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Experiment: 03

Title: Design Interactive Dashboard and storytelling using Power BI /Python.

Aim: Create interactive dashboard - Write observations from each chart given below (Advanced - Word chart, Box and whisker plot, Violin plot, Regression plot (linear and nonlinear), 3D chart, Jitter, Line, Area, Waterfall, Donut, Treemap, Funnel . Basic - Bar chart, Pie chart, Histogram, Timeline chart, Scatter plot, Bubble plot)

Dataset:

Heart Disease prediction

Columns:

	Age	Sex	ChestPainType	RestingBP	Cholesterol	FastingBS	RestingECG	MaxHR	\
0	40	M	ATA	140	289	0	Normal	172	
1	49	F	NAP	160	180	0	Normal	156	
2	37	M	ATA	130	283	0	ST	98	
3	48	F	ASY	138	214	0	Normal	108	
4	54	M	NAP	150	195	0	Normal	122	

	ExerciseAngina	Oldpeak	ST_Slope	HeartDisease
0	N	0.0	Up	0
1	N	1.0	Flat	1
2	N	0.0	Up	0
3	Y	1.5	Flat	1
4	N	0.0	Up	0

- Age: age of the patient [years]
- Sex: sex of the patient [M: Male, F: Female]
- ChestPainType: chest pain type [0: Typical Angina, 1: Atypical Angina, 2: Non-Anginal Pain, 3: Asymptomatic]
- RestingBP: resting blood pressure [mm Hg]
- Cholesterol: serum cholesterol [mm/dl]
- FastingBS: fasting blood sugar [1: if FastingBS > 120 mg/dl, 0: otherwise]
- RestingECG: resting electrocardiogram results [0: Normal, 1: having ST-T wave abnormality (T wave inversions and/or ST elevation or depression of > 0.05 mV), 2: showing probable or definite left ventricular hypertrophy by Estes' criteria]
- MaxHR: maximum heart rate achieved [Numeric value between 60 and 202]
- ExerciseAngina: exercise-induced angina [1: Yes, 0: No]
- Oldpeak: oldpeak = ST [Numeric value measured in depression]

- ST_Slope: the slope of the peak exercise ST segment [0: upsloping, 1: flat, 2: downsloping]
- HeartDisease: output class [1: heart disease, 0: Normal]

Screenshot of Dashboard:



Observations:

- **Chest Pain Avg Age:**
The average age for different chest pain types is roughly similar across categories, with the highest in the ASY type.
- **Oldpeak by ST Slope:**
Patients with a flat ST Slope tend to have higher Oldpeak values compared to those with up or down slopes.
- **Heat Map – Exercise Angina vs ST Slope:**
Patients with a Up ST Slope and no exercise angina are more frequent, indicating a potential correlation between these variables.
- **Age-Wise Fasting BS:**
A higher count of people aged between 50–60 years have fasting blood sugar > 100 mg/dL, with more males affected.
- **Age-Wise Box Plot of Cholesterol Levels:**
Cholesterol levels are more spread in older age groups (60–70) with more outliers compared to younger groups.
- **Area Chart – Oldpeak Over Age:**
Oldpeak values peak around ages 55–65, indicating higher ST depression levels during that period.

- Count of Heart Disease Patients:
The pie chart shows a clear distribution of heart disease patients, with a higher number in one specific group.
- Age, Gender-Wise Heart Disease Patients:
Males are significantly more affected by heart disease than females, particularly in the older age group.
- Scatter Plot – Resting BP vs Cholesterol:
- There's a large cluster of individuals with cholesterol between 100–300 and resting blood pressure around 100–140, indicating common health parameters for the group.

Conclusion:

In this practical, I learnt how to use healthcare dataset to create visualizations effectively and create stories from it as well create conclusions for future research.

Link: [https://public.tableau.com/app/profile/yash.burad/viz/ADV3_17259992533740/Dashboar d1?publish=yes](https://public.tableau.com/app/profile/yash.burad/viz/ADV3_17259992533740/Dashboar%20d1?publish=yes)