Cancer Research Study

Number of Words: 644

Visualization URL:

https://upat0003.github.io/3179_Sample/Cancer_Research.html

Domain description:

This visualization is about the cancer research in various categories for certain countries throughout the world. The observation of types of cancer infection and prevalence will be considered for the period of recent years throughout the globe. The number of causes and treatments put into place will be mentioned for specific countries and cure will be analyzed into storyline. Hence, the study will be based on cancer diseases.

The target audience for tis study will be audience to explore the cancer topic throughout the world and to see what is happening for certain classes. It can also be used by government to keep track of their radiology techniques for cancer treatment.

WHAT:

Geographic dataset is obtained for this site: https://canceratlas.cancer.org/data/list/

It is the social site with open data of cancer infections to be downloaded which is created in partnership by American Cancer Society, Language Dept, WHO, UICC and ACS.

SOURCES:

Plummer M, de Martel C, Vignat J, Ferlay J, Bray F, Franceschi S. Global burden of cancers attributable to infections in 2012: a synthetic analysis. Lancet Glob Health. 2016 Sep;4(9): e609-16. License CC BY-NCND 4.0

The attributes used for each of these sheets are as below:

Quantitative attributes:

Attributes in percentage (normalized): Prevalence to cancer infection rate, Cancer death to alcohol, Lung cancer rate in females, Smoking rate in male and female, Melanoma cancer rate, Radiotherapy treatment rate which are all numerical and in percentage

Categorical Nominal: Country name/code with latitude and longitude

WHY AND HOW:

1. Three choropleth maps [2.1]

Why:

Maps are used as the key idioms of this study.

First choropleth is useful in showing the cancer infection rate for the whole world and the main reason for showing on the map is to be able to locate them by using tooltips and data for each country in the world is accessible through this map as classification from normalized numbers make it easy to access them.

Second map is about comparing the lung cancer rates in female for each country. The main intention to use map here is to distinguish between African countries rate and developed countries rate of cancer.

Third map is about radiotherapy distribution for countries throughout the world. The main intention is to find out what countries have grown in proceeding with such technologies for cancer treatment. It is to conclude on a note that the modern technique is not vastly improved in all countries yet and people still die of disease considering the treatment is the main reason behind that.

How:

Marks: Geometric countries/region

Channels: Color value to show scale of infection rate, female lung cancer rate, radiotherapy techniques in number of classes

2. Comparing horizontal chart [2.2]

Why:

Horizontal chart of bar is used to compare each country with respect to number of deaths (normalized) in the entire year.

How:

Marks: lines(bars)

Channels: length to express quant value of percentage of death rates, spatial regions, color hue for country, order by value, scalability

3. Bar chart [2.3]

Why:

bar chart here for showing smoking rate for both gender and it helps comparing between countries and gender male/female to find which country has greater/smaller average rate compared to other ones with respect to male or female gender.

How:

Marks: lines(bars)

Channels: length to express quant value of percentage of smoking rates, spatial regions, color hue for country, order by value, scalability

4. Pie-chart [2.4]

Why: Pie chart shows the contribution of each country of all five chosen countries to see how melanoma skin cancer is present relatively in each of them.

How:

Marks: Pie for each country, line to separate each country

Channels: Color hue for each country, pie area, scalability

The interactive part about above graph is that it can be selected and highlighted from legend of country to appear highlighted or selected for each bar chart, pie chart and maps.

Bibliography:

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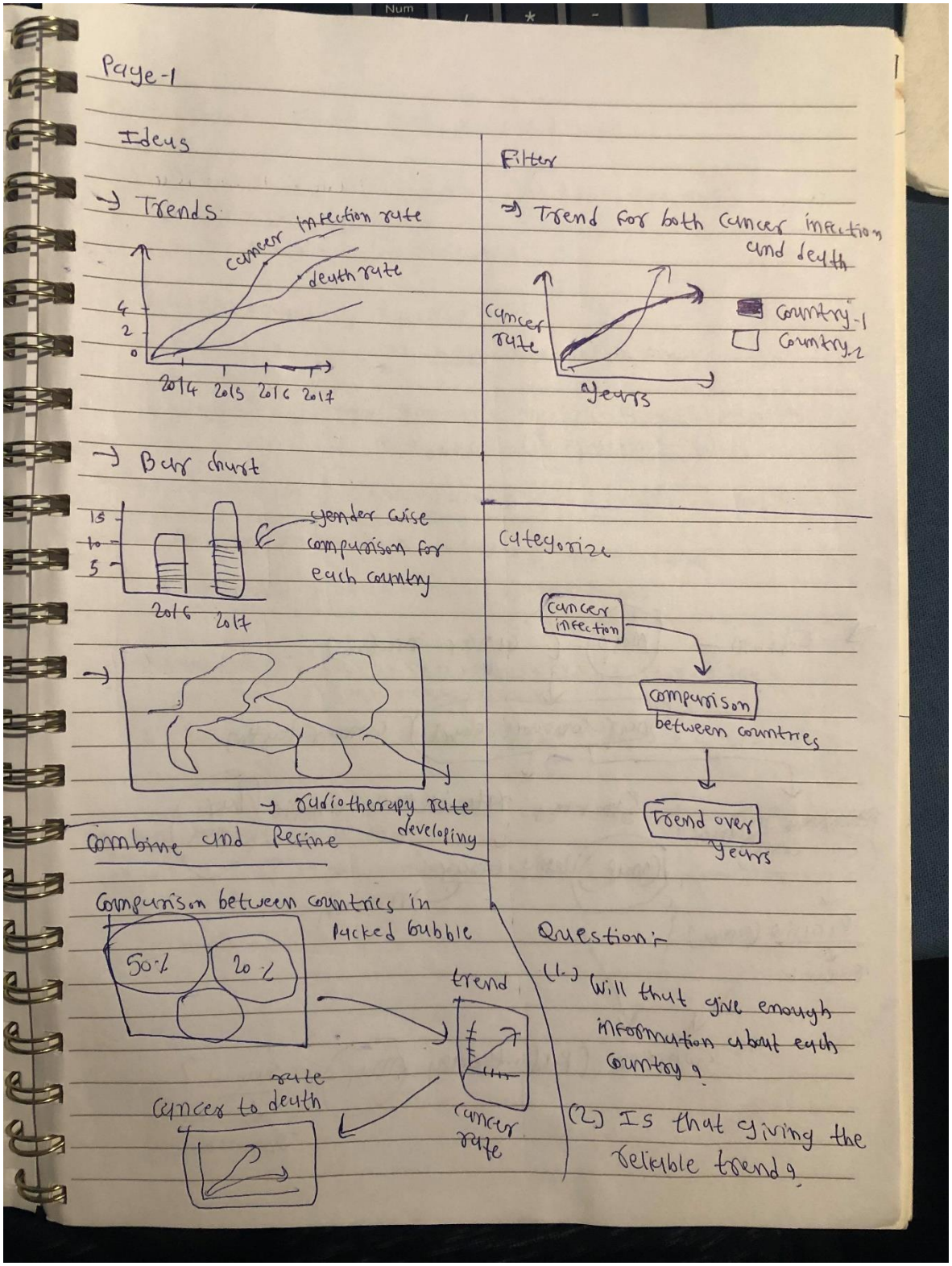
21. Sudhakar A, Boosani CS (2008) Inhibition of tumor angiogenesis by tumstatin: insights into signaling mechanisms and implications in cancer regression. Pharm Res 25: 2731-2739. » CrossRef » PubMed » Google Scholar

Appendix:

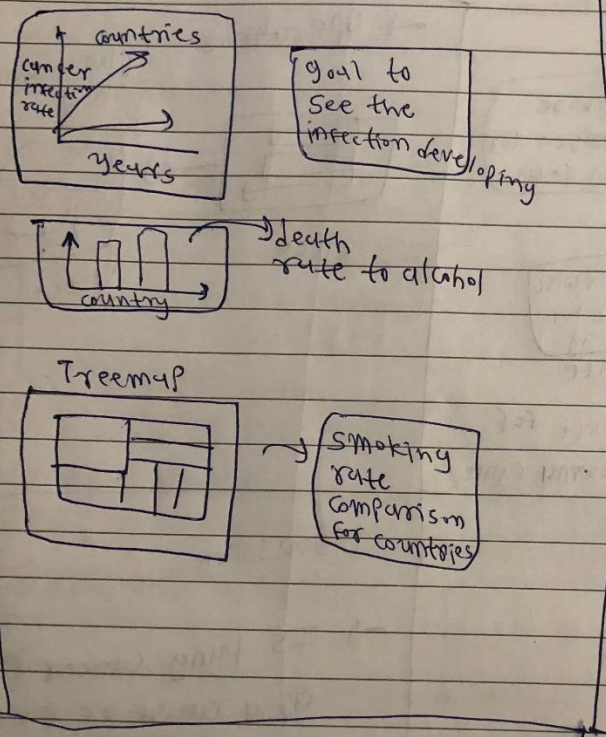
1.0 Five Design Sheet:



Page-2

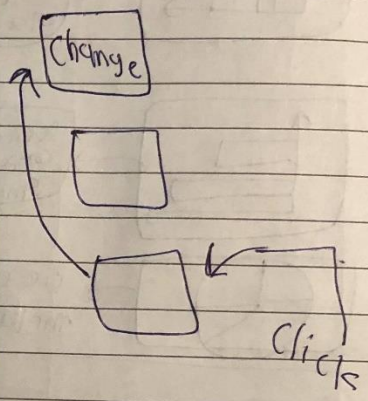
Layout

Web page

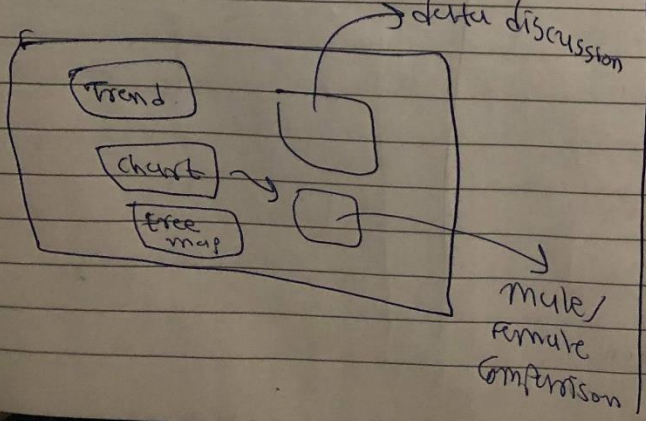


Title : Sample design
Author : Utkarsh patel
Date : 01/11/20
Sheet : 2
Task : cancer infection and its cause

Operation :-



→ Focus :-



→ Discussion :-

→ Is D3 better for operation

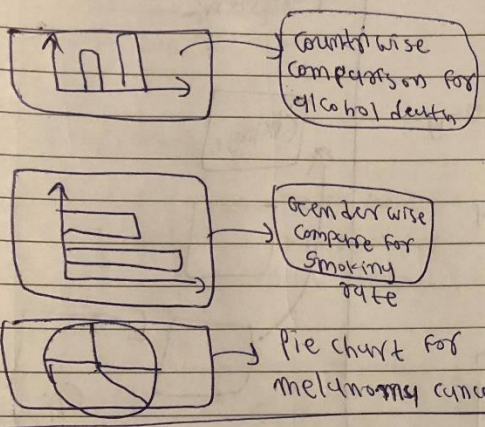
→ Treemap will provide enough information

Page-3

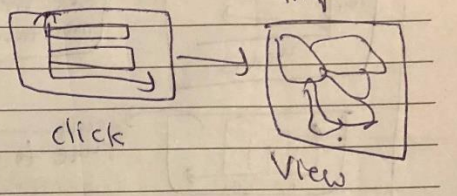
Web-design (layout)

Title: Full layout
Author: Utkarsh patel
Date: 01/11/20
Sheet: 3
Task: Alcohol/Smoking with cancer

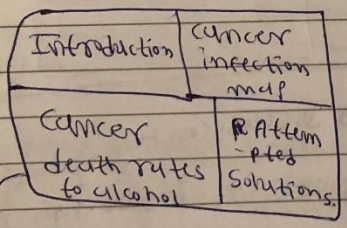
→ Cancer and Smoking / Alcohol



→ Operations



Focus



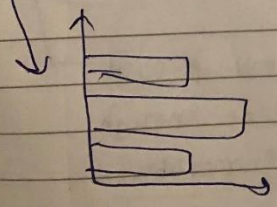


chart comparison.

Discussion

→ Is lung cancer important as a cause of smoking?

Page-4

Web-design

→ Cancer infection study causing another cancer disease

Title: Full graphs view
Author: Utkarsh patel
Date: 01/11/20
Sheet: 4
Task: Cancer research development

Introduction to cancer disease

Deaths involved due to alcohol with cancer

Smoking rate as another cause

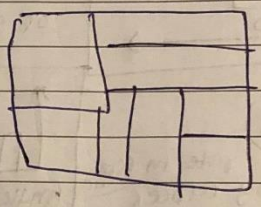
Causing melynoma cancer

Cancer treatments

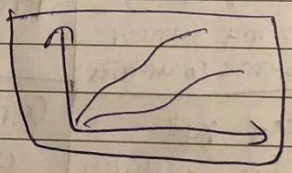
Survival of cancer rate

Operation

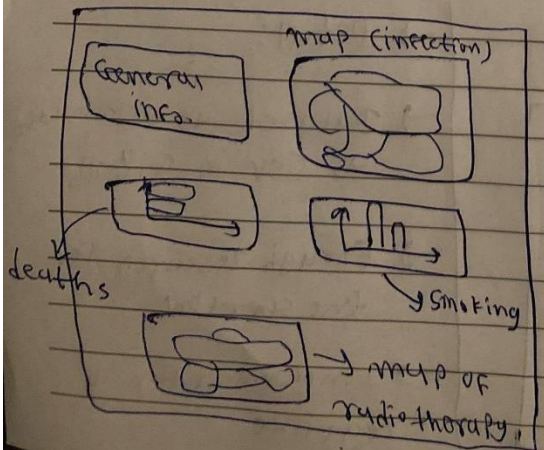
Tree map comparison



Trend for countries for treatement (Radio-therapy)



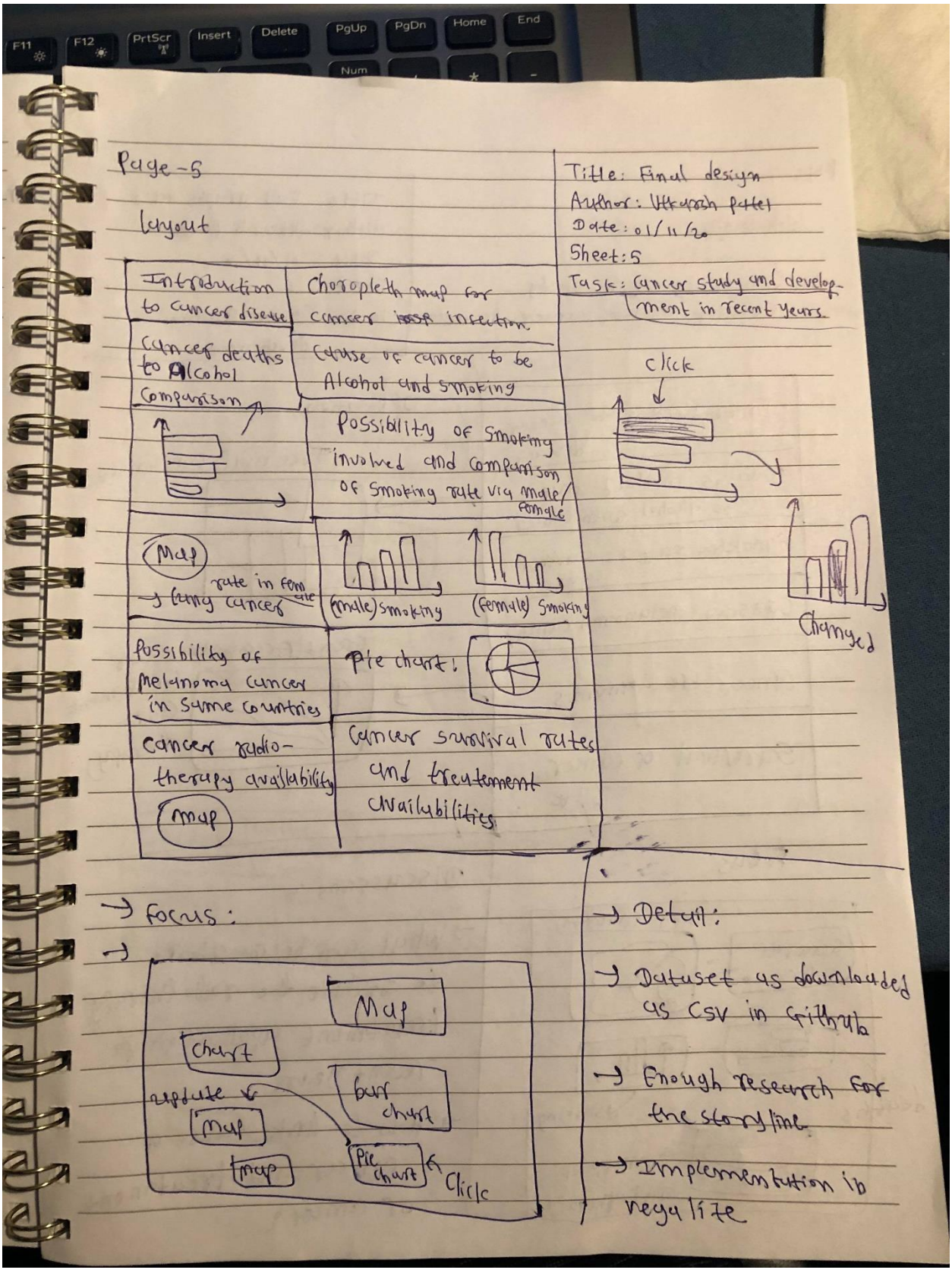
Focus



Discussions :-

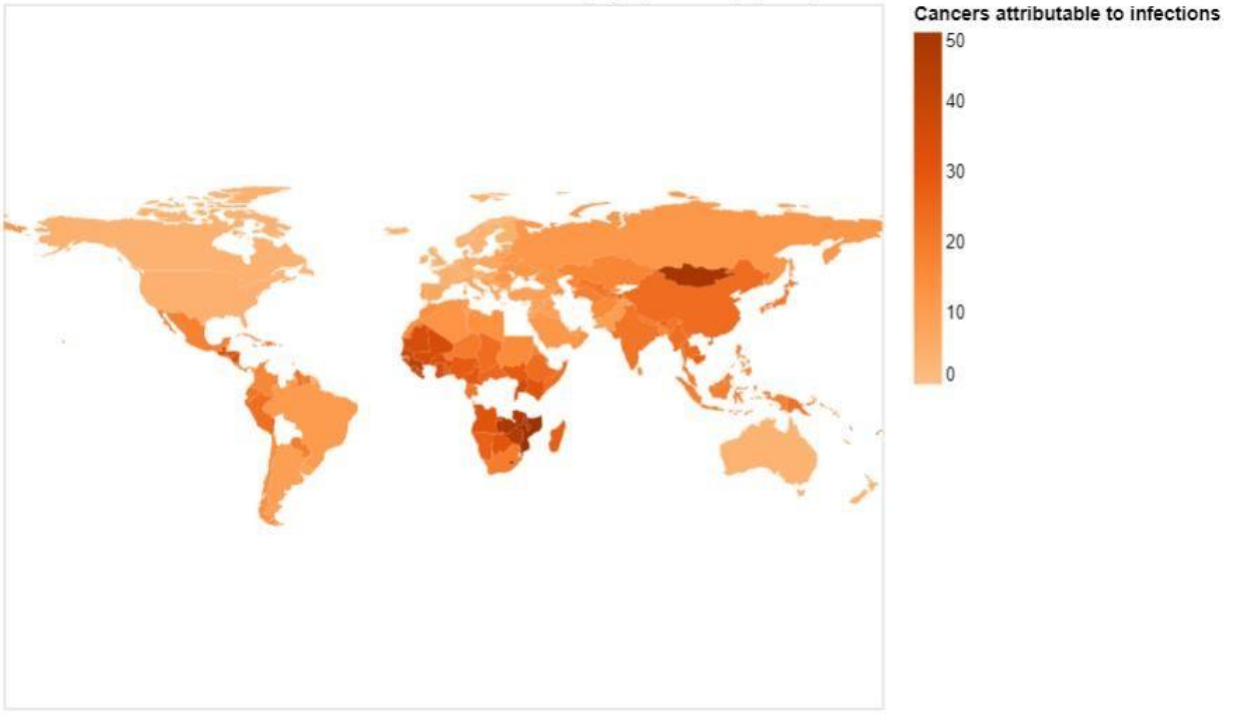
→ What can be considered to conclude the radio therapy treatment application in recent years.

→ How to link cause of cancer and treatment of cancer?

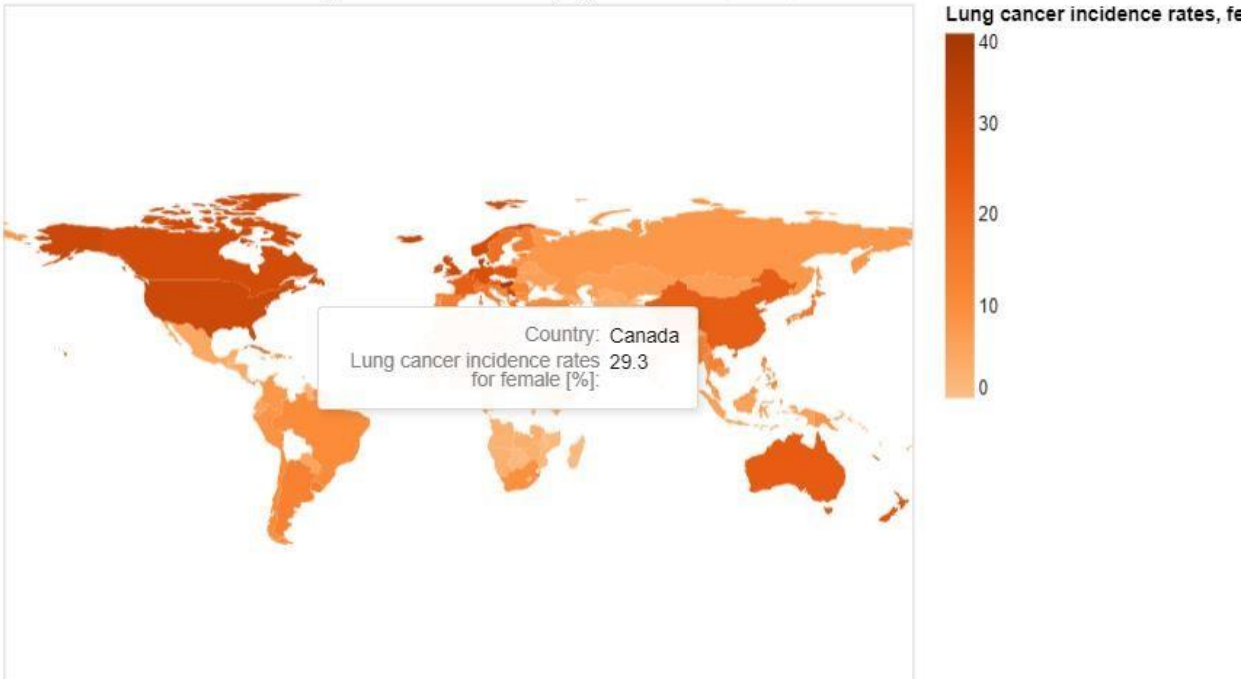

Page-5
Layout
Introduction to cancer disease
Choropleth map for cancer infection.
Cancer deaths to Alcohol Comparison
Cause of cancer to be Alcohol and smoking
Possibility of smoking involved and comparison of smoking rate via male/ female
Map
rate in female → lung cancer
(male) smoking
(female) smoking
Possibility of melanoma cancer in some countries
pie chart!
Cancer radio-therapy availability
map
Cancer survival rates and treatement availabilities
Title: Final design
Author: Utkarsh Patel
Date: 01/11/20
Sheet: 5
Task: Cancer study and development in recent years.
click
Changed
→ Focus:
Map
chart
bar chart
Map
Pie chart
Click
→ Detail:
→ Dataset as downloaded as csv in Github
→ Enough research for the storyline.
→ Implemention in regulize

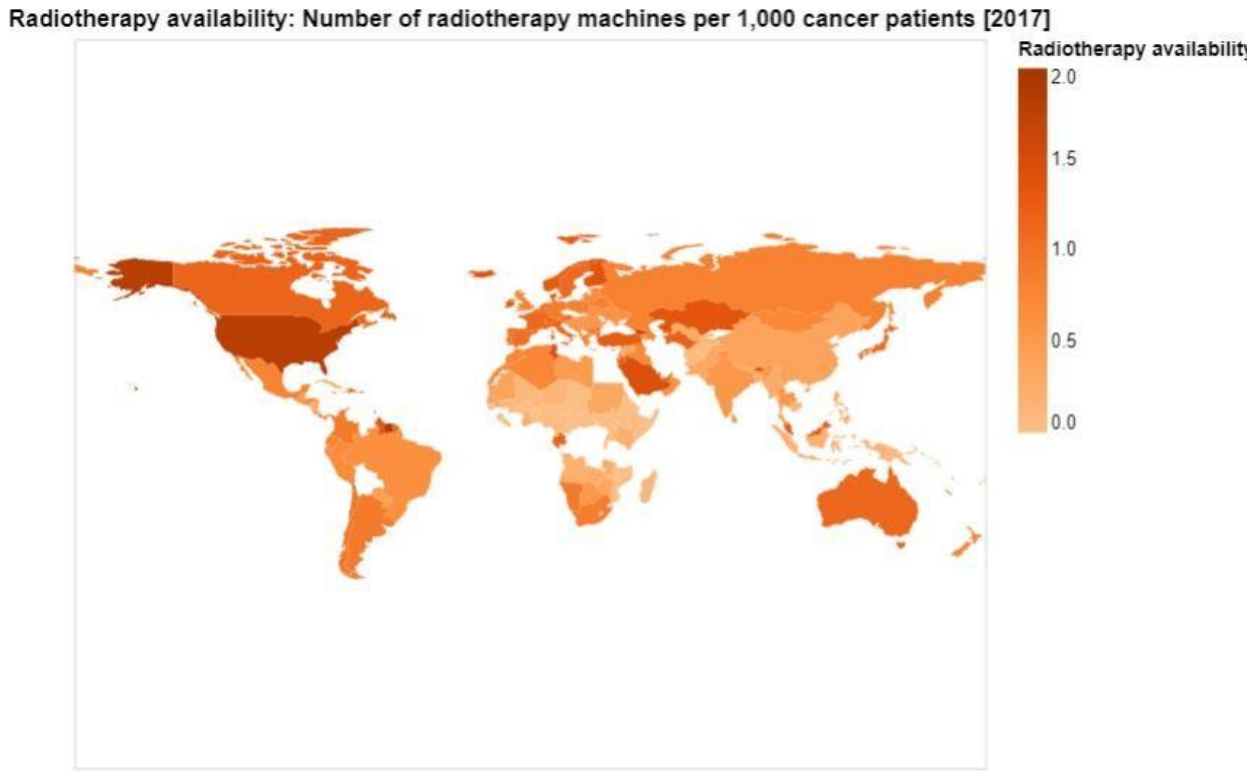
2.1 Maps:

Prevalence of Cancer attributable to infections (%), by country [2017]

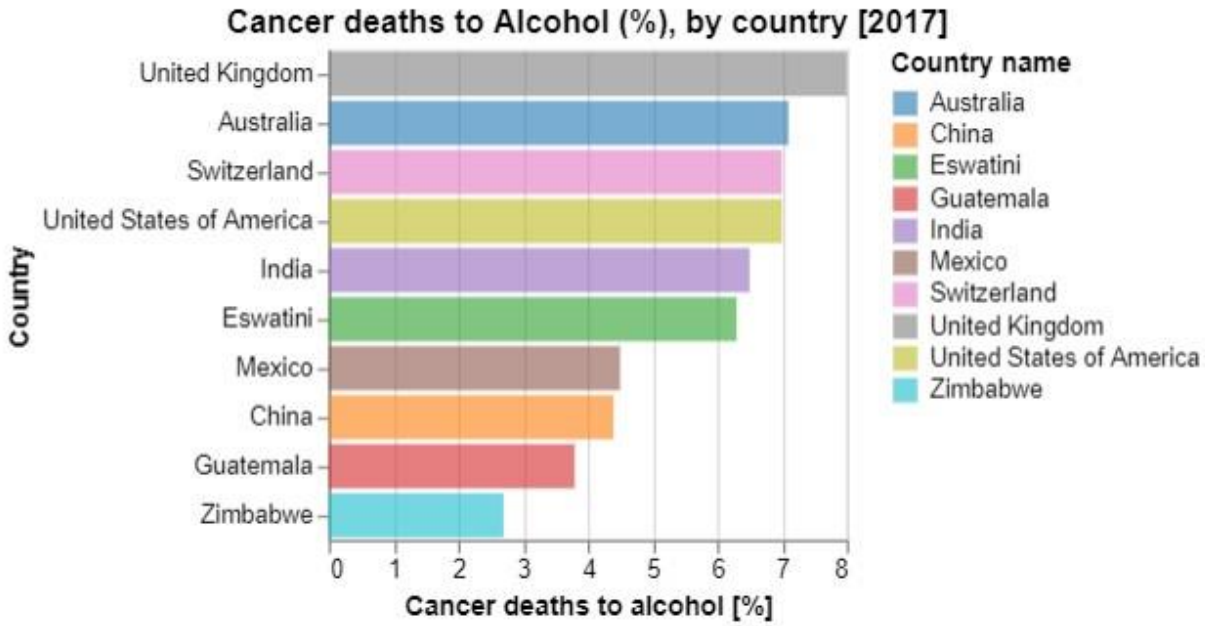


Prevalence of Lung Cancer infections (%), for Female [2017]



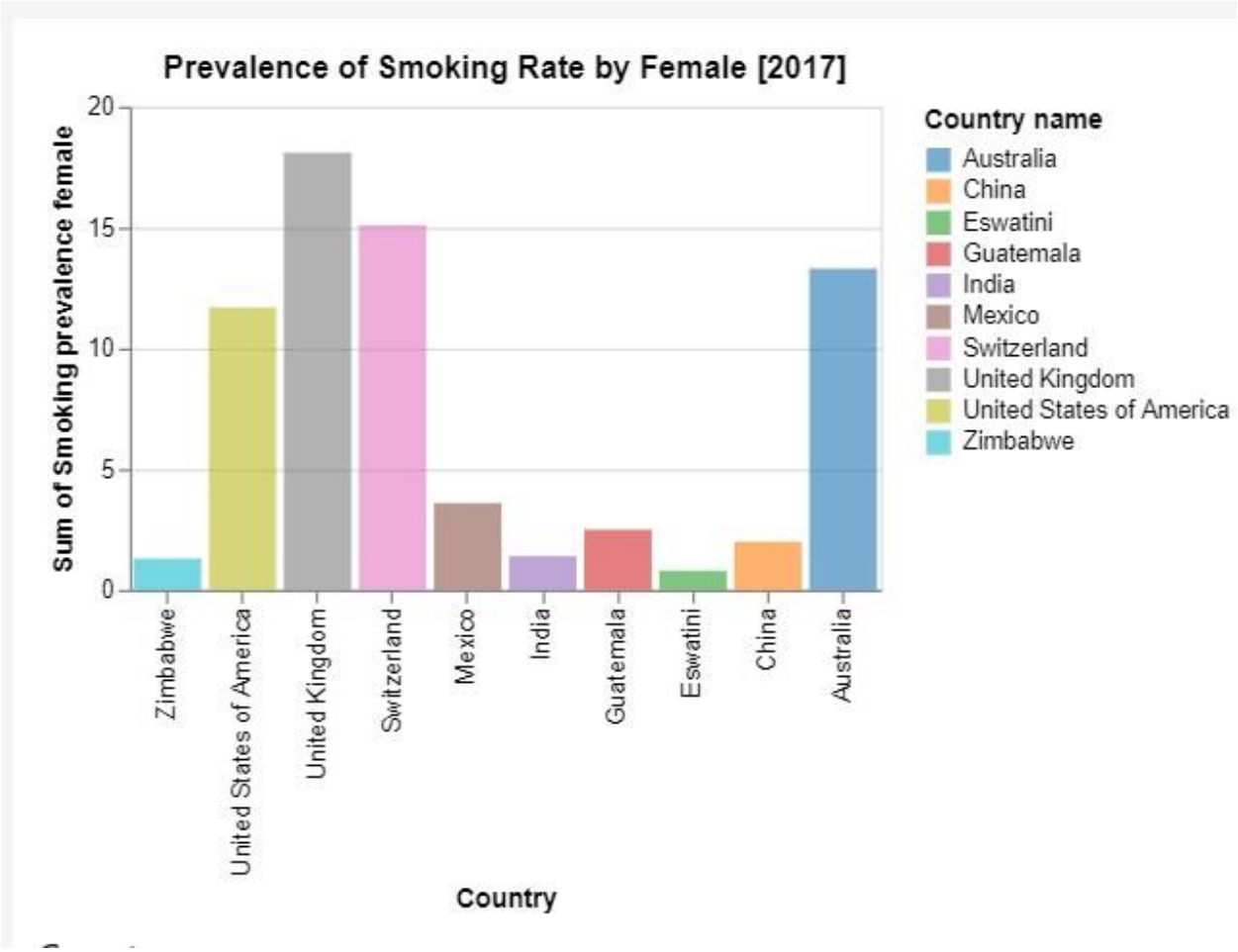


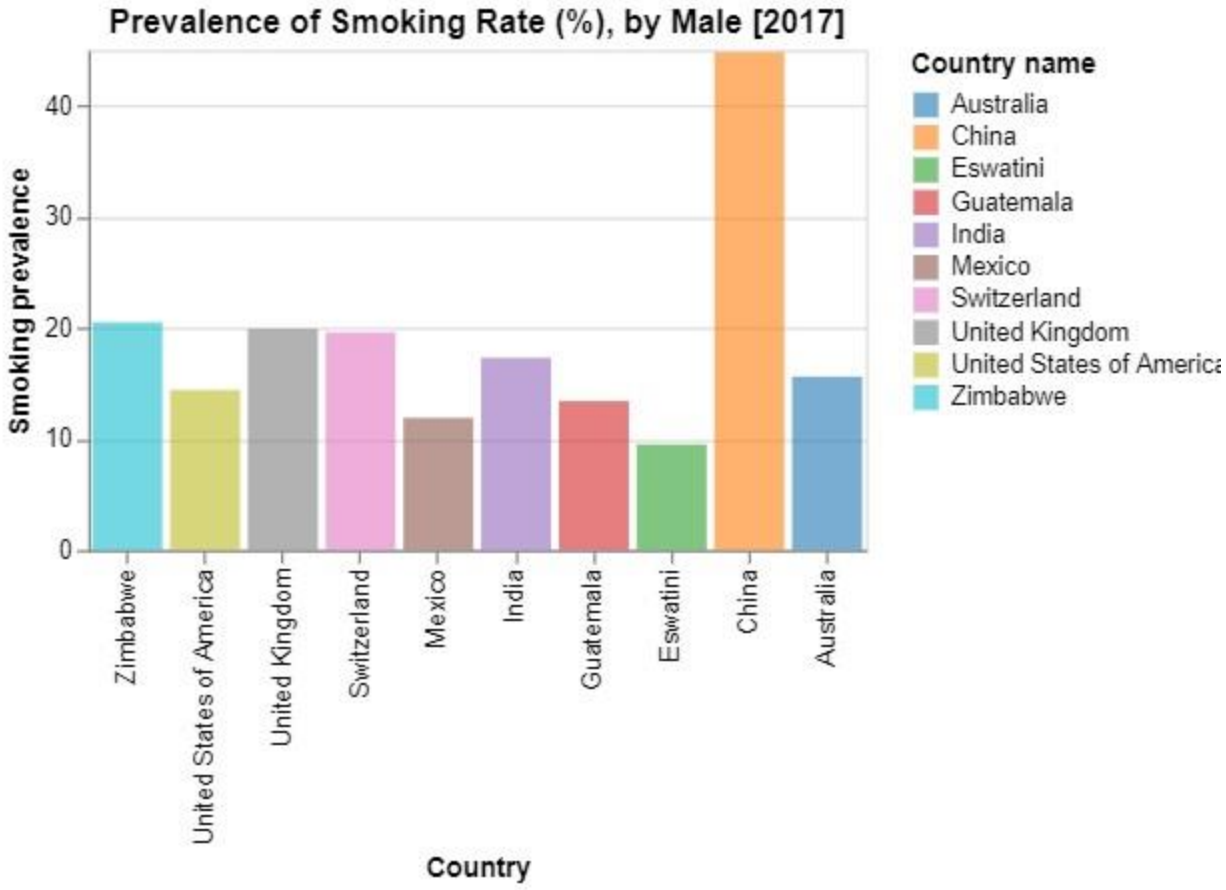
2.2 Horizontal chart:



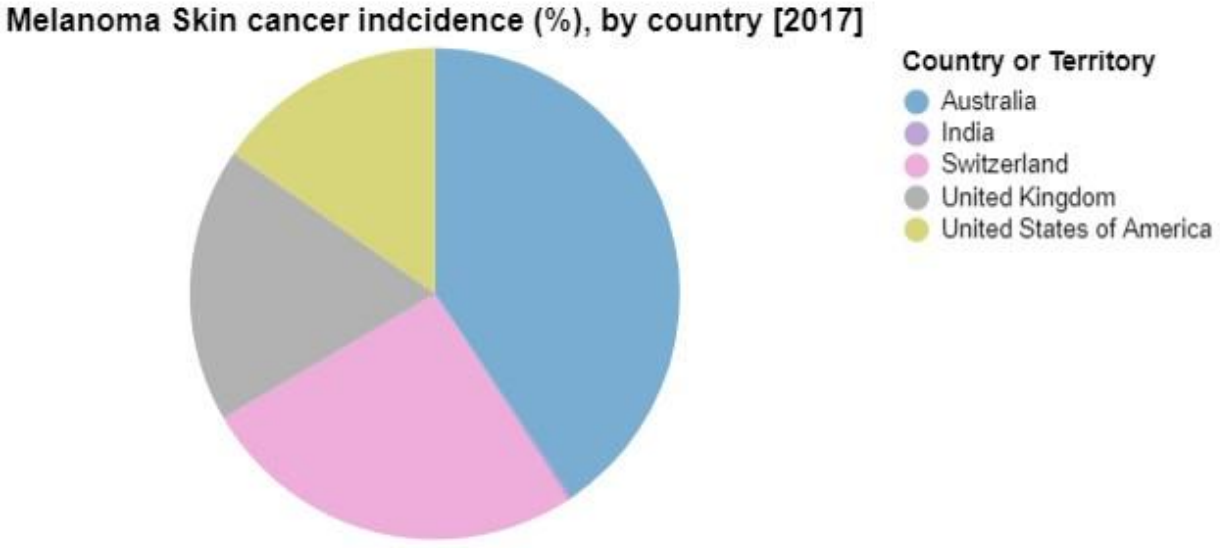
Country Selection: Show All

2.3 Bar chart:


Prevalence of Smoking Rate by Female [2017]
Sum of Smoking prevalence female
20
15
10
5
0
Zimbabwe
United States of America
United Kingdom
Switzerland
Mexico
India
Guatemala
Eswatini
China
Australia
Country
Country name
Australia
China
Eswatini
Guatemala
India
Mexico
Switzerland
United Kingdom
United States of America
Zimbabwe


Prevalence of Smoking Rate (%), by Male [2017]
Smoking prevalence
40
30
20
10
0
Zimbabwe
United States of America
United Kingdom
Switzerland
Mexico
India
Guatemala
Eswatini
China
Australia
Country
Country name
Australia
China
Eswatini
Guatemala
India
Mexico
Switzerland
United Kingdom
United States of America
Zimbabwe

2.4 Pie chart:


Melanoma Skin cancer indcidence (%), by country [2017]
Country or Territory
Australia
India
Switzerland
United Kingdom
United States of America