

PROJECT DEVELOPMENT PHASE

Delivery of Sprint - 01

DATE	29 th October 2022
TEAM ID	PNT2022TMID29954
PROJECT TITLE	Visualizing and Predicting Heart Diseases with an Interactive Dashboard

SPRINT - 01

- ☐ Data Collection
- ☐ Data Preparation

SPRINT - 02

- ☐ Data Exploration

SPRINT - 03

- ☐ Dashboard Creation

SPRINT - 04

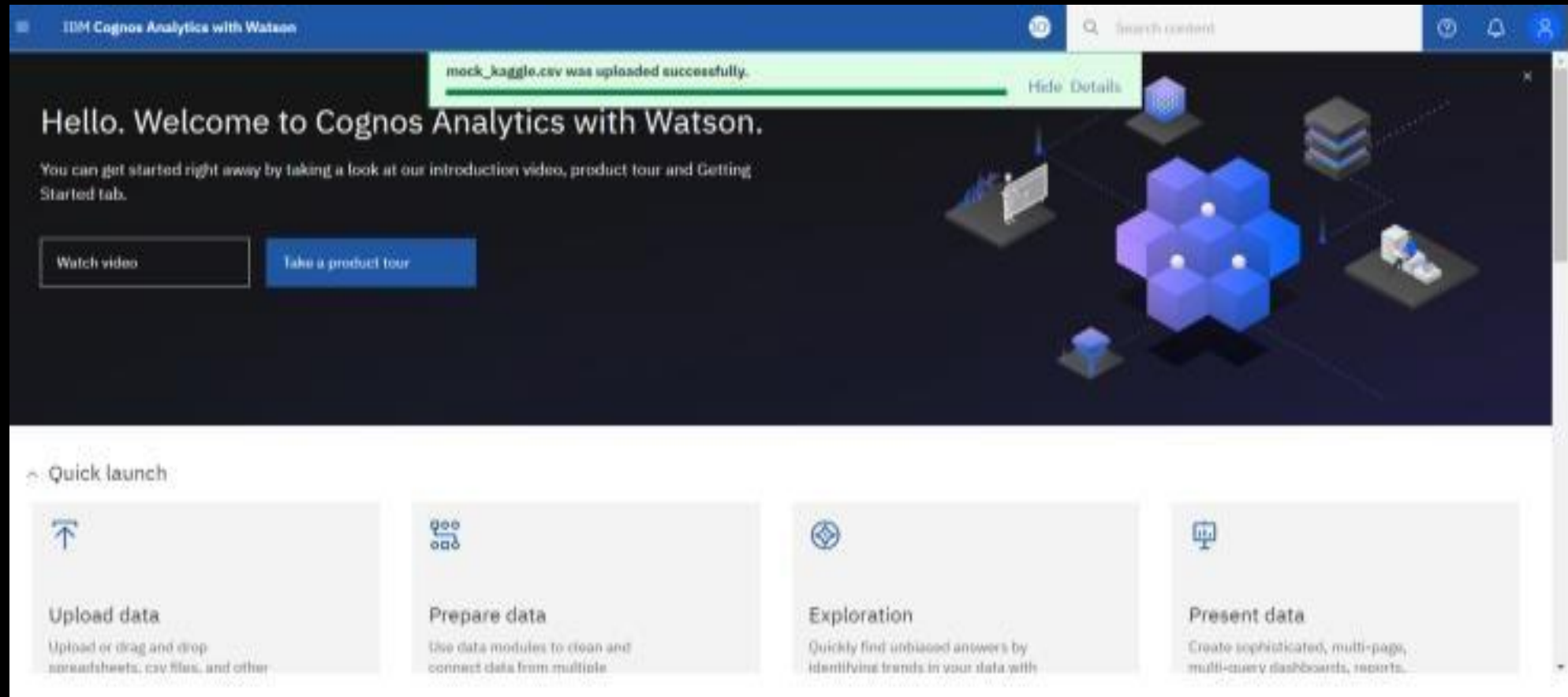
- ☐ Report Creation
- ☐ Story Creation

Data Collection

(i) DOWNLOADING DATASET:

Dataset link : [heart-disease-prediction dataset](#)

(ii) UPLOADING DATASET



DATA PREPARATION

Prepare the Dataset

IBM Cognos Analytics with Watson

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⚙️ Properties

Data module

🔍 Search

📄 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

Grid

Relationships

Custom tables

↕	Row Id	Age	Sex	Chest pain type	BP	Cholesterol
1	1	70	1	4	130	322
2	2	67	0	3	115	564
3	3	57	1	2	124	261
4	4	64	1	4	128	263
5	5	74	0	2	120	269
6	6	65	1	4	120	177
7	7	56	1	3	130	256
8	8	59	1	4	110	239
9	9	60	1	4	140	293
10	10	63	0	4	150	407

DATA PREPARATION

AGE :

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⚙️ Properties

Data module

🔍 Search

📄 Age

📄 Sex

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📄 EKG results

📄 Max HR

📄 Exercise angina

📄 ST depression

📄 Slope of ST

📄 Number of...ls fluro

📄 Thallium

📄 Grid

📄 Relationships

📄 Custom tables

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7	7	56	1	3	130	256
8	8	59	1	4	110	239
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DATA PREPARATION

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Properties

Data module

🔍 Search

📄 Age

📄 Sex

📄 Chest pain type

📄 BP

📄 Cholesterol

📄 FBS over 120

📄 EKG results

📄 Max HR

📄 Exercise angina

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📄 Slope of ST

📄 Number of...ls fluro

📄 Thallium

📄 the Heart Disease

Grid

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Custom tables

↕	Row Id	Age	Sex	Chest pain type	BP	Cholesterol
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	6	65	1	4	120	177
	7	56	1	3	130	256
	8	59	1	4	110	239
	9	60	1	4	140	293
	10	63	0	4	150	407

DATA PREPARATION

CHEST PAIN TYPE :

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📄 Chest pain type

📄 BP

📄 Cholesterol

📄 FBS over 120

📄 EKG results

📄 Max HR

📄 Exercise angina

📄 ST depression

📄 Slope of ST

📄 Number of...Is fluro

📄 Thallium

📄 Heart Disease

Grid

Relationships

Custom tables

↑↓	Row Id	Age	Sex	Chest pain type	BP	Cholesterol
	1	70	1	4	130	322
	2	67	0	3	115	564
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	4	64	1	4	128	263
	5	74	0	2	120	269
	6	65	1	4	120	177
	7	56	1	3	130	256
	8	59	1	4	110	239
	9	60	1	4	140	293
	10	63	0	4	150	407

BP :

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Grid

Relationships

Custom tables

Row Id	Age	Sex	Chest pain type	BP	Cholesterol
1	70	1	4	130	322
2	67	0	3	115	564
3	57	1	2	124	261
4	64	1	4	128	263
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6	65	1	4	120	177
7	56	1	3	130	256
8	59	1	4	110	239
9	60	1	4	140	293
10	63	0	4	150	407

Data module

Search

Age

Sex

Chest pain type

BP

Cholesterol

FBS over 120

EKG results

Max HR

Exercise angina

ST depression

Slope of ST

Number of...Is fluro

Thallium

DATA PREPARATION

CHOLESTEROL :

IBM Cognos Analytics with Watson

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Properties

Data module

🔍 Search

📄 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

Grid

Relationships

Custom tables

↕	Age	Sex	Chest pain type	BP	Cholesterol	F
	70	1	4	130	322	
	67	0	3	115	564	
	57	1	2	124	261	
	64	1	4	128	263	
	74	0	2	120	269	
	65	1	4	120	177	
	56	1	3	130	256	
	59	1	4	110	239	
	60	1	4	140	293	
	63	0	4	150	407	

DATA PREPARATION

FBS over 120:

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Properties

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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

↑↓	Cholesterol	FBS over 120	EKG results	Max HR	Exercise angina	ST depre
	322	0	2	109	0	2.4
	564	0	2	160	0	1.6
	261	0	0	141	0	0.3
	263	0	0	105	1	0.2
	269	0	2	121	1	0.2
	177	0	0	140	0	0.4
	256	1	2	142	1	0.6
	239	0	2	142	1	1.2
	293	0	2	170	0	1.2
	407	0	2	154	0	4

DATA PREPARATION

EKG Results:

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Grid Relationships Custom tables

	Cholesterol	FBS over 120	EKG results	Max HR	Exercise angina	ST depression
322	0	2	109	0	2.4	
564	0	2	160	0	1.6	
261	0	0	141	0	0.3	
263	0	0	105	1	0.2	
269	0	2	121	1	0.2	
177	0	0	140	0	0.4	
256	1	2	142	1	0.6	
239	0	2	142	1	1.2	
293	0	2	170	0	1.2	
407	0	2	154	0	4	

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

DATA PREPARATION

MAX HR :

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Age

Sex

Chest pain type

BP

Cholesterol

FBS over 120

EKG results

Max HR

Exercise angina

ST depression

Slope of ST

Number of...Is fluro

Thallium

Heart Disease

Grid

Relationships

Custom tables

↑↓	Cholesterol	FBS over 120	EKG results	Max HR	Exercise angina	ST depression
	322	0	2	109	0	2.4
	564	0	2	160	0	1.6
	261	0	0	141	0	0.3
	263	0	0	105	1	0.2
	269	0	2	121	1	0.2
	177	0	0	140	0	0.4
	256	1	2	142	1	0.6
	239	0	2	142	1	1.2
	293	0	2	170	0	1.2
	407	0	2	154	0	4

DATA PREPARATION

EXERCISE ANGINA:

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Properties

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🔍 Search

▶ # 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

▶ abc Heart Disease

Grid

Relationships

Custom tables

↕	EKG results	Max HR	Exercise angina	ST depression	Slope of ST	Number of vessels
2		109	0	2.4	2	3
2		160	0	1.6	2	0
0		141	0	0.3	1	0
0		105	1	0.2	2	1
2		121	1	0.2	1	1
0		140	0	0.4	1	0
2		142	1	0.6	2	1
2		142	1	1.2	2	1
2		170	0	1.2	2	2
2		154	0	4	2	3
0		161	0	0.5	2	0

DATA PREPARATION

ST Depression :

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📊 Age

📊 Sex

📊 Chest pain type

📊 BP

📊 Cholesterol

📊 FBS over 120

📊 EKG results

📊 Max HR

📊 Exercise angina

📊 ST depression

📊 Slope of ST

📊 Number of...Is fluro

📊 Thallium

▶️ abc Heart Disease

Grid

Relationships

Custom tables

↑↓	rol	FBS over 120	EKG results	Max HR	Exercise angina	ST depression	S
		0	2	109	0	2.4	
		0	2	160	0	1.6	
		0	0	141	0	0.3	
		0	0	105	1	0.2	
		0	2	121	1	0.2	
		0	0	140	0	0.4	
		1	2	142	1	0.6	
		0	2	142	1	1.2	
		0	2	170	0	1.2	
		0	2	154	0	4	

DATA PREPARATION

Slope of ST :

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📄 Age

📄 Sex

📄 Chest pain type

📄 BP

📄 Cholesterol

📄 FBS over 120

📄 EKG results

📄 Max HR

📄 Exercise angina

📄 ST depression

📄 Slope of ST

📄 Number of...ls fluoro

📄 Thallium

▶ abc Heart Disease

Grid

Relationships

Custom tables

↑↓	angina	ST depression	Slope of ST	Number of vessels fluoro	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

DATA PREPARATION

No Of Vessels Fluro :

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📄 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

▶️ abc 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

DATA PREPARATION

Thallium:

IBM Cognos Analytics with Watson

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Properties

Data module

Search

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

DATA PREPARATION

Heart Disease :

IBM Cognos Analytics with Watson

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🔍 Search

📊 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

▶ abc Heart Disease ⋮

📊 Grid

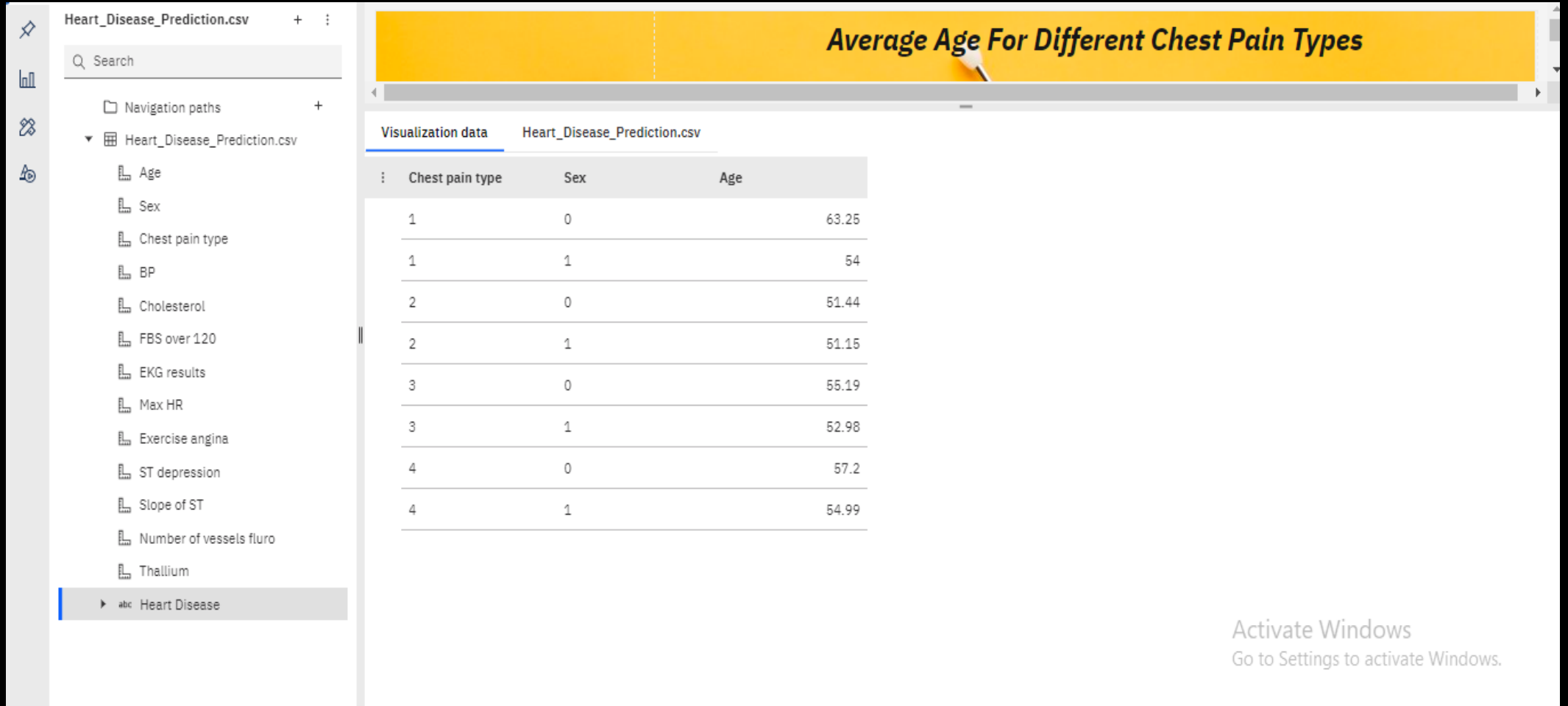
🔗 Relationships

📊 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

DATA PREPARATION

Average age for different chest pain :



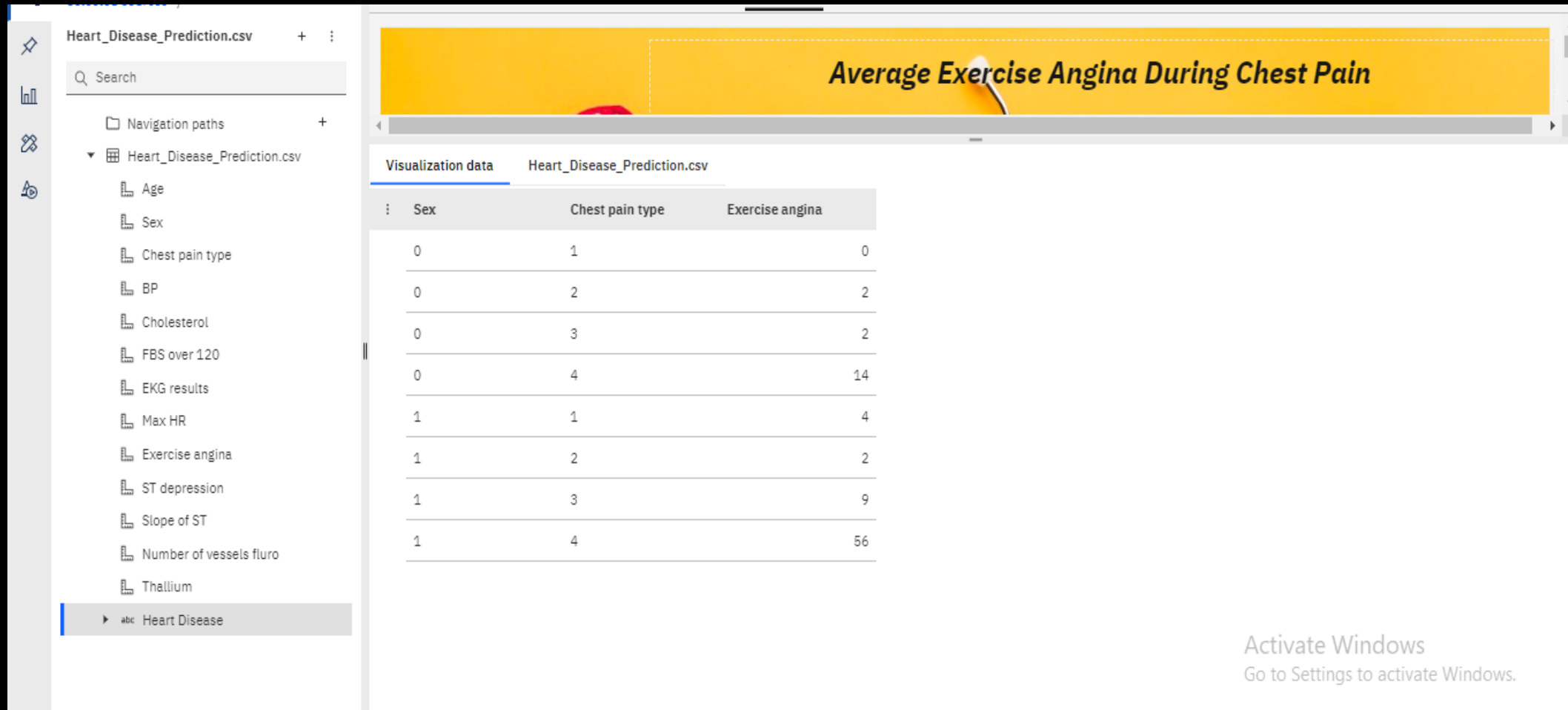
The screenshot shows a data analysis interface. On the left is a sidebar with a search bar and a list of fields from a CSV file named 'Heart_Disease_Prediction.csv'. The fields include Age, Sex, Chest pain type, BP, Cholesterol, FBS over 120, EKG results, Max HR, Exercise angina, ST depression, Slope of ST, Number of vessels fluro, and Thallium. At the bottom of the sidebar is a button labeled 'abc Heart Disease'. The main area has a yellow header with the title 'Average Age For Different Chest Pain Types'. Below the header is a table with the following data:

Visualization data		Heart_Disease_Prediction.csv	
	Chest pain type	Sex	Age
1	1	0	63.25
1	1	1	54
2	1	0	51.44
2	1	1	51.15
3	1	0	55.19
3	1	1	52.98
4	1	0	57.2
4	1	1	54.99

Activate Windows
Go to Settings to activate Windows.

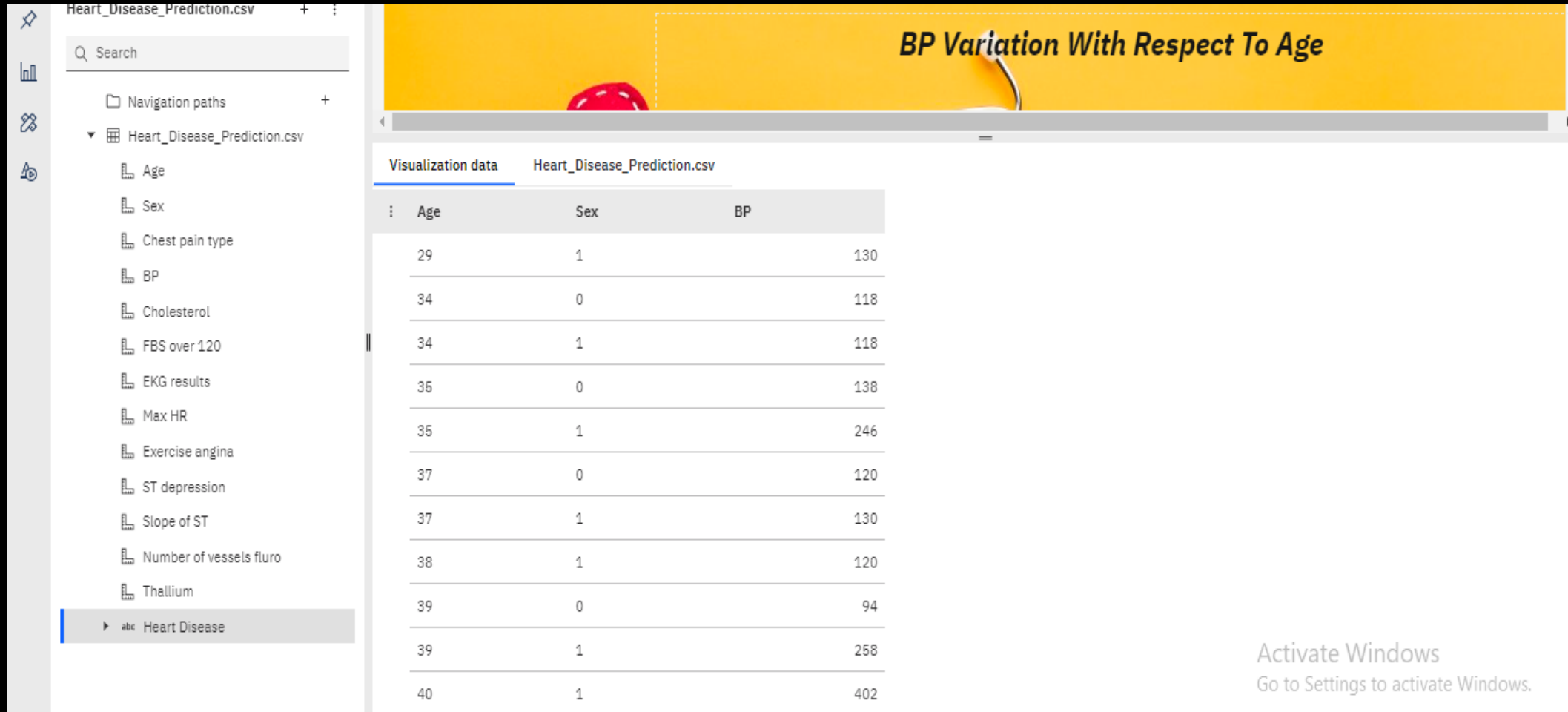
DATA PREPARATION

Average Exercise Angina During Chest Pain :



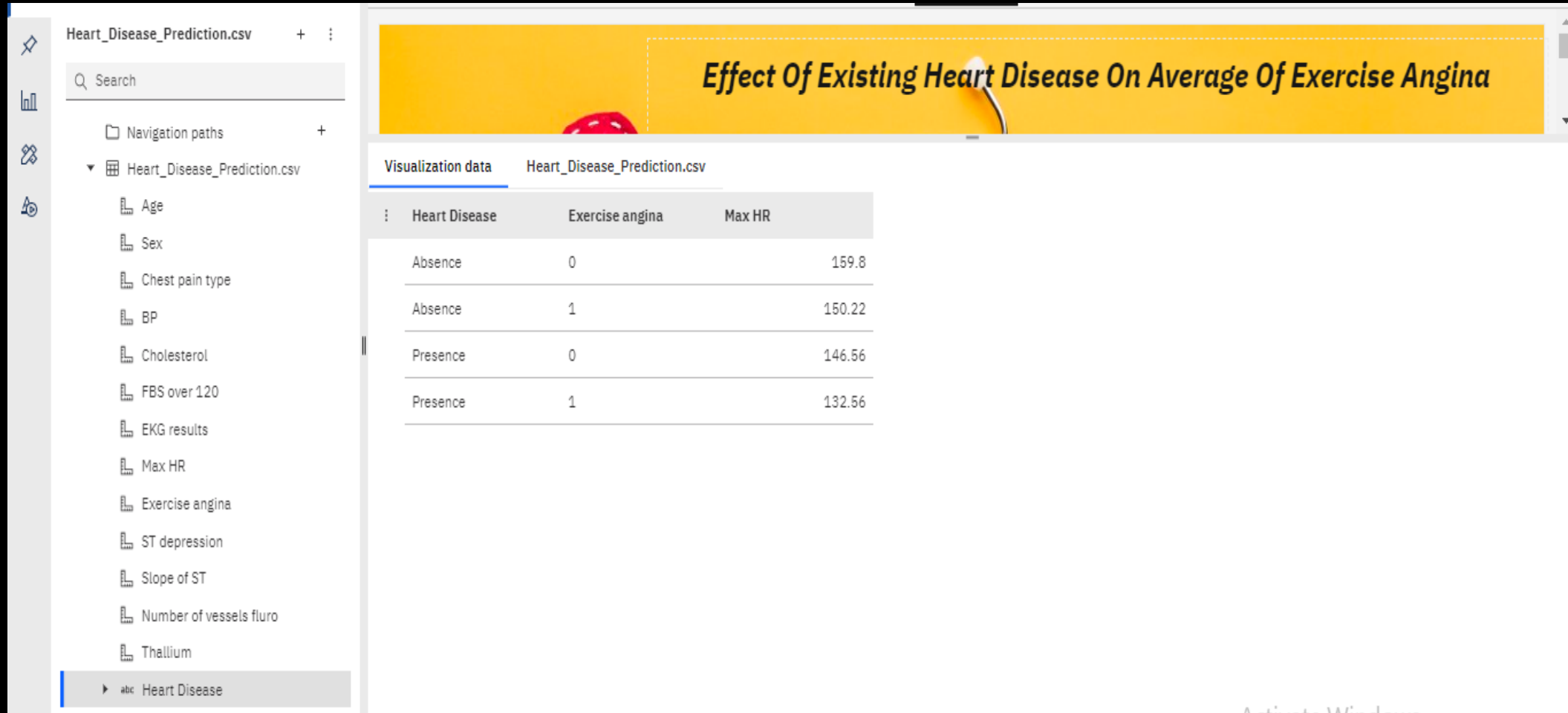
DATA PREPARATION

BP Variation with respect to Age:



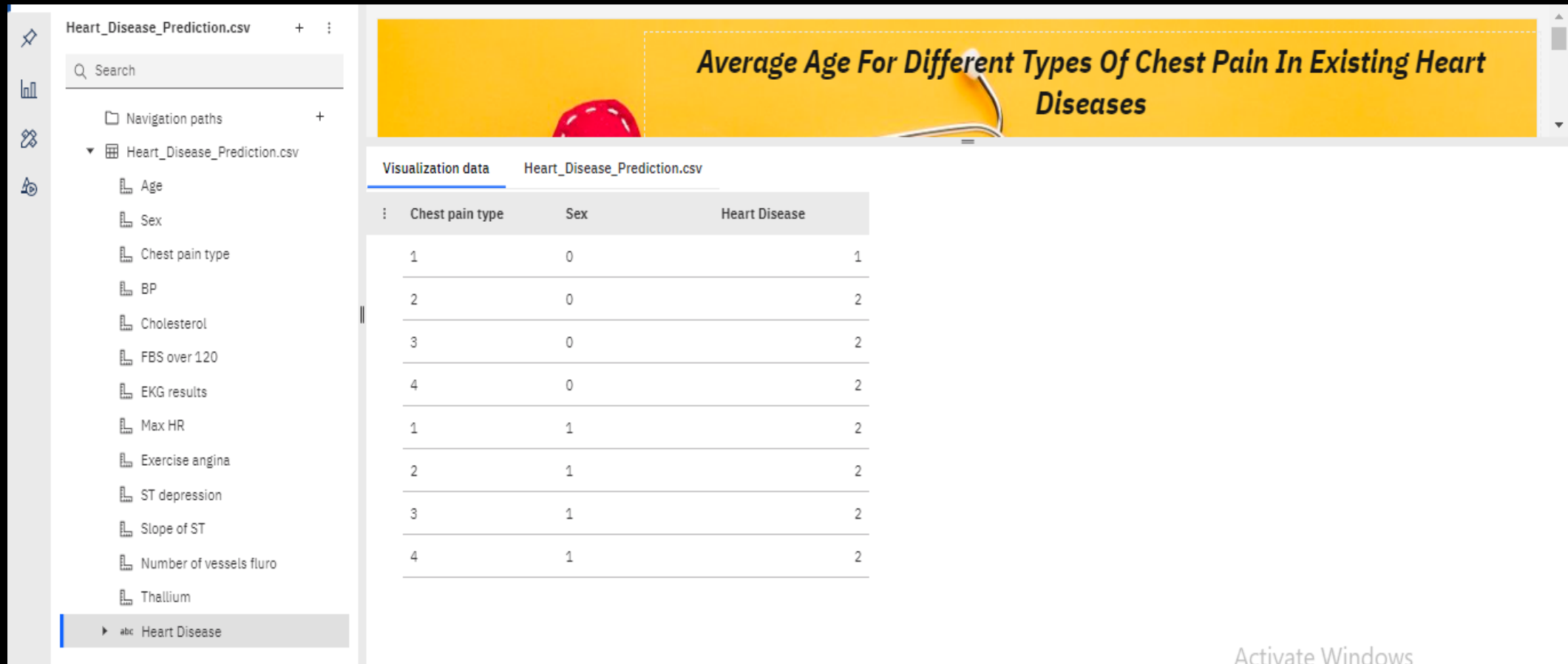
DATA PREPARATION

Effect of Existing Heart disease on Average of Exercise Angina :



DATA PREPARATION

Average Age for Different types of Chest pain in Existing Heart Disease:



The screenshot displays a data visualization interface. On the left, a sidebar lists various data fields from a CSV file named 'Heart_Disease_Prediction.csv'. The main area features a yellow header with the title 'Average Age For Different Types Of Chest Pain In Existing Heart Diseases' and a stethoscope graphic. Below the header, a table titled 'Visualization data' shows the data. The table has three columns: 'Chest pain type', 'Sex', and 'Heart Disease'. The data is organized into two groups of four rows each, separated by a horizontal line. The first group shows chest pain types 1, 2, 3, and 4, all with a sex value of 0 and heart disease status 1 or 2. The second group shows chest pain types 1, 2, 3, and 4, with sex values of 1 and heart disease status 2.

Chest pain type	Sex	Heart Disease
1	0	1
2	0	2
3	0	2
4	0	2
1	1	2
2	1	2
3	1	2
4	1	2

DATA PREPARATION

Serum Cholesterol level Vs Age:

Heart_Disease_Prediction.csv

Q Search

Navigation paths

Heart_Disease_Prediction.csv

- Age
- Sex
- Chest pain type
- BP
- Cholesterol
- FBS over 120
- EKG results
- Max HR
- Exercise angina
- ST depression
- Slope of ST
- Number of vessels fluro
- Thallium

abc Heart Disease

Serum Cholesterol Level Vs Age

Visualization data

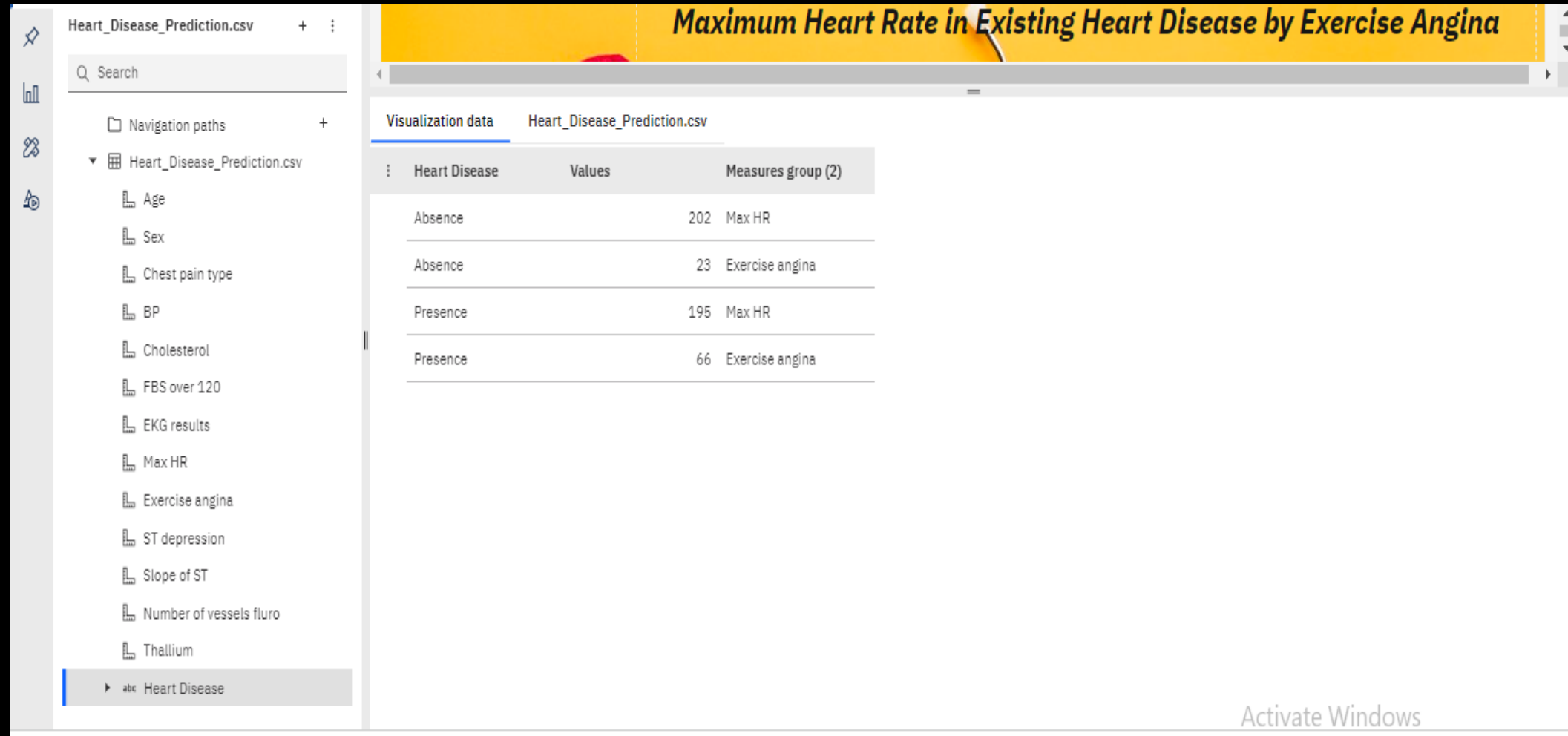
Heart_Disease_Prediction.csv

Age	Sex	Cholesterol
29	1	204
34	0	210
34	1	182
35	0	183
35	1	480
37	0	215
37	1	250
38	1	231
39	0	199
39	1	540

Activate Windows

DATA PREPARATION

Max HR in Existing Heart disease by Exercise Angina:



The screenshot displays a data visualization tool interface. On the left is a navigation pane with a search bar and a list of fields from the 'Heart_Disease_Prediction.csv' file. The main area shows a pivot table titled 'Maximum Heart Rate in Existing Heart Disease by Exercise Angina'. The table has columns for 'Heart Disease', 'Values', and 'Measures group (2)'. The data is summarized by 'Exercise Angina' (Absence and Presence) and 'Heart Disease' (Absence and Presence). The 'Values' column shows the count of 'Max HR' for each combination.

Heart Disease	Values	Measures group (2)
Absence	202	Max HR
Absence	23	Exercise angina
Presence	195	Max HR
Presence	66	Exercise angina

Navigation paths: Heart_Disease_Prediction.csv

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

Activate Windows

PREPARED DATA

Heart disease Module link :

https://us3.ca.analytics.ibm.com/bi/?perspective=ca-modeller&pathRef=.public_folders%2FData%2Bmodule%2FHeart%2BDisease%2Bmodule