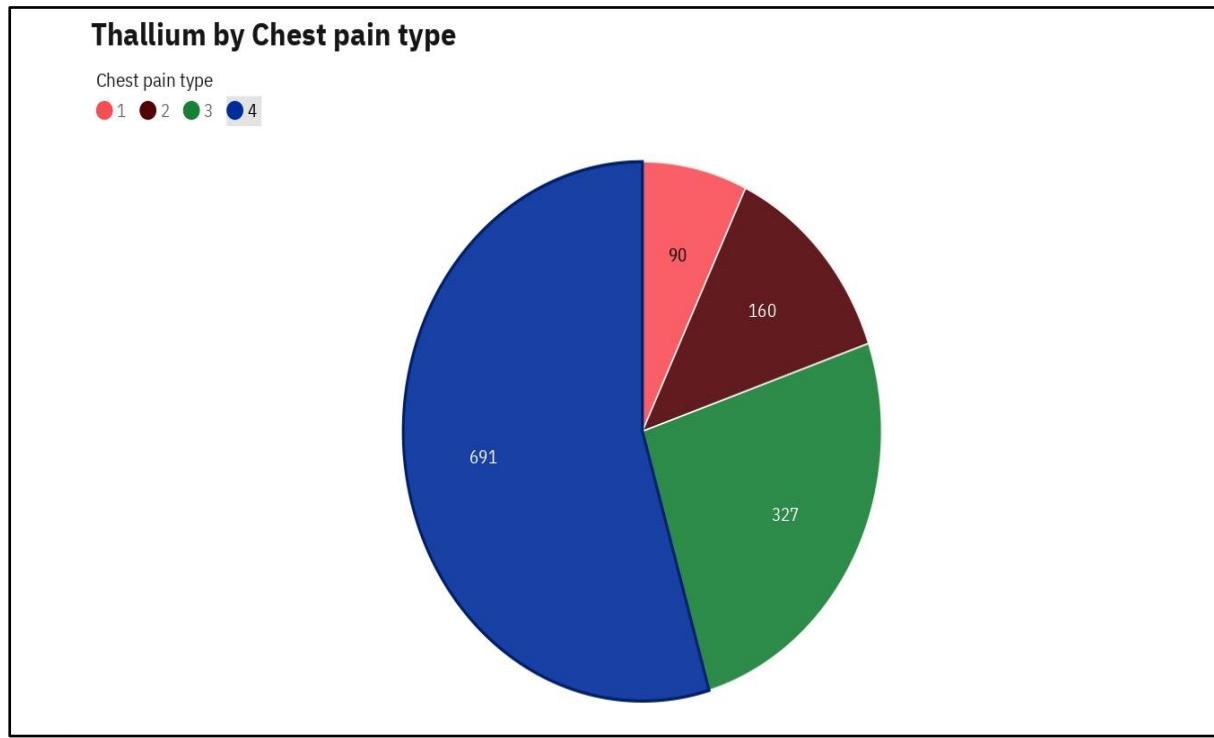
- ✓ The total number of results for **Chest pain type**, across all **chest pain types**, is 270.
- ✓ The most common value of **Chest pain type** is 4, occurring 129 times, which is 47.8 % of the total.
- ✓ The count is unusually high when **Chest pain type** is 4.

Chest pain type by Chest pain type



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.

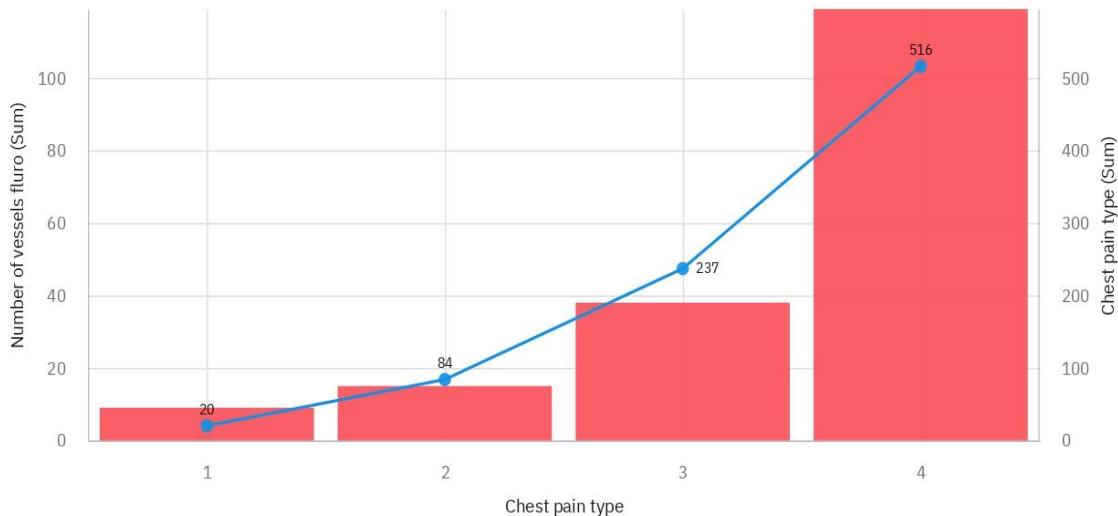


Chest pain type and Number of vessels Fluro by Chest pain type:

- 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.

Chest pain type and Number of vessels fluro by Chest pain type

Column
● Number of vessels fluro (Sum) Line
● Chest pain type (Sum)

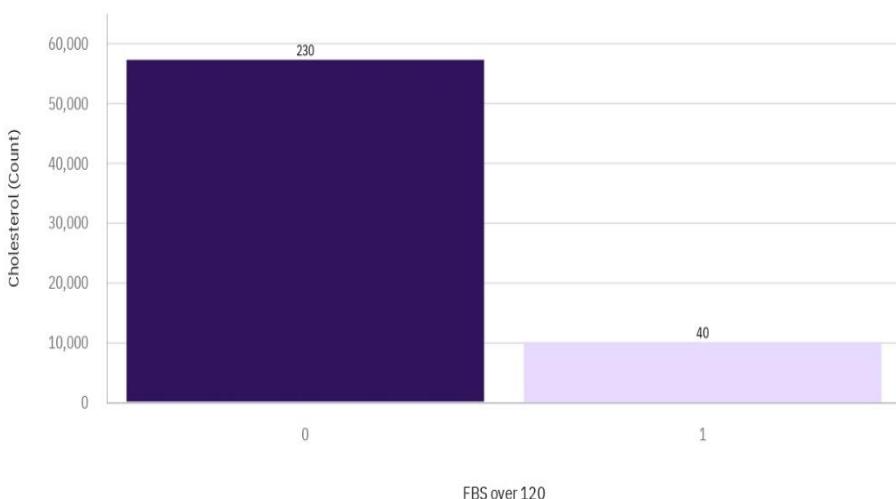


Cholesterol by FBS over 120 coloured by Cholesterol:

- ✓ 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 % of the total.

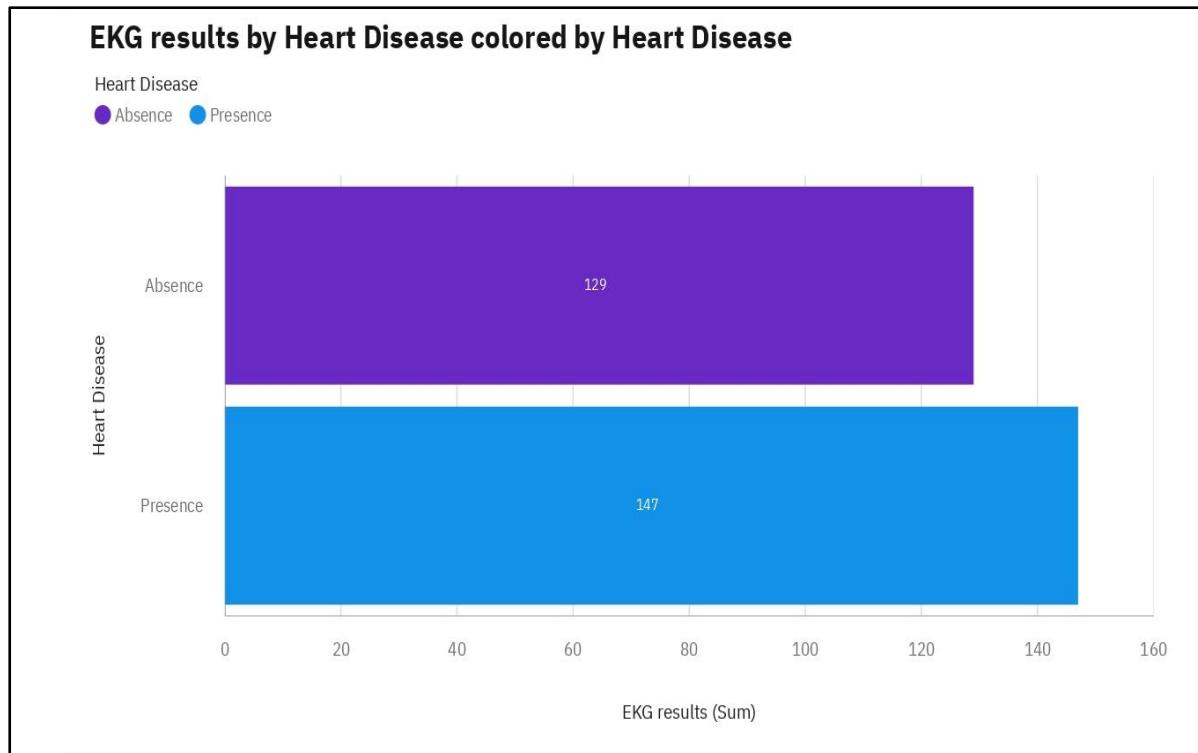
Cholesterol by FBS over 120 colored by Cholesterol

Cholesterol (Sum)
█ 10,111 █ 57,297



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.



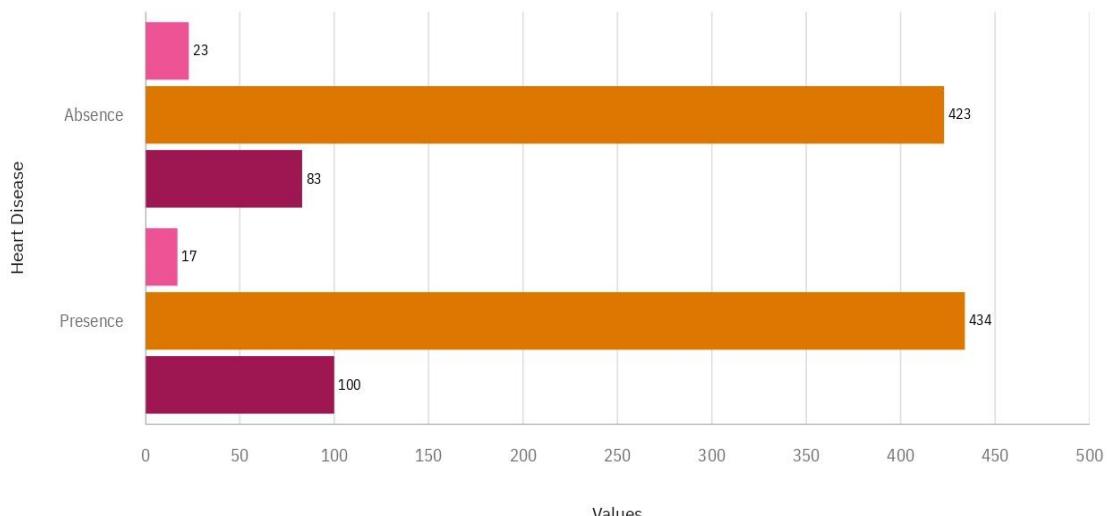
FBS over 120, Chest pain type and Sex by Heart Disease:

- ✓ **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, which is 55.6 % of the total.
- ✓ 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.

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

Measures

● FBS over 120 ● Chest pain type ● Sex



Age and Max HR for Sex:

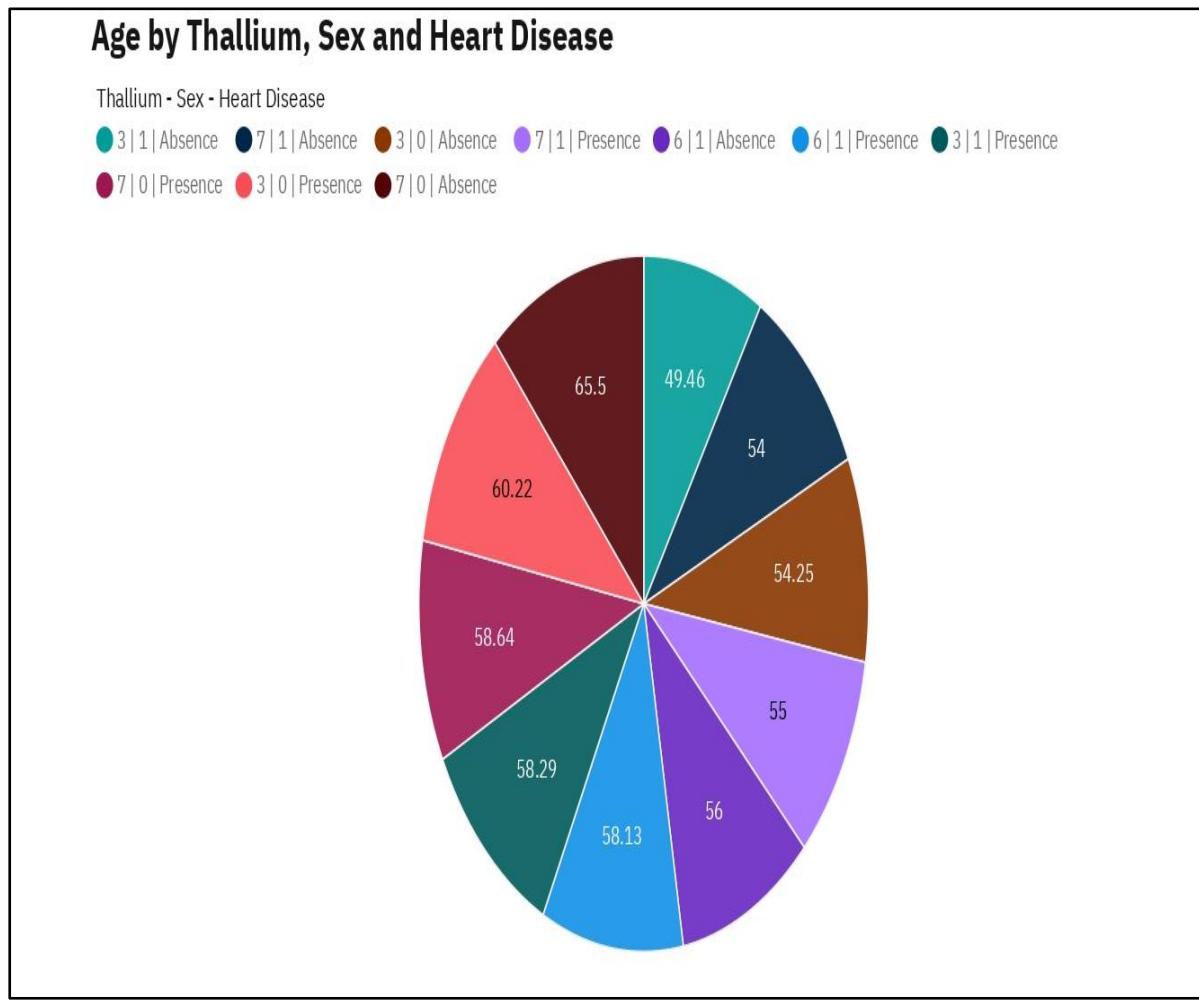
- The total number of results for **Age**, across all **sexes**, is 2.
- The total number of results for **Max HR**, across all **sexes**, is 2.
- The average values of **Age** range from 53.84, occurring when **Sex** is 1, to 55.68, when **Sex** is 0.
- The largest value of **Max HR** is 202, occurring when **Sex** is 1.

Age and Max HR for Sex

	Age	Max HR
0	55.68	192
1	53.84	202
Summary	54.43	202

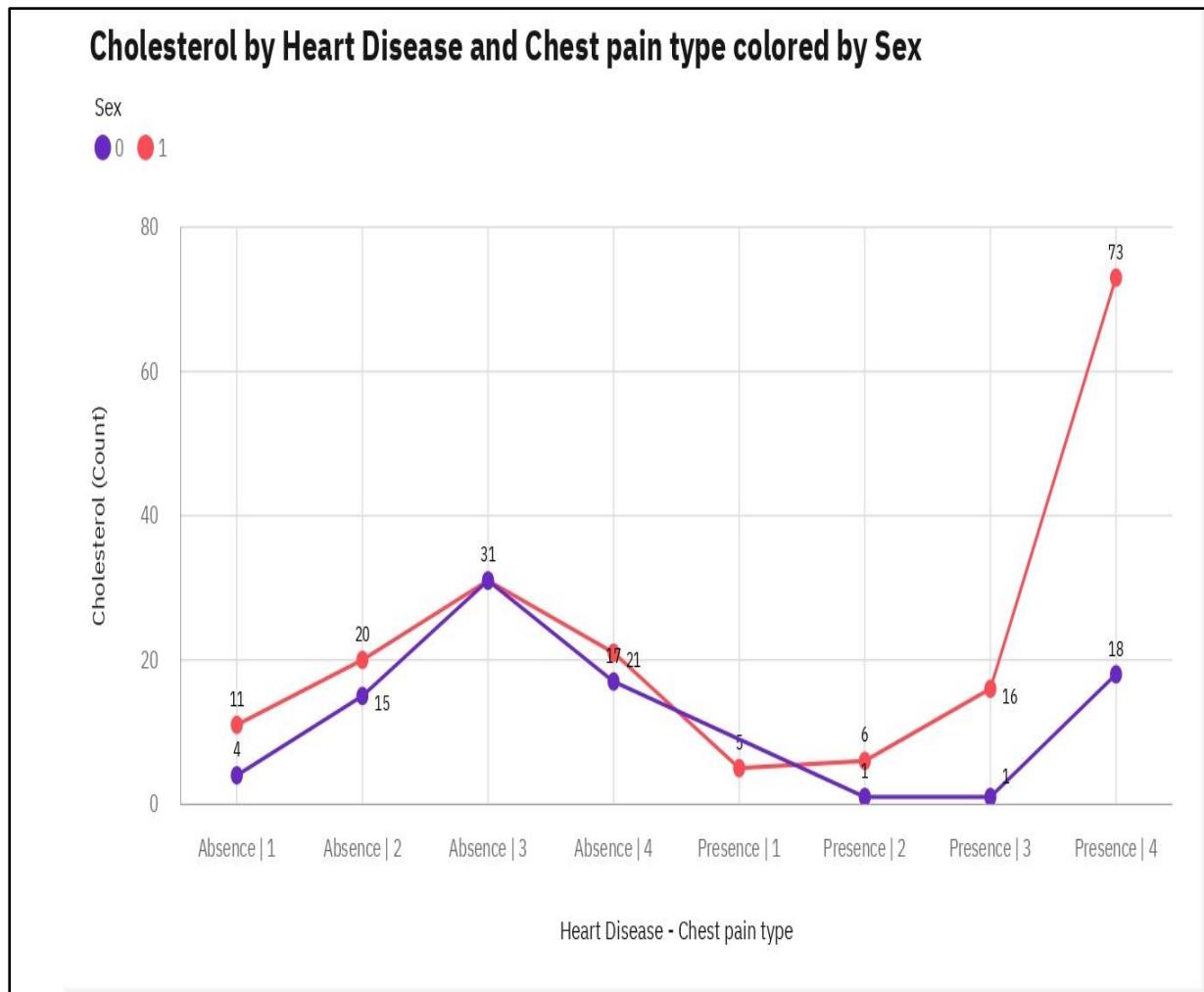
Age by Thallium, Sex and Heart Disease:

- ❖ 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 % of the 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.



Cognos Analytics Story:

- A Story contains a set of scenes that are displayed in sequence.
- Stories are similar to dashboards because they also use to share your insights
- Stories differ from dashboards because they provide an over-time narrative and can convey a conclusion or Recommendation.

Story Card of Heart disease Prediction Dataset Using Cognos Analysis:

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.

Visualizing and Predicting Heart Diseases with an Interactive Dashboard

TEAMID-PPNT2022TMID40507

SATHISHKUMAR P
RUKESH K
SIVASANKAR B
MD NOORULAH A

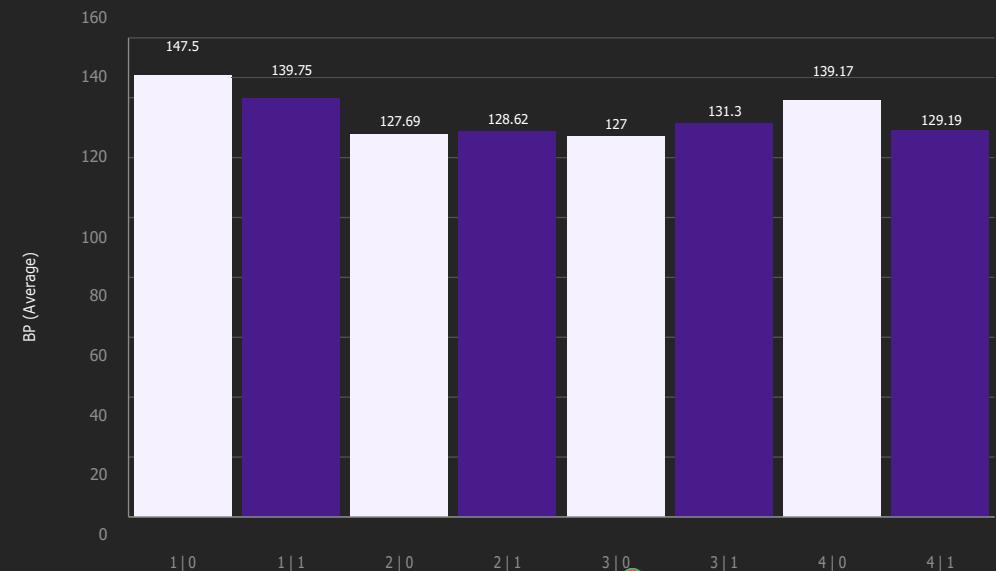


Age by Chest pain type



BP by Chest pain type and Sex colored by Sex

Sex (Average)



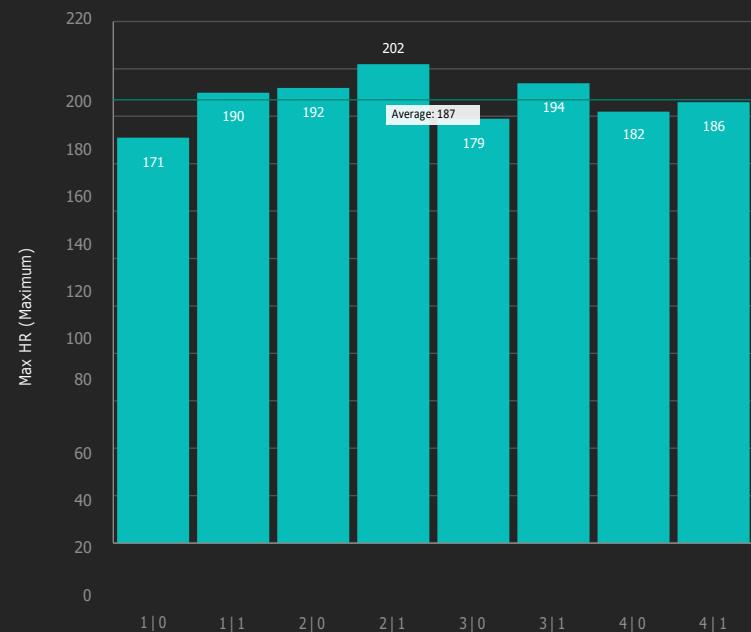
Age (Average)

The most common value of Chest pain type is 4, occurring 129 times, which is 47.8 % of the total.

Chest pain type - Sex

Over all chest pain type - sexes, the average of BP is 0.6778.

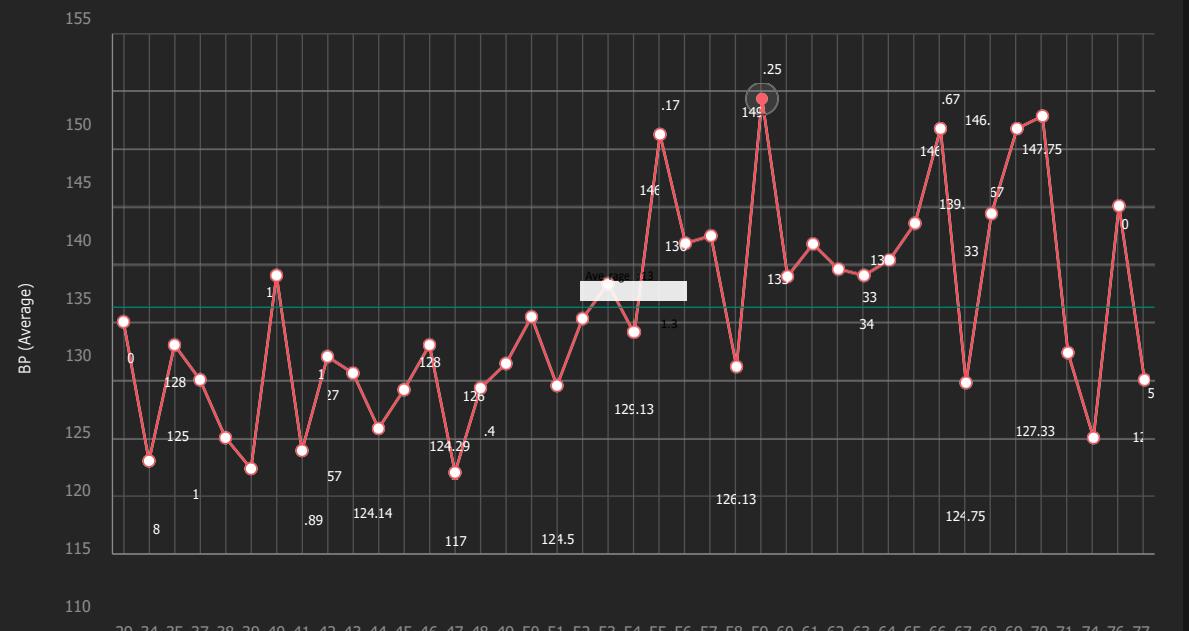
Max HR by Chest pain type and Sex



Chest pain type - Sex

The most common value of Chest pain type - Sex is 2|1, occurring 129 times, which is 47.8 % of the total.

BP by Age

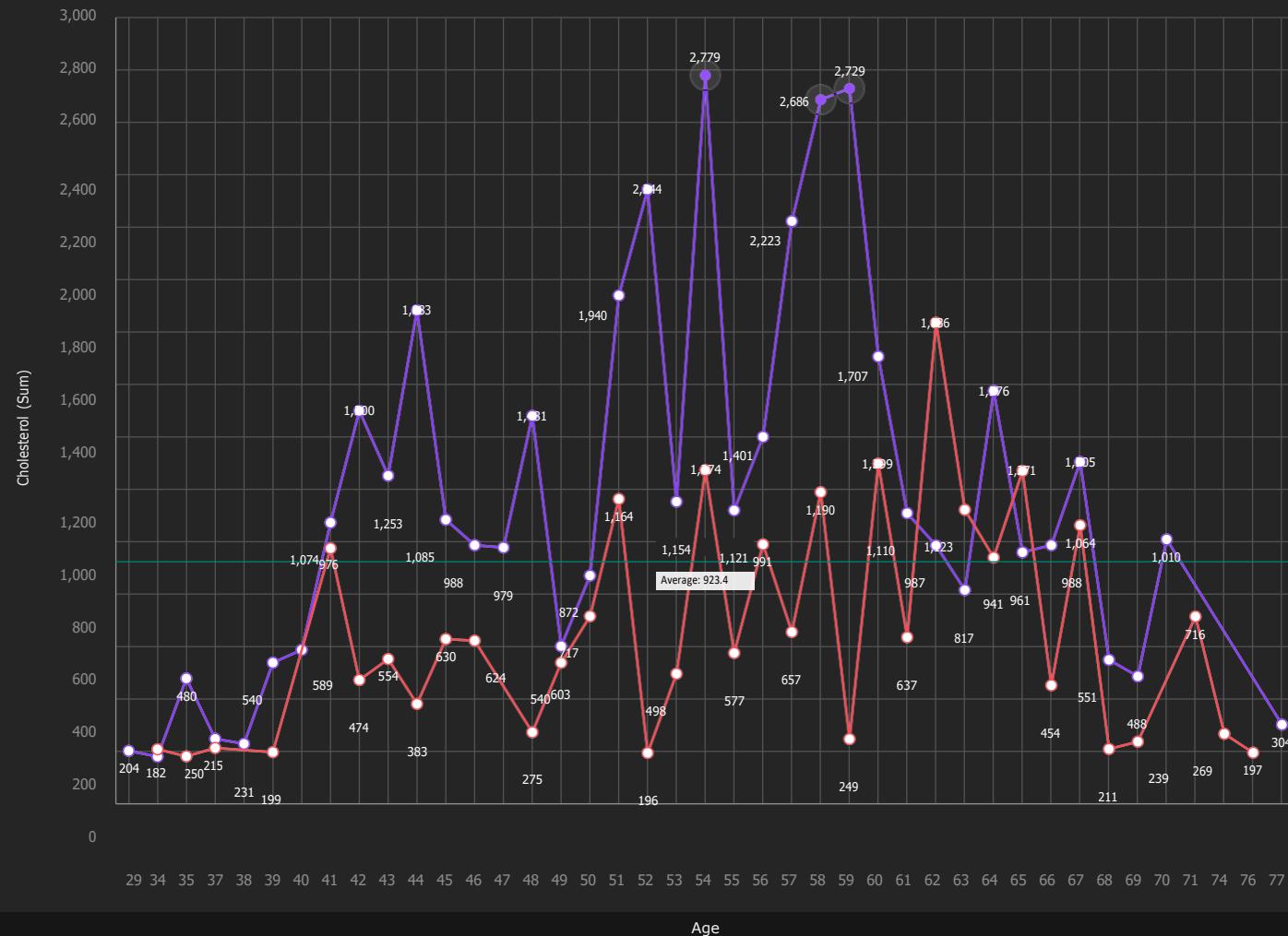


Age

BP is unusually high when Age is 59. Over all ages, the average of BP is 131.3.

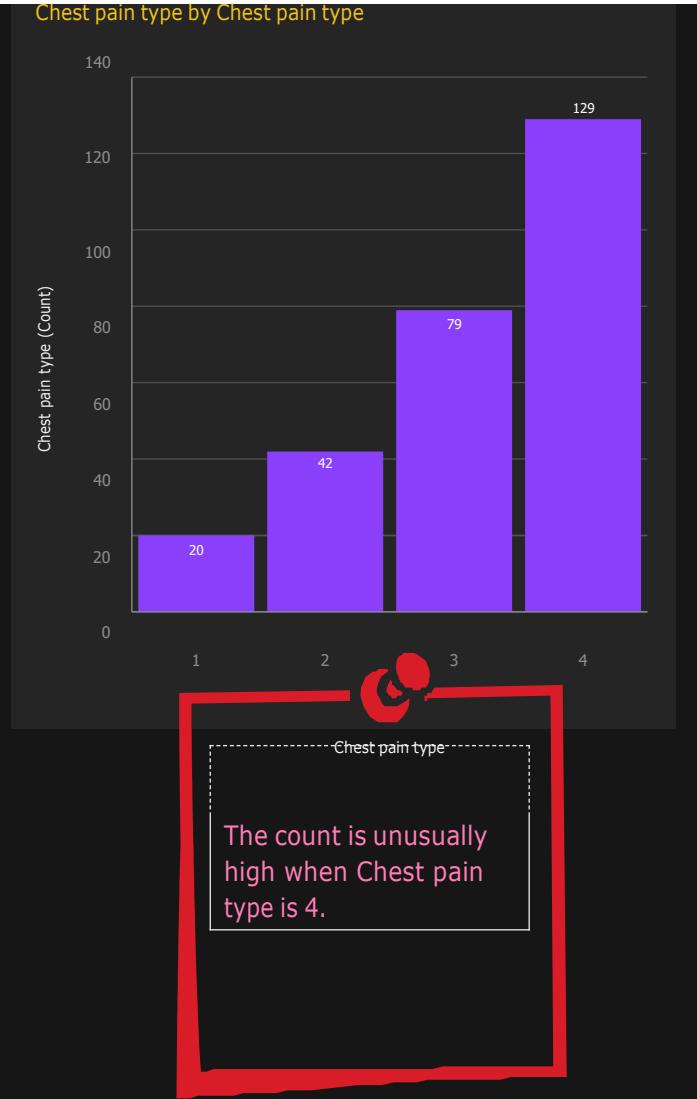
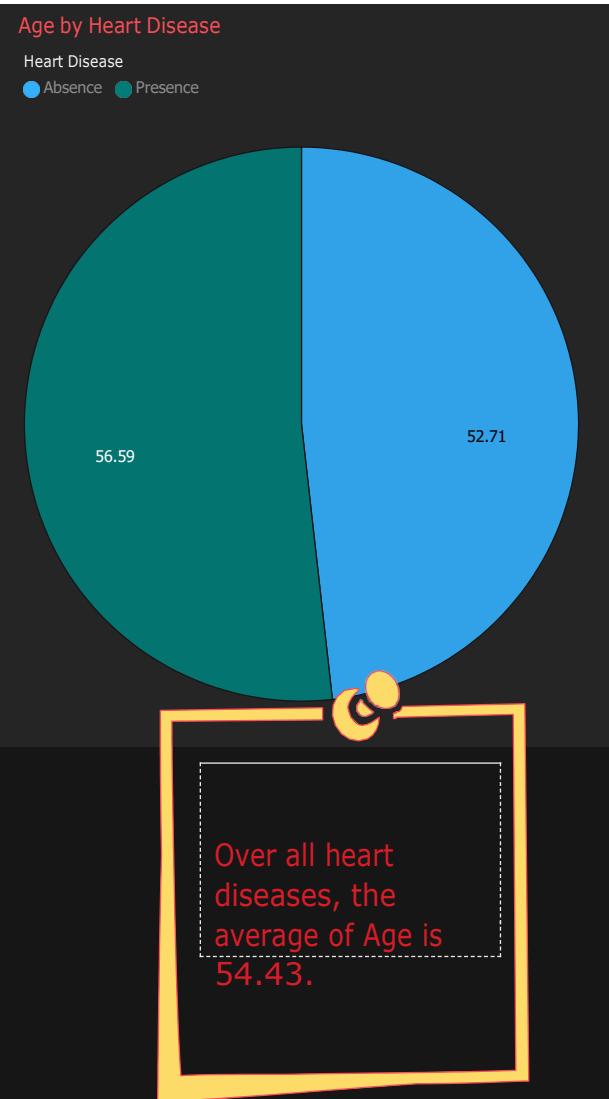
Cholesterol by Age colored by Gender

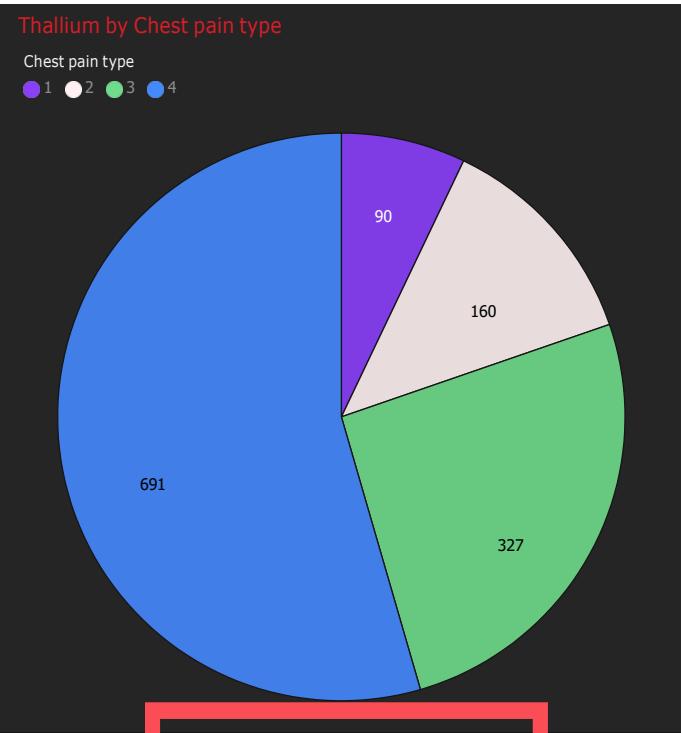
Sex
0 1



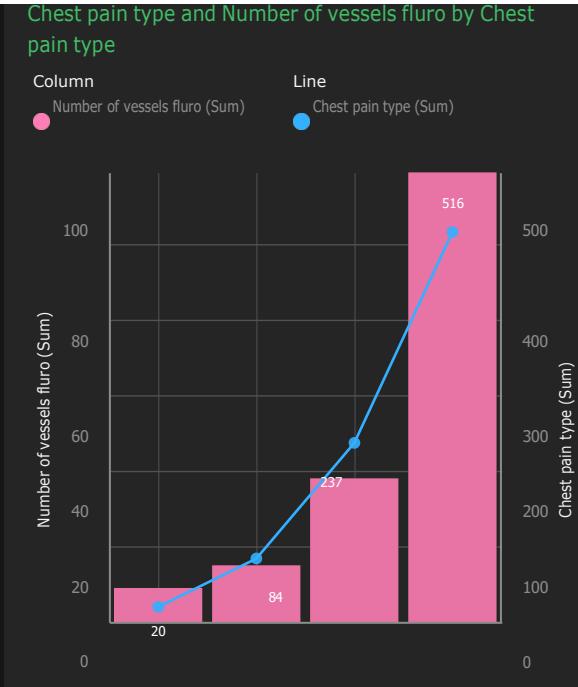
Over all ages and sexes, the average of Cholesterol is 249.7. The average values of Cholesterol range from 182 to 354.7.

Cholesterol is unusually high when the combination of Age and Sex is 67 and 0.

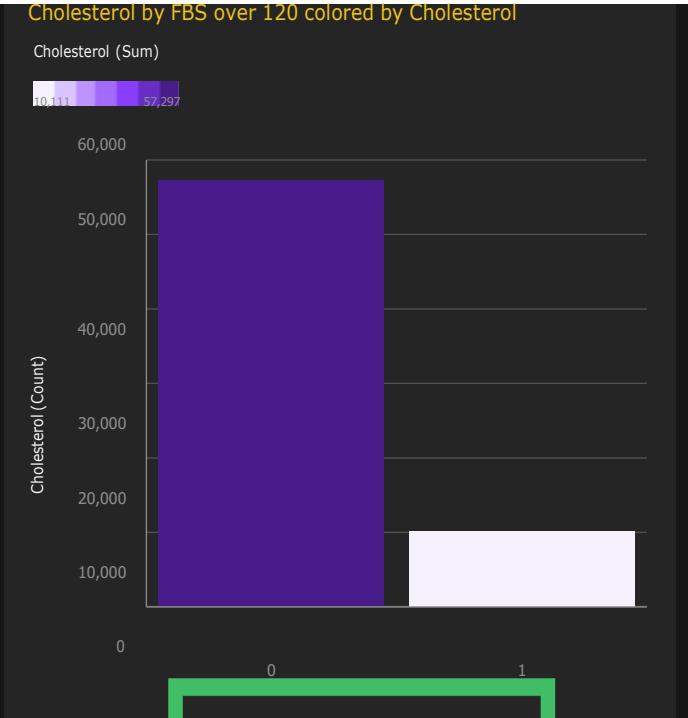




Thallium ranges from 90, when Chest pain type is 1, to 691, when Chest pain type is 4.



Chest pain type
Number of vessels fluro ranges from 9, when Chest pain type is 1, to 119, when Chest pain type is 4.

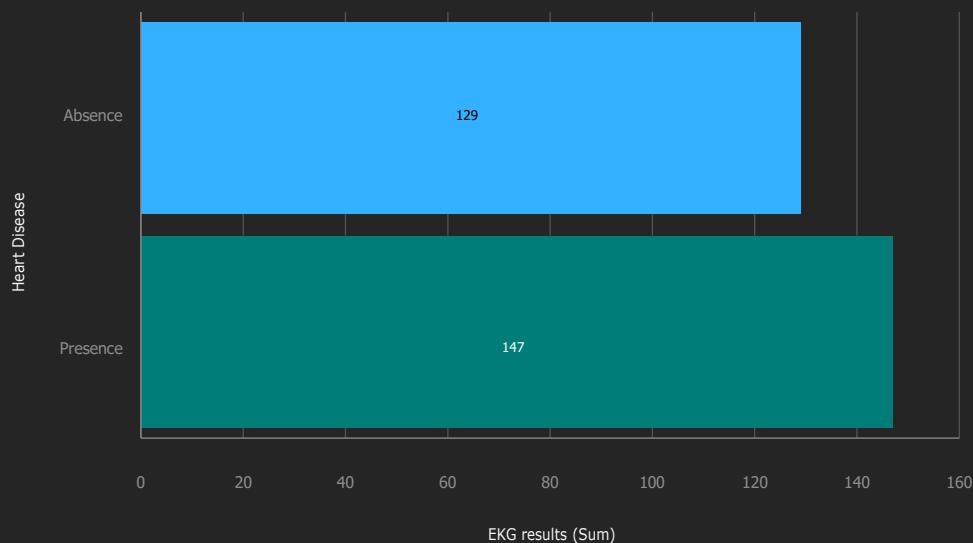


FBS over 120
The total number of results for Cholesterol is 270.

EKG results by Heart Disease colored by Heart Disease

Heart Disease

● Absence ● Presence

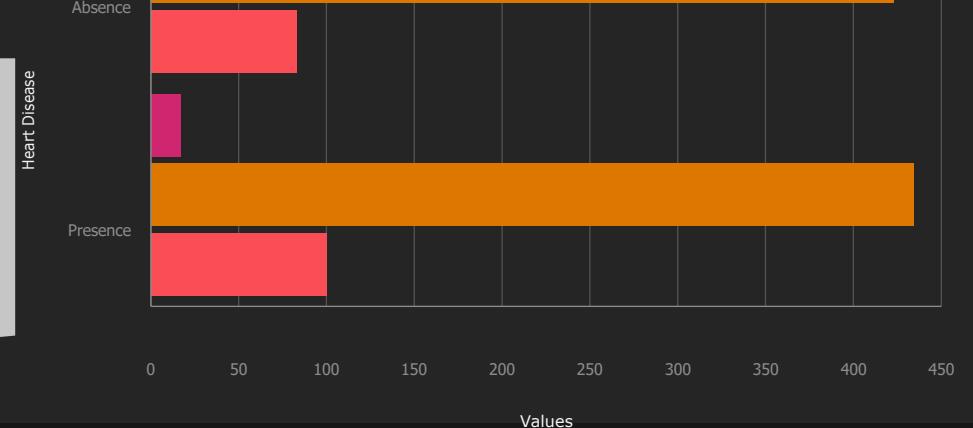


For EKG results, the most significant value of heart disease is Presence, whose respective EKG results values add up to 147, or 53.3 % of the total.

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

Measures

● FBS over 120 ● Chest pain type ● Sex

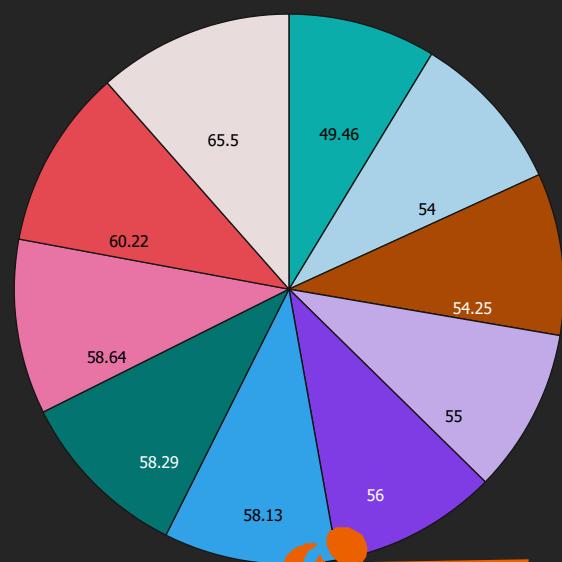


FBS over 120 ranges from 17, when heart disease is Presence, to 23, when heart disease is Absence.

Age by Thallium, Sex and Heart Disease

Thallium - Sex - Heart Disease

3 1 Absence	7 1 Absence	3 0 Absence	7 1 Presence	6 1 Absence	6 1 Presence	3 1 Presence
7 0 Presence	3 0 Presence	7 0 Absence				



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|Presence.

Age and Max HR for Sex

		Max HR
0	55.68	192
1	53.84	202
Summary	54.43	202

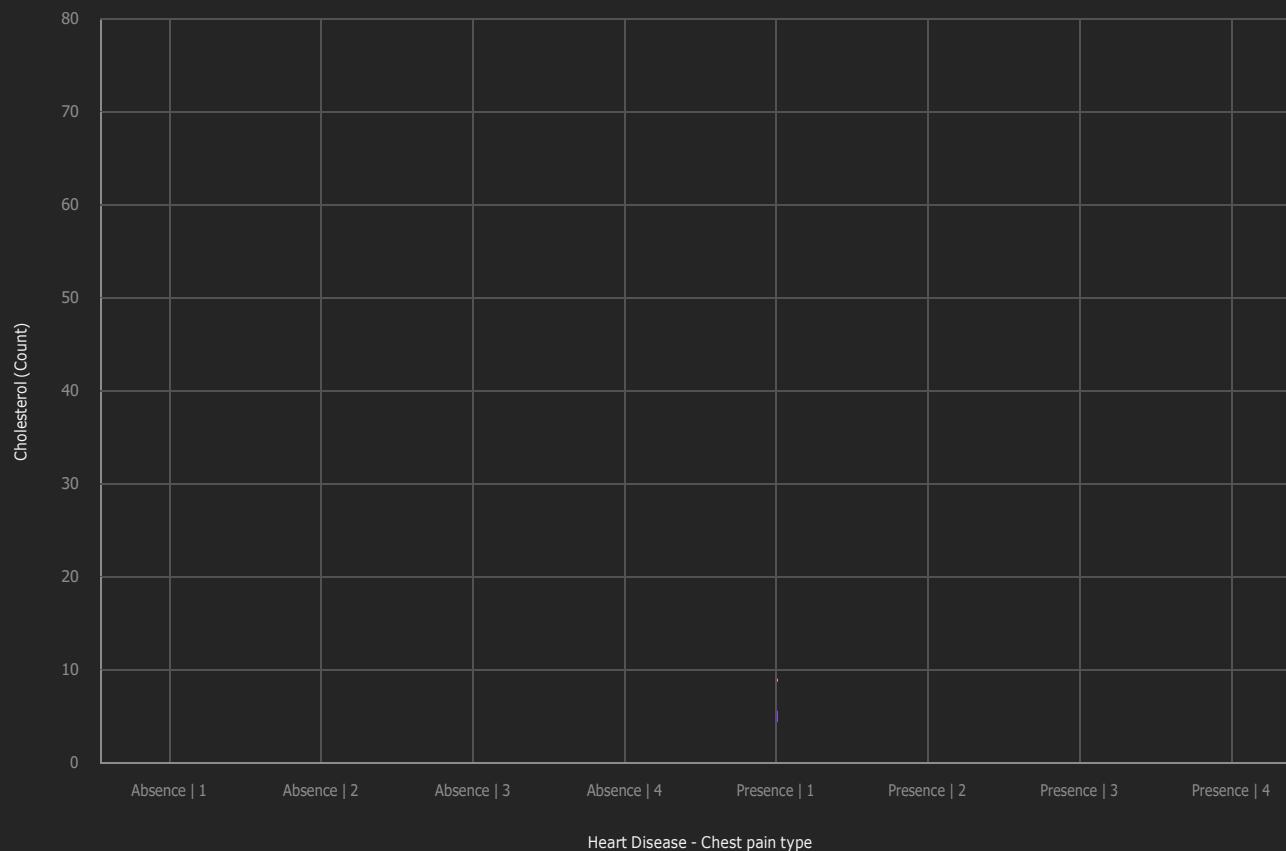


The average values of Age range from 53.84, occurring when Sex is 1, to 55.68, when Sex is 0.

Cholesterol by Heart Disease and Chest pain type colored by Sex

Sex

0 1



The most common value of heartdisease - 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 % of the total

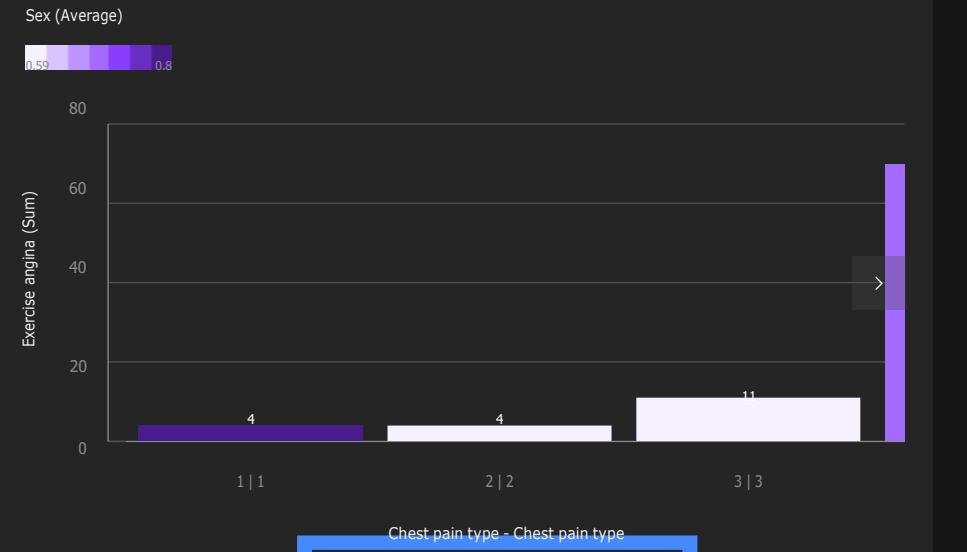
Age by Sex and Chest pain type



Age (Average)

The average values of Age range from 0, occurring when Sex - Chest pain type is 0|1, to 3, when Sex - Chest pain type is 0|1.

Exercise angina by Chest pain type and Chest pain And Gender

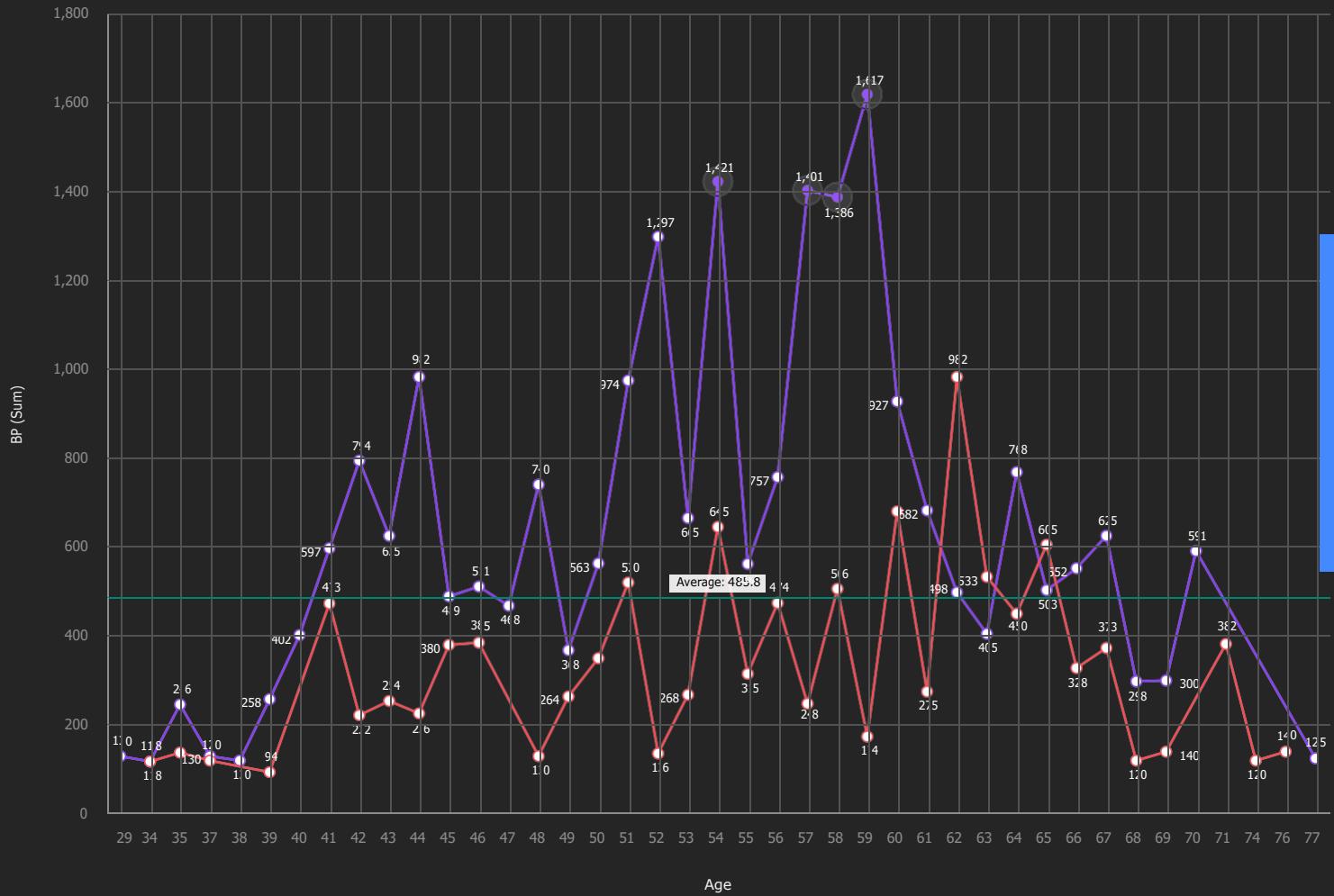


Chest pain type - Chest pain type

Overall chest pain type - chest pain types, the sum of Exercise angina is 6.

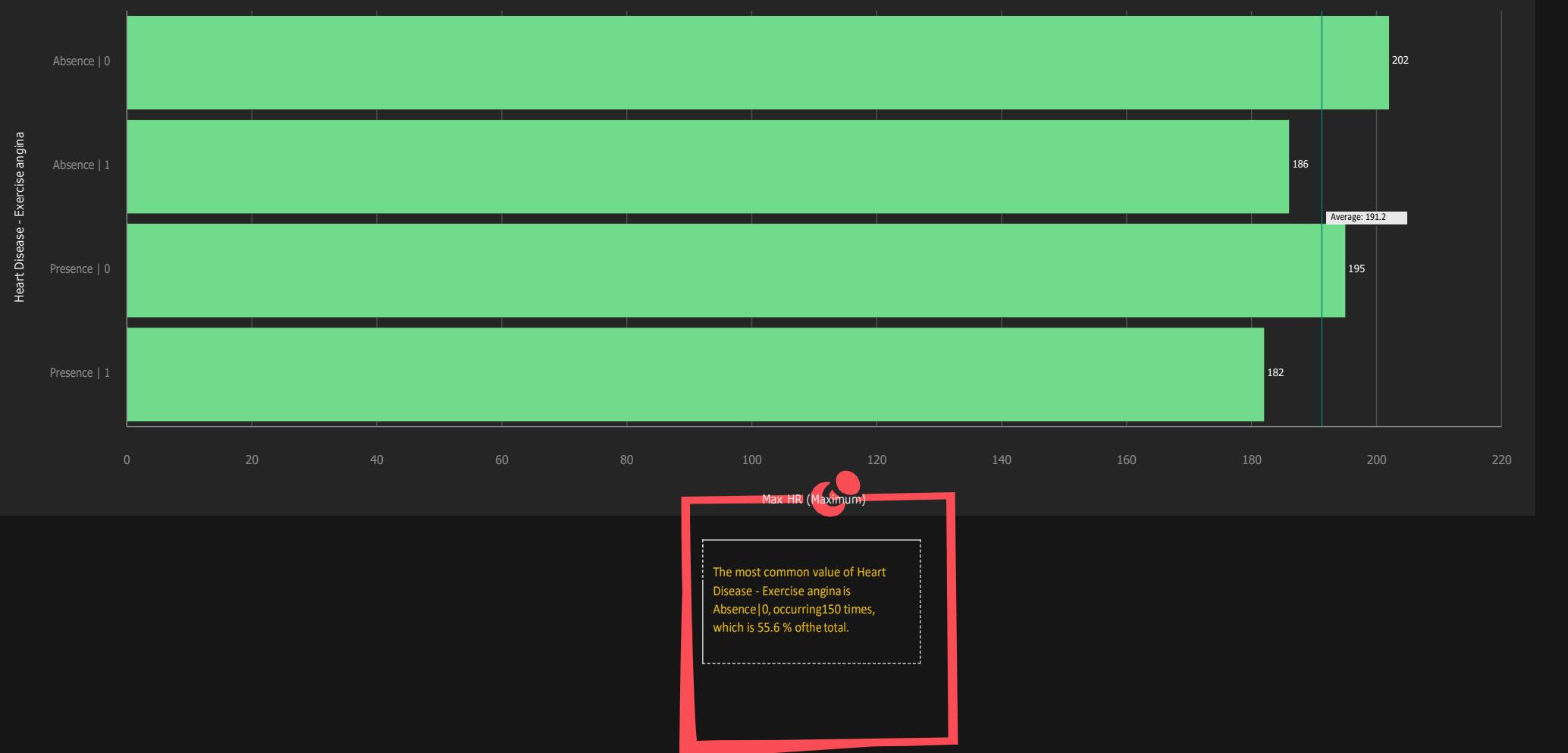
BP by Age colored by Sex

Sex
0 1



BP is unusually high when Age is 54.

Max HR by Heart Disease and Exercise angina



Heart Disease for Chest pain type and Sex

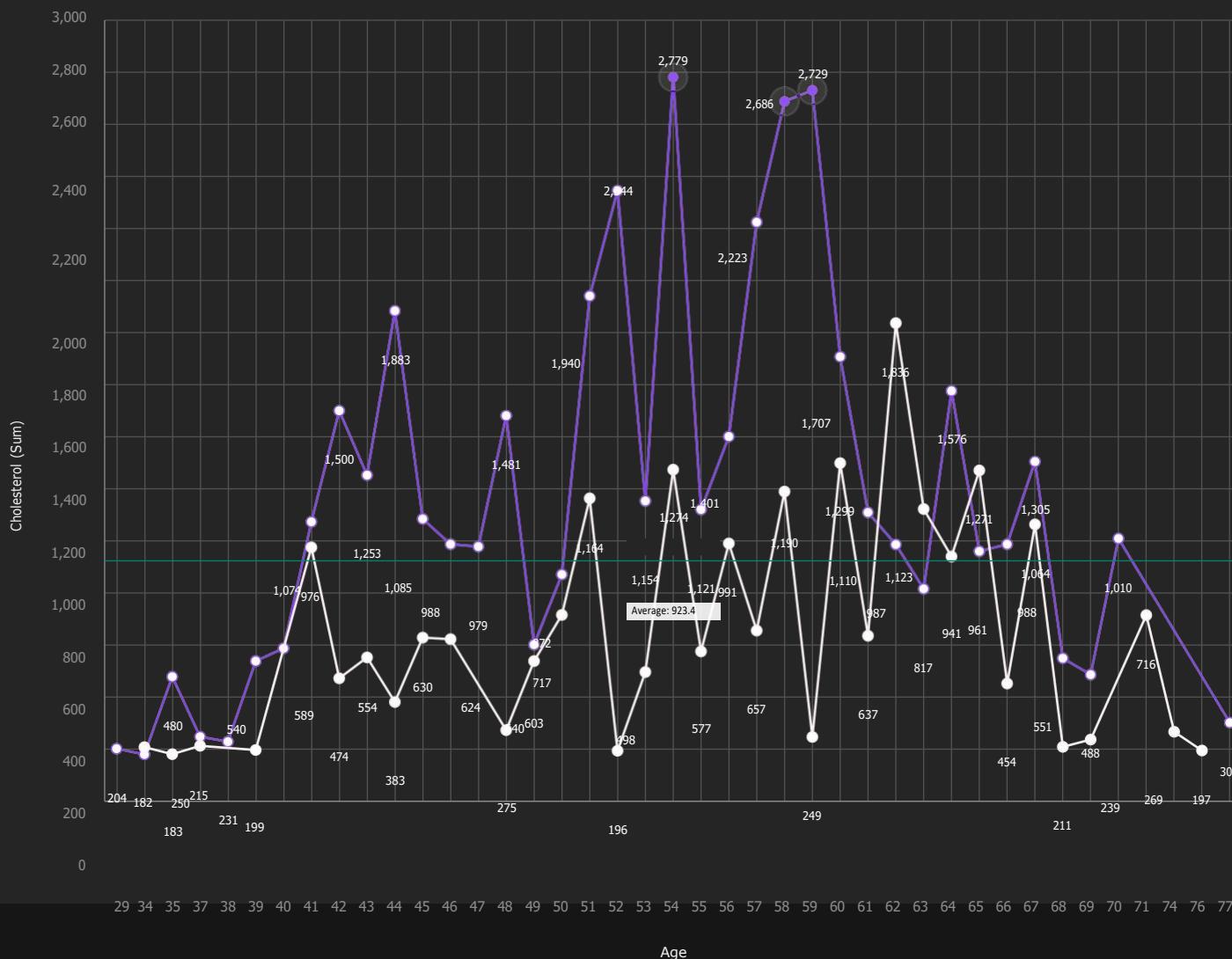
Heart Disease	1	2	3	4	Summary
0	4	16	32	35	87
1	16	26	47	94	183
Summary	20	42	79	129	270

The total number of results for Heart Disease, across all chest pain types, is 8.

Cholesterol by Age colored by Sex

Sex

● 0 ● 1

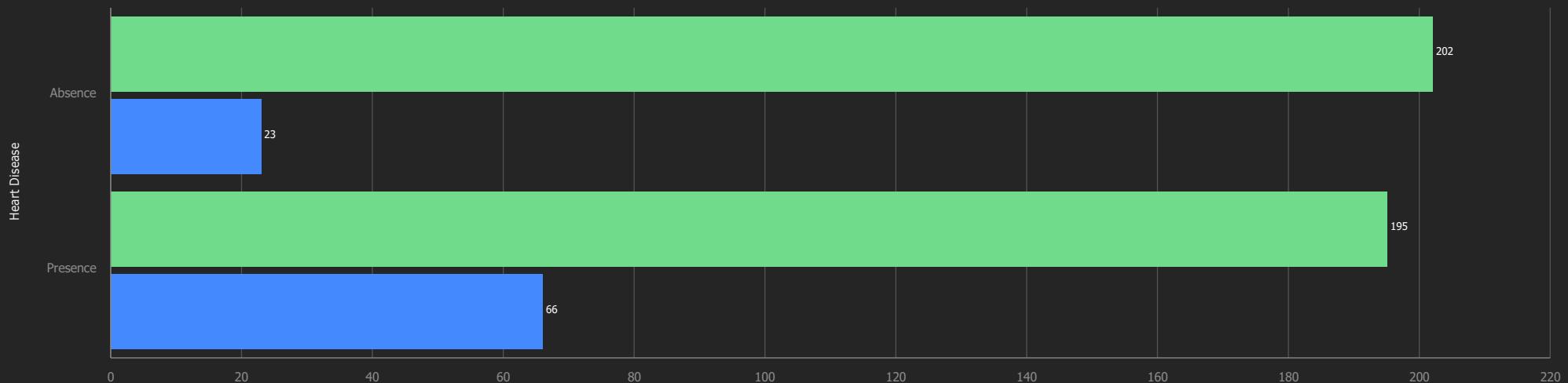


Cholesterol is unusually high when the combinations of Age and Sex are 54 and 1, 59 and 1 and 58 and 1.

Max HR and Exercise angina by Heart Disease

Measures

Max HR Exercise angina



Values

Exercise angina ranges from 23, when Heart Disease is Absence, to 66, when Heart Disease is Presence.

Dashboard of Heart disease Prediction Dataset Using Cognos Analysis:

A dashboard helps you to monitor events or activities at a glance by providing key insights and analysis about your data on one or more pages or screens.

USN-8,9:

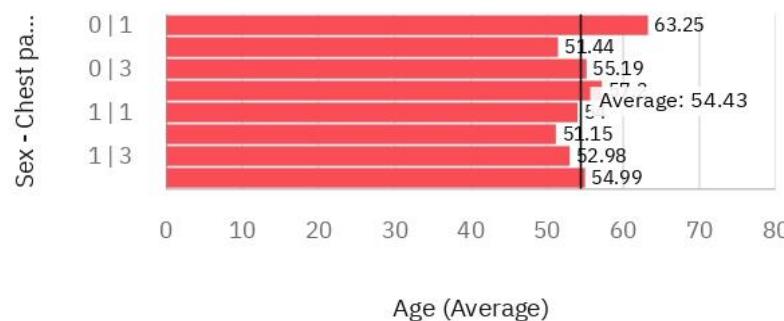
As a Data analyst, I will create a heart disease prediction iterative dashboard.

As an Analyst, I will import my analysed model into suitable framework.

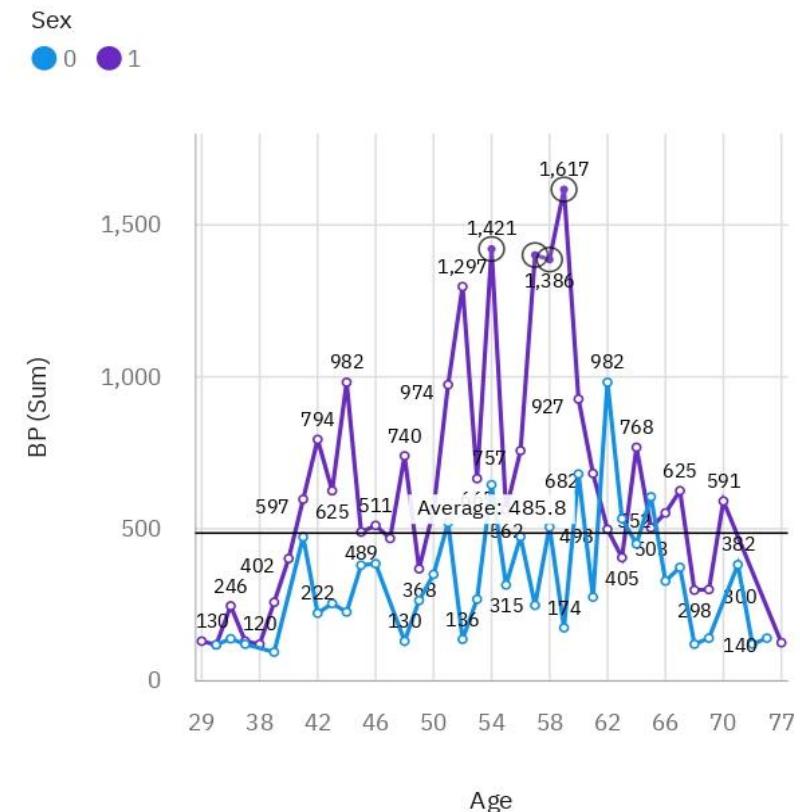
DASHBOARD-1:

Tab 1

Age by Sex and Chest pain type



BP by Age colored by Sex



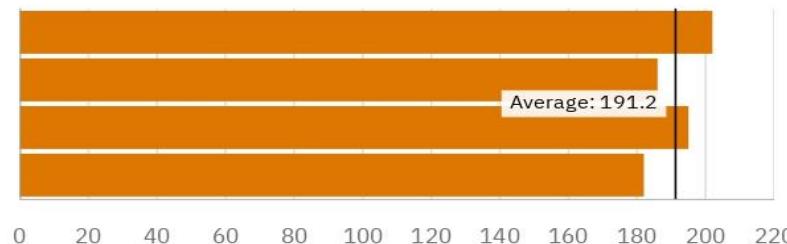
Exercise angina by Chest pain type and Chest pain And Gender



DASHBOARD-2:

Tab 2

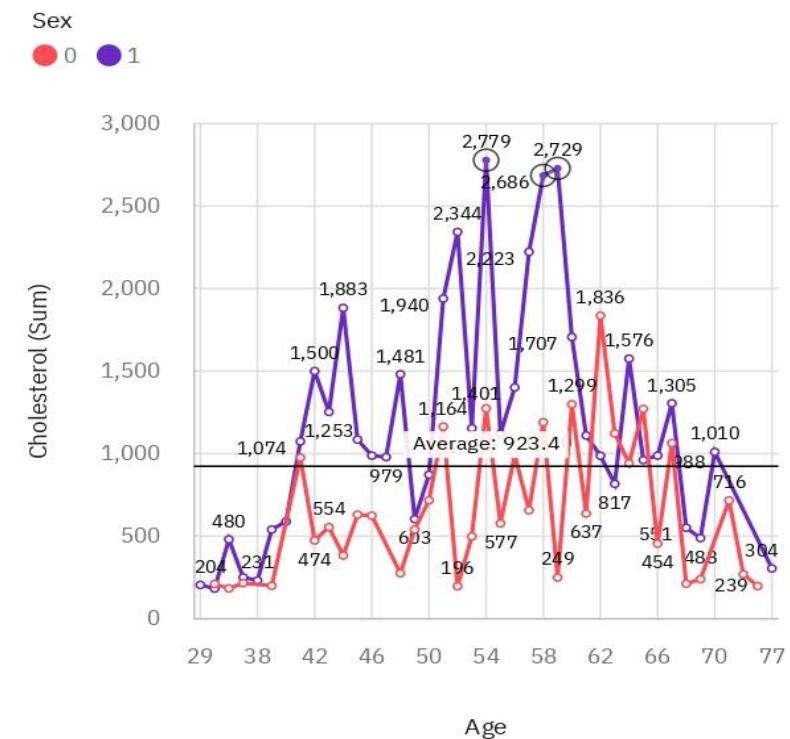
Max HR by Heart Disease and Exercise angina



Heart Disease for Chest pain type and Sex

Heart Disease	1	2	3
0	4	16	
1	16	26	
Summary	20	42	

Cholesterol by Age colored by Sex



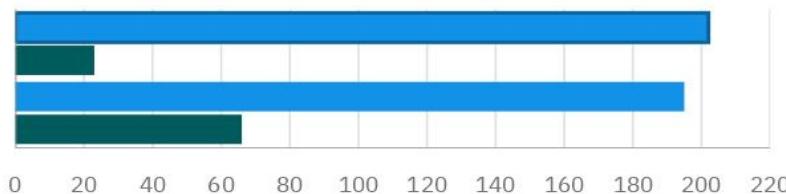
DASHBOARD-3:

Tab 3

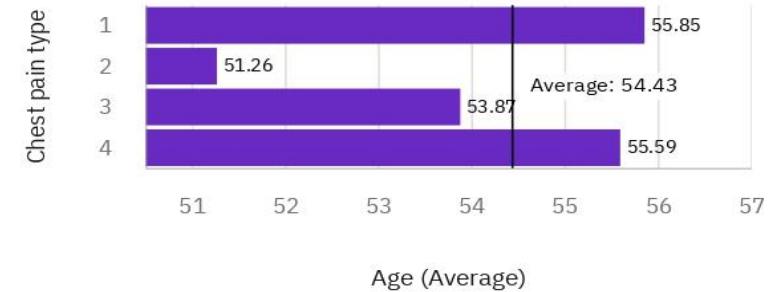
Max HR and Exercise angina by Heart Disease

Measures

● Max HR ● Exercise angina

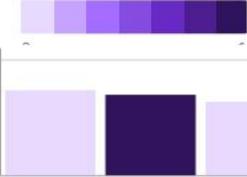


Age by Chest pain type



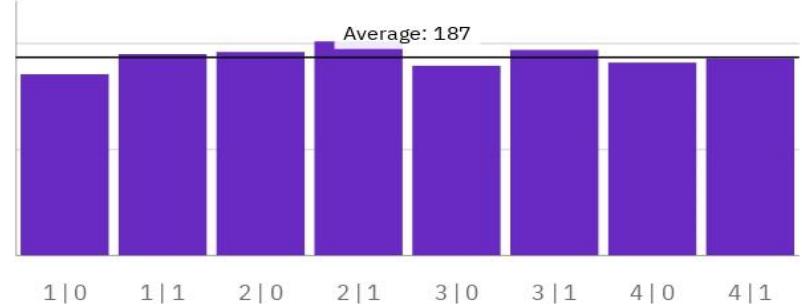
BP by Chest pain type and Sex colored by Sex

Sex (Average)



Max HR by Chest pain type and Sex

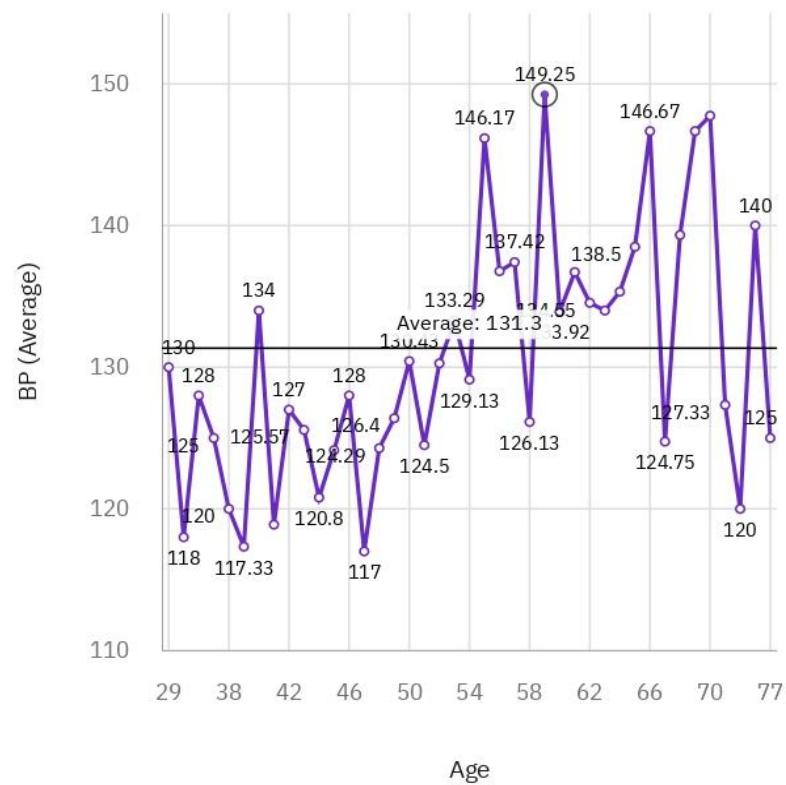
Average: 187



DASHBOARD-4:

Tab 4

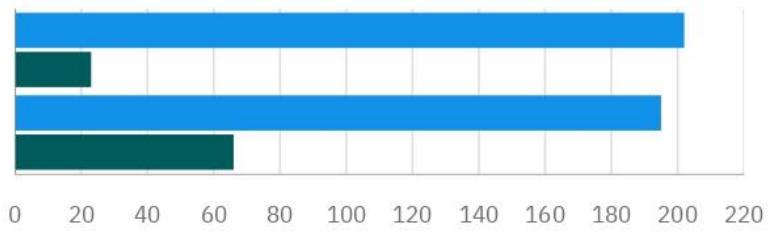
BP by Age



Max HR and Exercise angina by Heart Disease

Measures

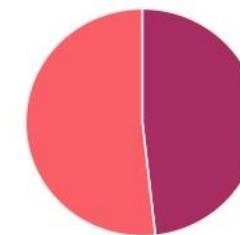
Max HR Exercise angina



Age by Heart Disease

Heart Disease

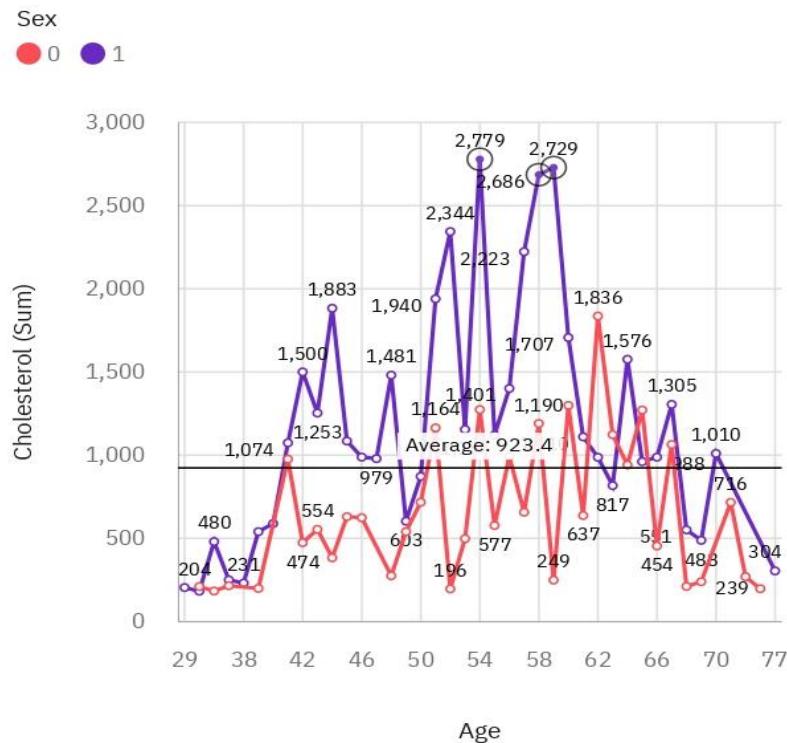
Absence Presence



DASHBOARD-5:

Tab 5

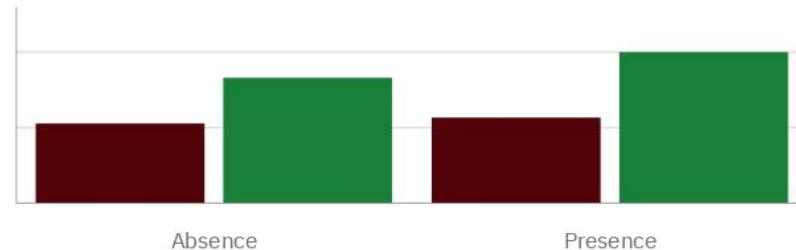
Cholesterol by Age colored by Sex



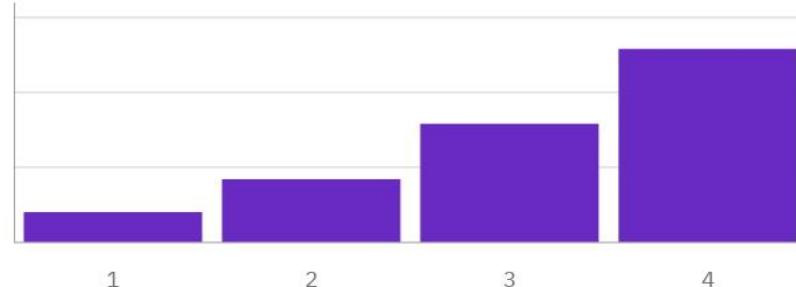
Age and Sex by Heart Disease

Measures

- Age
- Sex



Chest pain type by Chest pain type

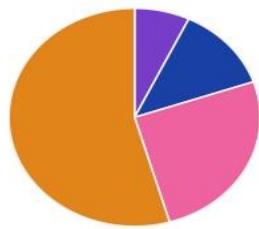


DASHBOARD-6:

Tab 6

Thallium by Chest pain type

Chest pain type
● 1 ● 2 ● 3 ● 4



Chest pain type and Number of vessels fluro by Chest pain type

Column
● Number of vessels fluro (Sum)
Line
● Chest pain type (Sum)



Cholesterol by FBS over 120 colored by Cholesterol

Cholesterol (Sum)



EKG results by Heart Disease colored by Heart Disease

Heart Disease
● Absence ● Presence



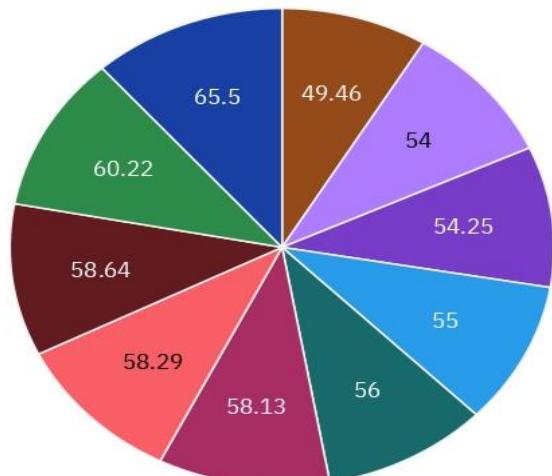
DASHBOARD-7:

Tab 7

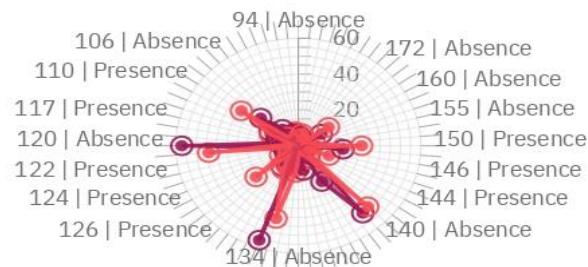
Age by Thallium, Sex and Heart Disease

Thallium - Sex - Heart Disease

- 3 | 1 | Absence ● 7 | 1 | Absence ● 3 | 0 | Absence
- 7 | 1 | Presence ● 6 | 1 | Absence ● 6 | 1 | Presence
- 3 | 1 | Presence ● 7 | 0 | Presence ● 3 | 0 | Presence
- 7 | 0 | Absence



Chest pain type by BP and Heart Disease colored by Heart Disease



Age and Max HR for Sex

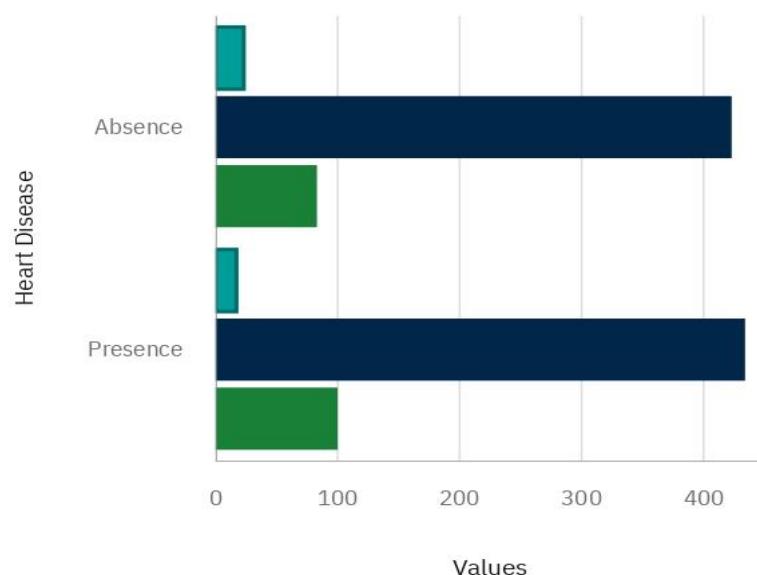
	Age	Max HR
0	55.68	192
1	53.84	202
Summary	54.43	202

DASHBOARD-8:

Tab 8

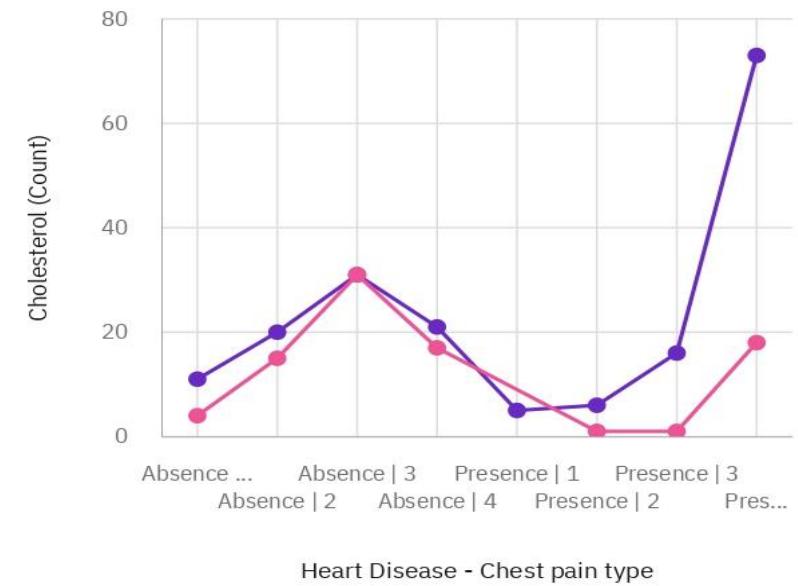
FBS over 120, Chest pain type and Sex by Heart Disease

Measures
● FBS over 120 ● Chest pain type ● Sex



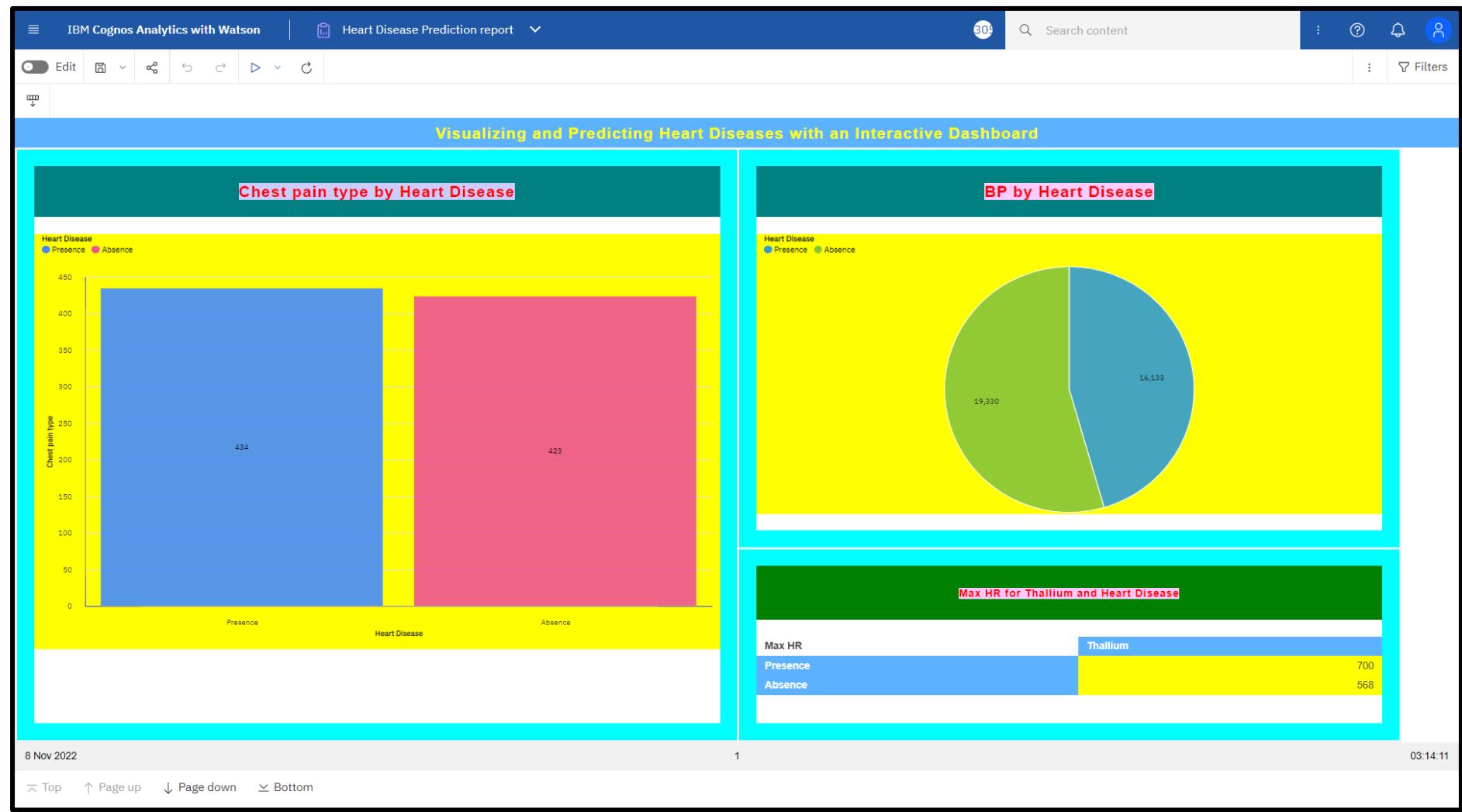
Cholesterol by Heart Disease and Chest pain type colored by Sex

Sex
● 0 ● 1

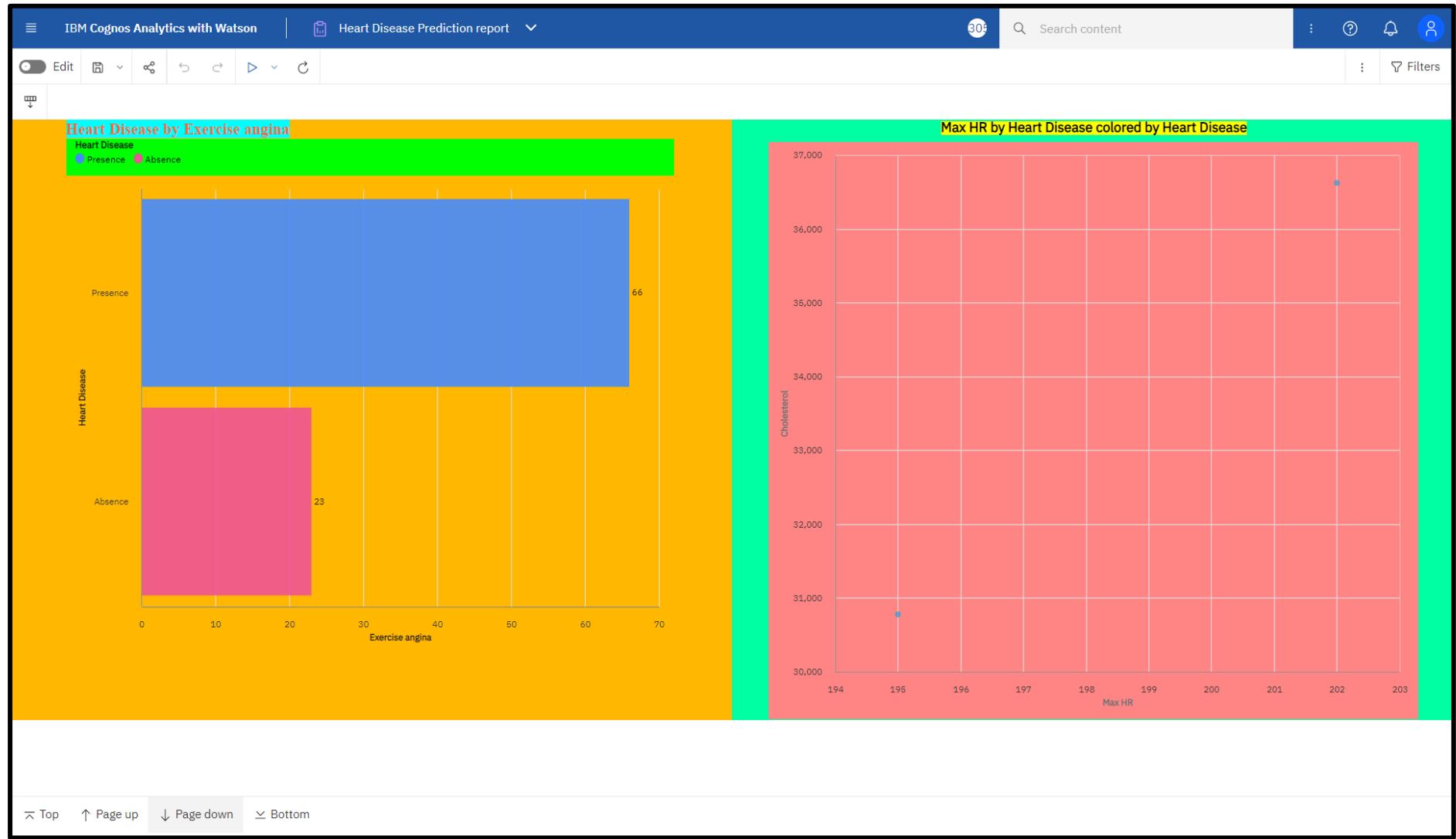


Report of Heart disease Prediction Dataset Using Cognos Analysis:

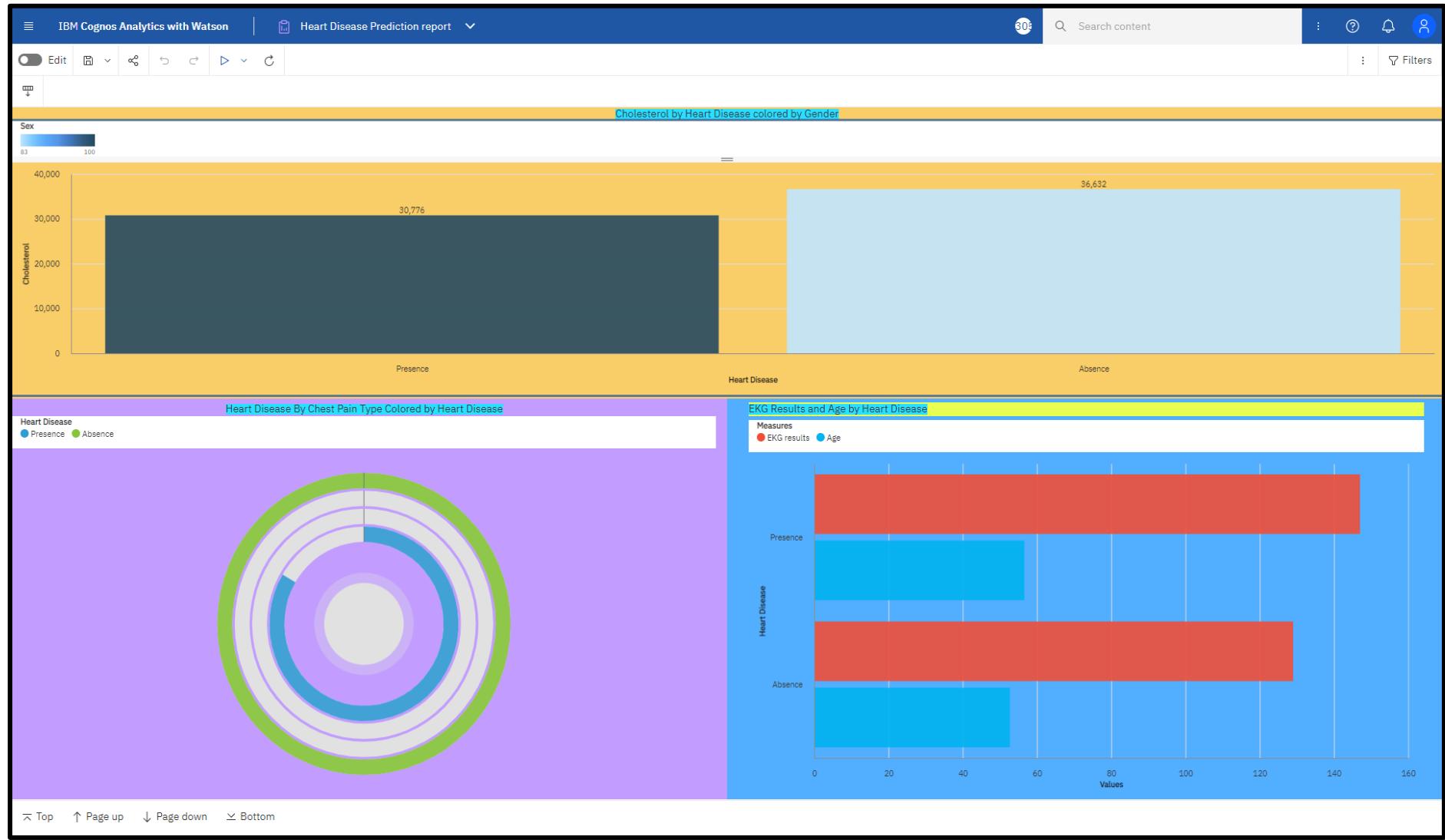
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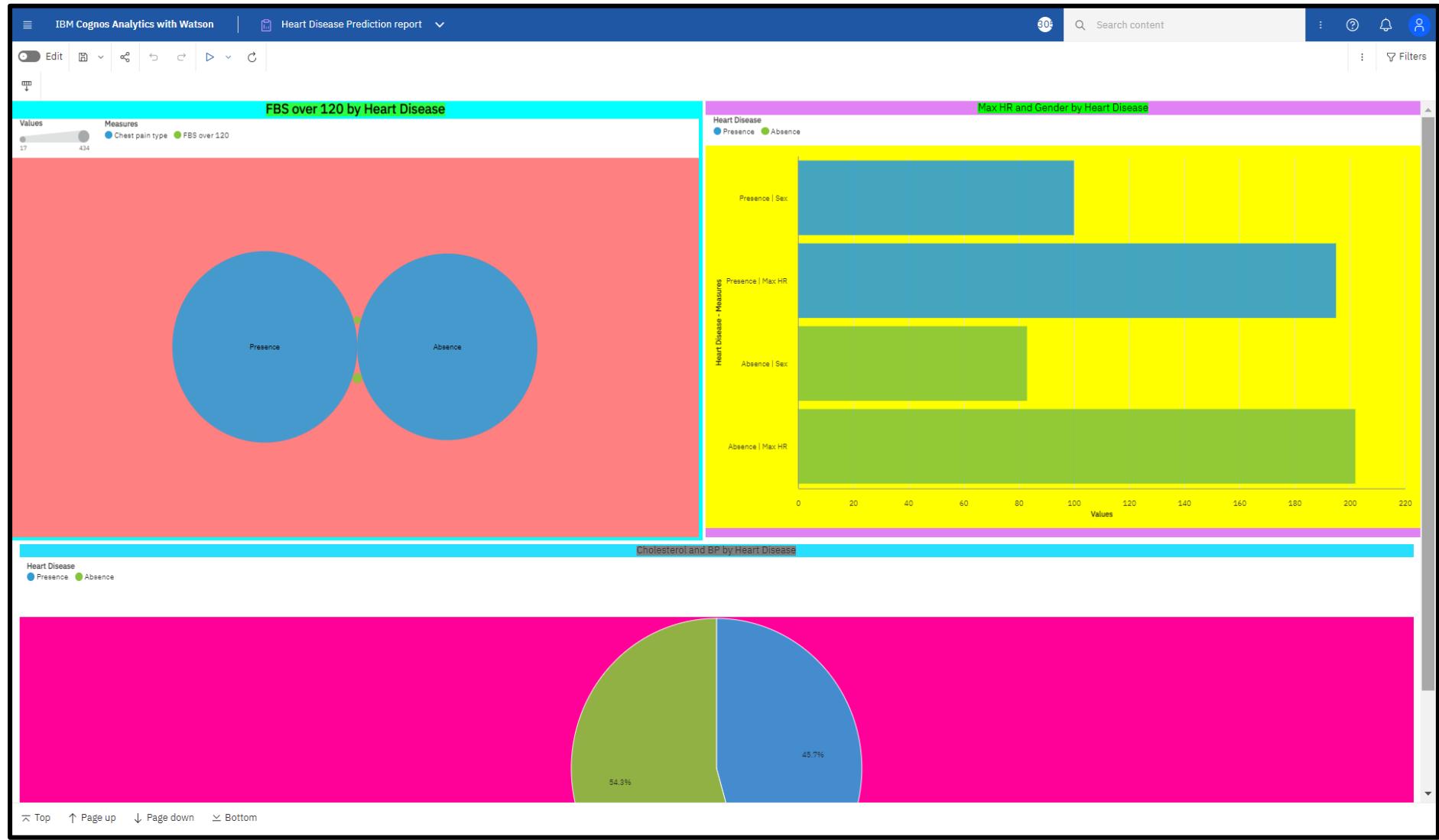
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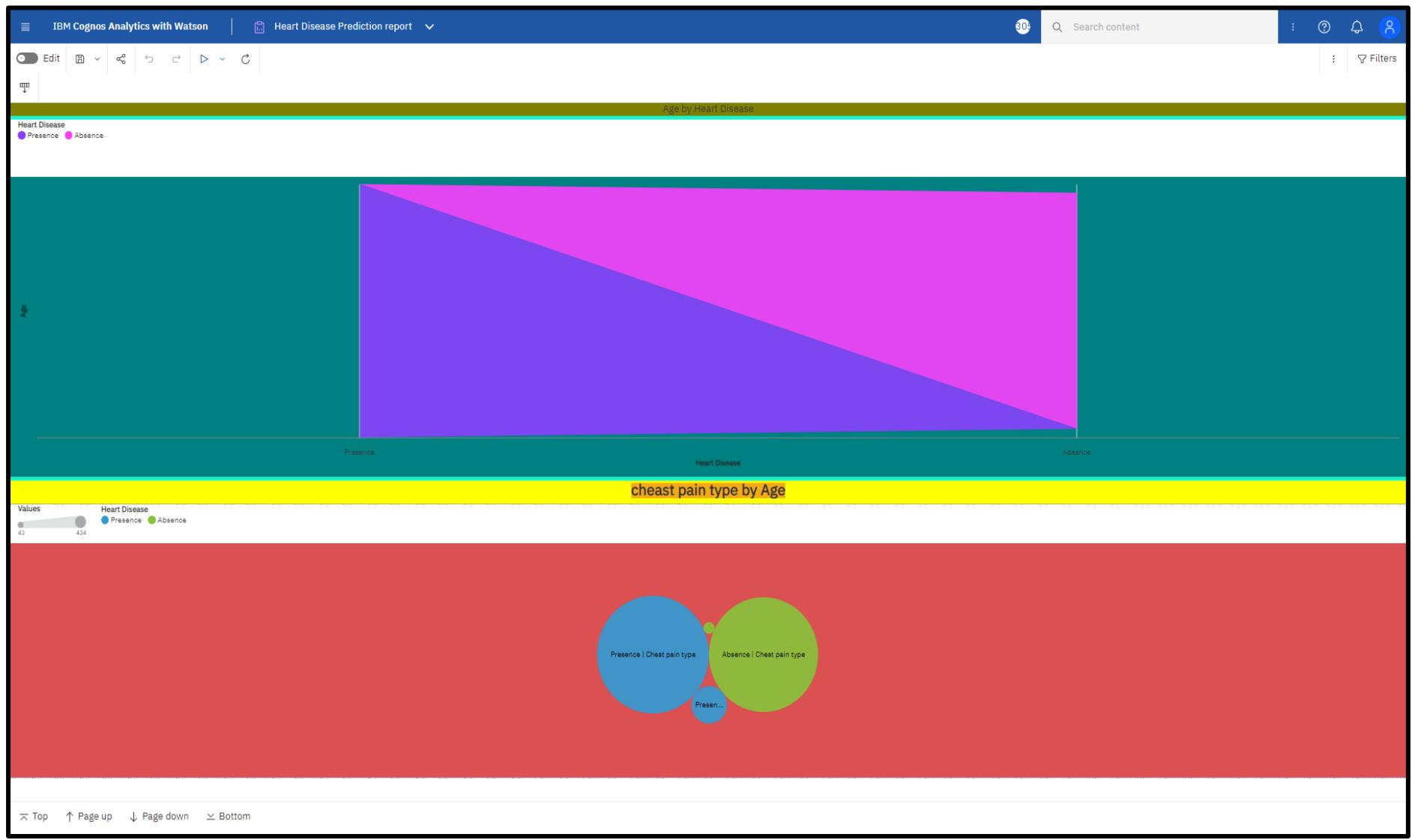
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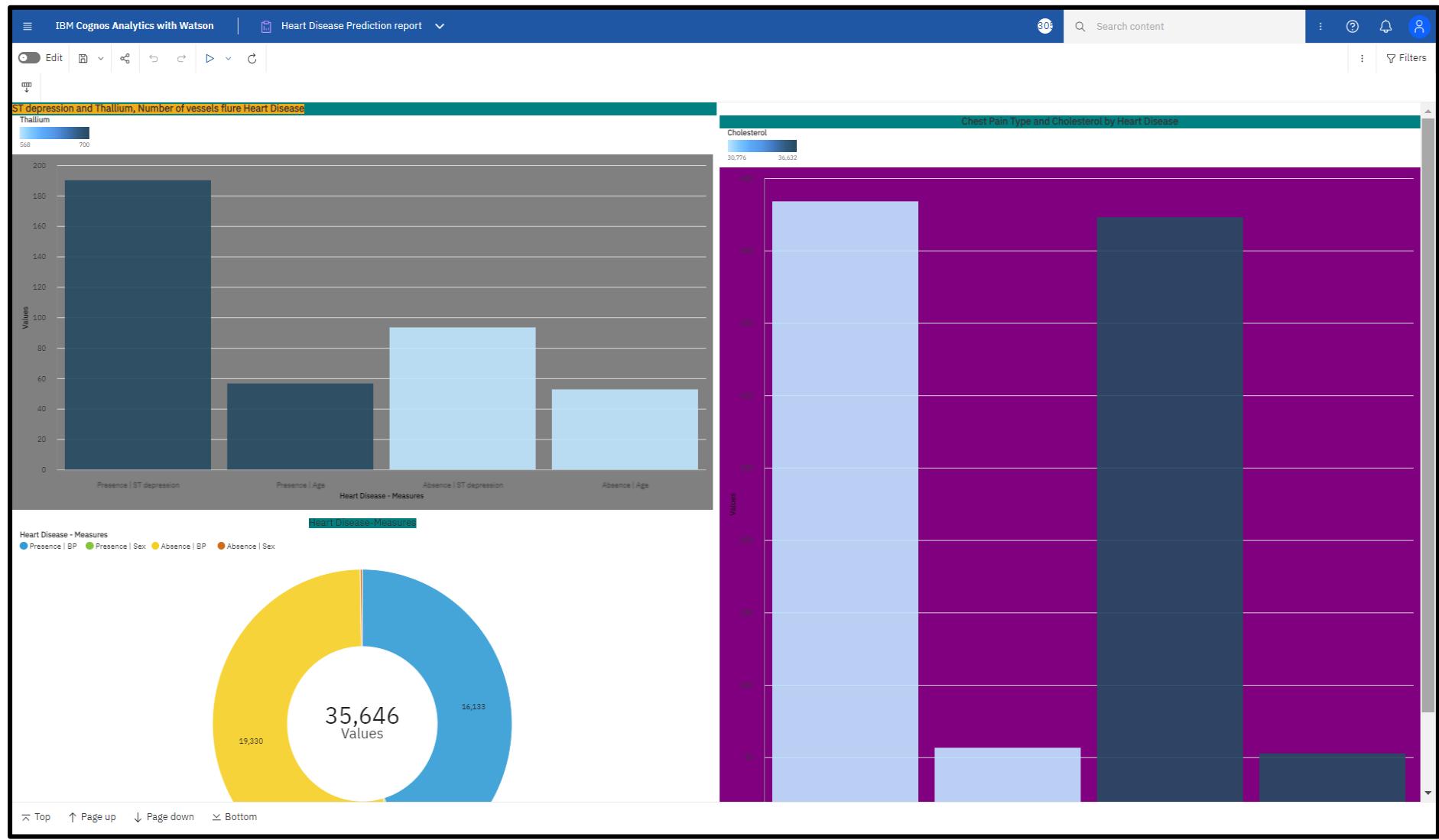
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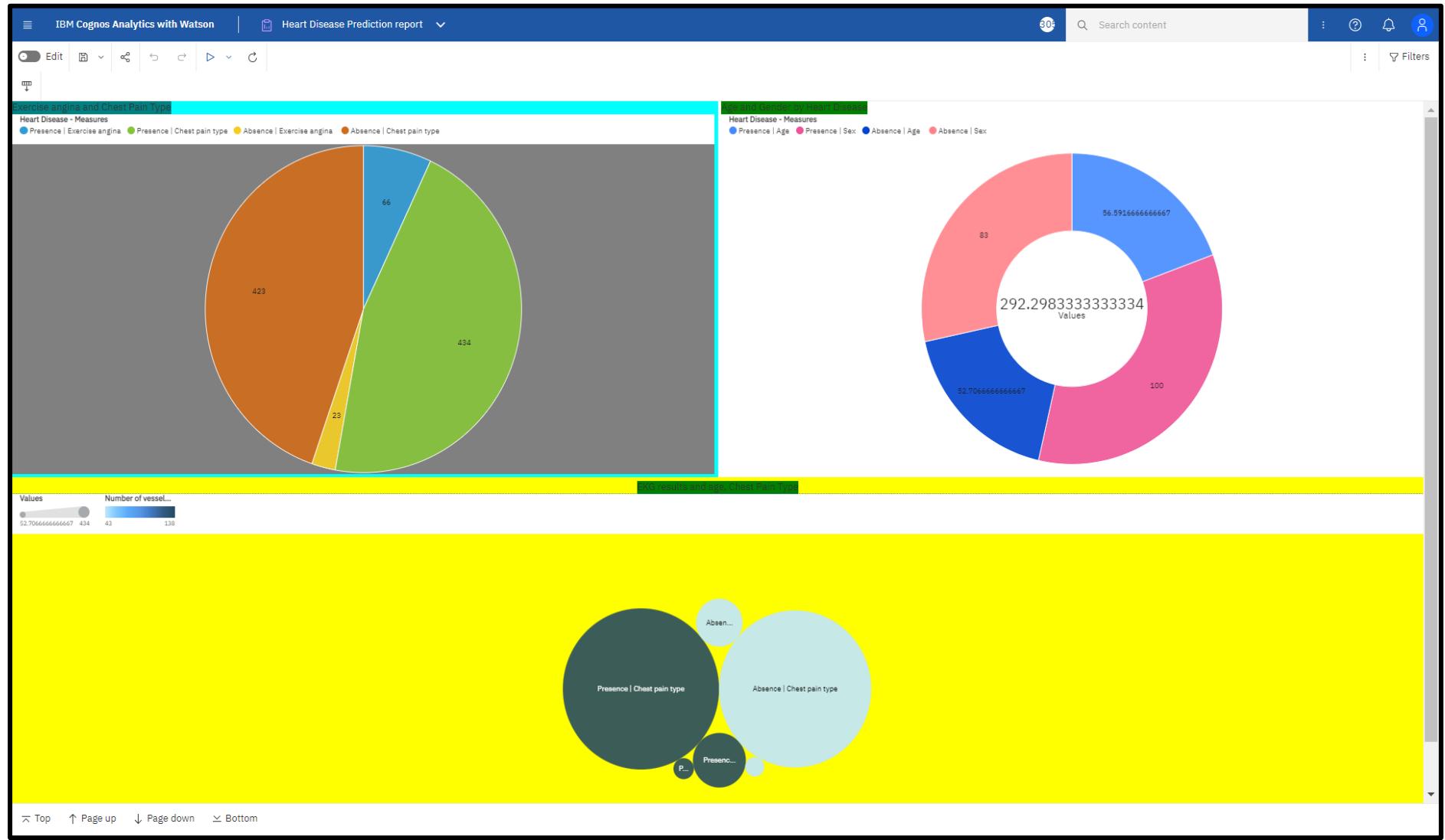
REPORT PAGE-5:



REPORT PAGE-6:



REPORT PAGE-7:



REPORT PAGE-8:

