

# Visualizing And Predicting Heart Diseases With An Interactive Dash Board

## 1.1 ABSTRACT

The leading cause of death in the developed world is heart disease. Therefore, there needs to be work done to help prevent the risks of having a heart attack or stroke. Healthcare industries generate enormous amount of data, so called big data that accommodates hidden knowledge or pattern for decision making. The huge volume of data is used to make decision which is more accurate than intuition. Exploratory Data Analysis (EDA) detects mistakes, finds appropriate data, checks assumptions and determines the correlation among the explanatory variables. In the context, EDA is considered as analysing data that excludes inferences and statistical modelling. Analytics is an essential technique for any profession as it forecast the future and hidden pattern. Data analytics is considered as a cost effective technology in the recent past and it plays an essential role in healthcare which includes new research findings, emergency situations and outbreaks of disease. The use of analytics in healthcare improves care by facilitating preventive care and EDA is a vital step while analysing data.

## 1.2 MOTIVATION & GOAL

The goal is to accurately predict which patients are mostly likely to suffer from a heart disease in the near future using the features given.

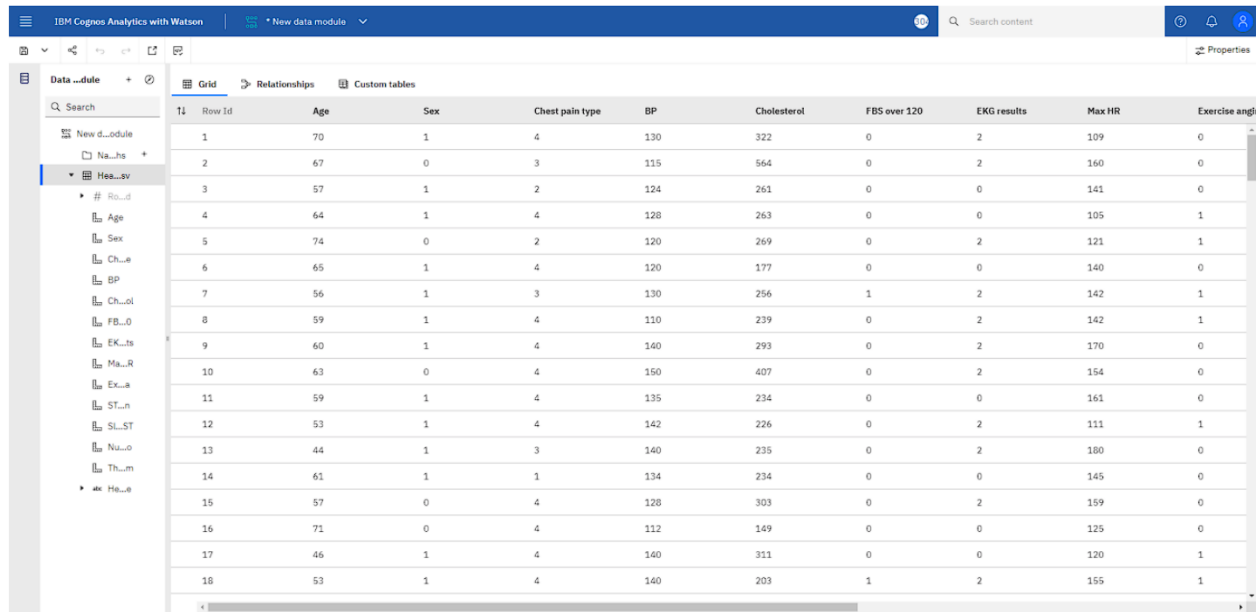
## 1.3 TECHNICAL ARCHITECTURE



## 1.4 FINAL DELIVERABLES

### 1.4.1 SPRINT 1

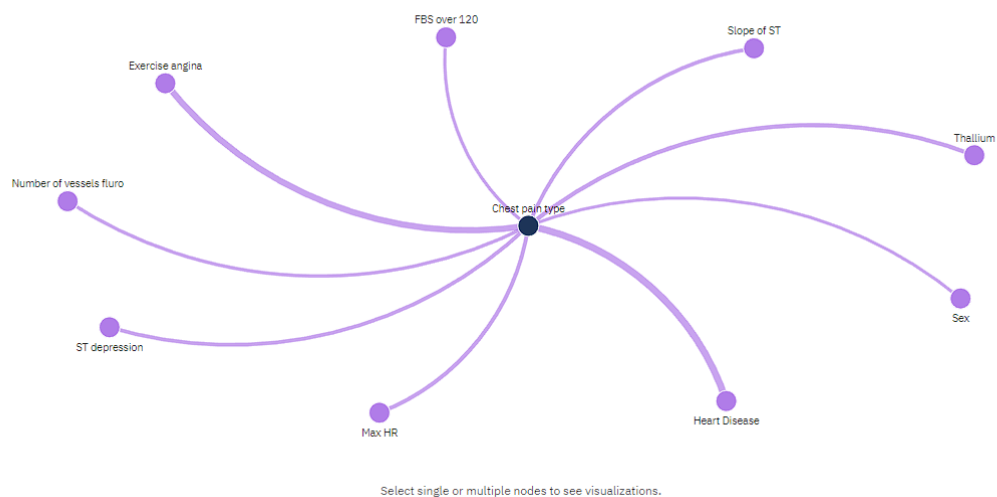
In First sprint, We took Heart Disease prediction dataset from kaggle and preprocessing both in Jupyter notebook and IBM cognos.To find out null values present in the dataset and change it into a certain value.



The screenshot displays the IBM Cognos Analytics interface. The top navigation bar includes the title 'IBM Cognos Analytics with Watson', a 'New data module' dropdown, a search bar, and user profile icons. The left sidebar shows a 'Data module' tree with a search bar and a list of variables: Row Id, Age, Sex, Chest pain type, BP, Cholesterol, FBS over 120, EKG results, Max HR, and Exercise angi. The main area shows a 'Grid' view of the data with 18 rows and 11 columns. The columns are: Row Id, Age, Sex, Chest pain type, BP, Cholesterol, FBS over 120, EKG results, Max HR, and Exercise angi. The data is as follows:

Row Id	Age	Sex	Chest pain type	BP	Cholesterol	FBS over 120	EKG results	Max HR	Exercise angi
1	70	1	4	130	322	0	2	109	0
2	67	0	3	115	564	0	2	160	0
3	57	1	2	124	261	0	0	141	0
4	64	1	4	128	263	0	0	105	1
5	74	0	2	120	269	0	2	121	1
6	65	1	4	120	177	0	0	140	0
7	56	1	3	130	256	1	2	142	1
8	59	1	4	110	239	0	2	142	1
9	60	1	4	140	293	0	2	170	0
10	63	0	4	150	407	0	2	154	0
11	59	1	4	135	234	0	0	161	0
12	53	1	4	142	226	0	2	111	1
13	44	1	3	140	235	0	2	180	0
14	61	1	1	134	234	0	0	145	0
15	57	0	4	128	303	0	2	159	0
16	71	0	4	112	149	0	0	125	0
17	46	1	4	140	311	0	0	120	1
18	53	1	4	140	203	1	2	155	1

After preprocessing the data the dataset is explored in IBM cognos through various graphs and tabular columns by comparing it with different sets of attributes.



## 1.4.2 SPRINT 2

After preprocessing and exploring the heart disease prediction data.

Now upload the preprocessed

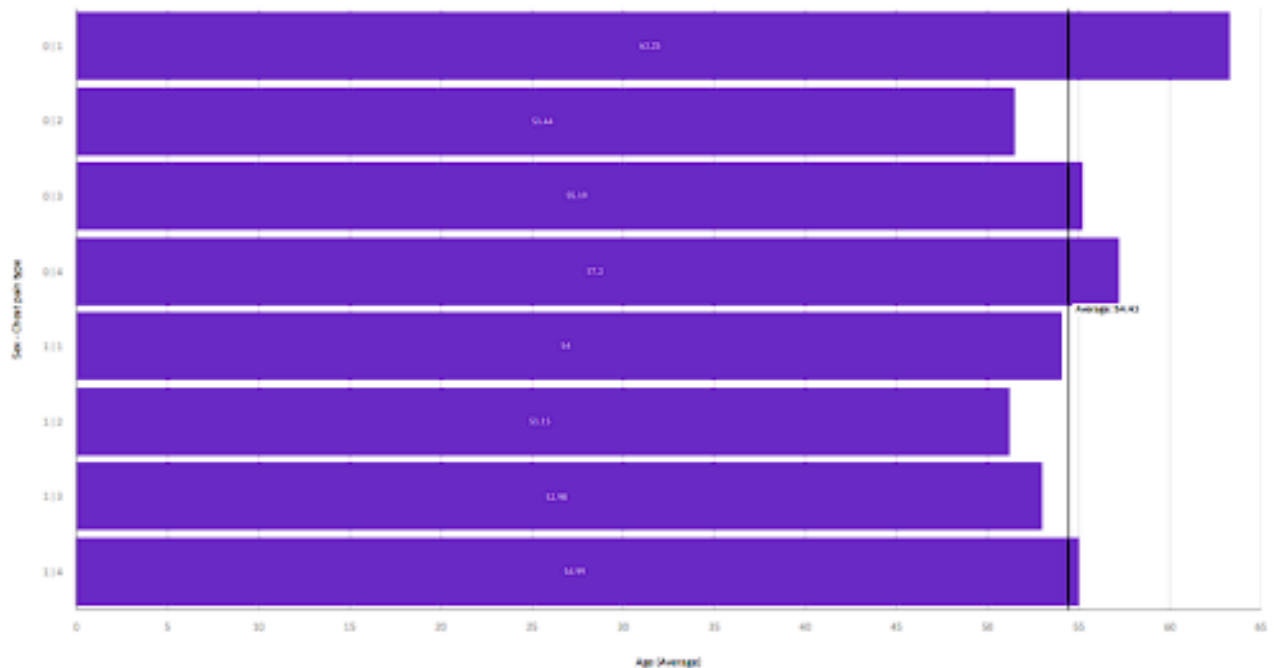
data to dashboard. In here you can able to create dashboard's for each and single graph representation. This will help to make sure to find the Average availability of beds in the hospitals.

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Average Age For Different Chest Pain Types dashboard

Tab 1

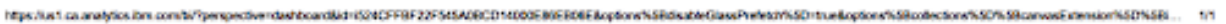
Average Age For Different Chest Pain Types and Gender



1

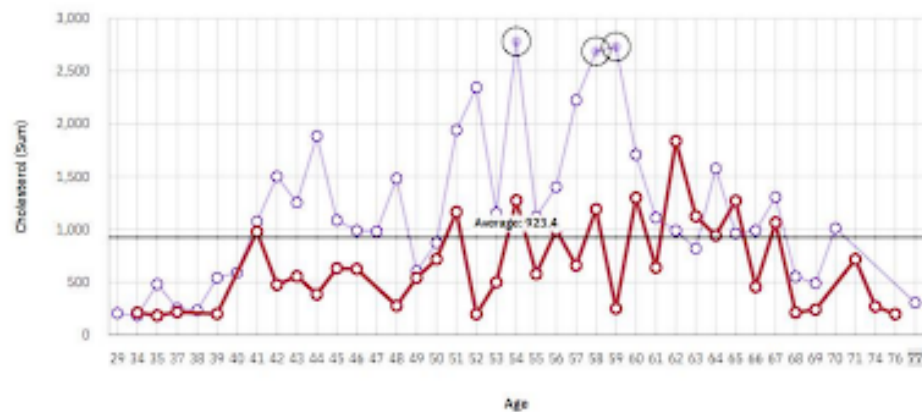
Heart Disease for Chest pain type and Sex

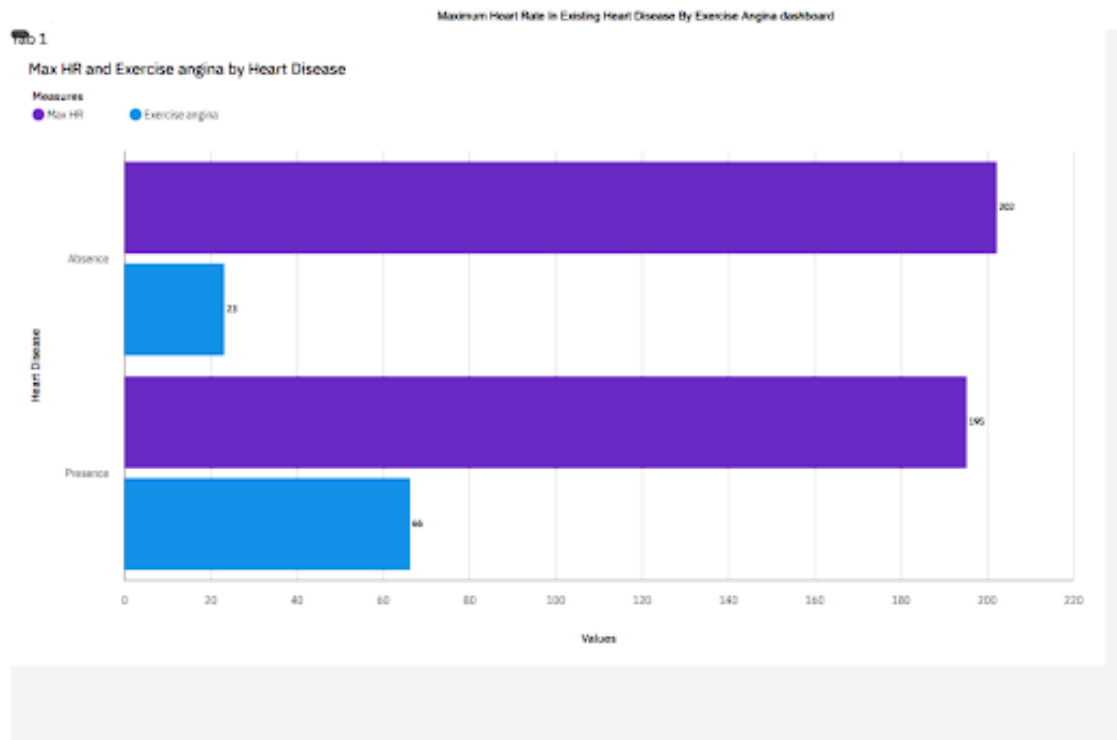
Heart Disease	1	2	3	4	Summary
0	6	16	32	35	87
1	16	26	47	94	183
Summary	20	42	79	129	270



701

Save





### 1.4.3 SPRINT 3

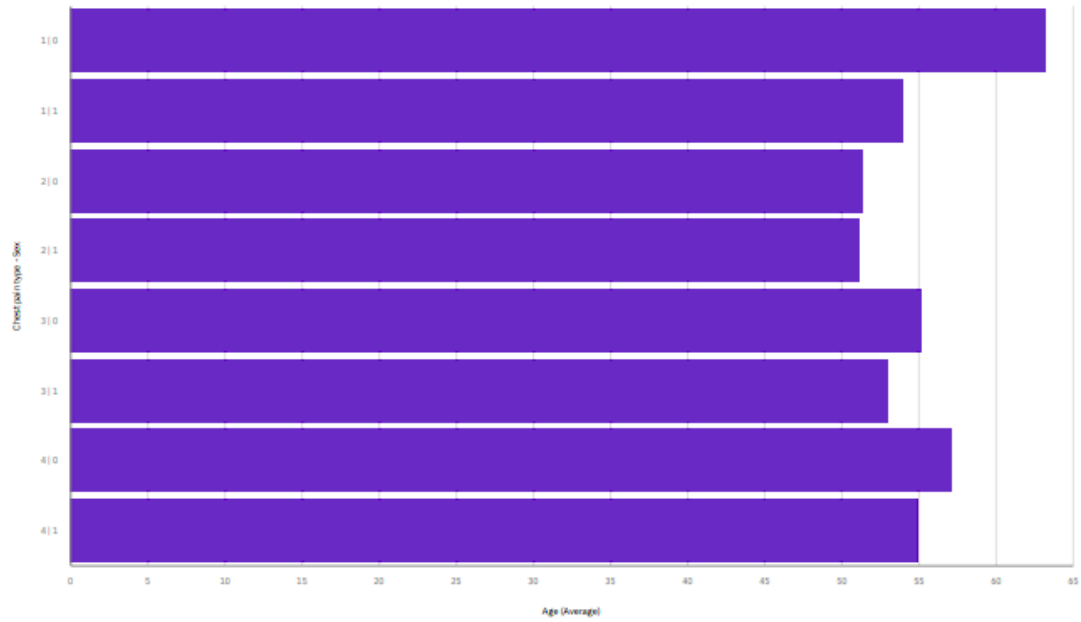
Finally after creating a dashboard for the health-care dataset. Now build a report and story using same method. Report can be build by importing the data exploration templates or templates which was available in the dashboard. This will make sure to create a organized way of report and story of the given dataset even layman can understand.

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Sprint3

Tab 1

Age by Chest pain type and Sex

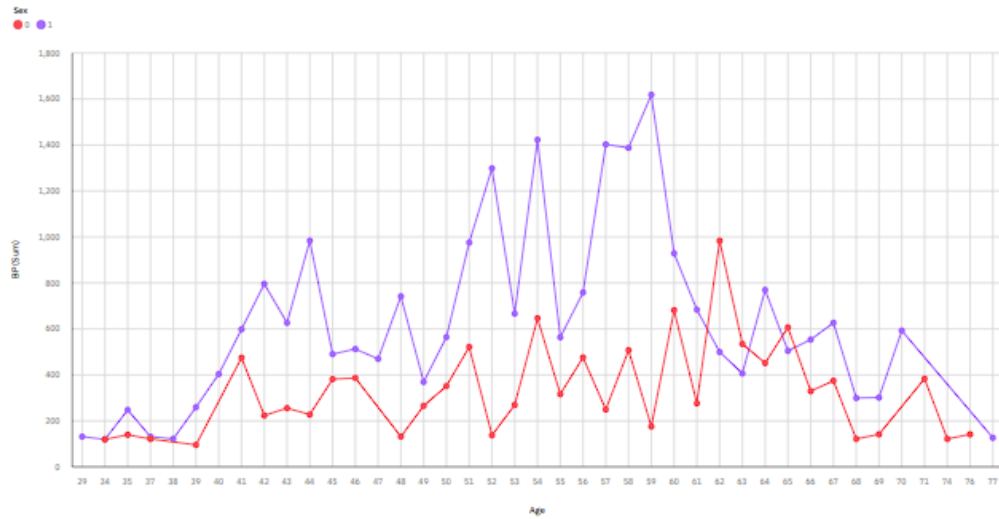


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Sprint3

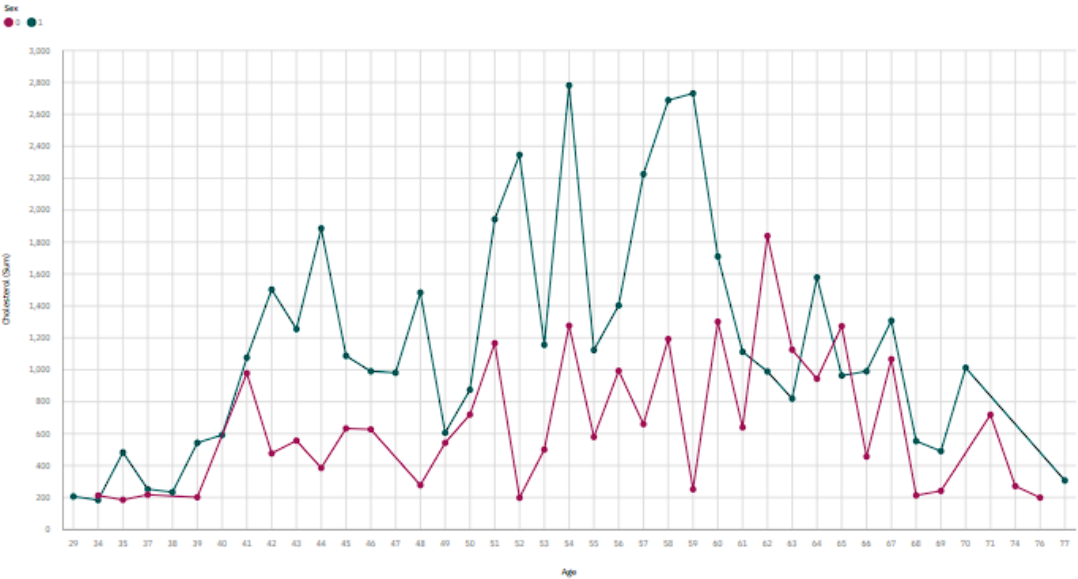
Tab 2

BP by Age colored by Sex



Tab 4

Cholesterol by Age colored by Sex

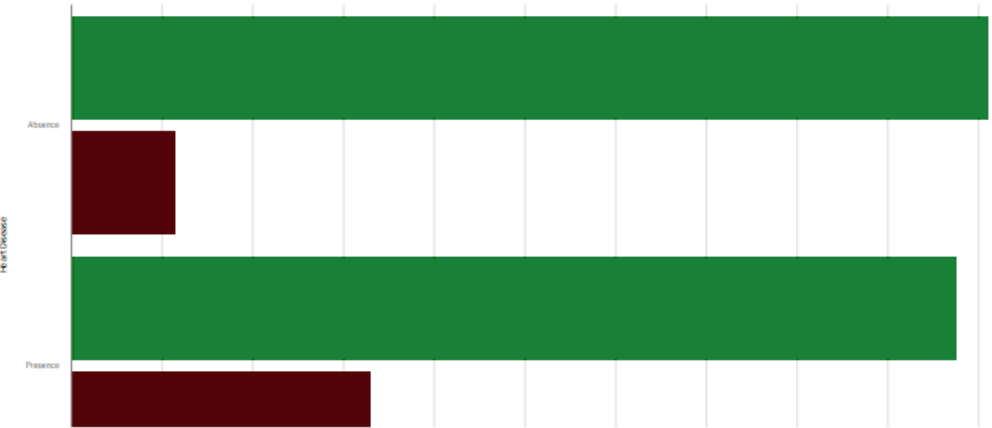


Tab 5

Max HR and Exercise angina by Heart Disease

Measures

● Max HR ● Exercise angina





To create a story, which is quite similar to slideshare. We need to build the templates and place it in form of powerpoint and allot them with given time for each slide. So that we can be able to create a video representation of the received graph representation.

#### 1.4.4 Sprint 4

In final sprint we will document the process we followed throughout the entire project to give desired results and submit it. Finally, we came to :

- > Know fundamental concepts and can work on IBM Cognos Analytics
- > Gain a broader understanding of plotting different visualizations to provide the suitable solution
- > Able to create meaningful visualizations and the Dashboard(s).