ESTIMATION AND PREDICTION OF HOSPITALIZATION AND MEDICAL CARE COSTS

1. INTRODUCTION

1.1 Overview

Estimation and prediction of hospitalization and medical care costs. Medical costs are one of the most common recurring expenses in a person's life. Based on different research studies, BMI, ageing, smoking, and other factors are all related to greater personal medical care costs.

The main goal of medical care cost is prevention of premature death and disability, maintenance and enhancement of quality of life, personal growth and development and a good death

1.2 Purpose

Medical care has several important functions other than restoring or maintaining health. These other functions are assessment and certification of health status, prognostication, segregation of the ill to limit communication of illness, and helping to cope with the problems of illness--the caring function.

- Covers medical-related expenses.
- Ensures access to preventive care.
- Funds dental treatment.
- Gives add-on coverage for critical illnesses.
- Offers a cashless claim benefit.
- Ensures funding for alternative treatment.
- Provides for domiciliary treatment.

2. LITERATURE SURVEY

2.1 Existing problem

EXISTING PROBLEMS IN MEDICAL CARE COSTS

- Preventable Medical Errors.
- Poor Amenable Mortality Rates.

- Lack of Transparency.
- Difficulty Finding a Good Doctor.
- High Costs of Care.
- A Lack of Insurance Coverage.

2.2   Proposed solution

PROPOSE SOLUTION FOR MEDICAL CARE COSTS

- Expand Insurance to Cover Health Care Costs.
- Extend Telehealth Services.
- Invest in Mobile Clinics.
- Educate the Public About Multiple Health Care Sites.
- Improve Cultural Responsiveness.

3.   THEORITICAL ANALYSIS

3.1 BLOCK DIADRAM

Cost-benefit analysis is the examination of a decision in terms of its consequences or costs and benefits. The shadow price of a good measures the net impact on social welfare of a unit increase in the supply of that good by the public sector. The theory of cost-benefit analysis is widely used.
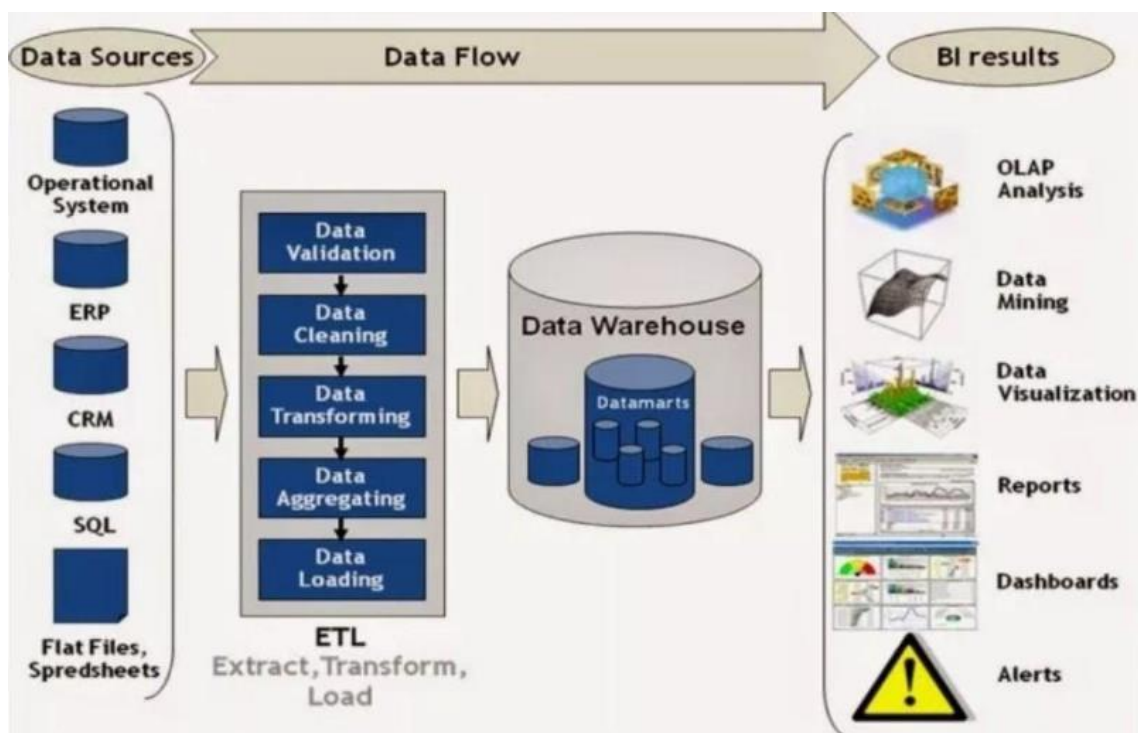
3.2 HARDWARE / SOFTWARE DESIGNING

HARDWARE REQUIREMENTS :

- Computer case (or computer tower)
- Motherboard.
- Central processing unit (CPU)
- Power supply unit (PSU)
- Memory or RAM
- Laptop

SOFTWARE REGURIMENTS

- Anaconda Navigator
- Python,Spider
- IBM Cognos
- MS Word

4   RESULT

DATAMODULE
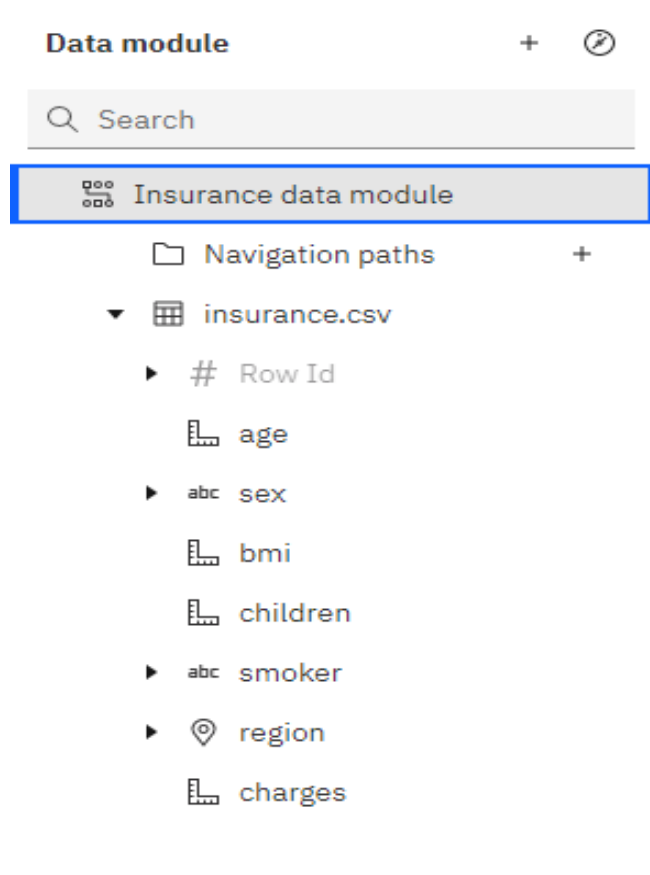
DASHBOARD
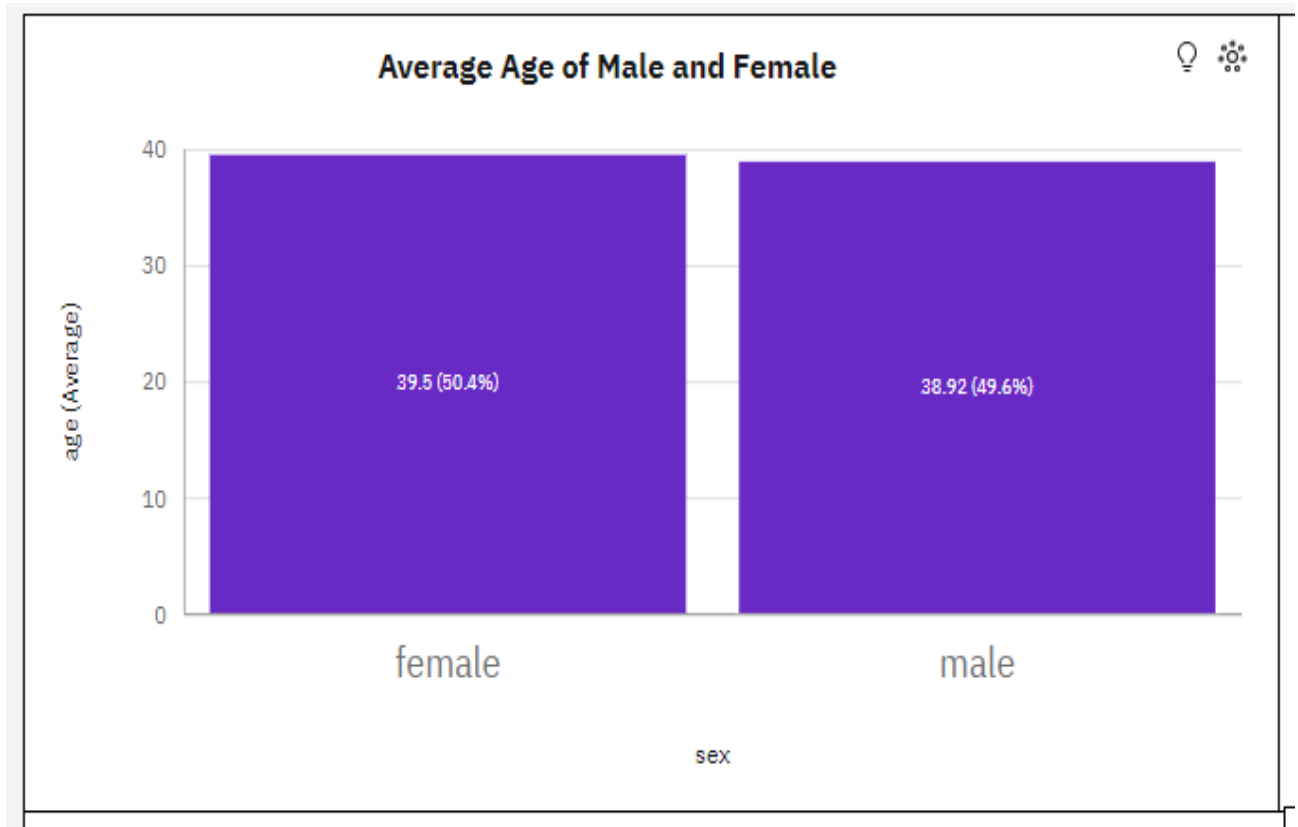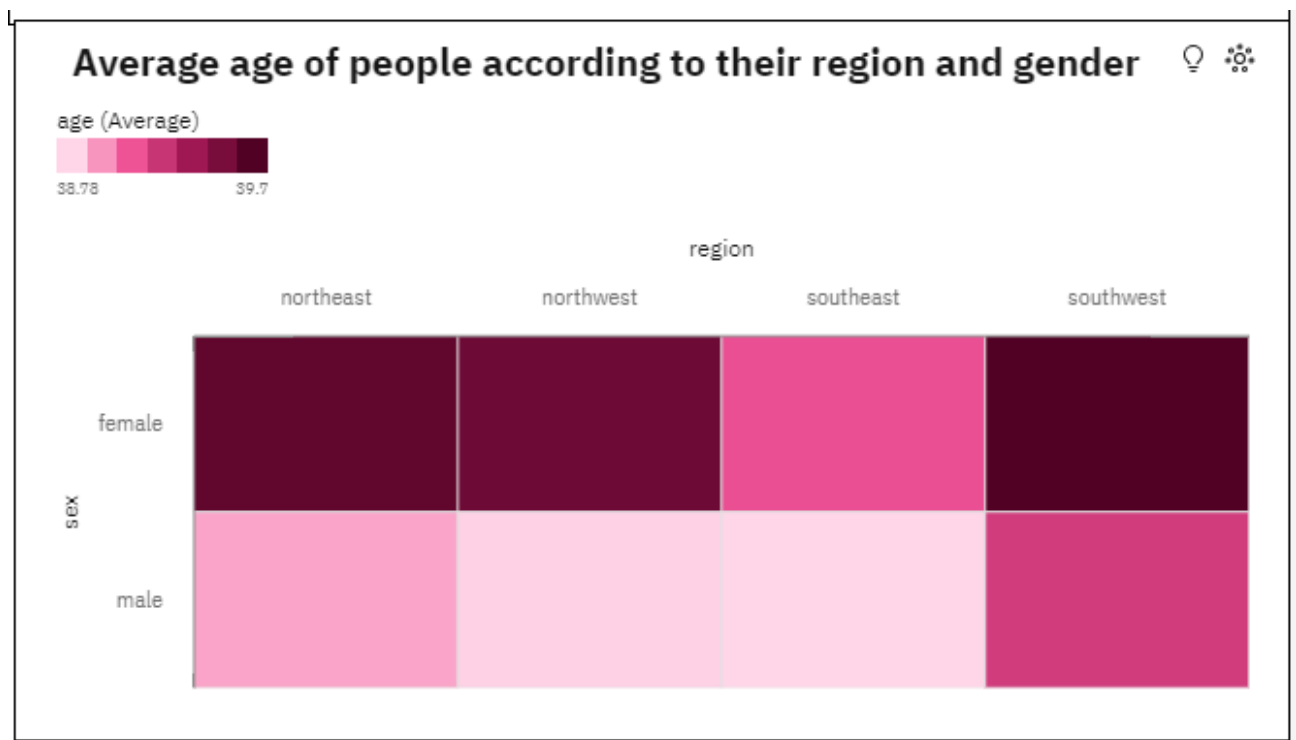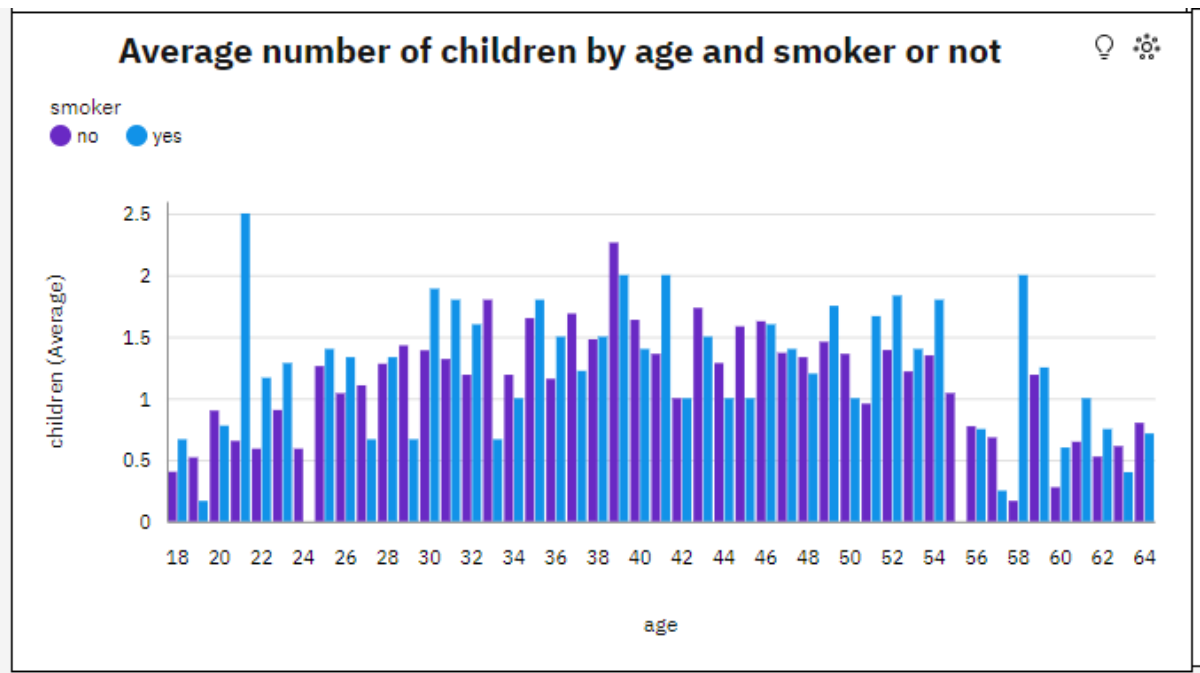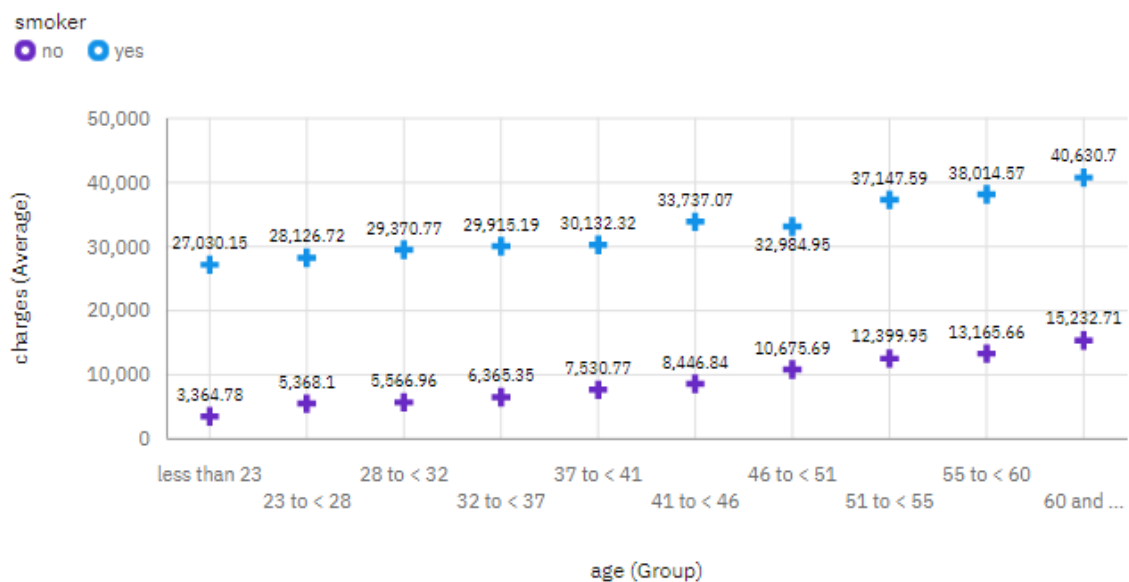
Average Age of Male and Female

female: 39.5 (50.4%)
male: 38.92 (49.6%)

BMI of a person based on their age

Average number of children by age and smoker or not

Average age of people according to their region and gender

Charges paying by people according to their age and smoker

smoker
○ no ● yes

Chart: charges (Average) vs age (Group)

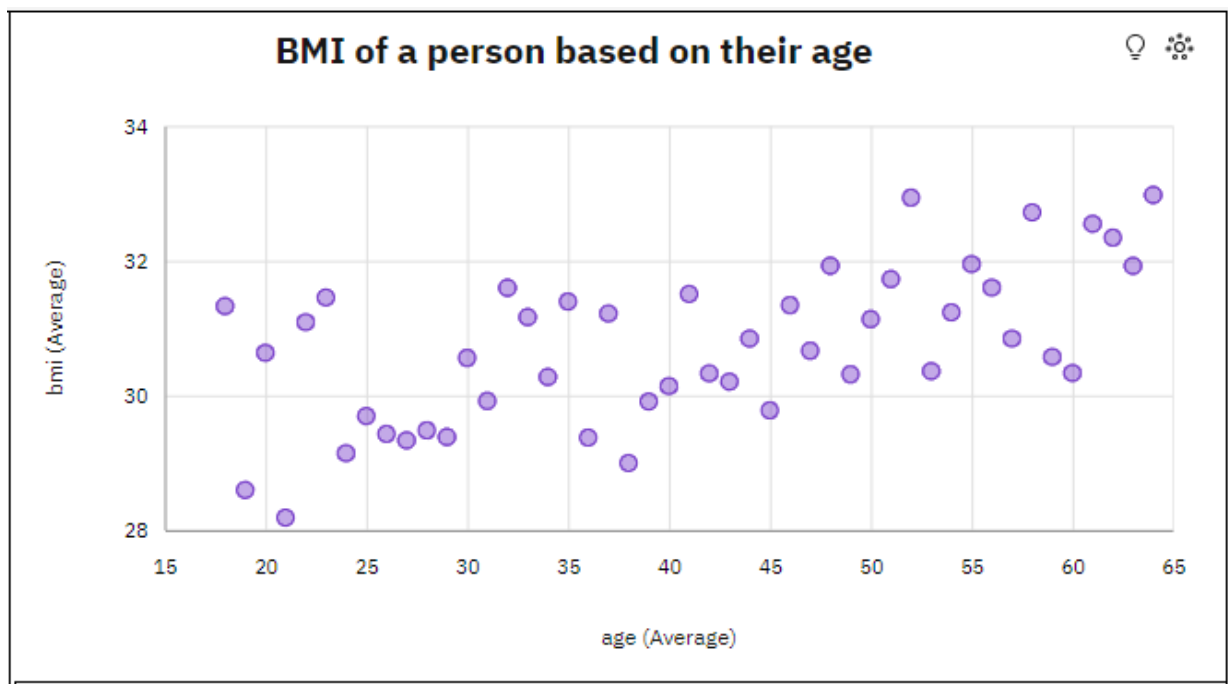| age (Group)	yes	no
less than 23	27,030.15	3,364.78
23 to < 28	28,126.72	5,368.1
28 to < 32	29,370.77	5,566.96
32 to < 37	29,915.19	6,365.35
37 to < 41	30,132.32	7,530.77
41 to < 46	33,737.07	8,446.84
46 to < 51	32,984.95	10,675.69
51 to < 55	37,147.59	12,399.95
55 to < 60	38,014.57	13,165.66
60 and ...	40,630.7	15,232.71

bmi of a person by their gender and smoker

bmi (Average)
29.61 — 31.5

Chart: smoker (yes/no) vs sex (female/male)
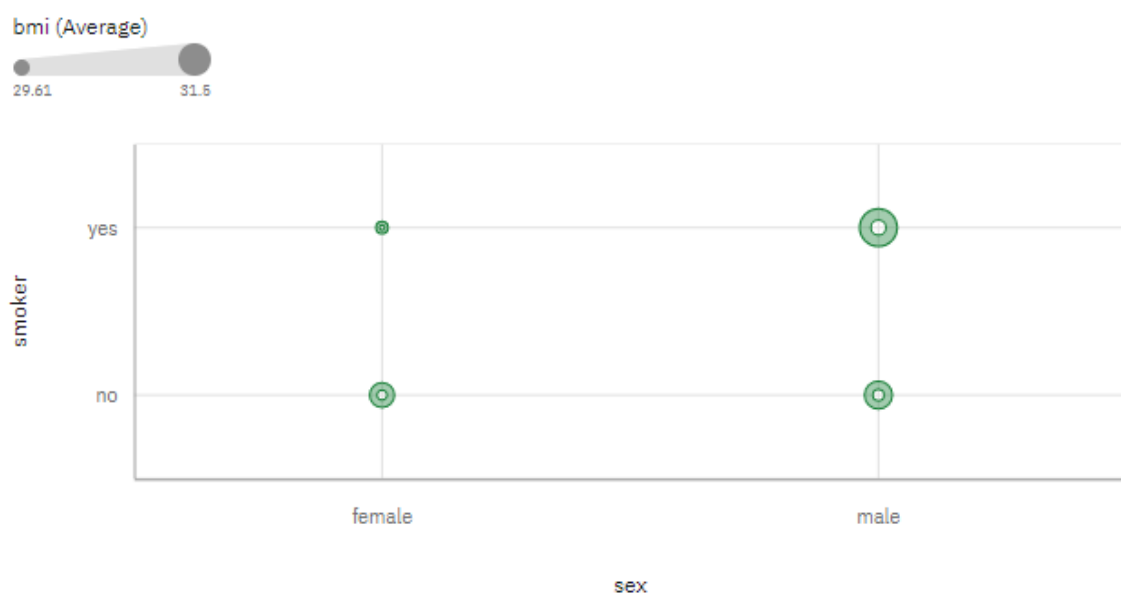
Charges paid by people according to their gender, region and smoker

charges (Average)
36,029.84

7,609

region - smoker
- northeast | no
- northeast | yes
- northwest | no
- northwest | yes
- southeast | no
- southeast | yes
- southwest | no

Average BMI of people by gender and region

region
- northeast
- northwest
- southeast
- southwest

bmi (Average)

	female	male
southwest	30.06 (49.1%)	31.13 (50.9%)
southeast	32.67 (49%)	33.99 (51%)
northwest	29.28 (50.1%)	29.12 (49.9%)
northeast	29.32 (50.3%)	29.02 (49.7%)

sex

Top 100 charges paid by people based on BMI and colored by region

region
- northeast
- northwest
- southeast
- southwest

Number of children to the people by region

region
- northeast
- northwest
- southeast
- southwest

charges by region colored by smoker

smoker
● no ● yes

region	no	yes
northeast	9,165.53 (23.6%)	29,673.54 (76.4%)
northwest	8,556.46 (22.1%)	30,192 (77.9%)
southeast	8,032.22 (18.7%)	34,845 (81.3%)
southwest	8,019.28 (19.9%)	32,269.06 (80.1%)

charges based on number of children

bmi (Average)
29.61 $1.39

children	charges (Average)
0	12,365.98
1	12,731.17
2	15,073.56
3	15,355.32
4	13,850.66
5	8,786.04
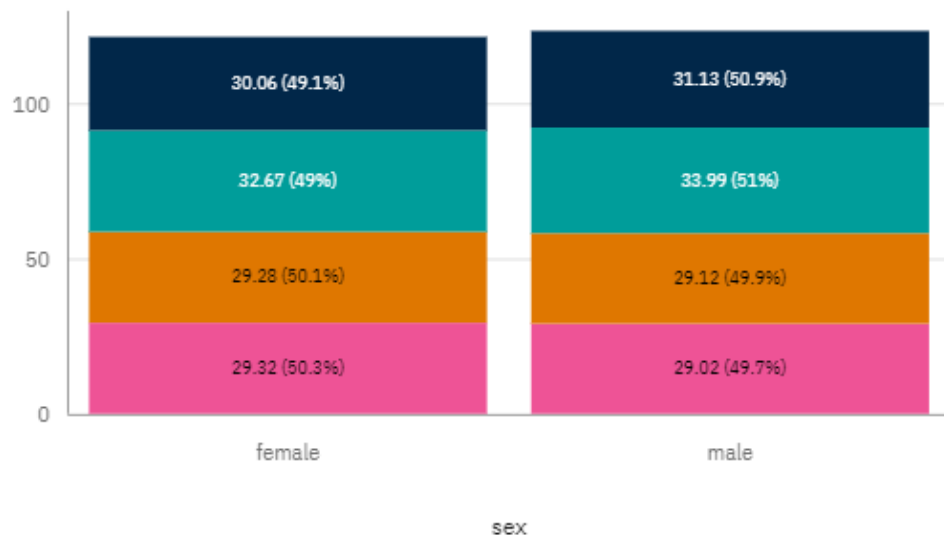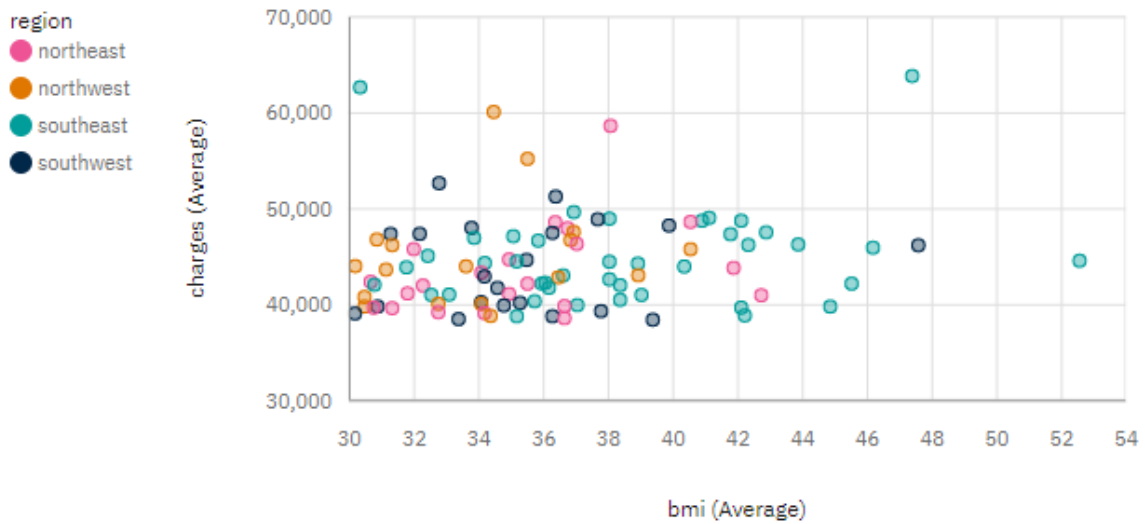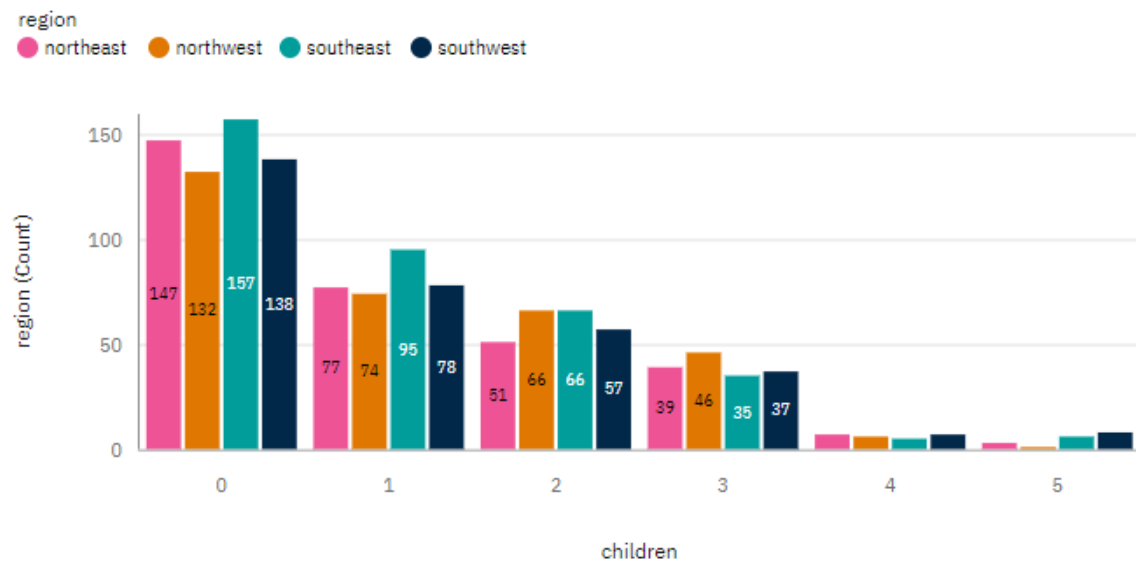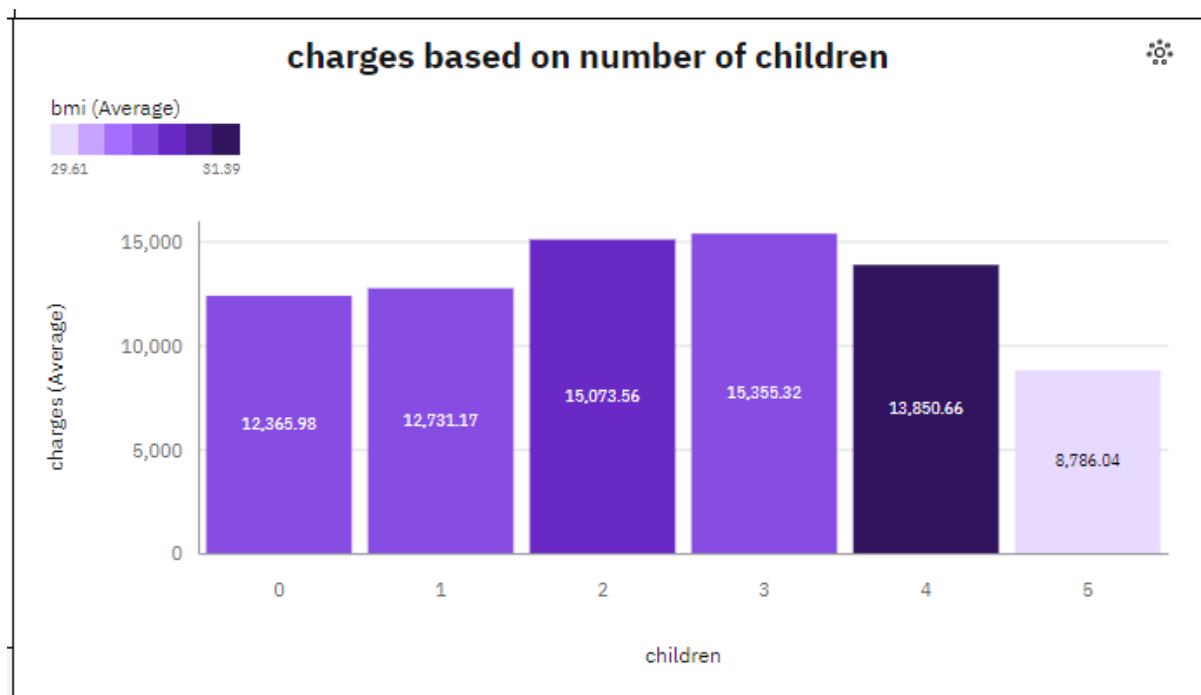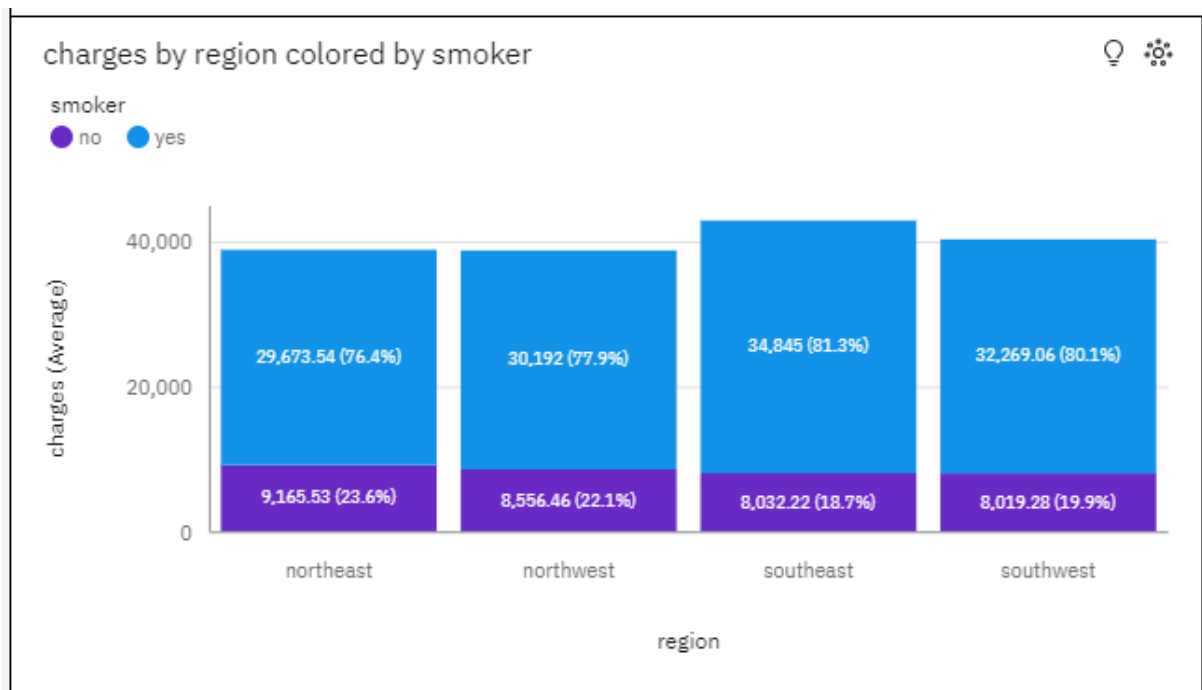
REPORT

The number of females in northwest is higher than every other

age

38.7830687830688
39.7037037037037

region

	northwest	northeast	southeast	southwest

region
- northwest
- northeast
- southeast
- southwest

female:
- 4,869.8
- 5,717.47
- 4,721.215
- 4,801.585

male:
- 5,074.1
- 6,424.11
- 4,731
- 4,688.345

smoker
● no ● yes

region	no	yes
northwest	2,284,575.81196	1,751,136.18458
northeast	2,355,541.639629	1,988,126.94368
southeast	2,192,795.05234	3,170,894.71095
southwest	2,141,148.96499	1,871,605.68263
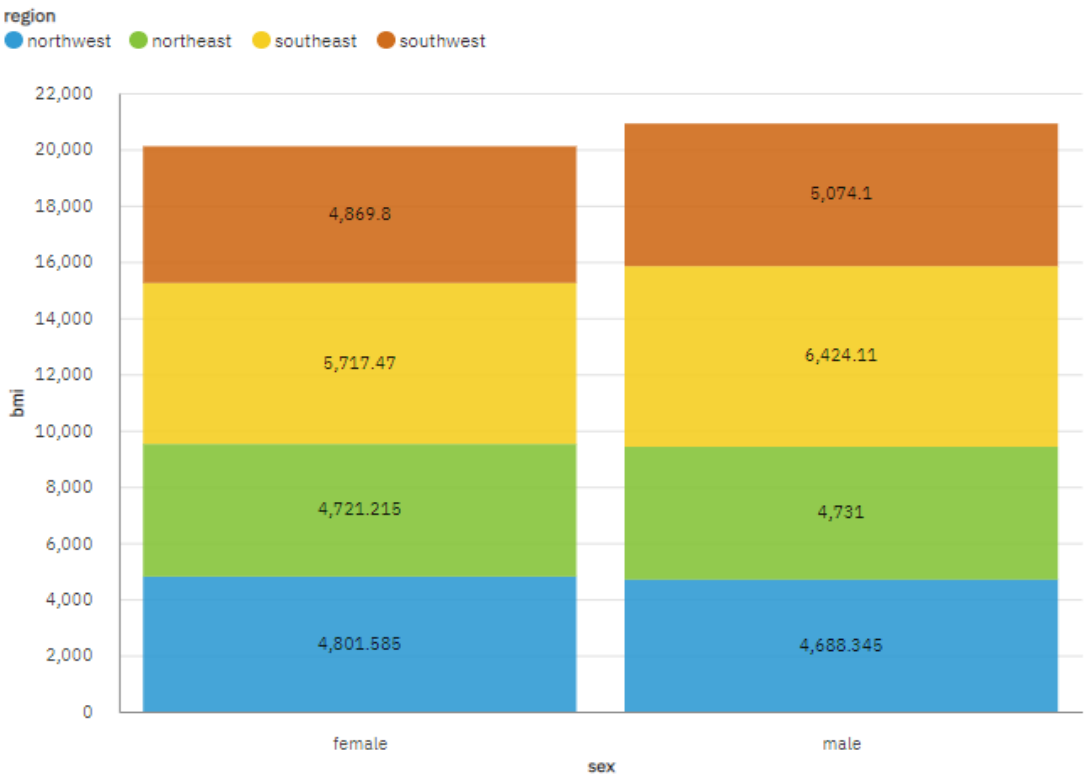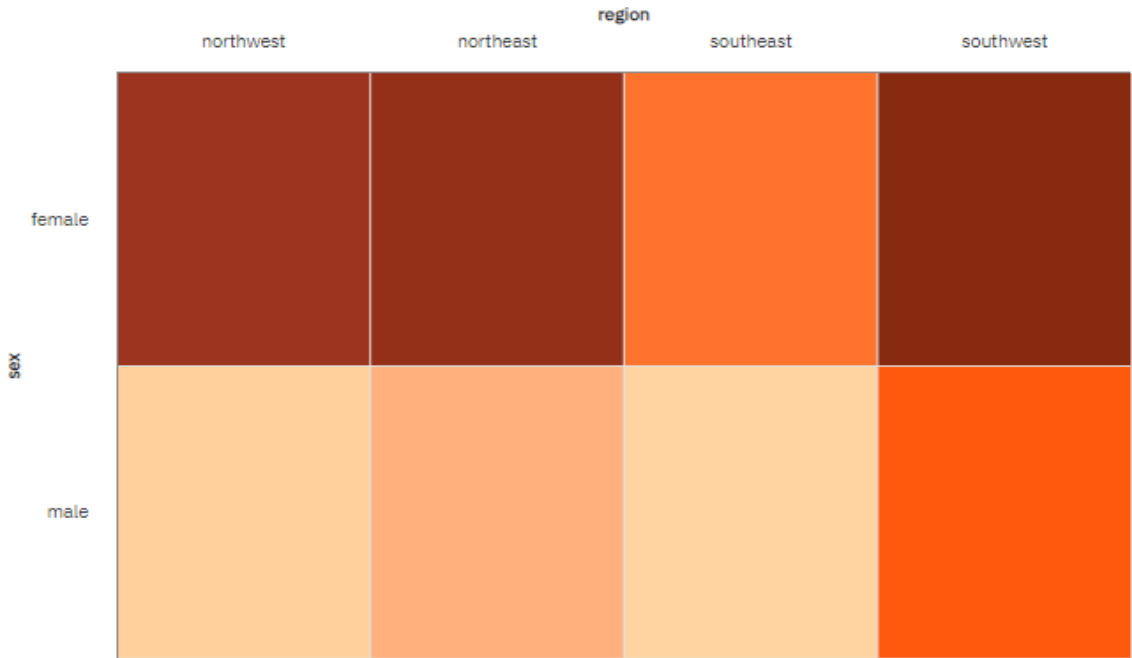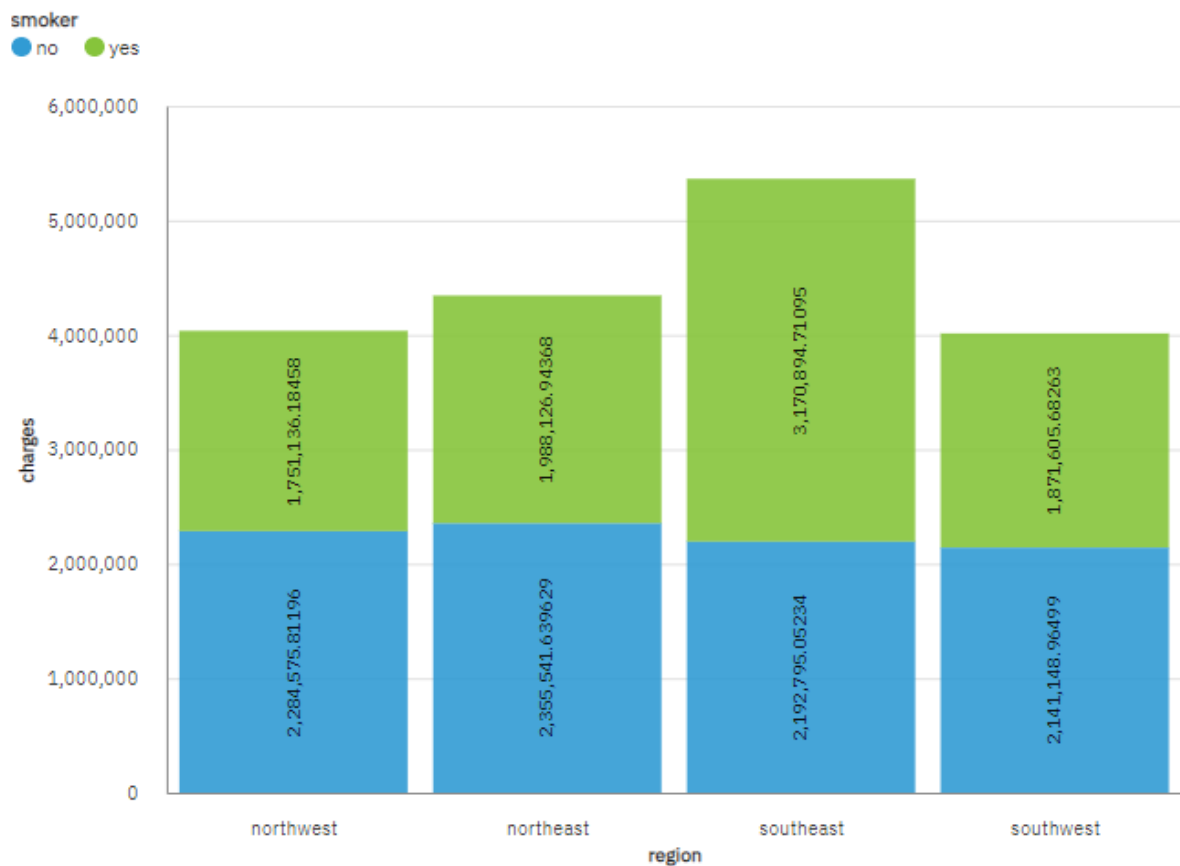
STORY

Medical Care Costs Story

Medical Care Costs Story

- The average values of age range from 38.92, occurring when sex is male, to 39.5, when sex is female.
- male is the most frequently occurring category of sex with a count of 676 items with age values (50.5 % of the total).
- sex female has the highest Average age but is ranked #2 in Total charges.
- sex male has the highest Total charges but is ranked #2 in Average age.

Average Age of Male and Female

female: 39.5 (50.4%)
male: 38.92 (49.6%)

age (Average) / sex

Medical Care Costs Story

- The total number of results for age, across all ages, is almost 1500.
- bmi and age have a weak positive linear association, being bmi = 28.8 + 0.04743 * age
- The average of bmi is 30.66.

BMI of a person based on their age
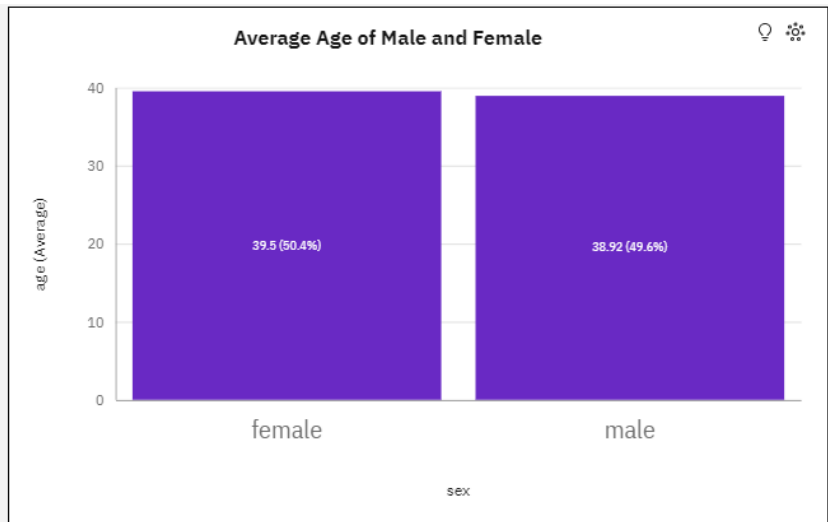
bmi (Average) / age (Average)
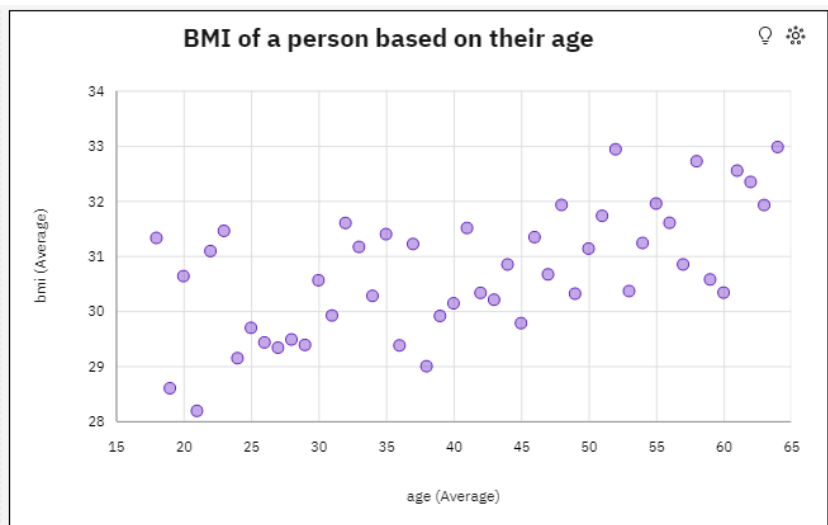
Medical Care Costs Story

- charges is unusually high when the combination of age (Group) and smoker is 60 and above and yes.
- The average values of charges range from almost 3500 to nearly 41 thousand.
- smoker moderately affects charges (62%).

Charges paying by people according to their age and smoker
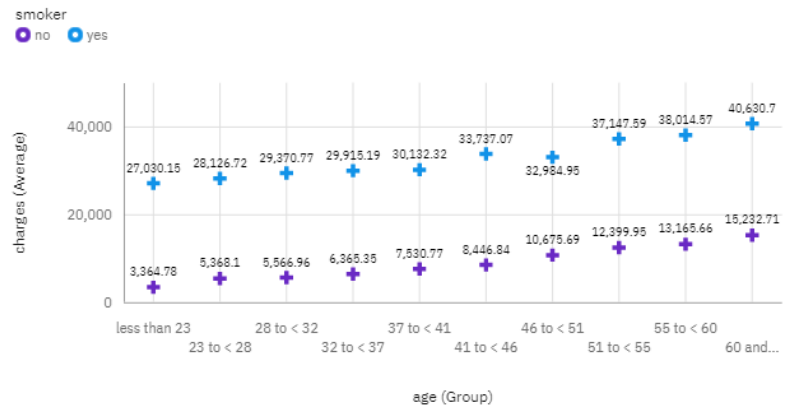
Medical Care Costs Story

- The total number of results for smoker, across all sexes, is almost 1500.
- The total number of results for bmi, across all sexes, is almost 1500.

bmi of a person by their gender and smoker
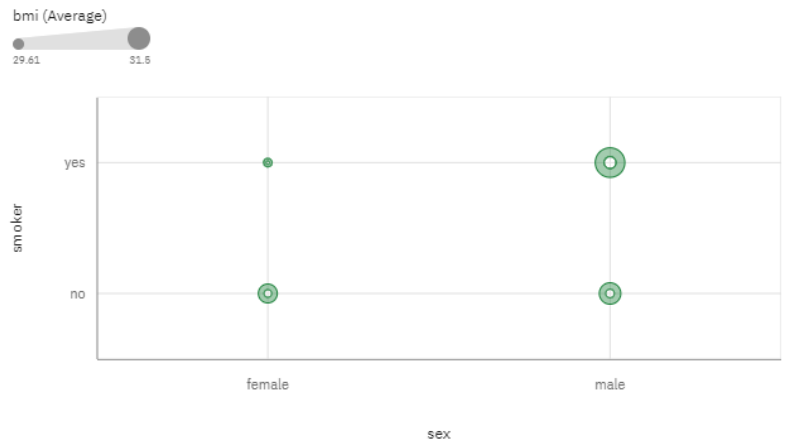
Medical Care Costs Story

- northwest|yes is the most frequently occurring category of region - smoker with a count of 364 items with charges values (27.2 % of the total).
- The average values of charges range from over 7500 to over 36 thousand.
- region - smoker moderately affects charges (63%).

Charges paid by people according to their gender,region and smoker

charges (Average)
36,029.84

7,609

region - smoker
- northeast | no
- northeast | yes
- northwest | no
- northwest | yes
- southeast | no
- southeast | yes
- southwest | no
- southwest | yes

female | 29,67...
female | 31,687...
f...
male | 36,029.84
female | 33,034...
female | 28,0...
m...
male | 30,926...
male | 32,598.86
male | 30,713...
f...
f...
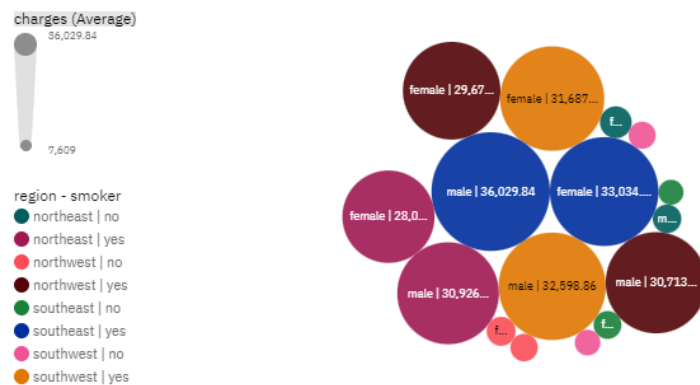
Smoking is not only injuries to health but also for wealth

WEB INTEGRATION

Medical Care Costs in India

The National Health Policy 2017 proposed to raise India's spending on healthcare, that currently stands at 1.15-1.5 % of GDP to 2.5 % by 2025. India's Out-Of-Pocket-Expenditure (OOPE) for health is one of the highest in the world at 63 percent in 2018.

Get Started

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Medical Care Costs

Health systems are organizations established to meet the health needs of targeted populations. According to the World Health Organization (WHO), a well-functioning healthcare system requires a financing mechanism, a well-trained and adequately paid workforce, reliable information on which to base decisions and policies, and well-maintained health facilities to deliver quality medicines and technologies.

1.Primary care

Primary care refers to the work of health professionals who act as a first point of consultation for all patients within the health care system.

2.Secondary care

Secondary care includes acute care: necessary treatment for a short period of time for a brief but serious illness, injury, or other health condition.

3.Tertiary care

Tertiary care is specialized consultative health care, usually for inpatients and on referral from a primary or secondary health professional, in a facility that has personnel and facilities for advanced medical investigation and treatment,

4.Quaternary care

The term quaternary care is sometimes used as an extension of tertiary care in reference to advanced levels of medicine which are highly specialized and not widely accessed.

Medical Care Costs Analysis

Dashboard

Tab 1   Tab 2   Tab 3

Average Age of Male and Female

39.5 (50.4%) — female
38.92 (49.6%) — male

BMI of a person based on their age

age (Average)

Average number of children by age and smoker or not

smoker
● no   ● yes

children (Avera...)
age: 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64

Average age of people according to their region and gender

age (Average)
38.78   39.7

northeast   northwest   southeast   southwest

Tab 1   Tab 2   Tab 3

Charges paying by people according to their age and smoker

smoker
● no   ● yes

27,030.15 28,126.72 29,370.77 29,915.19 30,132.32 33,737.07 37,147.59 38,014.57 40,630.7
32,984.95
3,364.78 5,368.1 5,566.96 6,365.35 7,530.77 8,446.84 10,675.69 12,399.95 13,165.66 15,232.71

ess than 23   28 to < 32   37 to < 41   46 to < 51   55 to < 60
23 to 28   32 to < 37   41 to < 46   51 to < 55   60 and ...

bmi of a person by their gender and smoker

bmi (Average)
29.61   31.5

smoker
yes
no

female   male
sex

Charges paid by people according to their gender, region and smoker

charges (Average)
36,029.84

7,609

region - smoker
● northeast | no
● northeast | yes
● northwest | no

Average BMI of people by gender and region

region
● northeast
● northwest
● southeast
● southwest

bmi (Average)
100

30.06 (49.1%)   31.13 (50.9%)
32.67 (49%)   33.99 (51%)
29.28 (50.1%)   29.12 (49.9%)
29.32 (50.3%)   29.02 (49.7%)

female   male
sex

Tab 1 Tab 2 **Tab 3**

Top 100 charges paid by people based on BMI and colored by region

region
- northeast
- northwest
- southeast
- southwest

charges (Average) vs bmi (Average)

Number of children to the people by region

region
- northeast
- northwest
- southeast
- southwest

children	northeast	northwest	southeast	southwest
0	147	132	157	138
1	77	74	95	78
2	51	66	66	57
3	39	46	35	37

charges by region colored by smoker

smoker
- no
- yes

region	no	yes
northeast	29,673.54 (76.4%)	9,165.53 (23.6%)
northwest	30,192 (77.9%)	8,556.46 (22.1%)
southeast	34,845 (81.3%)	8,032.22 (18.7%)
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charges based on number of children

bmi (Average) 29.61 – 31.39

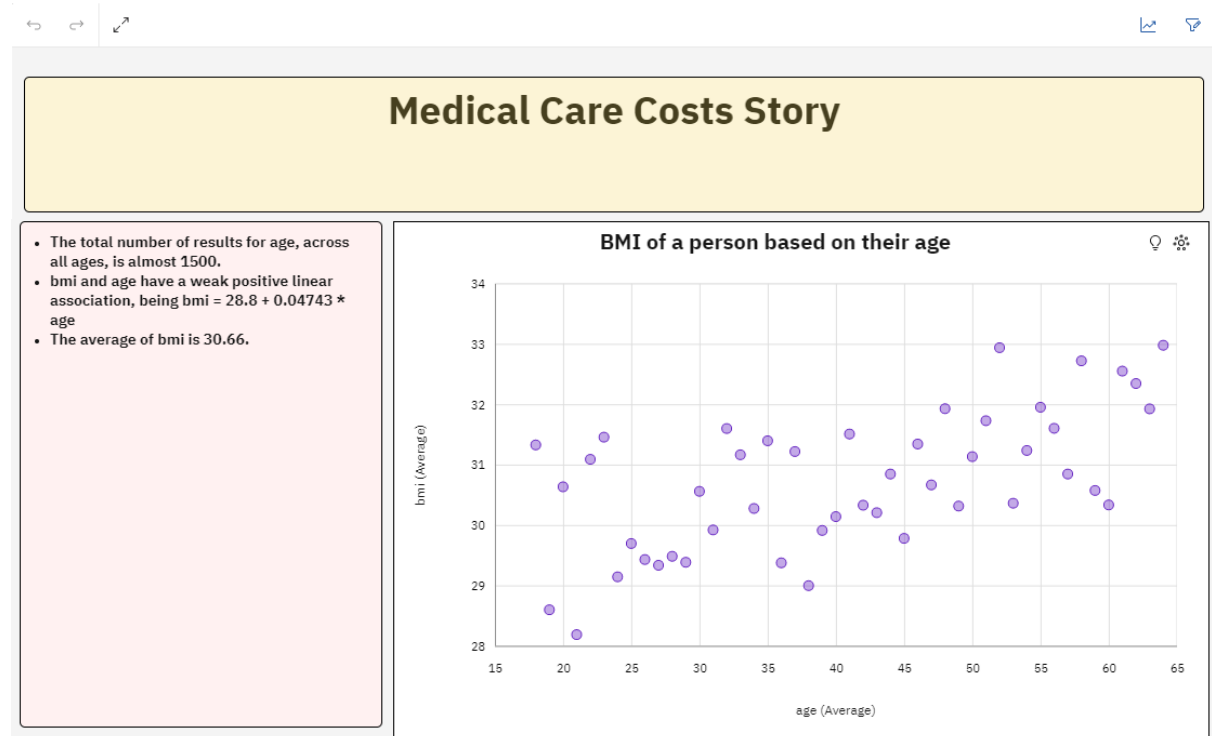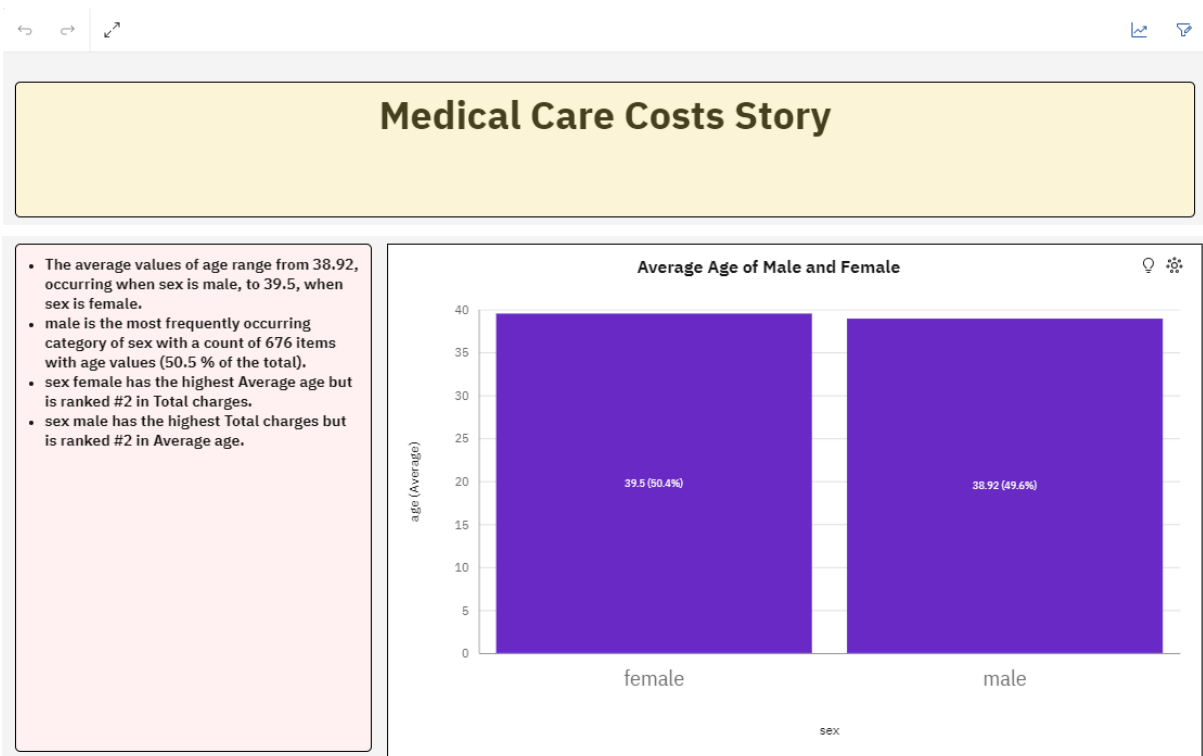| children	charges (Average)
0	12,365.98
1	12,731.17
2	15,073.56
3	15,355.32
4	13,850.66
5	8,786.04

Medical Care Costs Analysis

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Story

Medical Care Costs Story

Prev scene |◁ ▷ ▷| Next scene   Scene 1 of 7   0:00.0 ●────────── 0:05.0

Medical Care Costs Story

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Average Age of Male and Female

Medical Care Costs Story

- The total number of results for age, across all ages, is almost 1500.
- bmi and age have a weak positive linear association, being bmi = 28.8 + 0.04743 * age
- The average of bmi is 30.66.

BMI of a person based on their age

Medical Care Costs Story

Charges paying by people according to their age and smoker
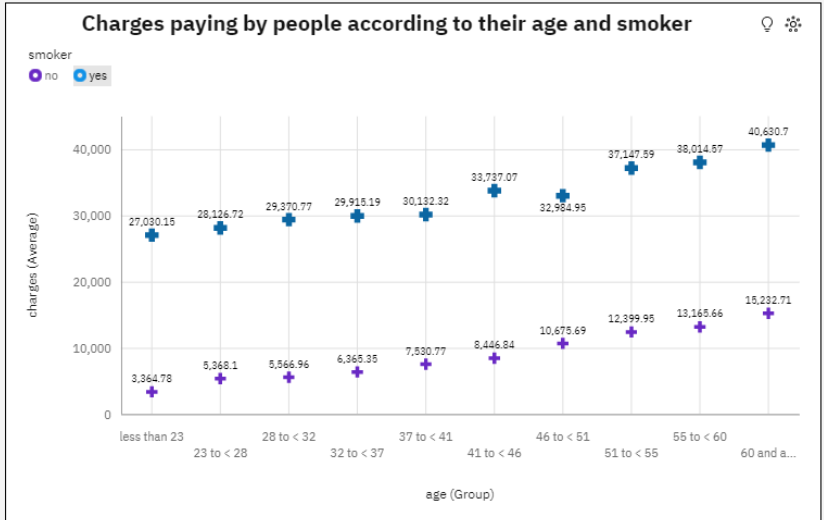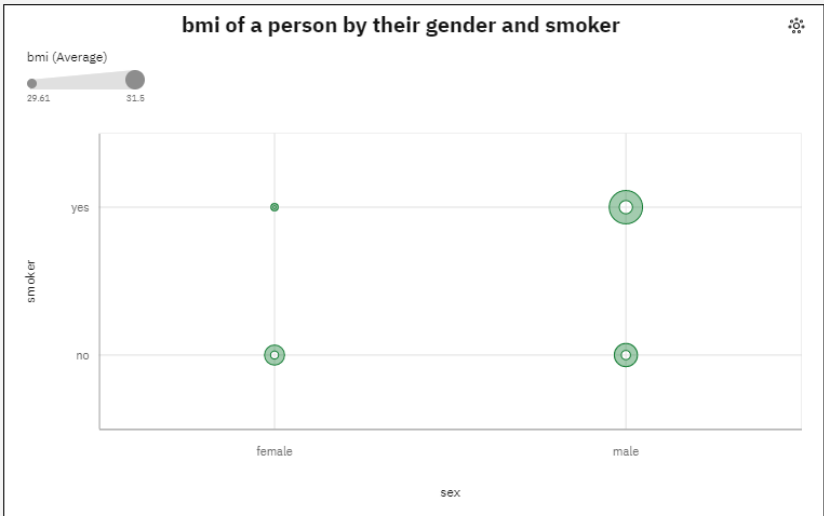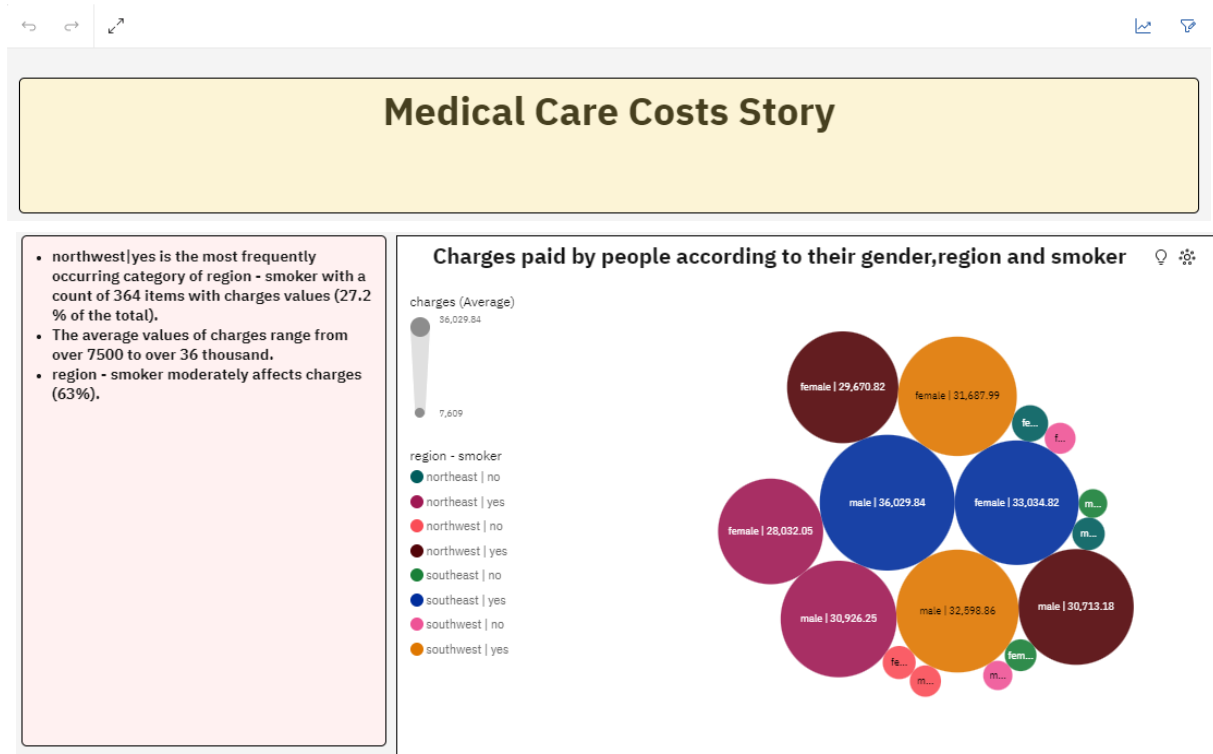
💡 ⚙️

- charges is unusually high when the combination of age (Group) and smoker is 60 and above and yes.
- The average values of charges range from almost 3500 to nearly 41 thousand.
- smoker moderately affects charges (62%).

smoker
○ no ◉ yes

charges (Average) vs age (Group)

- 27,030.15 (less than 23)
- 28,126.72 (23 to < 28)
- 29,370.77 (28 to < 32)
- 29,915.19 (32 to < 37)
- 30,132.32 (37 to < 41)
- 33,737.07 (41 to < 46)
- 32,984.95 (46 to < 51)
- 37,147.59 (51 to < 55)
- 38,014.57 (55 to < 60)
- 40,630.7 (60 and a...)

- 3,364.78
- 5,368.1
- 5,566.96
- 6,365.35
- 7,530.77
- 8,446.84
- 10,675.69
- 12,399.95
- 13,165.66
- 15,232.71

Medical Care Costs Story

bmi of a person by their gender and smoker

⚙️

- The total number of results for smoker, across all sexes, is almost 1500.
- The total number of results for bmi, across all sexes, is almost 1500.

bmi (Average)
29.61 ——— 31.6

smoker (yes / no) vs sex (female / male)

Medical Care Costs Story

- northwest|yes is the most frequently occurring category of region - smoker with a count of 364 items with charges values (27.2 % of the total).
- The average values of charges range from over 7500 to over 36 thousand.
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Charges paid by people according to their gender,region and smoker

charges (Average)
36,029.84

7,609

region - smoker
- northeast | no
- northeast | yes
- northwest | no
- northwest | yes
- southeast | no
- southeast | yes
- southwest | no
- southwest | yes

Smoking is not only injuries to health but also for wealth

Medical Care Costs Analysis

Report

Medical Care Costs Report

Avg Age of persons based on region and gender

The number of females in northwest is higher than every other

Medical Care Costs Analysis

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Contact

Magnam dolores commodi suscipit. Necessitatibus eius consequatur ex aliquid fuga eum quidem. Sit sint consectetur velit. Quisquam quos quisquam cupiditate. Et nemo qui impedit suscipit alias ea. Quia fugiat sit in iste officiis commodi quidem hic quas.

Our Address

A108 Adam Street, New York, NY 535022

Email Us

info@example.com
contact@example.com

Call Us

+1 5589 55488 55
+1 6678 254445 41

Your Name   Your Email

Subject

Message

Send Message

5.   ADVANTAGES & DISADVANTAGES

ADVANTAGES

- Increased Access to Health Services.
- Improved Quality of Care.
- Focus on Prevention.
- Early Management of Health Conditions.
- Characteristics of Primary Care Delivery.
- Reduced Need for Specialist Care.

DISTAVANTAGES

- Inadequate Outlay for Health.
- Social Inequality.
- Shortage of Medical Personnel.
- Medical Research.
- Expensive Health Service.

6.   APPLICATIONS

- To measure the economic burden of illness to society.
- Improve patient engagement.
- Enhancing medical environments with lot implementation.
- Enhance data management.
- Improve prescription alerts.
- Immediate access to care-anytime,anywhere.
- minimize risks of misdiagnosis.

7.   CONCLUSION

Health is a basic human right, and improvements in healthcare should be a goal of every country. Successfully improving the efficiency and quality with which care is delivered is an enormous challenge, one that will require substantial investment in research, new information systems, performance incentives, and education, with the hope of transforming how health care is delivered by thousands and thousands of providers dispersed across our largely disaggregated health care system. Health care costs plays an important role in every human life.

8.   FUTURE SCOPE

- Technological developments.
- Shifting demographics.
- Changing healthcare regulations.
- Advances in digital healthcare technologies, such as artificial intelligence, VR/AR, 3D-printing, robotics or nanotechnology.
- Improve processes, facilitate data-driven decisions, and enhance interactions with healthcare professionals.