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Project Report On

Estimation and Prediction of Hospitalization and Medical Care Costs

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Project Report Format

1. INTRODUCTION

1.1 Overview

A brief description of your project.

1.2 Purpose

The use of this project. What can be achieved using this?

2. LITERATURE SURVEY

2.1 Existing problem

Existing approaches or methods to solve this problem.

2.2 Proposed solution

What is the method or solution suggested by you?

3. THEORETICAL ANALYSIS

3.1 Block diagram

Diagrammatic overview of the project.

3.2 Hardware / Software Designing

Hardware and software requirements of the project.

4 . RESULT

Final findings (Output) of the project along with screenshots.

5. ADVANTAGES & DISADVANTAGES

List of advantages and disadvantages of the proposed solution.

6. APPLICATIONS

The areas where this solution can be applied.

7 . CONCLUSION

Conclusion summarizing the entire work and findings.

8. FUTURE SCOPE

Enhancements that can be made in the future.

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1. Introduction

1.1 Overview

It's no secret that medical care is a significant part of our economy, making up almost 18% of our Gross Domestic Product (GDP) and 20% of government spending. However, where the medical dollar goes doesn't necessarily reflect what we truly value. While 38% of medical care dollars are paid to hospitals, 31% is for professional services, and 12% is for outpatient pharmaceuticals, the ultimate goal of medical care is to improve our overall well-being. To truly understand the impact of medical care, we need to look at how it's affecting our health. But this is no easy feat. Health accounting is a complex and ongoing challenge, and researchers must continually evaluate the value of medical care. For instance, we may wonder how colonoscopy prices vary across payers or to what extent medical care is improving the population's health. With so much uncertainty, it's crucial for public and private researchers alike to survey the landscape regularly.

Unfortunately, tobacco use remains a significant health concern. Roughly 28.6% of adults (15+) use tobacco products, with men using them at a significantly higher rate than women (42.4% versus 14.2%). Among youth ages 13-15, 8.5% use some form of tobacco, with boys using them slightly more than girls (9.6% versus 7.4%). In India, there are approximately 120 million smokers, with 267 million individuals aged 15 and above accounting for 29% of all adults as tobacco consumers. This highlights the importance of continued efforts to reduce tobacco use and promote healthy lifestyles to improve overall well-being.

1.2 Purpose

Determining the costs of providing medical services is a crucial accounting function for hospitals. Hospital management can use this information to make informed financial decisions and stay within budget by analyzing the costs by department and for the entire hospital. Furthermore, this data is useful for determining prices. Unfortunately, in India, nearly 1 in 10 adolescents between the ages of 13-15 have smoked cigarettes at some point, and almost half of these individuals started using tobacco before the age of 10. It's crucial to educate young people about the risks associated with tobacco use and to strive towards reducing these statistics.

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I recently had the opportunity to analyze insurance data and categorize it into two groups: hospitalization and medical costs, as well as smokers versus non-smokers by region and gender. The outcome of my analysis was used to create an extensive dashboard story report, which I seamlessly integrated. This report provided valuable insights into medical care expenses and smoking rates in India. I am proud to say that my team and I are extremely satisfied with the outcome of our hard work.

As a result of our efforts, we have created a web page that provides valuable information about hospitalization and medical cost predictions. On this page, we have detailed all the aspects of our project. We hope that this will be of great help to you. My team and I have been working relentlessly to accomplish our project objective. The results are expected to be phenomenal, and I can share further details via the attached documentation.

2. LITERATURE SURVEY

2.1 Existing problem

The Indian healthcare landscape is quite diverse, with a wide range of facilities catering to different segments of the population. On one end of the spectrum, we have modern hospitals and clinics providing high-tech medical care to the affluent urban population. On the other end, there are the small, struggling health centers in remote areas that are trying to meet the needs of the local population. With the pace of change accelerating, this spectrum is likely to become even more complex in the future.

It's important to note that quitting tobacco has many benefits that can be experienced almost immediately. For example, within just 20 minutes of quitting smoking, your heart rate will improve. And within 1-9 months, you'll notice a decrease in coughing and shortness of breath. Over time, your risk of stroke, lung cancer, and heart disease will decrease significantly. If you're concerned about the cost of medication, don't hesitate to talk to your doctor or healthcare provider about whether there's a less expensive option available. With the rising costs of medical care being a major concern for both individuals and governments, it's important to explore all options to ensure that you're getting the care you need without breaking the bank.

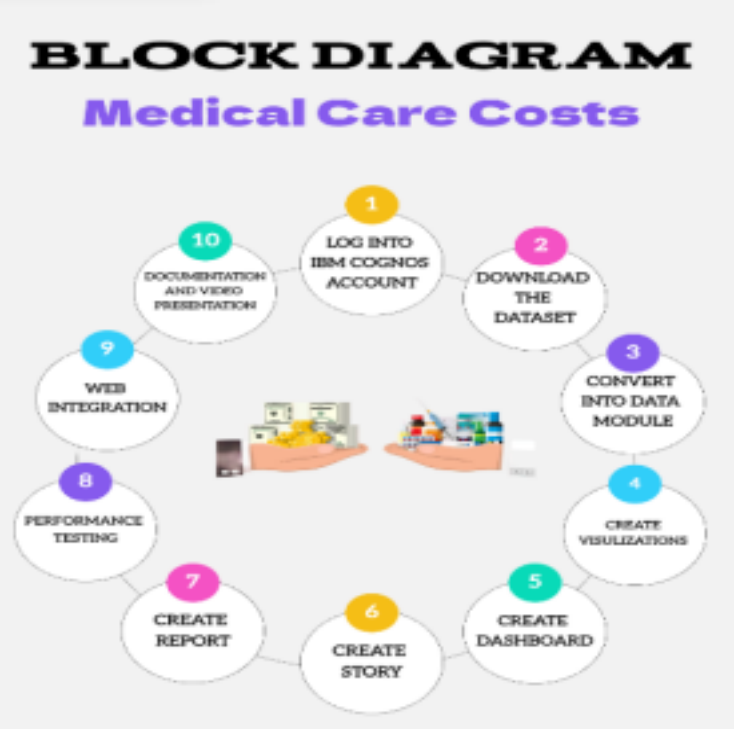
2.2 Proposed solution

As we delve into the issue of smoking and its impact on both smokers and non-smokers, it becomes evident that the consequences are far-reaching, particularly in terms of medical care costs. Smokers face a plethora of health issues, ranging from respiratory problems to cardiovascular diseases, leading to increased medical expenses. Additionally, non-smokers who are exposed to secondhand smoke can experience negative health effects as well.

To address this issue, our project aims to conduct a comprehensive analysis of the distinguishing features between smokers and non-smokers, along with the corresponding healthcare expenses in India. We will specifically categorize the data by gender (men, women, children, and elderly) and BMI, and employ graphs and storyboards to present the analyzed data clearly and concisely. By doing so, we hope to shed light on the detrimental effects of smoking and encourage individuals to make healthier choices for themselves and those around them.

3. THEORETICAL ANALYSIS

3.1 Block diagram



3.2 Hardware / Software Designing

Hardware Requirements:-
1. Server
2. Computer or Laptop

Software Requirements:-
1. IBM Cognos
2. Python
3. Anaconda Navigator
4. Jupiter Notebook
5. Spyder
6. Web Browser

4. RESULT

For our project's Estimations and Predictions of Hospitalization Medical Care Costs, we are analyzing the Insurance CSV Dataset provided. This dataset includes information on Age Groups, Genders, BMI, Children, Smoking status, Non-Smoking status, Region, and Charges.

1. First is the Average age of Males and Females. This is the bar chart graph plotting the Average age of men 39.5 and female 38.92.
2. Next is the BMI of a Person based on their age. This is a bubble chart it creates BMI averages and averages of ages.
3. Moving forward to The Average Number of Children by Age and Smoker or Not. This is the Stacked bar chart which shows the average age of smokers and their ages.
4. Then there is an Average Age of People According to Their Region and Gender. This is a stacked column that shows the Average age of genders in different regions.
5. Then there is a plotted chart which shows Charges Paid by People According to Their Age and Smoker.
6. Moving Forward to a circular chart That shows the BMI of a Person by Gender and Smoker.
7. Then there is a Bubble chart it shows the Charges paid by people According to their Gender, Region, and Smoker
8. Now a Staked bar chart shows the Average BMI of people by Gender and Region.
9. Top 100 Charges Paid by People Based on BMI and Colored by Region which shows in the bubble chart.
10. Now The number of Children the people by region shows the performance in the bar chart.
11. Charges paid by the People by region analyze the data in the stacked column.
12. Lastly, the bar graph shows the charges based on the Number of Children.

I am delighted to inform you that 12 distinct charts have been produced utilizing the insurance data module. Despite initial setbacks, we persisted and now possess an array of visuals that can aid us in comprehending the data more effectively.

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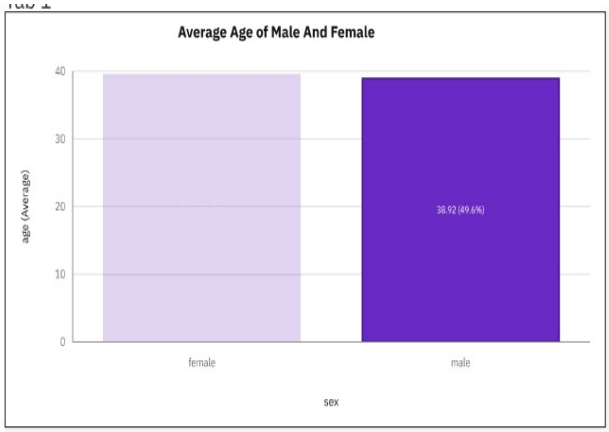
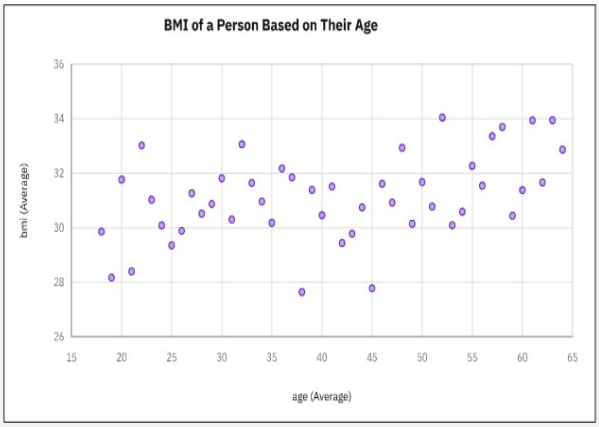
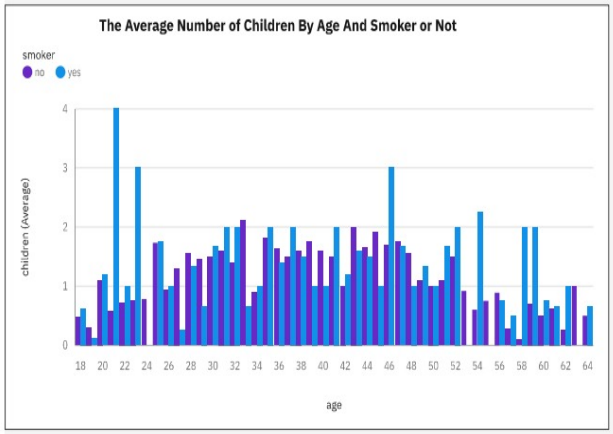
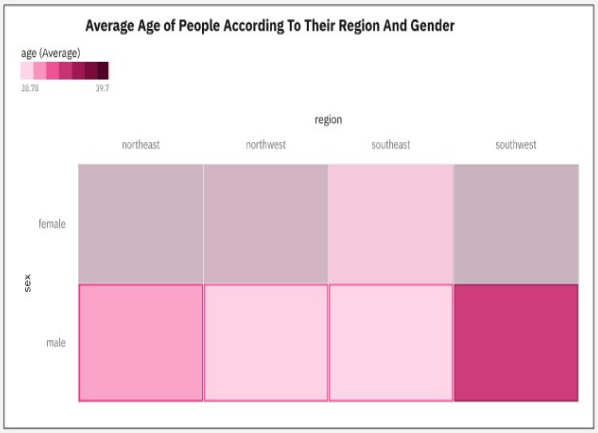
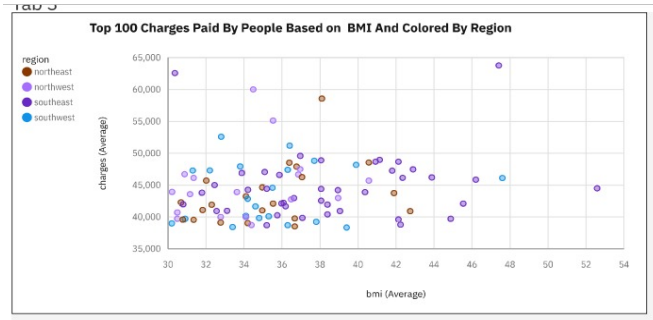
OUTPUTS:

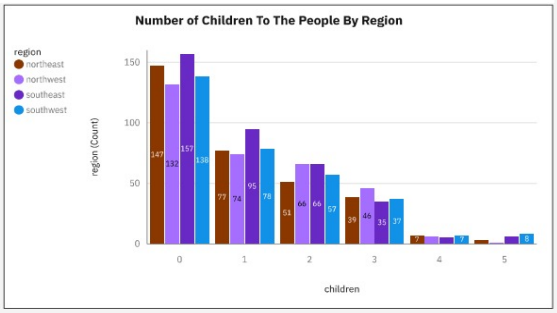


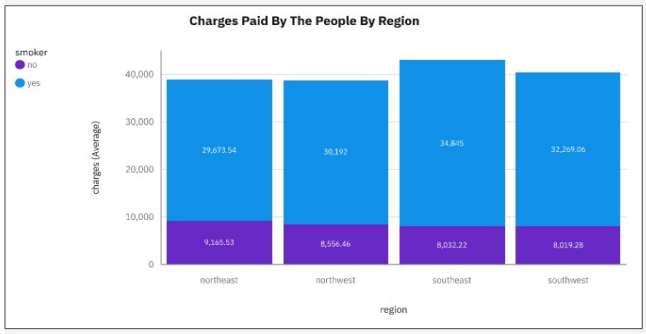


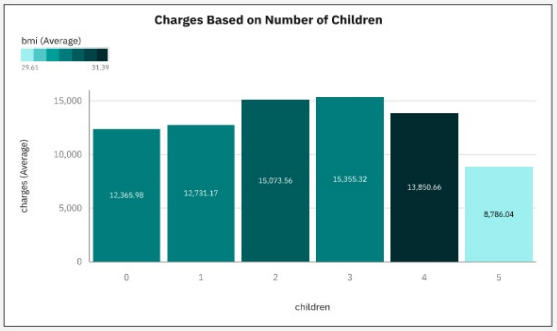












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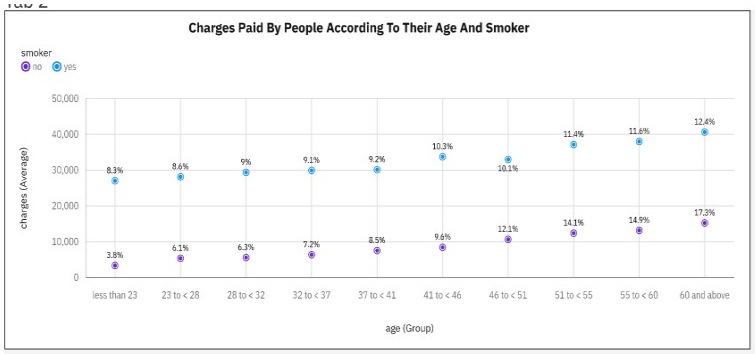

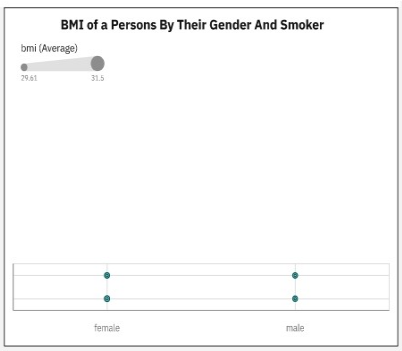

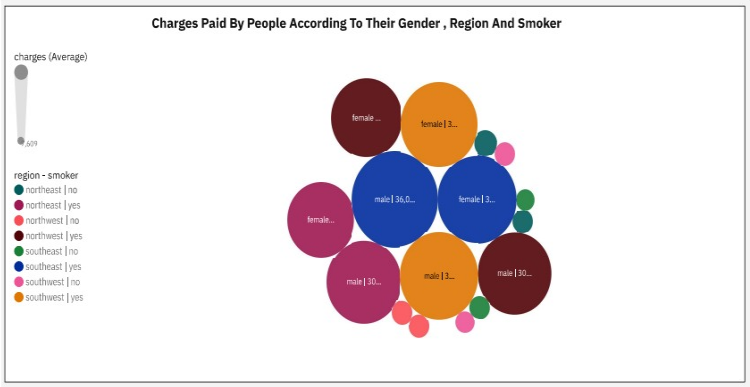

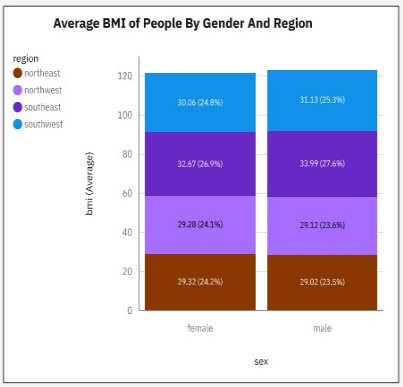

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5. ADVANTAGES & DISADVANTAGES

The potential advantages of the proposed solution are:

1. Predicting medical costs is essential for healthcare planning and financial management. By analyzing historical data and using advanced algorithms, providers can forecast expenses for treatments, procedures, medications, and other services.
2. Accurate medical cost estimates help healthcare organizations allocate resources effectively and plan for financial implications, avoiding potential strain.
3. Understanding medical care expenses helps policymakers create cost-effective healthcare policies without compromising the quality of care.
4. Smokers have higher healthcare expenses due to their increased risk of developing health problems like lung cancer, cardiovascular diseases, and respiratory disorders.
5. Comparing the costs associated with smoking can be beneficial in making informed decisions regarding policy and insurance.
6. Data-driven medical cost predictions improve healthcare planning and decision-making.

DISADVANTAGES :

While the proposed solution has several advantages, it is important to consider the potential disadvantages:

1. Estimations and predictions for medical costs can help with planning healthcare expenses but relying solely on them has drawbacks.
2. Future medical expenses are uncertain, making financial planning difficult and potentially leading to unexpected costs.
3. Healthcare cost estimations may not accurately reflect individual needs due to unique health conditions, resulting in overestimations or underestimations. 4. Healthcare costs can vary due to factors like location, facility type, and insurance coverage. Average costs may not be an accurate reflection of actual costs. 5. Smoking is linked to health risks and higher medical costs, especially for diseases like lung cancer and heart disease. Non-smokers generally have lower healthcare expenses.
6. Healthcare costs are unpredictable. Having comprehensive insurance coverage based on individual needs is better than relying on estimates.

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6. APPLICATIONS

Understanding and analyzing data trends is absolutely crucial for predicting medical expenses, especially for smokers who require more care due to the numerous health issues caused by smoking. This valuable information can be used by healthcare providers and policymakers to create targeted interventions that cater to the specific needs of this group, allowing for the efficient allocation of resources and ultimately helping to reduce smoking rates. In addition, these estimations provide invaluable insights into the financial impact of smoking-related illnesses, which is essential for the proper allocation of resources within the healthcare system. Utilizing this information can lead to better outcomes for individuals and the healthcare system as a whole, making it an invaluable tool in the ongoing battle against smoking-related illnesses.

7. CONCLUSION

In conclusion, it is important to note that there are significant differences in hospitalization and medical care costs between smokers and non-smokers. It is widely acknowledged that smokers tend to incur higher medical expenses due to the increased risk of developing various health conditions associated with smoking, such as heart disease, respiratory issues, and cancer. These conditions can require significant medical treatment, which can be financially burdensome for smokers. Moreover, smokers not only bear the expense of their own medical needs but also contribute to the overall healthcare expenditure of society.

On the other hand, non-smokers typically have lower healthcare expenses and may be eligible for more affordable insurance premiums and medical treatment costs. Therefore, quitting smoking can lead to significant savings in medical care expenses in the long run. This makes it an important decision for both current and potential smokers to consider seriously. By quitting smoking, individuals can not only improve their health but also reduce their healthcare costs. It is crucial to consider this option seriously, as it can have a significant impact on one's quality of life and financial situation immune system, leading to higher medical expenses in the long run. reduce both personal and societal costs linked to smoking-related illnesses.

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8. FUTURE SCOPE

It's important to consider the future scope of hospitalization and medical care costs, especially when examining the differences between smokers and non-smokers. Over the years, medical care costs have been steadily increasing, and it's crucial to understand how certain factors, such as smoking habits, can impact these costs. Smoking causes respiratory diseases, heart diseases, and cancer, which can result in higher healthcare costs for smokers. As healthcare systems continue to evolve and adapt to changing demographics and advancements in medical technology, it's likely that medical care costs will continue to rise. This can be attributed to factors such as inflation, increased demand for healthcare services due to an aging population, and the development of new treatments and therapies.

It's worth noting that smoking can cause chronic health issues and weaken the immune system, which can ultimately lead to higher medical costs for smokers in the long run. Choosing not to smoke can lower healthcare expenses and reduce the risk of costly health conditions associated with smoking. Effective tobacco control measures can improve public health and reduce the financial burden of smoking-related illnesses. Policymakers and healthcare providers should take note of these trends when planning future healthcare systems.

In conclusion, understanding the future scope of hospitalization and medical care costs in relation to smokers versus non-smokers highlights the need for preventive measures against tobacco use. By promoting healthier lifestyles and providing support for those looking to quit smoking or prevent initiation altogether, we can potentially reduce both the personal and societal costs associated with smoking-related illnesses.