# MARKET ANALYSIS
# HOME CHECKUP SERVICE

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# Abstract

In given report we are mainly focused on innovation in health technology and development processes in healthcare industries. We analyze the medical market in India with respect to Geographic, Demographic, Psychographic, Behavioral pattern and finally we come up with a feasible strategy to enter in the biotech market.

# Problem Statement

Our Team is working under a Biotech Startup which is going to launch its Home Checkup Service with Online Booking offering the following initial services.
1. Full Body Checkup with a Bio-Tech Device based on Blood Samples.
2. Online Health Techs offering
    i. Diabetes checkup device.
    ii. Blood Pressure checkup device
    iii. Vitamin's deficiency checkup device.

So, we need to analyses the Medical Market in India with respect to the given problem statement using Segmentation analysis and come up with a feasible strategy to enter the market targeting the segments most likely to use their product in terms of Geographic, Demographic, Psychographic, Behavioral pattern.

# Data Collection

1. Some of the different data collecting sources:
    - Collecting new data from internet and other sources
    - Using the previously collected and stored data
    - Reusing someone else's data

2. The data collection methods depend on the following:
    - The research problem under study
    - The research Design
    - The information gathered about the variable

3. The data is primarily collected from the following websites, namely,
    - Kaggle
    - http://data.gov.in/
    - https://data.worlbank.org

# Home-Care Monitoring and Diagnostics Market: Overview

The home-care monitoring and diagnostics market is predicted to experience a significant growth in the upcoming years. This market growth is on the back of a rising number of chronic diseases and unhealthy lifestyles in urban areas.

A wide variety of healthcare products, for example, nebulizers, cholesterol, blood glucose indicators, and heart rate monitors are included in the home-care monitoring and diagnostics devices. This equipment ensures efficient monitoring and diagnosis of individual health.

These healthcare devices are marketed as less time-consuming, cost-effective, and confidential. Further, these devices from the home-care monitoring and diagnostics market facilitate easy access to consumers while staying at home. Portability and user-friendly are some of the other features of these healthcare devices. Owing to these characteristics, the home-care monitoring and diagnostics market is anticipated to boost growth opportunities in the upcoming years.

# Home-Care Monitoring and Diagnostics Market: Key Trends

The people from urban cities are taking more interest in individual health. This factor is likely to create growth opportunities in the home-care monitoring and diagnostics market. The market of healthcare devices is highly competitive in nature. But the constantly growing high-end technology in these healthcare products is estimated to fuel expansion opportunities in the market.

The growing use of social media platforms has increased the health consciousness among people across the world. The modern lifestyle has also stimulated companies to develop technologically advanced equipment. These devices work efficiently for the identification of different health problems. Further, there is also an increase in healthcare expenditure. Owing to these factors, the home-care monitoring and diagnostics market is expected to experience significant expansion opportunities.

The sudden outbreak of the COVID-19 has put a direct impact on the growth prospects in the home-care monitoring and diagnostics market. There has been a noticeable shift towards preventive healthcare instead of the treatment of disorders and diseases. These home-care monitoring and diagnostics devices help to keep a track of individual health. This factor is estimated to lead to an increased demand for home-care monitoring and diagnostics devices in the market.

## Need For Better Quality Post Operative and Primary Care:

According to WHO, chronic and lifestyle diseases are expected to increase healthcare expenditure in India over the next 25 years. According to Mahendran Balachandran, a partner at venture capital fund Accel Partners, which has invested in Portea Medical, a Bangalore-based home health care firm: "The home health care market in India, currently estimated to be a $2 billion to $4 billion-a-year opportunity, is driven by an aging population, the increasing prevalence of chronic diseases and the need for better quality post-operative and primary care."

India has the second largest geriatric population in the world. According to a United Nations Population Fund report, the number of people age 60 and over in India will increase from 100 million in 2011 to 300 million by 2050; this means one in five Indians will be above the age of 60. Of the 300 million over-60s, 200 million are likely to be suffering from chronic ailments. Already, non-communicable diseases including cardiovascular diseases, diabetes, chronic obstructive pulmonary disease and cancer cause around 50% of all deaths in India.

## Home-Care Monitoring and Diagnostics Market: Competitive Insights

Some of the key players in this market are Portea Medical, Apollo Homecare, Nightingales Home Health Services, and India Home Health Care (IHHC), Grand World Elder Care, Healthcare at HOME, Bharath Home Medicare, Care24, Med Find, Swarg Community Care, and Suburban Diagnostics.

## Home-Care Monitoring and Parent Market:

The global home healthcare market acts as the parent market for India home healthcare market. Increasing geriatric population and demand for value-based healthcare services are likely to drive the home healthcare market over the forecast period. The U.S. held the highest market share in North America owing to high patient awareness levels, implementation of a strong regulatory framework, and presence of state-of-the-art infrastructure. Owing to favorable reimbursement policies in North America and Europe, the adoption of homecare is significantly high. Major players have shifted focus to developing economies in Asia Pacific, due to increasing disposable income and technological advancements in the region

# SWOT Analysis:

As we know, India is a developing country. It is growing day by day in terms of economy, employment, and education. Being a developing and second largest populated country in the world, it provides a huge market for the medical device industry. Competitiveness is a significant factor in every industry. The increment in the number of private hospital market by domestic players aiming to attract health tourists is one of the strengths of device sector. Low-cost clinical research provides cost competitiveness. India has successfully positioned itself in top 20 medical device industries in the world. It is growing massively in pharmaceutical and paramedical sectors with the enormous advancements in supporting industries like telecommunications, software development, microelectronics etc.
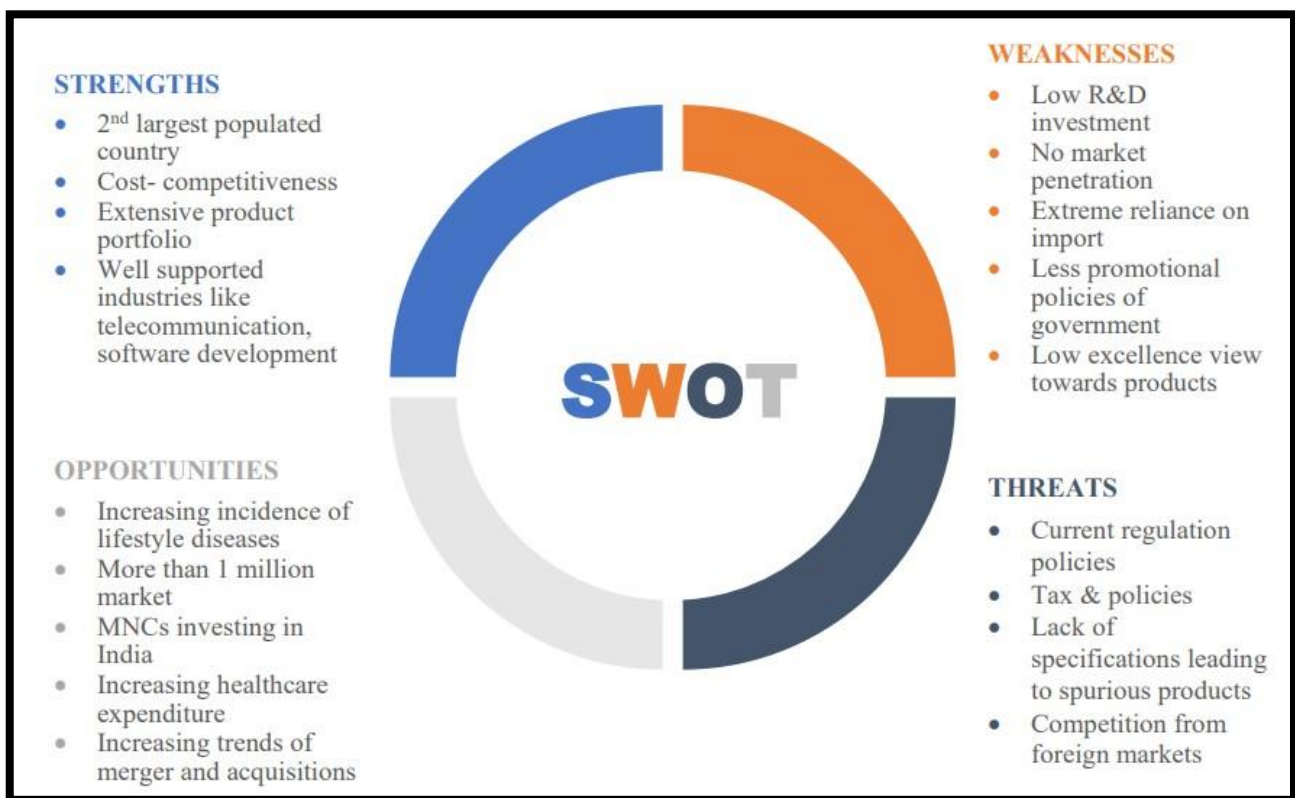


- Strengths: Highly qualified & experienced staff and Extensive product portfolio.

- Weaknesses: Extreme reliance on import as most of the equipment are manufactured in developed companies.

- Opportunities: Increase in incidence of lifestyle disease and increase in health consciousness among the people.

- Threats: Lack of government regulations and presence of significant number of market players.

# Data Preprocessing

**Step 1:** **Loading the data set**

**Importing libraries:**
The absolutely first thing we need to do is to import libraries for data preprocessing. There are lots of libraries available, but the most popular and important python libraries for working on data are NumPy, Matplotlib and Pandas. NumPy is the library used for all mathematical things. Pandas is the best tool available for importing and managing datasets. Matplotlib (Matplotlib.pyplot) is the library to make charts.

**Step 2**. **Loading data into Pandas**

We downloaded your data set and named it as a .csv file, we need to load it into a panda DataFrame to explore it and perform some basic cleaning tasks removing information you don't need that will make data processing

**Step 3.** **Exploring the data set**

Deciding on a target column
With a filtered data set explored, we need to create a matrix of dependent variables and a vector of independent variables. First, you should decide on the appropriate column to use as a target column for modelling based on the question we want to answer.

**Step 4.** **Preparing the Features for Machine Learning**

Finally, it's time to do the preparatory work to feed the features for ML algorithms. To clean the data set, we need to handle missing values and categorical features, because the mathematics underlying most machine learning models assumes that the data is numerical and contains no missing values. Moreover, the scikit-learn library returns an error if we try to train a model like K-Means Clustering and Hierarchical Clustering. Using data that contain missing or non-numeric values. Clustering algorithm is technique that assists customer segmentation which is a process of classifying similar customers into the same segment. Clustering algorithms helps to better understand customers, int terms of both static demographics and dynamic behaviors.

# Segment Extraction

**Finding the optimal cluster using:**

1. K-Means:
2. Hierarchical Clustering (Agglomerative)
3. Plotting Elbow Methods
4. Finding segment distribution for each cluster (Scatter plot, Bar plot, Histogram)
5. Silhouette score

# Home-Care Monitoring and Diagnostics Market: Data visualization

The datasets were downloaded from the above-mentioned websites and data pre-processing steps were done.

## Diseases:

### 1. Heart Attack:

**Step 1:** Finding the Cophenetic Distance correlation coefficient for different Linkages.

Conclusion: For the Agglomerative Clustering, the Cophenetic distance correlation coefficient helps in deciding which linkage method is the most beneficial for the dataset. The higher the coefficient, the better it is. From the above, the best method is Average computed using City Block distance.
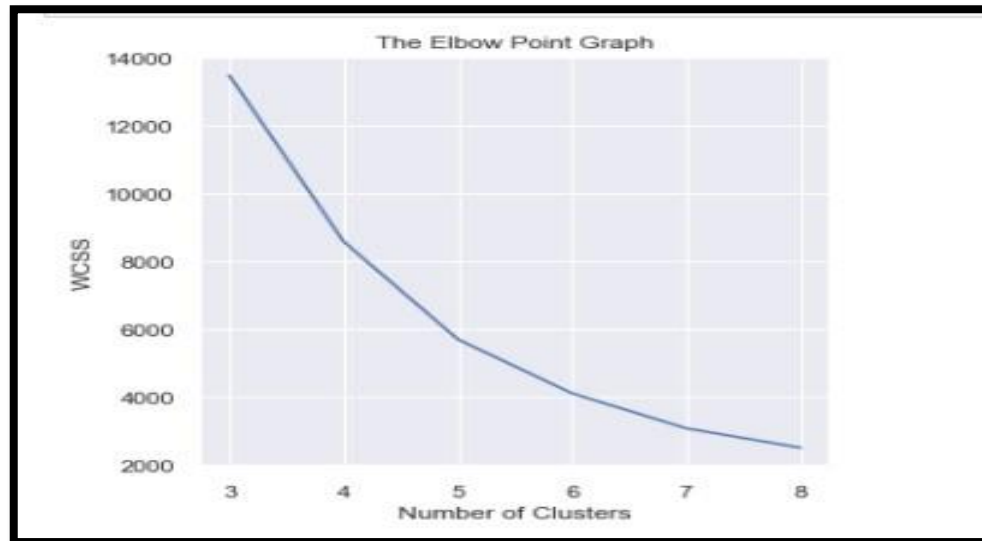
**Step 2:** The Optimal clusters using KMeans, Silhouette Coefficient Score for both K-Means and Agglomerative Clustering.
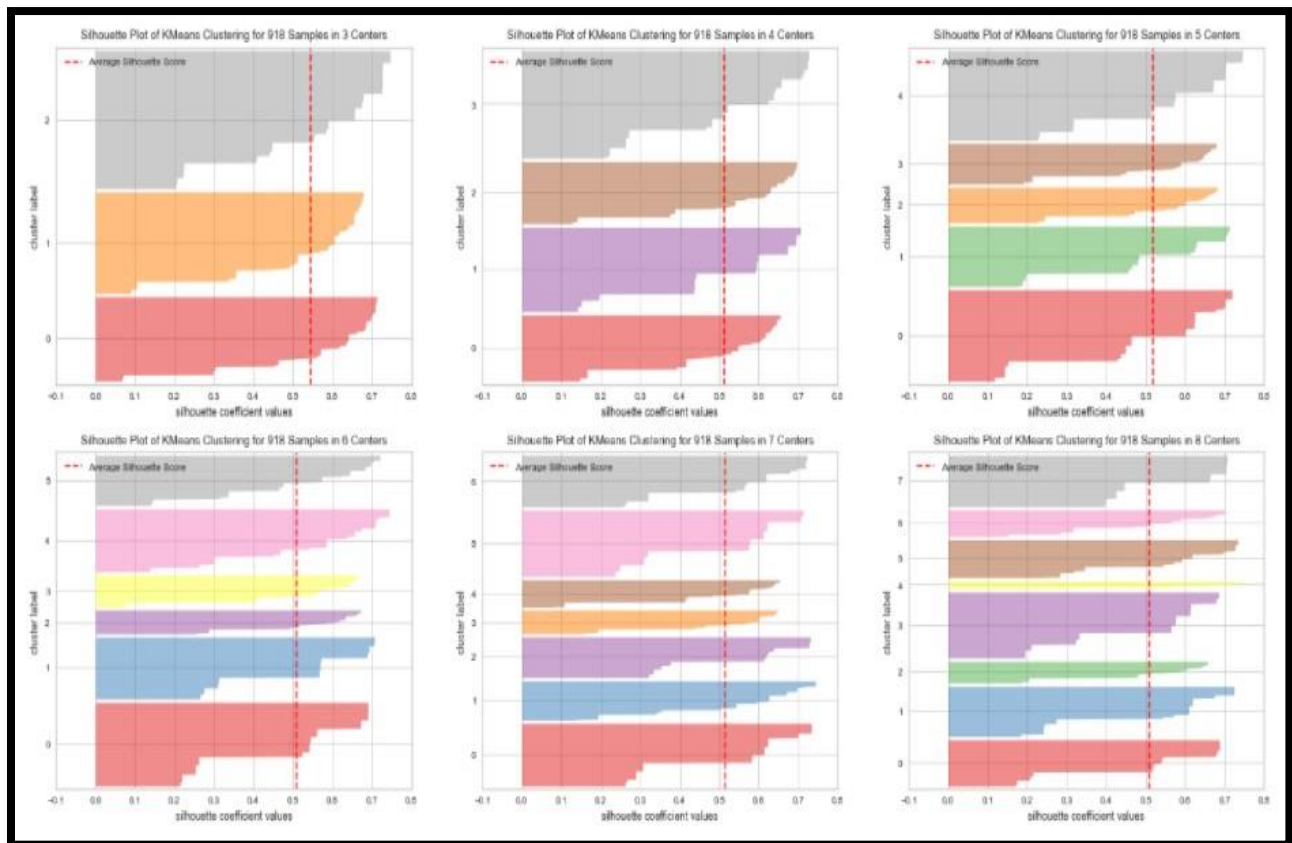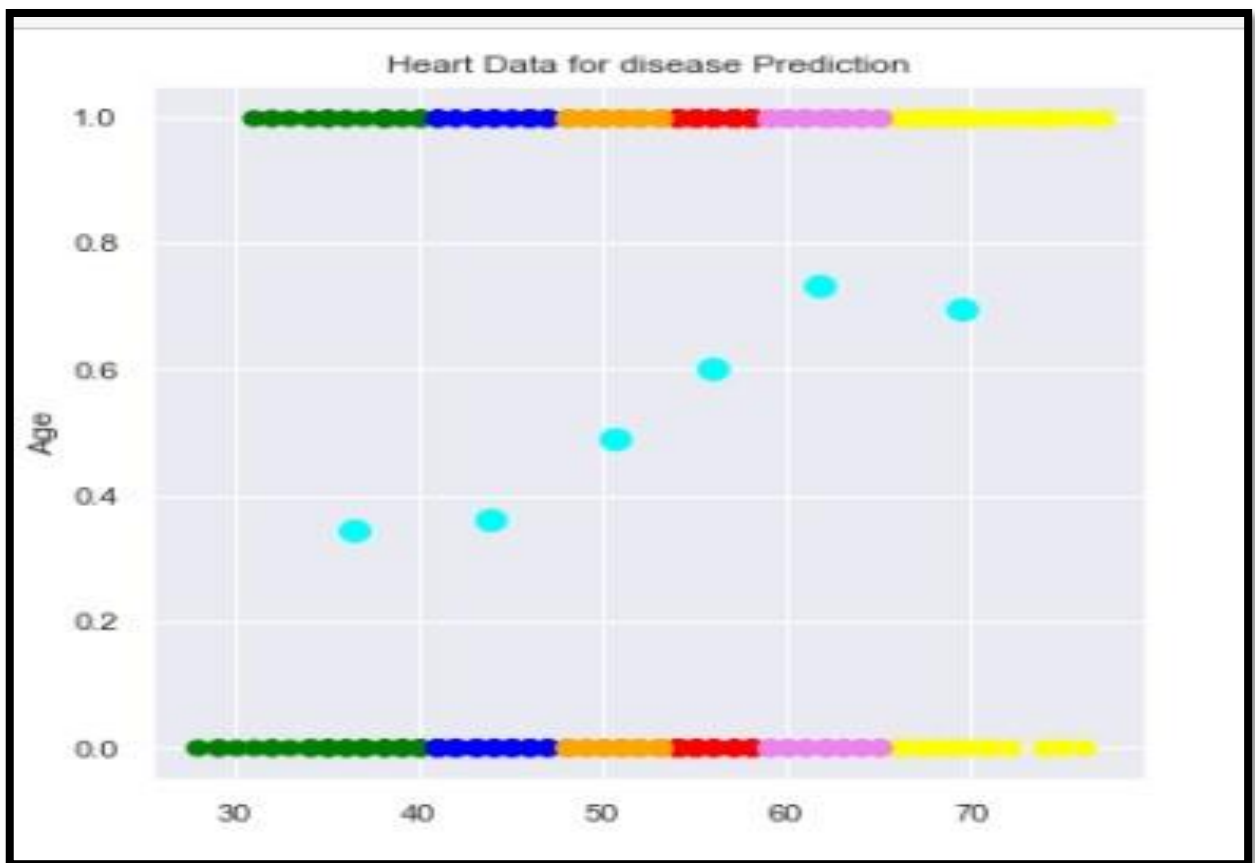
**Step 3: Elbow graph**

Inertia or sum of squared Errors within the Clusters is also known as the cluster Errors. Cluster error will decrease after some clusters.



**Step 4:** Plotting All the Clusters and Their Centroids

**Step 5:** Plotting the Silhouette Score for the clusters found from K-Means and Agglomerative clustering



Silhouette Scores for K-Means Clustering



Silhouette Scores for Agglomerative Clustering
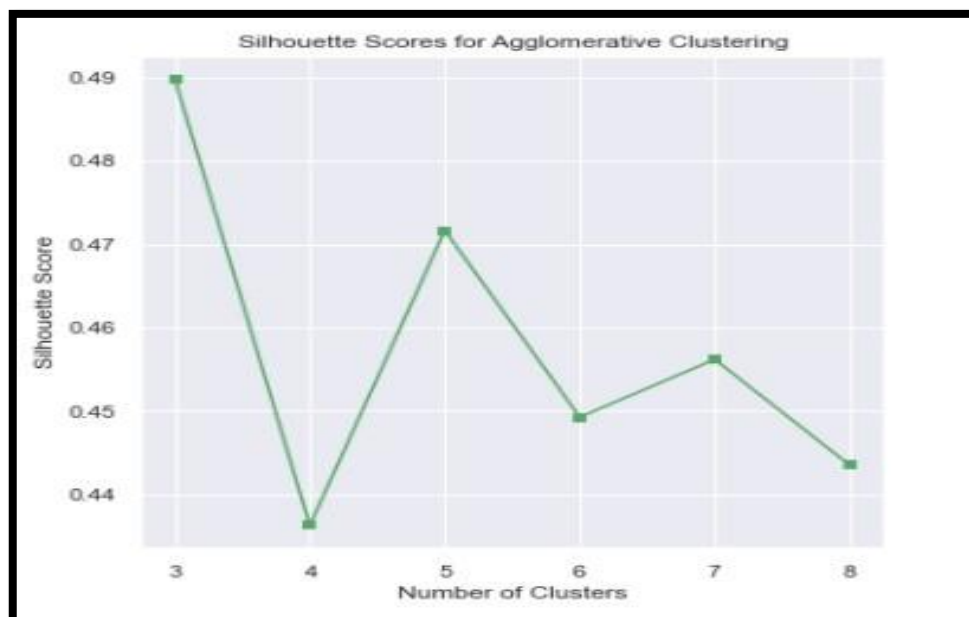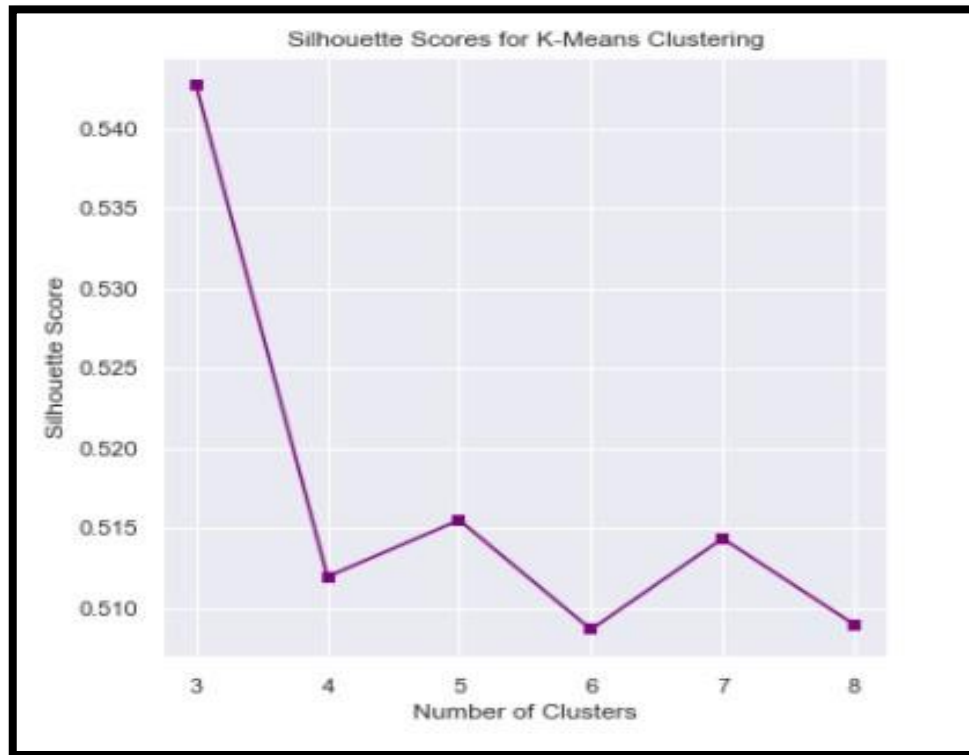
# Profiling and Describing the Potential Segments

## Segment Profiling with Visualization:

Dendrogram

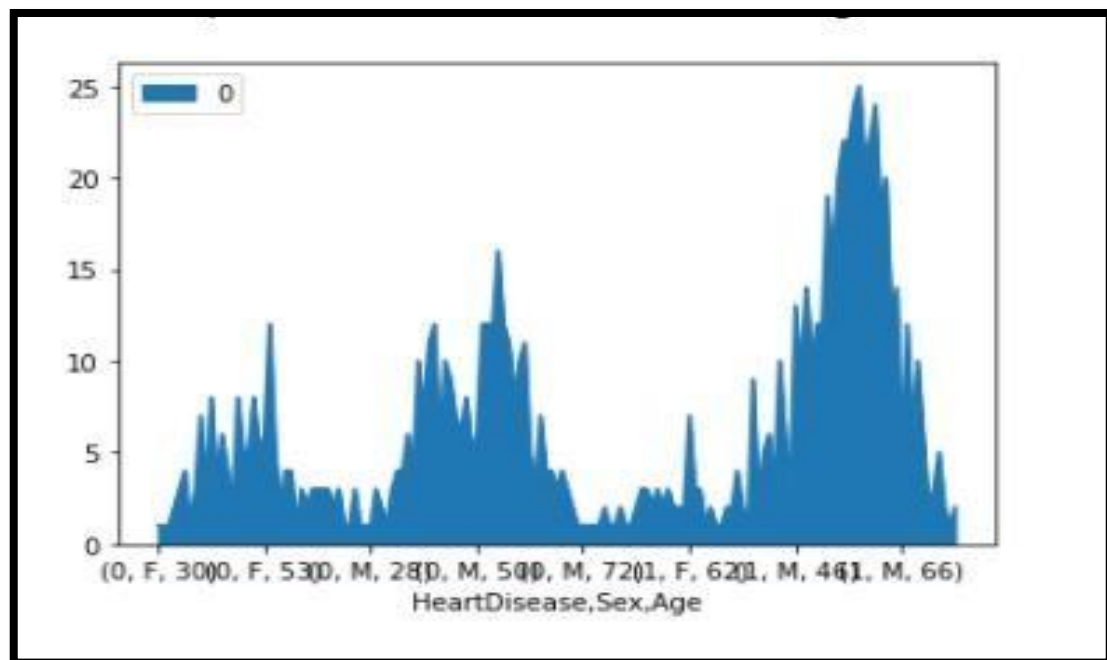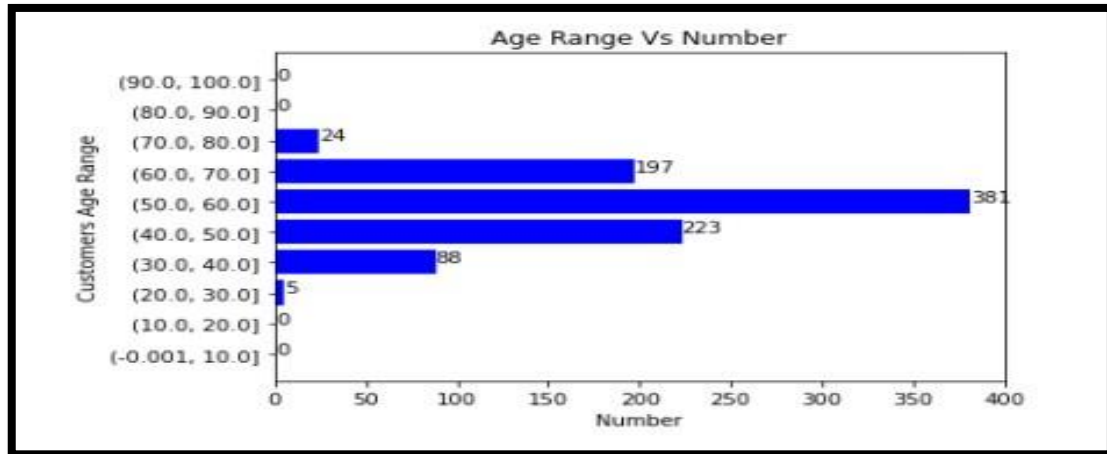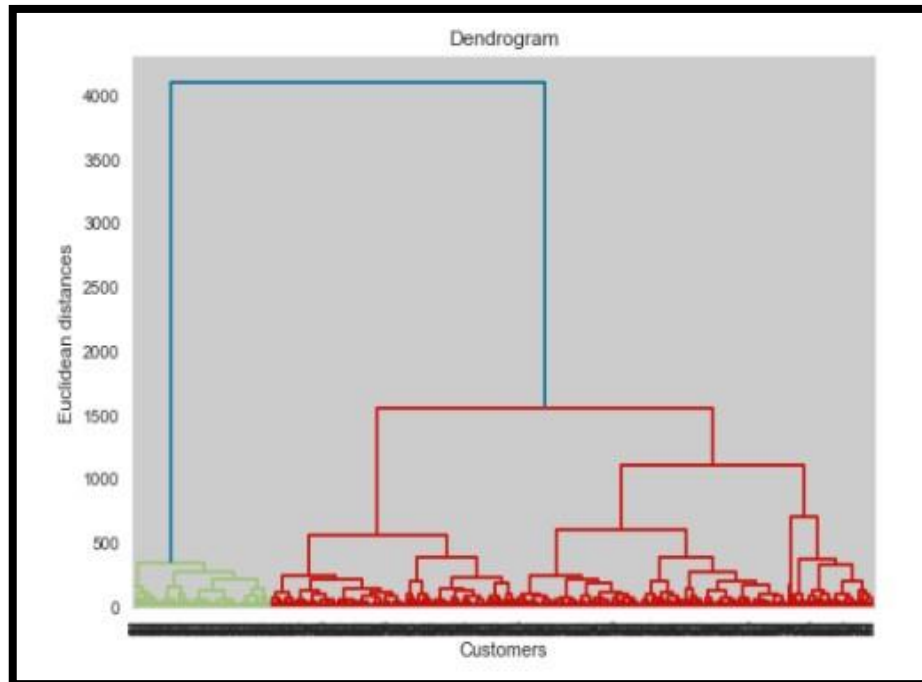## 2. BP_Diabetes Checkup Device

**Demographic:**

- **Sex:** male or female (Nominal)
- **Age:** Age of the patient (Continuous - Although the recorded ages have been truncated to whole numbers, the concept of age is continuous)
- **Education:** no further information provided

**Behavioral:**

Current Smoker: whether or not the patient is a current smoker (Nominal) Cigs Per Day: the number of cigarettes that the person smoked on average in one day. (Can be considered continuous as one can have any number of cigarettes, even half a cigarette.)

**Information on medical history:**

- **BP Meds:** whether or not the patient was on blood pressure medication (Nominal)

- **Prevalent Stroke:** whether or not the patient had previously had a stroke (Nominal)

- **Prevalent Hyp:** whether or not the patient was hypertensive (Nominal)

- **Diabetes:** whether or not the patient had diabetes (Nominal)

**Information on current medical condition:**

- **Tot Chol:** total cholesterol level (Continuous)
- **Sys BP:** systolic blood pressure (Continuous)
- **Dia BP:** diastolic blood pressure (Continuous)
- **BMI:** Body Mass Index (Continuous)
- **Heart Rate:** heart rate (Continuous - In medical research, variables such as heart rate though in fact discrete, yet are considered continuous because of large number of possible values.)
- **Glucose:** glucose level (Continuous)

**Target variable to predict:**

10-year risk of coronary heart disease (CHD) - (binary: "1", means "Yes", "0" means "No") and blood pressure and Diabetes

**Dataset:**

| age | education | currentSmoker | cigsPerDay | BPMeds | prevalentStroke | prevalentHyp | diabetes | totChol | sysBP | diaBP | BMI | heartRate | glucose | TenYearCHD |
|-----|-----------|---------------|------------|--------|-----------------|--------------|----------|---------|-------|-------|-------|-----------|---------|------------|
| 39 | 4.0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 195.0 | 106.0 | 70.0 | 26.97 | 80.0 | 77.0 | 0 |
| 46 | 2.0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 250.0 | 121.0 | 81.0 | 28.73 | 95.0 | 76.0 | 0 |
| 48 | 1.0 | 1 | 20.0 | 0.0 | 0 | 0 | 0 | 245.0 | 127.5 | 80.0 | 25.34 | 75.0 | 70.0 | 0 |
| 61 | 3.0 | 1 | 30.0 | 0.0 | 0 | 1 | 0 | 225.0 | 150.0 | 95.0 | 28.58 | 65.0 | 103.0 | 1 |
| 46 | 3.0 | 1 | 23.0 | 0.0 | 0 | 0 | 0 | 285.0 | 130.0 | 84.0 | 23.10 | 85.0 | 85.0 | 0 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 48 | 2.0 | 1 | 20.0 | NaN | 0 | 0 | 0 | 248.0 | 131.0 | 72.0 | 22.00 | 84.0 | 86.0 | 0 |
| 44 | 1.0 | 1 | 15.0 | 0.0 | 0 | 0 | 0 | 210.0 | 126.5 | 87.0 | 19.16 | 86.0 | NaN | 0 |
| 52 | 2.0 | 0 | 0.0 | 0.0 | 0 | 0 | 0 | 269.0 | 133.5 | 83.0 | 21.47 | 80.0 | 107.0 | 0 |
| 40 | 3.0 | 0 | 0.0 | 0.0 | 0 | 1 | 0 | 185.0 | 141.0 | 98.0 | 25.60 | 67.0 | 72.0 | 0 |
| 39 | 3.0 | 1 | 30.0 | 0.0 | 0 | 0 | 0 | 196.0 | 133.0 | 86.0 | 20.91 | 85.0 | 80.0 | 0 |

**Outcomes:**

Age is slightly contributing to sysBP if the age is increasing then it is a slight chance of getting systolic blood pressure and we have high positive correlation with sysbp and blood pressure which is a high chance of getting affected if we get sysbp Those who have suffering from hyper tension they might have a high chance of getting blood pressure. And the body mass index is correlated with blood pressure if the BMI increases then there is a chance of getting blood pressure

If we want to launch our product According to Demographic Wise If we choose age as a factor. The diseases are increasing based on the age it is directly proportional to the Blood pressure and Diabetes. so, if we launch our product where the people in the area are mostly older than our business will be succeeded
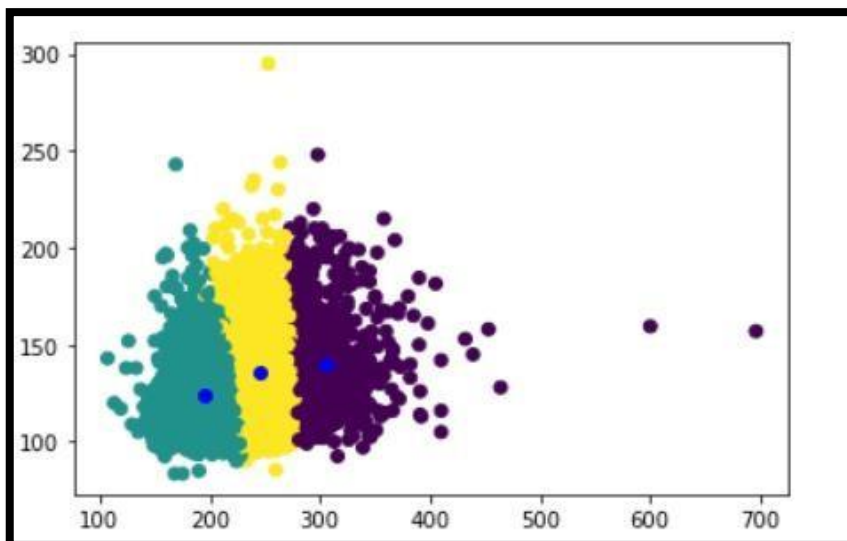
## 3. Diabetes:

| | Categories | India/States/UTs | NFHS III(2005-06)-Number of women in age group 15-49 per 100-000 reported Diabetes-Total | NFHS III(2005-06)-Number of women in age group 15-49 per 100-000 reported Diabetes-Rural | NFHS III(2005-06)-Number of women in age group 15-49 per 100-000 reported Diabetes-Urban | NFHS III(2005-06)-Number of men in age group 15-49 per 100-000 reported Diabetes-Total | NFHS III(2005-06)-Number of men in age group 15-49 per 100-000 reported Diabetes-Rural | NFHS III(2005-06)-Number of men in age group 15-49 per 100-000 reported Diabetes-Urban |
|---|---|---|---|---|---|---|---|---|
| 0 | All India | India | 881 | 641 | 1374 | 1051 | 860 | 1383 |
| 1 | MAJOR STATES (Population > 20 million) | Andhra Pradesh | 838 | 396 | 1674 | 2116 | 1747 | 2788 |
| 2 | MAJOR STATES (Population > 20 million) | Assam | 402 | 307 | 812 | 601 | 472 | 1044 |
| 3 | MAJOR STATES (Population > 20 million) | Bihar | 1024 | 864 | 1864 | 940 | 1058 | 535 |
| 4 | MAJOR STATES (Population > 20 million) | Chattisgarh | 659 | 554 | 1013 | 932 | 237 | 3050 |

### 1. Geographic Criteria:

In this dataset they have mentioned the state wise data so we can take that as Geographic Criteria As we have the past data 2005-06 From the data, we have observed that the people in Kerala are more affected with Diabetes. If we want to launch our product in the urban area then Kerala is the first place, we can make huge profits in that area. If we want to launch our product in Rural areas then the most Diabetes affected people are in Goa
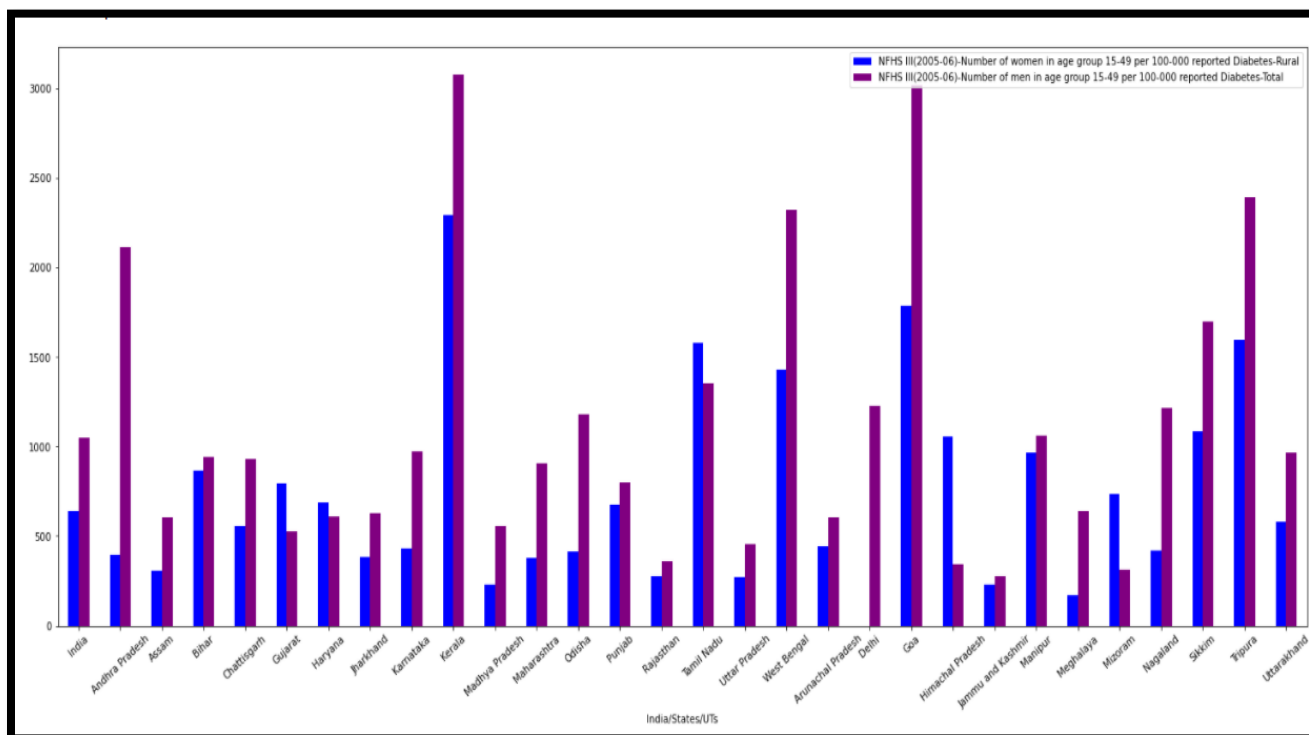


Most Affected People in India are in Kerala

## 4. Blood_pressure

**Data:**

| Blood_Pressure_Abnormality | Level_of_Hemoglobin | Genetic_Pedigree_Coefficient | Age | BMI | Sex | Pregnancy | Smoking | Physical_activity | salt_content_in_the_di |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 11.28 | 0.90 | 34 | 23 | 1 | 1.0 | 0 | 45961 | 4807 |
| 0 | 9.75 | 0.23 | 54 | 33 | 1 | NaN | 0 | 26106 | 2533 |
| 1 | 10.79 | 0.91 | 70 | 49 | 0 | NaN | 0 | 9995 | 2946 |
| 0 | 11.00 | 0.43 | 71 | 50 | 0 | NaN | 0 | 10635 | 743 |
| 1 | 14.17 | 0.83 | 52 | 19 | 0 | NaN | 0 | 15619 | 4964 |

**Socio-Demographic Criteria:**

The people who are suffering from chronic_kidney_disease they may have high chance to get Blood pressure. And the next correlated feature is Adrenal_and_thyroid_disorders this also have some positive correlation
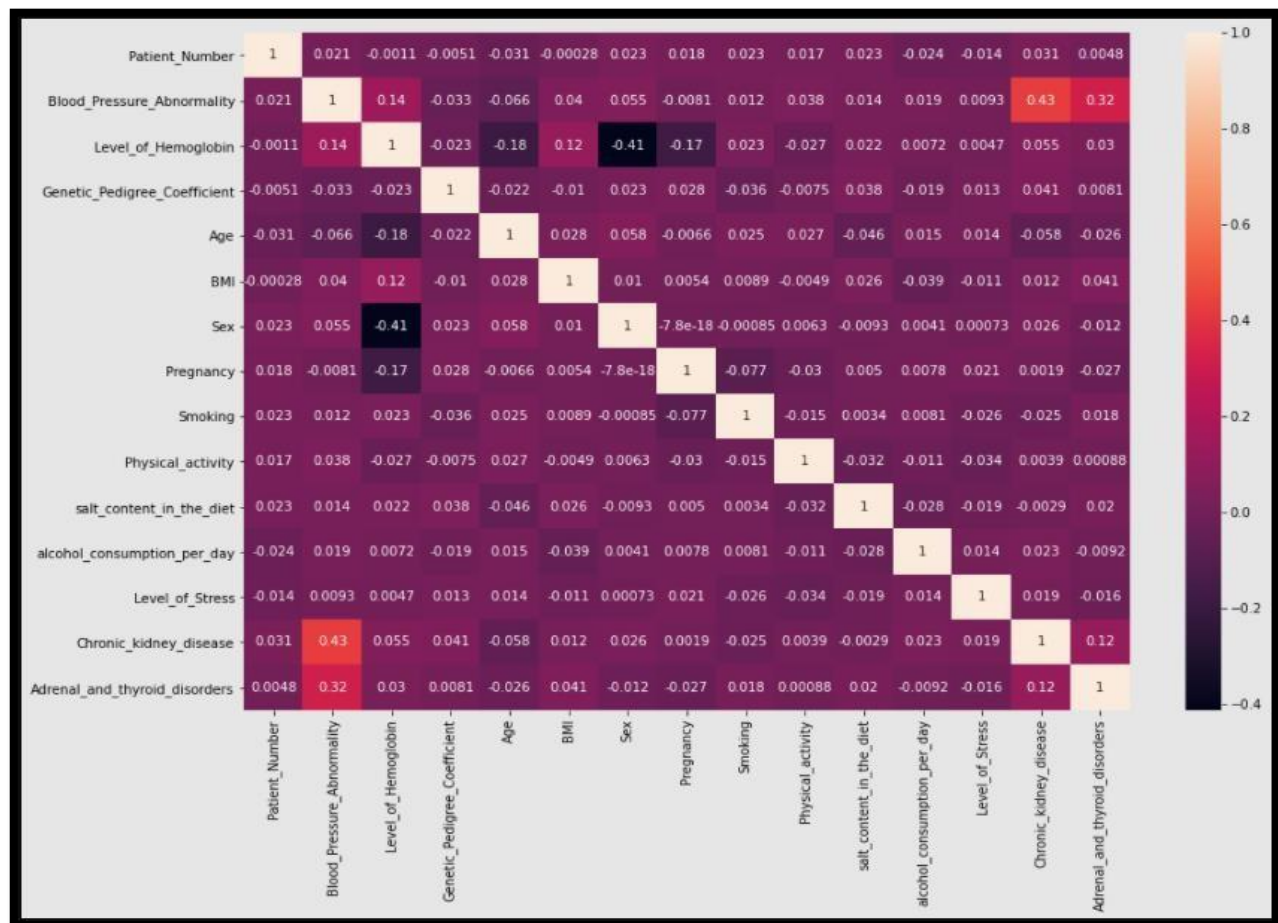
**Clusters:**
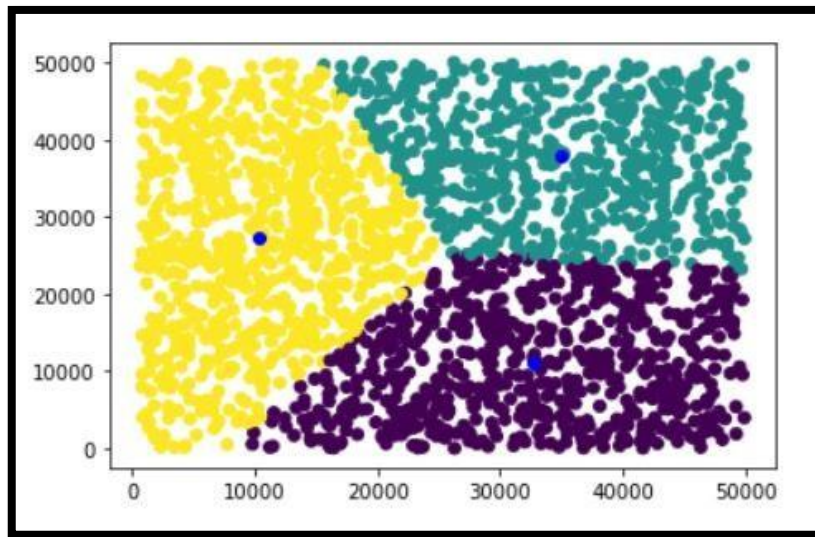


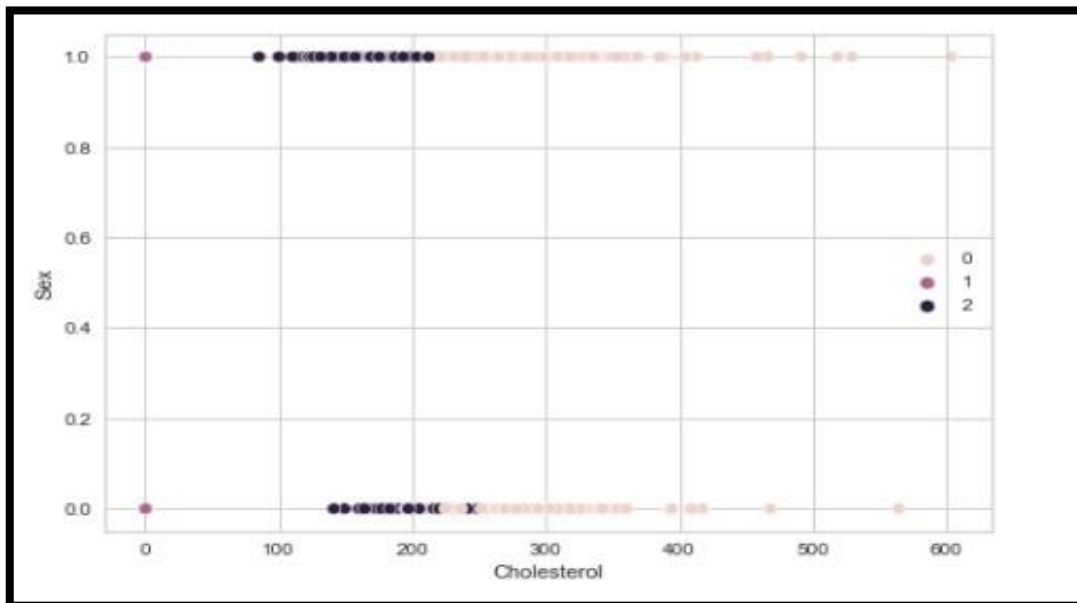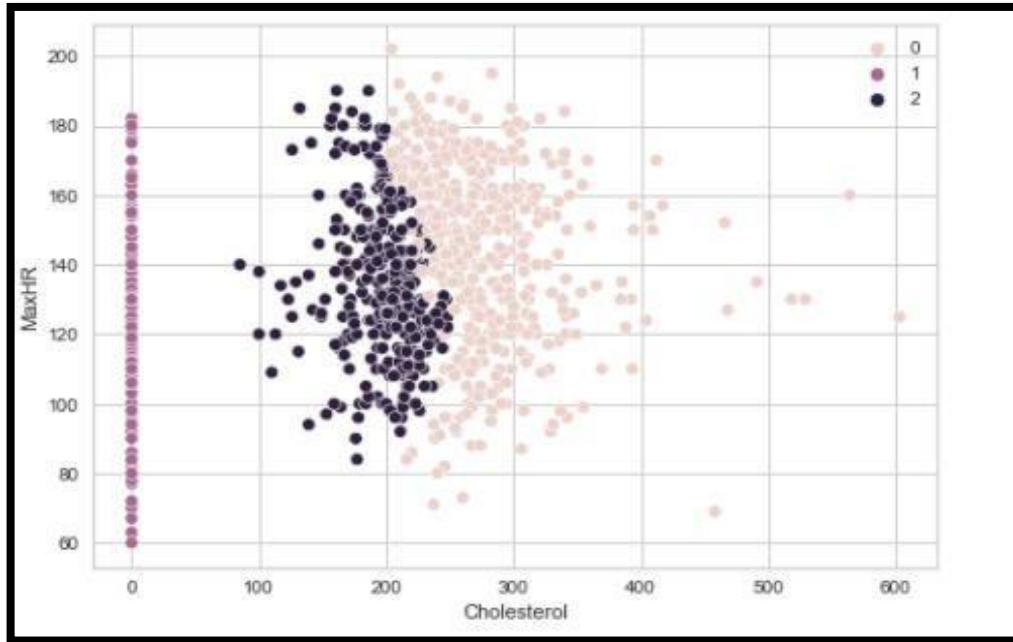**Cholesterol visualization:**
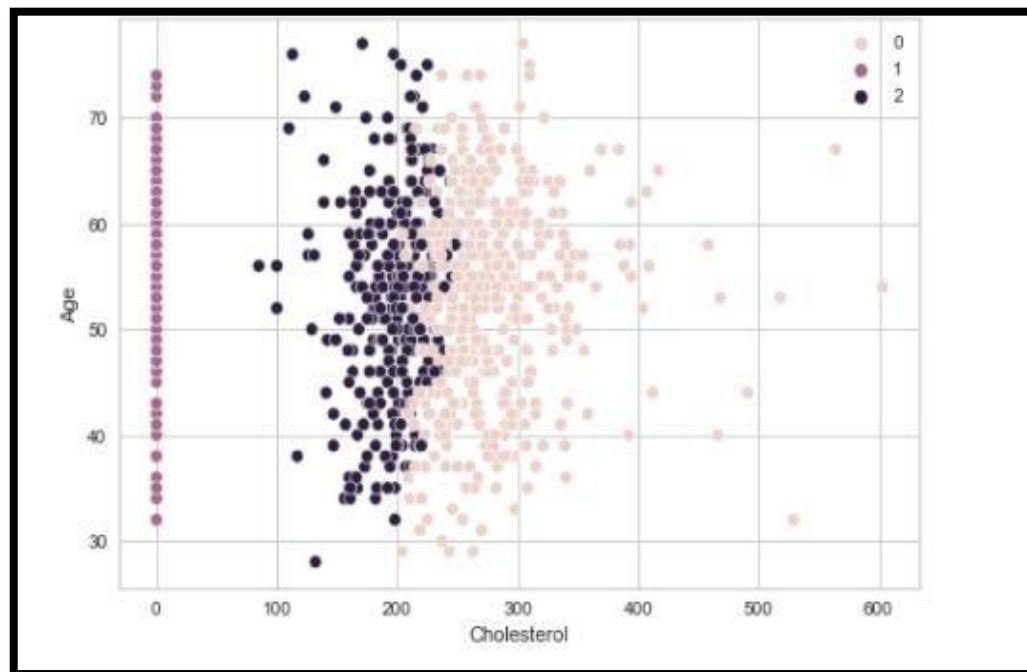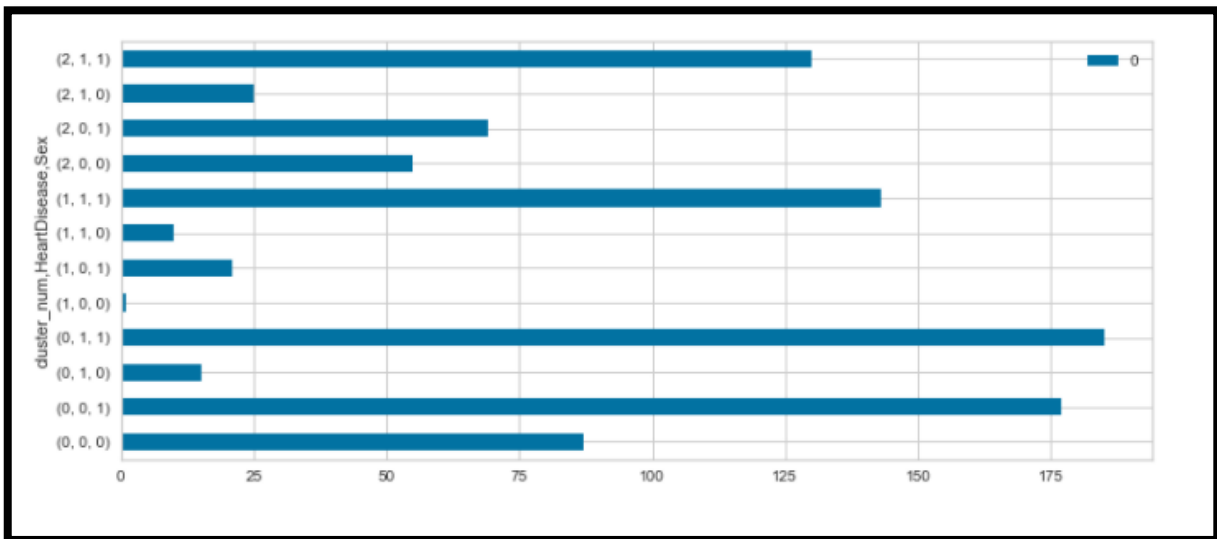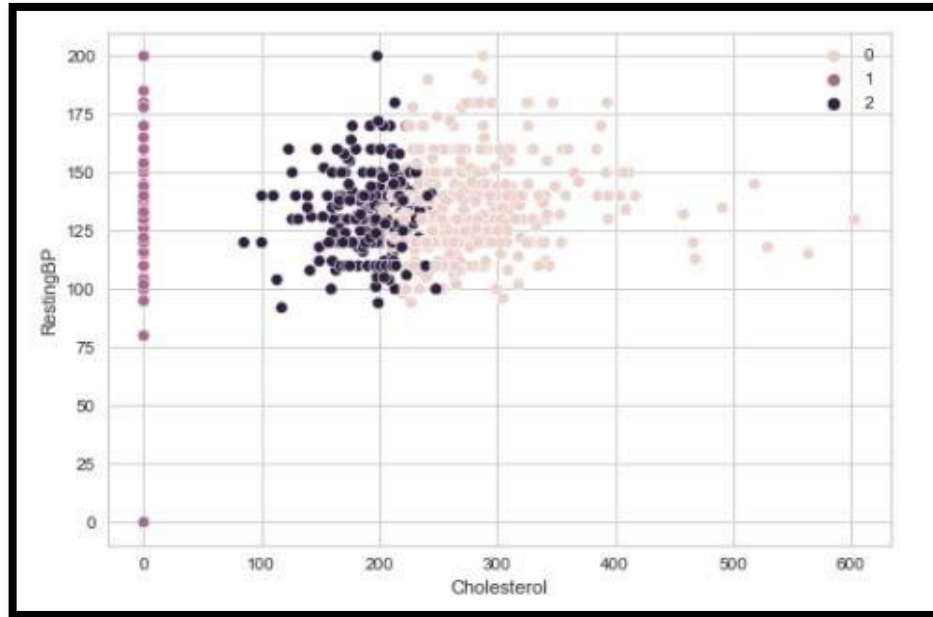
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- 63% of males has and 26% of females were found to had heart disease.
- Male Gender has more Heart Disease Patients.
- Most of the people with heart disease are in the age range of 30-60 independent of gender.

# Target Segments: Age, Sex, Cholesterol, and heart disease.

1. Male Gender is the target Sex Group.
2. People with ages ranging from 45-to 60 are the target customers.
3. People Cholesterol greater than 200 are the target customers of any gender.
4. People MaxiumHR greater than 1500 are the target customers.

## 5. Vitamin A & D

**Dataset:**

| | State | Population(0-6)years | VitA_deficit% | VitD_deficit% |
|---|---|---|---|---|
| 0 | India | 163819614 | 17.6 | 13.8 |
| 1 | Delhi | 2016849 | 17.8 | 32.5 |
| 2 | Haryana | 3335537 | 26.1 | 27.6 |
| 3 | Himachal Pradesh | 793137 | 5.9 | 4.6 |
| 4 | Jammu & Kashmir | 1485803 | 8.7 | 22.9 |

**Univariate Distribution of Observations:**
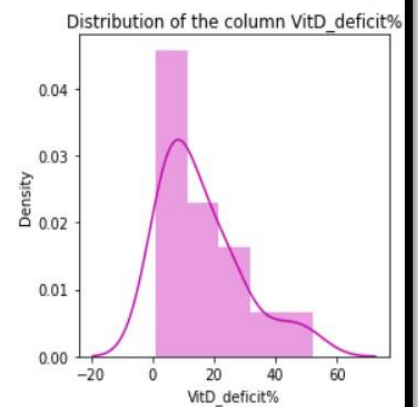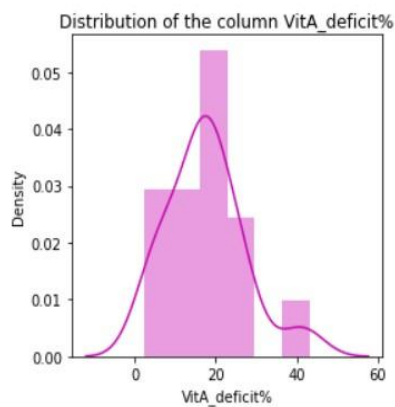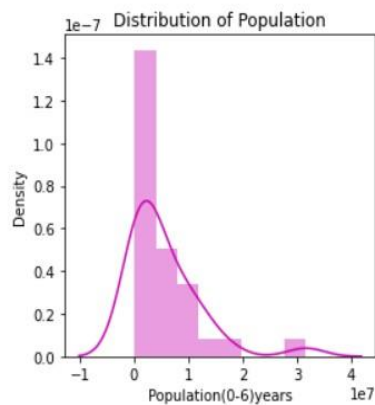
**Vitamin deficiency distribution in states of India:**

The data used in the report has been collected from Kaggle. From the plot, it is very evident that there is high prevalence of vitamin D deficiency among the people in India. Among them, Punjab and Uttarakhand have more children with vitamin D deficiency. The people belonging to state Jharkhand and Mizoram lack vitamin A and tops in vitamin A deficiency.



Percentage of deficiency of Vitamin A and Vitamin D
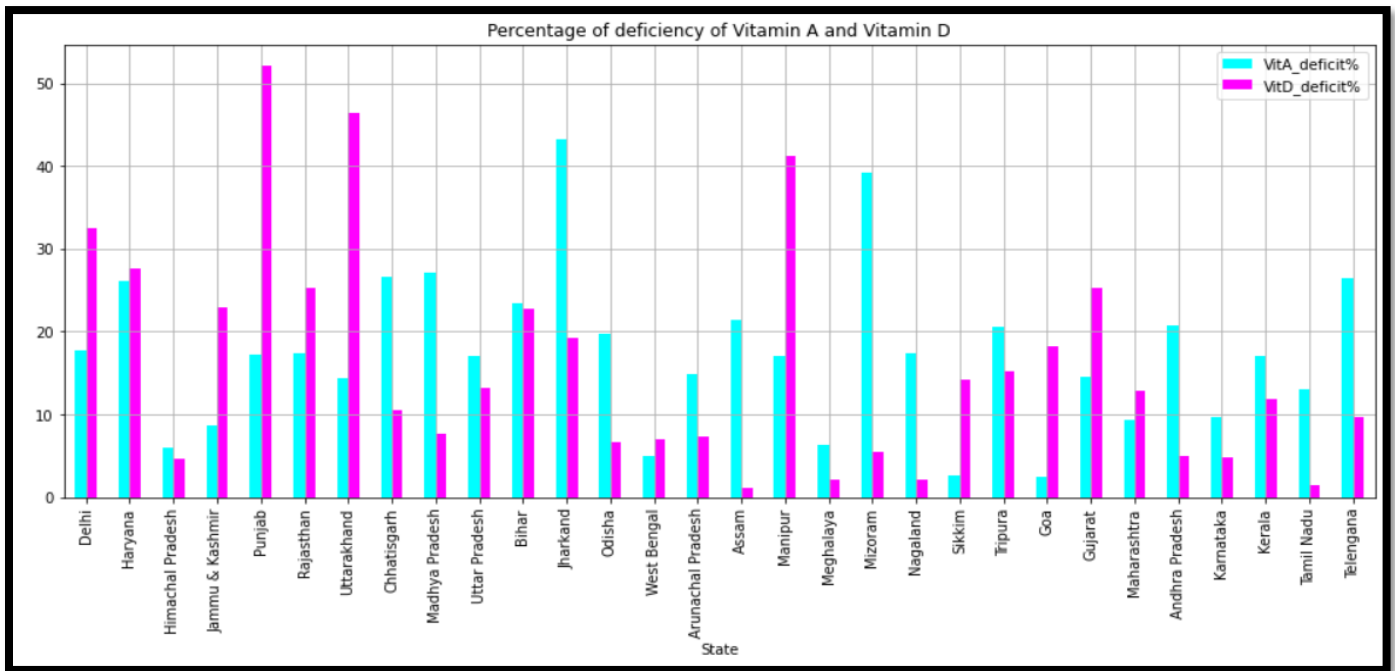
**Population wise vitamin deficiency distribution in states of India:**

The data used in the report has been collected from Kaggle. From the plot, it is very evident that Uttar Pradesh has the highest population of vitamin A deficiency and Uttar Pradesh and Bihar have higher population of vitamin D deficiency.
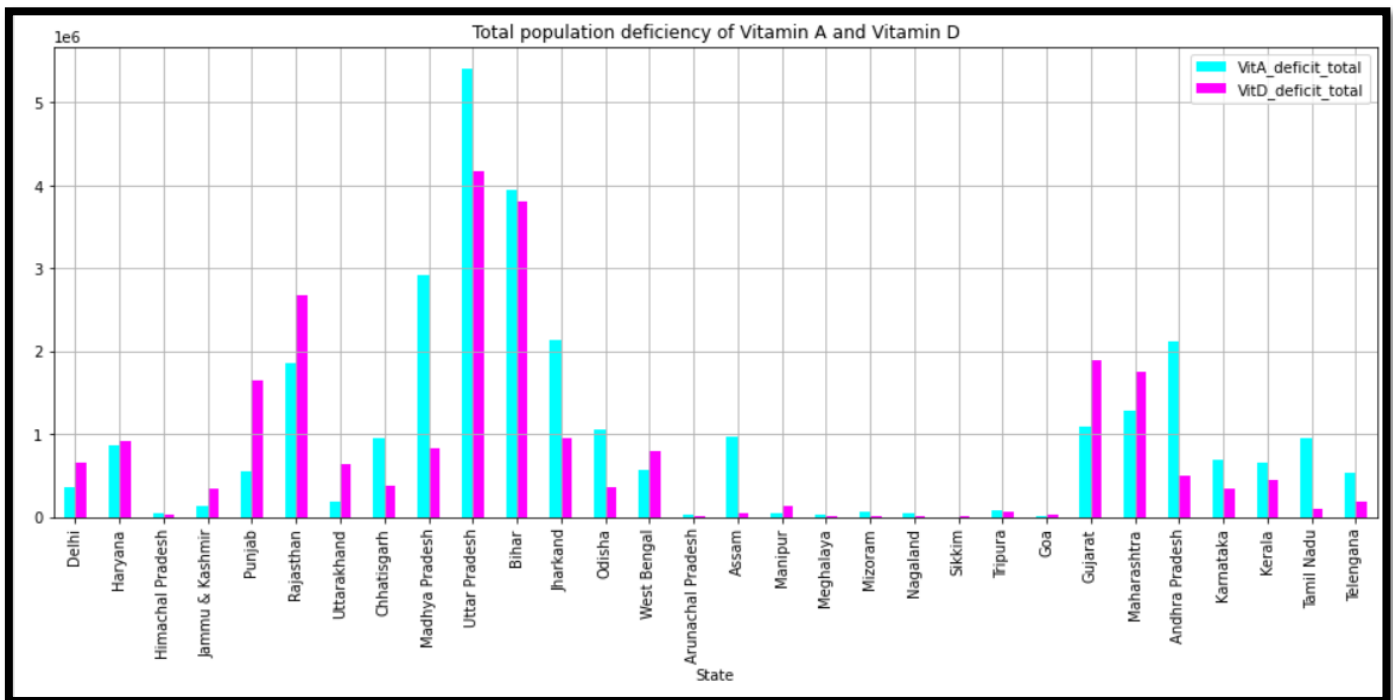


**Finding groups which have not been explicitly labeled in the data using K-means:**
**Elbow plot:**

**Cluster:**



number of clusters= 3



number of clusters= 4

number of clusters= 5



number of clusters= 6
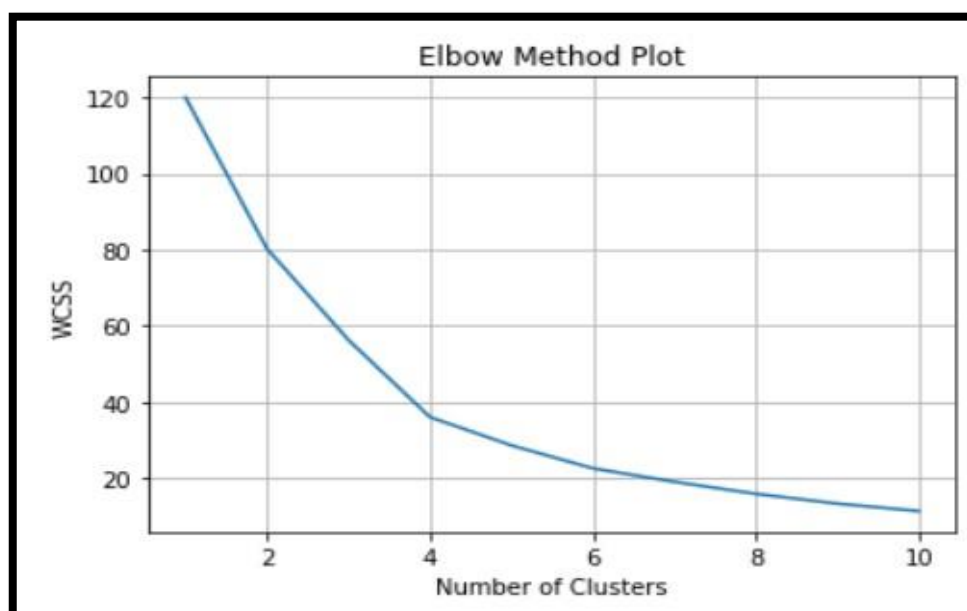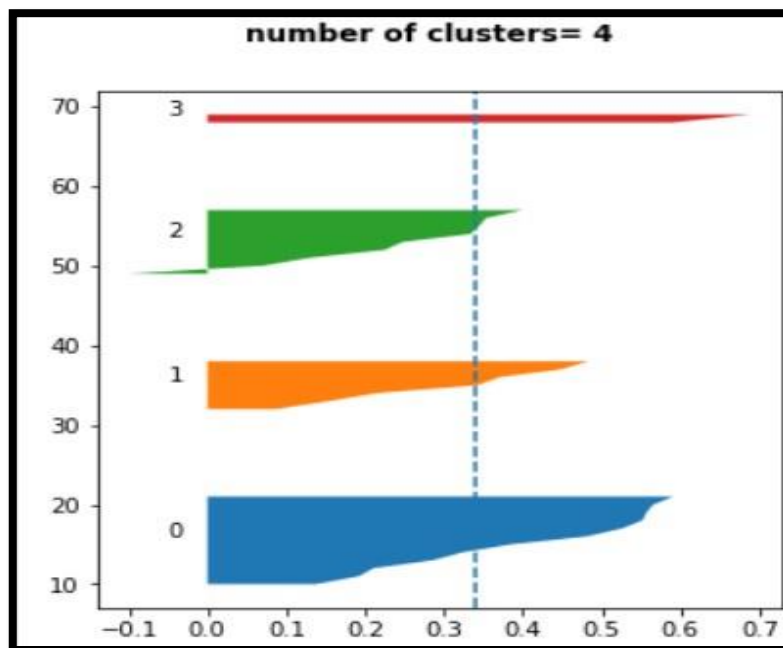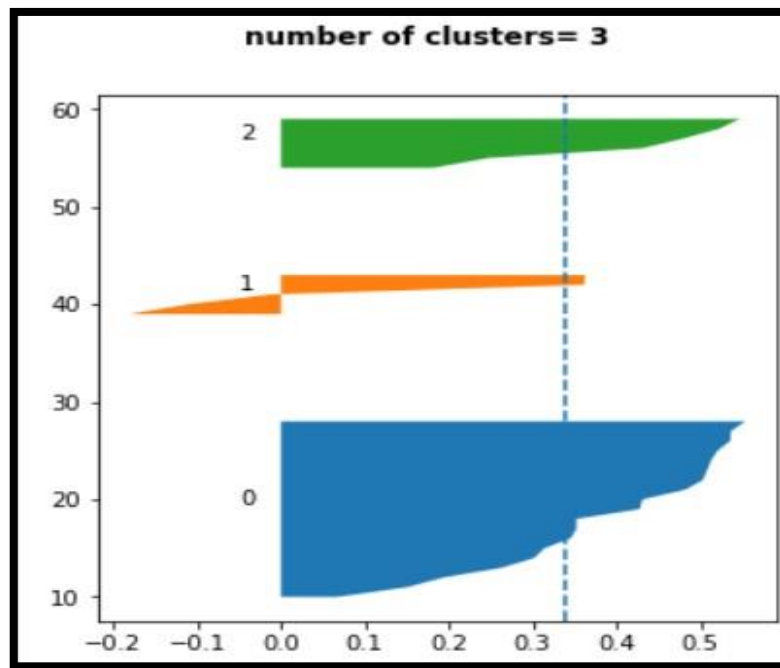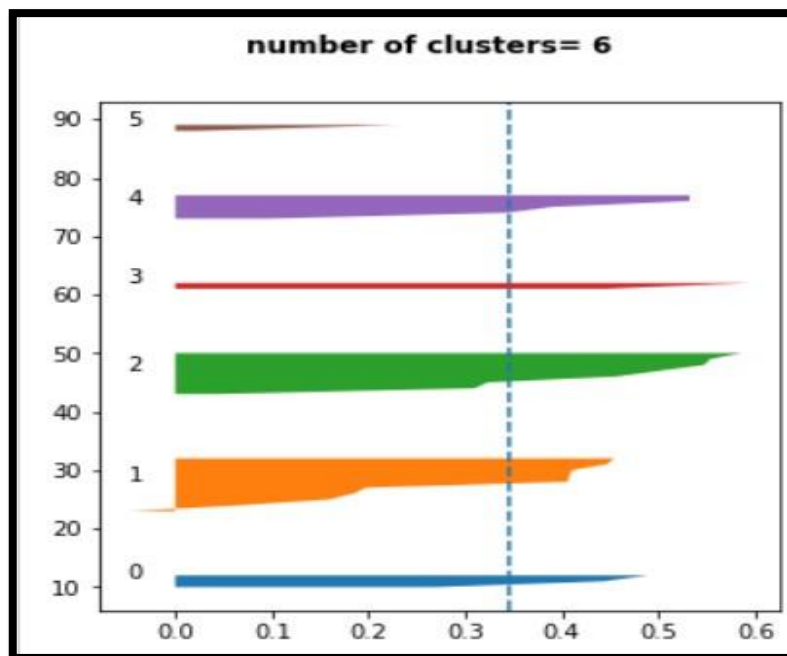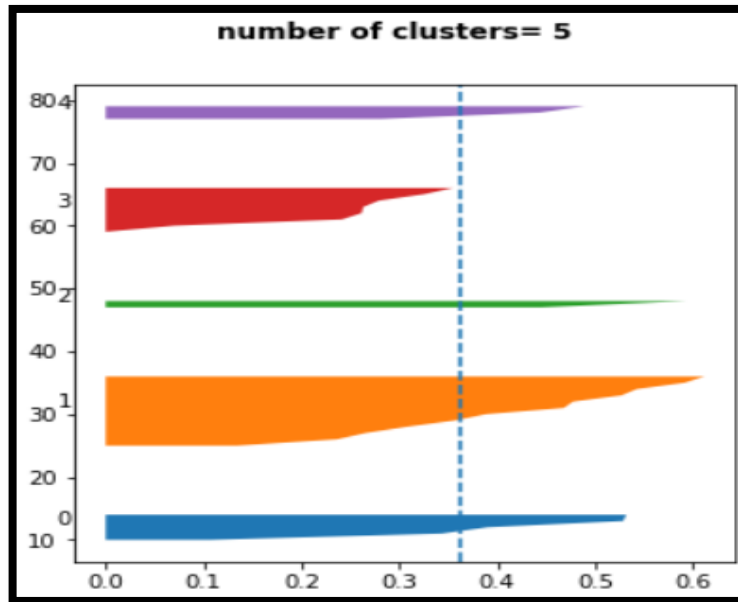
**Checking which cluster covered which state:**

```
States in Cluster1 are:
['Delhi' 'Haryana' 'Punjab' 'Uttarakhand' 'Manipur']

States in Cluster2 are:
['Himachal Pradesh' 'Jammu & Kashmir' 'West Bengal' 'Arunachal Pradesh'
 'Meghalaya' 'Nagaland' 'Sikkim' 'Tripura' 'Goa' 'Karnataka' 'Kerala'
 'Tamil Nadu']

States in Cluster3 are:
['Uttar Pradesh' 'Bihar']

States in Cluster4 are:
['Chhatisgarh' 'Madhya Pradesh' 'Jharkand' 'Odisha' 'Assam' 'Mizoram'
 'Andhra Pradesh' 'Telengana']

States in Cluster5 are:
['Rajasthan' 'Gujarat' 'Maharashtra']
```

# Selection of Target Segments:

Target Marketing in healthcare is the practice of marketing your healthcare center to your target audience by using strategies like audience research, segmentation, and more. With healthcare target marketing, you can better reach your ideal client or patient.

**Four Ways to define your target audience:**

1. **Geo-location:** when researching your target audience, you will have to decide about the location that you will focus on in your marketing campaigns. This decision will be based upon the physical location of your establishment and the distance from which you expect patients to visit.

2. **Demographics:** Marketing campaigns are to be created on the basis of chosen demographics of your audience. For instance, you will have to analyze the gender, age, education, size of family, occupation, household income, and similar other details while deciding about demographics to target.

3. **Psychographics:** As part of psychographic analysis, few of the points to look into would be lifestyle behavior, and personality of your audience base. In addition, you need to examine whether the audience is responsive to new innovations.

4. **Behavior**: analyze needs of our audience base as well as evaluate their knowledge level. Additionally, we need to check the response they provide to specific health care services and products.

# Overall Features of our Potential Target Customer

1. Age above 50
2. Having diabetes
3. Having other lifestyle diseases like polyuria, polyphagia, polydipsia, High BMI and hypertension
4. No diabetes but kind of diseases.
5. Having heart diseases
6. High cholesterol values
7. Heart rate is above 140 mostly
8. Belonging to Middle class
9. Having internet connection
10. Having blood pressure issues.
11. Belonging to states Tamil Nadu, Kerala, Maharashtra (diabetes, full body checkup)
12. District wise – Chennai, Madurai, Coimbatore, Pathanamthitta, Trivandrum (diabetes, full body checkup)
13. Belonging to states Punjab, Uttarakhand, Jharkhand (vitamins deficiency)

The process of determining product-market fit. Product-market fit means that a company's product or service solves a problem for the customer and the customer finds this solution valuable enough to pay for it.

# Cracking the Competition:

Company can position their products and services according to four variables: Product quality, service quality, and price and fulfilment time. Reviewing your internal strengths and comparing them to those of your competitors, a differentiation strategy that positions your offering above those of your competitors can be achieved giving you a competitive advantage. A value proposition gives benefits of the products and services to reinforce the core proposition to differentiate it from the competitors. It also helps in communicating messages that will strategically fit with its indented customers, providing a direction for all marketing messages.

Figure out which issues or pains of customers are still remaining aside by existingsolutions and products.

## Current Competitors of Online Medical Checkup in Market:

1. TATA 1mg
2. SRLDiagnostics
3. mFine
4. Healthifyme
5. Heathians
6. mediBuddy
7. PharmEasy
8. Practo
9. Netmeds etc.

One Thing about competitors is that their main focus is on online consultation or they are known for online consultation and medicine e-commerce. Mfine, Pharmaeasy, TATA1mg is mostly known for delivery of medicines. Practo is known for online consultation. They started with online consultation and now they entered into various services of delivering medicines, selling health products and lab test at home. For Cracking the competition our service our product first be the outperforming and pricing must be affordable for the middle class.

# Pricing

Pricing can range between Rs.600 to Rs.1000 to be affordable for patients. As we saw in earlier points. In Chennai as a metro city, pricing can be increased compared to Madurai and Trivandrum

Also, the device can vary between Rs.1800 to Rs. 2800. It will be affordable as it willserve patients for at least 5 years. These are starting pricing ranges as it's an early market scenario.

**For home checkups –**

Potential customer base in the early market for diabetes (district wise as given in targetregion section) is approx. 130k
Potential Customer Base * Your Target Price Range = Potential Profithence, **130k * Rs. 800 = Rs. 104,000,000.**

So Potential profit is Rs. 10 crores 40 lakhs.

Potential customer base in the early market for **blood pressure** (district wise as givenin target region section) is approx. 200k

Potential Customer Base * Your Target Price Range = Potential Profithence, **200k * Rs. 800 = Rs.**

**160,000,000.**

So Potential profit is Rs. 16 crores.
Potential customer base in the early market for **vitamins deficiency** (district wise asgiven in target region section) is approx. 80 lakhs

Potential Customer Base * Your Target Price Range = Potential Profithence, **80 lakhs * Rs. 800 = Rs.**

**6,400,000,000.**

So Potential profit is Rs. 6 billion and 400 million.

A full body checkup will have the same numbers as diabetes or blood pressure cases

# For Selling Device:

The sales won't be matching to sales of home checkup services, as one device is sold,customers would again buy it after 5-6 at least. Hence retention rate would be low.

Hence price will also vary between Rs. 1500 to Rs. 2500. Hence considering the scenario of early markets, the revenue model can be **60% - 40%** or more recommendedas **80%-20%** of home service and device selling respectively. With experience, trust andbrand awareness this ration can change.
So, its profit as calculated above would be approx. **Rs. 4 - 5 crores** for these services.

This is a surprisingly big amount but, in terms of making, traveling, and business costs, manufacturing, distribution the profit from actual sales will be less. It is needed to look atgross margins, net profit after subtraction of costs and salaries. But some customers are already acquired by competitors so as given in above points of strategy, we must takesteps so that customers will prefer us more.

If we work out and crack competition as given above and build strong trust and relationwith customers as given in above strategy point, this can be successful in the early market and will grow in coming years.

# What Customers want and need

Consumer needs and wants are not necessarily same. Need is to do lab test for diseases facing for nominal cost. Want is based on values the consumer is holding. It can be cleanliness, Behavior, Communication etc. Also, already 10 competitors are in market who are fulfilling needs and wants. We need to not just fulfill need in affordablerates for middle class consumer but also fulfill their want e.g. ─ values, emotions of Indian people. Detailed given below.

**There are four types of buyers:**

1. Quality buyers – best w/o regard to  cost
2. Service buyers – personal caring and  service
3. Value buyers – best value for money. Quality should match  price
4. Economy buyers – cheapest alternative which minimize  cost

Our target consumer belongs to Service & value buyers. As along with patient otherfamily members are also involved in taking decisions about this case.

**South Indian people lifestyle and values:**

They place a premium on hospitality and avoiding conflict. They offer food or snack every time guest or some person who come home. In general, people from southern India have a reputation of being friendlier and more excitable than Indians from the north. They tend to put their faith in science rather than idealism and greatly value humility. As per any Indian they have relational values and emotions. They emphasize on neat work and very intellectual as south Indian people are famous for neat work andtheir intellect. Here Emotions, human values, culture pride is seen. Most people are from middle class and lives in family or more than 3 members. It is not unusual for elderly people or couples to live alone. In metros like Chennai scenario can be differentas more students and bachelors live and it's a metro city.

**Punjab and Jharkhand people lifestyle and values:**

In Punjab people are found to be mostly hospitable. They treat guests and visitors respectfully. There are sayings of Punjabi people being very violent at the same time very much at ease and of joyful nature. If their values are not respected then only, they will not respect the next person otherwise they are very joyful generally by nature. Mostpeople are from the middle class and live in a family of more than 5 members. It is not unusual for elderly people or couples to live alone. 46 percent of the population of Punjab falls in the middle class.

With just over one-tenth of its population classified as urban, Jharkhand remained oneof the most rural states in India in the early 21st century. The indigenous groups are concentrated mostly in the districts of Ranchi in central Jharkhand, Dumka in the northeast, and East and West Singhbhum in the southeast. The major cities and urbanagglomerations are Ranchi, Jamshedpur, Dhanbad-Jharia-Sindri, and Bokaro-Chas.

One third of the population is of different tribes and the remaining of urban regions.

# Methods to approach the customers:

This is a B2C market and your business model needs to be made considering factors of direct consumer sales. As the target segment is above age 50 and Indian also belonging to core Indian regions one factor is our connection with them must have someemotion linked in it. Our service must represent in their values, emotions. E.g. - how Shadi.com and amazon.in is doing with their ads, and representation. Both encourages the link between tradition and modern lifestyle. They emphasize on traditional values the relations etc.

Similarly in this biotech startup ― the relation between children and parent or grand parents can be shown or themed. As many Indians expects their children will take care of them in their old age also some old couples are alone, here we will serve and help. We must build relation in a way the trust is built for us and the own-ness feeling is developed. The doctor is considered as God. And relation is as uncleaunt, etc. with unknown people whom you see or meet often. Thereby if we considered these values, emotions then we can connect with customer largely. According to this our advertisement must be themed. Here if these things are carried out well then customer himself starts recommending other about our product or service (also known as organic marketing). Take the feedbacks and analyze them so that you can improve your service. From feedbacks we can know where we fail and points for which customers prefer other brands or company. Also, what other companies are lagging or what the customers' pain, excitement, and interests are must be known and this can be figured out from feedbacks in great manner as that will direct information from customer. With trust and quality service customers will retain and one thing to consider in our case customer who are taking home checkup service will retain more but those who buy device directly won't retain  much as device life must be more than at least 3-4 years.

# Branding of Product and Reaching method:

It's a startup and brand building are next level thing, but awareness must be made in society about us. This branding is based on the nature of costumer. Targeted group is from middle class and to reach out to them hence following methods are useful — Medical shop branding, Bus advertising, Cab advertising. YouTube and TV ads. The adon the medical shops encouraged the people who are actively seeking to buy their prescriptions get to about us and our advantages. Chennai people largely travel by bus.Buses are one of the major transport media in region for middle class. Placing ads on buses can help in reaching out to the mass audience similarly for Cab branding too.

Even the UI or for example how your app is seen on play store. Those visuals alsodetermines if a person after looking first image will continue to see further features displayed on play store or will go back and see other apps. Once you know the costumer behavior or general mindset you can decide content for branding. The biggestchallenge for B2C marketers is reaching and engaging their customers in the digital age. Consumers are looking for content, entertainment, and connections. We also need to be careful that ADs don't turn interruption. Social media marketing helps too. Though less percentage of actual targeted patient i.e., above age 50, 60 are sing social media, still other family members are exposed to social media and they are also needed to be convinced with our product. If the startup has website, then it contributes very much in marketing. Almost immediately after showing what business you're in, it's time to start building credibility. Ratings, reviews, best sellers, top-rated products, testimonials, certifications, awards, press mentions, endorsements, and logos of companies all help add social proof. This will happen gradually as we are in early market scenario. This builds strong trust in people who are not yet your customer. And those who are already customer, trust is built with your approach to them your service and the points given in "Method to approach the customers (deal with them)" above.

# Portraying product and Service:

Similar products and services are available in market who have done customer acquisition already. Hence, we must present our product and service in way it showcases its essence, its need and value (importance). We must show the advantageof our biotech device, its accuracy, etc. promises that we make. Home going service can be portrayed as "As many patients cannot go out because of physical ailments, sometimes there is no one to take to pathology, with our team coming home it gives patient the ease of checkup at his/her own place." Etc. Along with this pricing is affordable for middle class group. These things contribute in developing positive mindset in patients or their relatives (customers) about company.

# Customizing the Marketing Mix:

**Marketing Mix 4P**

1. **Product (or Service) -** It facilitates patients with full body checkup and also lab tests for Diabetes, Blood pressure and detects vitamins deficiency. Patients canbook home lab tests or buy the bio-tech device by themselves from the company's online platform.
   How is it different from products by your competitors?
   This Biotech device is easier to use that patient can use directly by buying on online platform

2. **Place -** The target market is Tamil nadu, Kerala for diabetes and full bodycheckup. See above points

3. **Price -** Pricing can range between Rs.600 to Rs.1000 (average Rs. 800) to be affordable for patients. As we saw in earlier points. In Chennai as a metro city, pricing can be increased compared to Madurai and Trivandrum. Also, the devicecan vary between Rs.1500 to Rs. 2500. It will be affordable as it will serve patients for at least 5 years. These are starting pricing ranges as it's an early market scenario.

4. **Promotion -** Medical shop branding, Bus advertising, Cab advertising. YouTube and TV ads. The ad on the medical shops encouraged the people who are actively seeking to buy their prescriptions to get to know us and our advantages. Chennai people largely travel by bus. Buses are one of the major transport mediums in the region for the middle class. Placing ads on buses can help in reaching out to the mass audience similarly for Cab branding too. Social media marketing helps too. Though less percentage of actual targeted patients i.e., above age 50, 60 are using social media, still other family members are exposed to social media and they are also needed to be convinced with our product. If the startup has a website, then it contributes very much in marketing. Almost immediately after showing what business you're in, it's time to start building credibility. Ratings, reviews, best sellers, top-rated products, testimonials, certifications, awards, press mentions, endorsements, and logos of companies allhelp add social proof. This will happen gradually as we are in an early market scenario. This builds strong trust in people who are not yet your customer. And those who are already customers, trust is built with your approach to them, your service and the points given in "Method to approach the customers (deal with them)" above.

# Conclusion:

Our main target customer based on geographic, demographic and behavioral segmentation we will launch our startup in one of metropolitan city, with technological impregnated area.

## 1. Geographic Criteria:

### Diabetes:

In this dataset they have mentioned the state wise data, so we can take that as Geographic Criteria. As we have the past data 2005-06, from the data we have observed that the people in Kerala are more affected with Diabetes. If we want to launch our product in the urban area then Kerala is the first place, we can make huge profits in that area. If we want to launch our product in Rural areas then the most Diabetes affected people are in Goa.

Most Affected People in India are in Kerala

### The Targeted Locations Are:

- Kerala (Urban)
- Goa (Rural)

### Vitamin Deficiency:

From the data we concluded that the Vitamin D deficiency is majorly in Punjab compare to all states. if we launch our product, it is more beneficial other than we launch at Assam and Tamil Nādu. Overall south India people are less effected to vitamin deficiency compare to north India. if we take vitamin A deficiency then Jharkhand has most affected people and less in Himachal Pradesh

### So, the Targeted Locations Are:

- Punjab (Vitamin -D)
- Jharkhand (Vitamin -A)

## 2. Socio-Demographic Criteria:

### Blood Pressure:

The people who are suffering from Chronic_kidney_disease they may have high chance to get Blood pressure. And the next correlated feature is Adrenal_and_Thyroid_Disorders this also have some positive correlation. The older you are, the more likely you are to develop it. The American Heart Association reports that the lifetime risk of high blood pressure from age 20 to 85 is between 69 and 86 percent. Hypertension is very common in India, even among underweight adults and those of lower socioeconomic position. Improved detection is needed to reduce the burden of disease attributable to hypertension. Levels of treatment and control are relatively good, particularly in women, although urban men require more careful attention

### Heart Disease:

1) 63% of males has and 26% of females were found to had heart disease. Male Gender has more Heart Disease Patients. Most of the people with heart disease are in the age range of 30-60 independent of gender

### Target Segments:

- Age
- Sex
- Cholesterol
- heart disease

Male Gender is the target Sex Group. People with ages ranging from 45-to 60 are the target customers People Cholesterol greater than 200 are the target customers of any gender. People Maxium HR greater than 1500 are the target customers.

## 3. Psychographic Segmentation:

One of the key factors in the success of psychographic segmentation in healthcare is its ability to move beyond the external or superficial characteristics of a given consumer group, focusing instead on the internal or psychological factors that drive consumer behavior and decisions. The people in urban areas like Mumbai, Delhi are very fear full and they will contact if any small cold happens so we can launch our project.

### 4. Behavior Criteria:

The people who have a habit of smoking and drinking regularly they have chance of lung cancer and slightly Diabetes. The people who are lazy without working they have a problem obesity. So, the people who are in urban areas have this problem

**Targeted segments:**

- Smoker and Drinker
- Lazy persons

### GitHub link:
https://github.com/c7r7/Team__D__Charan_Raju__Market_Segmentation-On_Bio-Tech-Startup