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TABLEAU VISUALISATION ON BRAIN STROKE

Tableau public:
https://public.tableau.com/app/profile/riya.gupta1304/viz/project_Riya20csu269/Story1?publish=yes

1. Project Description

According to the World Health Organization (WHO) stroke is the 2nd leading cause of death globally, responsible for approximately 11% of total deaths. Stroke is widely considered as the second most common cause of mortality. The adverse consequences of stroke have led to global interest and work for improving the management and diagnosis of stroke. This dataset is used to predict whether a patient is likely to get stroke based on the input parameters like gender, age, various diseases, and smoking status. Each row in the data provides relevant information about the patient.

Data visualization is performed to get better picture of the parameters impacting on the stroke and to prevent further risk of brain stroke. We analyze different parameters to draw conclusion which were based upon the data provided. Parameters were age, smoking habit, heart disease, hypertension.

2. Problem Statement

Project includes the following questions-

- What is impact of stroke on the age due to smoking?
- How much stroke is seen married and unmarried people?
- How much stroke in smoking status?
- How much stroke is seen in most gender?
- How much impact in avg glucose level at certain age?
- How much stroke is seen in different residence?
- How much BMI is related to avg glucose level?
- Does stroke have impact on heart disease and hypertension?
- Most stroke in which work type?

3. Analysis

3.1 Hardware Requirement

- Intel(R) Core (TM) i5-1035G1 CPU @ 1.00GHz 1.19 GHz processor
- 8.00 GB RAM
- 64-bit operating system
- x64-based processor
- Edition-Windows 10 Home Single Language
- Version-22H2
- OS build-19045.2251
- Experience-Windows Feature Experience Pack 120.2212.4180.0

3.2 Software Requirement

- Project was performed on Tableau 2022.3 version
- Size of software- 1.29 KB (1,331 bytes)
- Similar tools to Tableau include Microsoft Power BI, Qlik, Tibco Spotfire, and Looker – these are all data visualization tools

4. Design

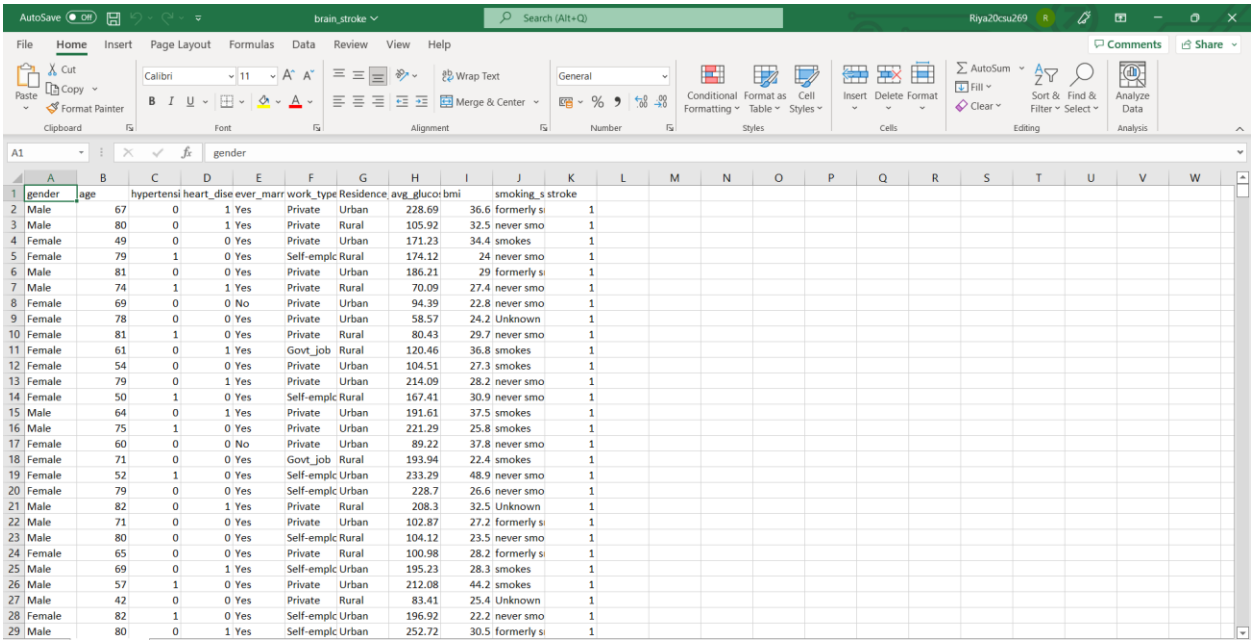
4.1 Data Description

A stroke is a medical condition in which poor blood flow to the brain causes cell death. There are two main types of strokes: ischemic, due to lack of blood flow, and haemorrhagic, due to bleeding. Both cause parts of the brain to stop functioning properly. Signs and symptoms of a stroke may include an inability to move or feel on one side of the body, problems understanding or speaking, dizziness, or loss of vision to one side. The main risk factor for stroke is high blood pressure. Other risk factors include high blood cholesterol, tobacco smoking, obesity, diabetes mellitus, a previous TIA, end-stage kidney disease, and atrial fibrillation.

Attribute Information
1) gender: "Male", "Female" or "Other"
2) age: age of the patient
3) hypertension: 0 if the patient doesn't have hypertension, 1 if the patient has hypertension
4) heart disease: 0 if the patient doesn't have any heart diseases, 1 if the patient has a heart disease 5) ever married: "No" or "Yes"
6) work type: "children", "Govtjov", "Never worked", "Private" or "Self-employed" 7) Residence type: "Rural" or "Urban"
8) avgglucoselevel: average glucose level in blood
9) bmi: body mass index
10) smoking_status: "formerly smoked", "never smoked", "smokes" or "Unknown"*

11) stroke: 1 if the patient had a stroke or 0 if not

Dataset: https://www.kaggle.com/datasets/zzettrkalpakbal/full-filled-brain-stroke-dataset



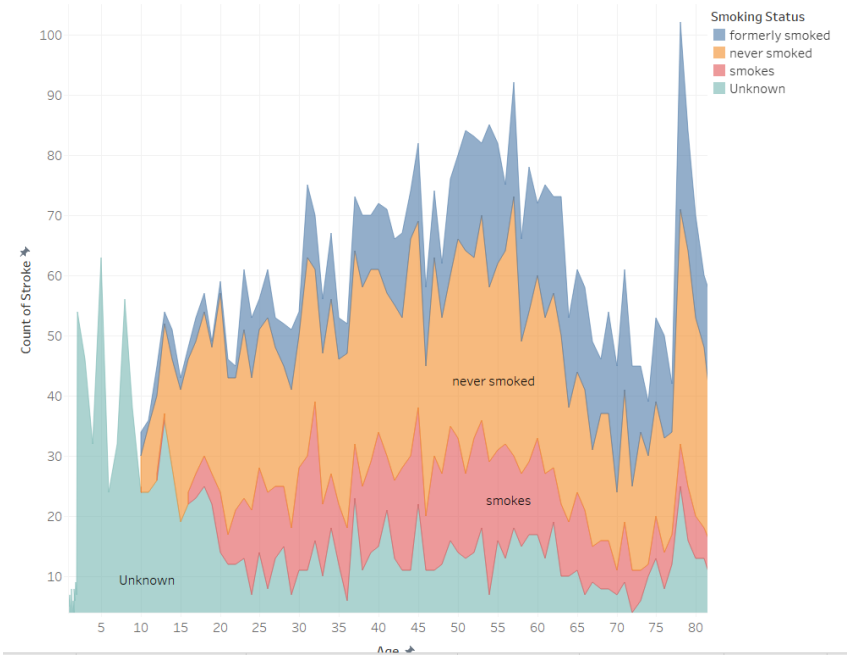
	A	B	C	D	E	F	G	H	I	J	K
1	gender	age	hypertensi	heart_dise	ever_marr	work_type	Residence	avg_gluco	bmi	smoking_s	stroke
2	Male	67	0	1	Yes	Private	Urban	228.69	36.6	formerly si	1
3	Male	80	0	1	Yes	Private	Rural	105.92	32.5	never smo	1
4	Female	49	0	0	Yes	Private	Urban	171.23	34.4	smokes	1
5	Female	79	1	0	Yes	Self-emplc	Rural	174.12	24	never smo	1
6	Male	81	0	0	Yes	Private	Urban	186.21	29	formerly si	1
7	Male	74	1	1	Yes	Private	Rural	70.09	27.4	never smo	1
8	Female	69	0	0	No	Private	Urban	94.39	22.8	never smo	1
9	Female	78	0	0	Yes	Private	Urban	58.57	24.2	Unknown	1
10	Female	81	1	0	Yes	Private	Rural	80.43	29.7	never smo	1
11	Female	61	0	1	Yes	Govt_job	Rural	120.46	36.8	smokes	1
12	Female	54	0	0	Yes	Private	Urban	104.51	27.3	smokes	1
13	Female	79	0	1	Yes	Private	Urban	214.09	28.2	never smo	1
14	Female	50	1	0	Yes	Self-emplc	Rural	167.41	30.9	never smo	1
15	Male	64	0	1	Yes	Private	Urban	191.61	37.5	smokes	1
16	Male	75	1	0	Yes	Private	Urban	221.29	25.8	smokes	1
17	Female	60	0	0	No	Private	Urban	89.22	37.8	never smo	1
18	Female	71	0	0	Yes	Govt_job	Rural	193.94	22.4	smokes	1
19	Female	52	1	0	Yes	Self-emplc	Urban	233.29	48.9	never smo	1
20	Female	79	0	0	Yes	Self-emplc	Urban	228.7	26.6	never smo	1
21	Male	82	0	1	Yes	Private	Rural	208.3	32.5	Unknown	1
22	Male	71	0	0	Yes	Private	Urban	102.87	27.2	formerly si	1
23	Male	80	0	0	Yes	Self-emplc	Rural	104.12	23.5	never smo	1
24	Female	65	0	0	Yes	Private	Rural	100.98	28.2	formerly si	1
25	Male	69	0	1	Yes	Self-emplc	Urban	195.23	28.3	smokes	1
26	Male	57	1	0	Yes	Private	Urban	212.08	44.2	smokes	1
27	Male	42	0	0	Yes	Private	Rural	83.41	25.4	Unknown	1
28	Female	82	1	0	Yes	Self-emplc	Urban	196.92	22.2	never smo	1
29	Male	80	0	1	Yes	Self-emplc	Urban	252.72	30.5	formerly si	1

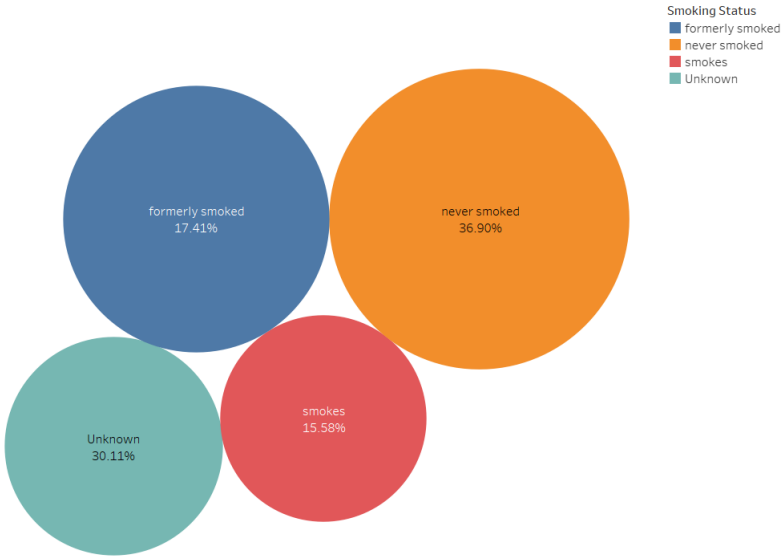
4.2 Project Objective

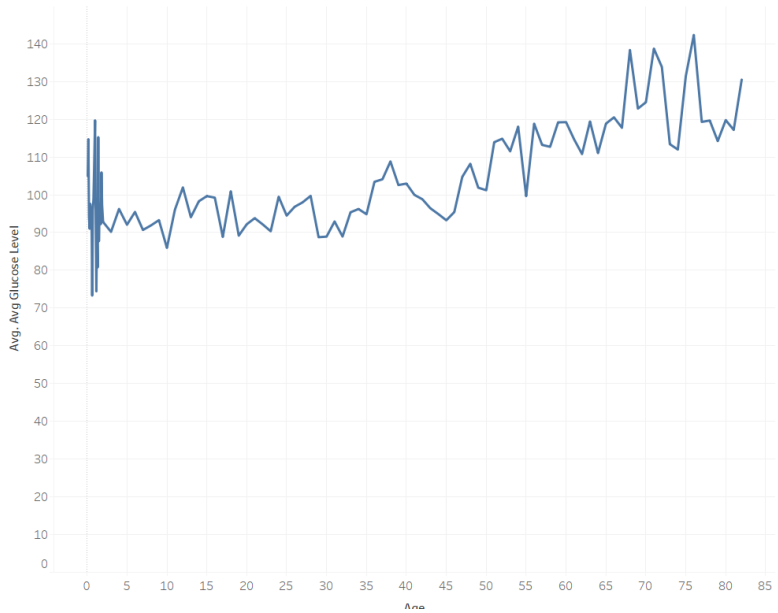
As Data visualization includes graphical representation of data it helps us to better understand the risk of stroke on the people. By choosing the correct graph it gives clear picture of the analysis that we need to perform. Visual best practices are key to developing informative visualizations that drive your audience to act. A dashboard is successful when people can easily use it to derive answers. Even a beautiful dashboard with an interesting data source could be rendered useless if your audience can't use it to discover insights.

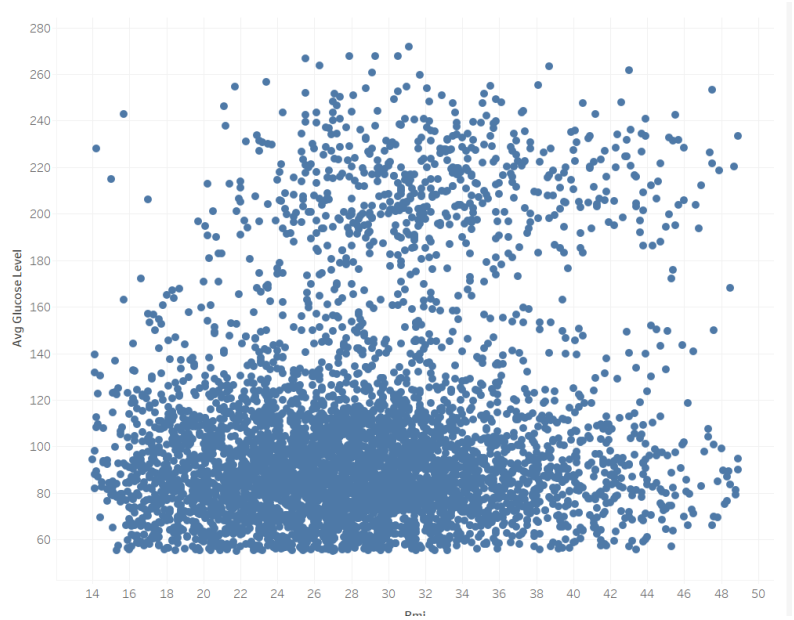
The field of medical sciences has observed tremendous improvements due to the rise in technological advancements over time. A hemorrhagic stroke may also be associated with a severe headache. he main risk factor for stroke is high blood pressure. Other risk factors include high blood cholesterol, tobacco smoking, obesity, diabetes mellitus, a previous TIA, end-stage kidney disease, and atrial fibrillation. Project aims towards Prevention includes decreasing risk factors, surgery to open up the arteries to the brain in those with problematic carotid narrowing, and warfarin in people with atrial fibrillation. Aspirin or statins may be recommended by physicians for prevention. A stroke or TIA often requires emergency care. An ischemic stroke, if detected within three to four and half hours, may be treatable with a medication that can break down the clot. Some hemorrhagic strokes benefit from surgery.

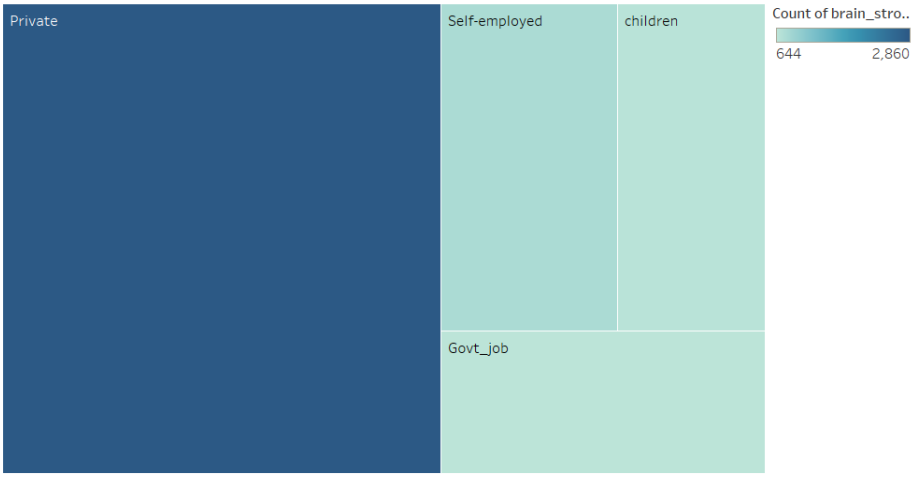
5. Implementation and Testing






Avg. Avg Glucose Level
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85
Age


Avg Glucose Level
280
260
240
220
200
180
160
140
120
100
80
60
14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50



6. Conclusion and Future Scope

Tableau helps us to get better visualization of the data. Sum up of all the visualization performed led us to conclusion on the risk that brain stroke has in our life. It tell us that there is increase in avg glucose after certain age, more stroke cases among Married, more stroke among female, more stroke among urban people,Bmi>40 has low avg glucose and Most people who have had a stroke do not have any heart disease, but that does not prevent it. In Future, Visualisation help us to prevent the risk of brain stroke by taking care of certain measures in advance.