Internship project

report on

Prediction of Health Insurance Premium Costs With IBM Auto AI Services

SUBMITTED BY:

SAROJINI NAIK 4BD19CS410

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

BAPUJI INSTITUTE OF ENGINEERING AND TECHNOLOGY DAVANGERE

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CHAPTER 1 INTRODUCTION

1.1 OVERVIEW

Artificial Intelligence is driving significant change in business, and insurance is no exception. AI has the potential to transform the business model of an insurer.
In this project we create a machine learning model to predict the insurance charges, and helps the customer understand how smoking or decreasing your BMI affects insurance premiums.

1.2 PURPOSE

The use of artificial intelligence (AI) is being increasingly used within the health care field and related to them. Some AI services has also been provided by the companies like the insurance companies to their customers. Applications of the use of AI in this field are the treatment recommendations, diagnosis and administrative related activities such as the impact of their habits on the insurance premium they pay.
According to the reports, the value of gross insurance premiums worldwide continue to increase past 5-6 trillion dollars, and this increase or growth can be reduced by mainly quit smoking and concentrating on the BMI. Following these measures, we can save a lot of money to the payment of insurance premium and in this project, we study the effects of age, smoking, BMI, gender, and region to determine how much of a difference these factors can make on your insurance premium. By using our project, customers see the huge difference their lifestyle choices make on their insurance charges. By making use of the concept of AI and machine learning, we help customers understand that how much smoking increases their premium, by predicting the premium they has to pay in no time.

CHAPTER 2

LITERATURE SURVEY

2.1 EXISTING SYSTEM

At present the main exsisting problem in the insurance industry is that the compamies are not customer friendly and also the customers don't know exactly the process of calculation of the insurance premium paid by them and also there is inefficiency in the calculation of insurance premium and also many claims are getting wrongly delivered. This is all due to the amount of work required to be processed manually often leads to inefficiency. Furthermore, an so many sum of tasks may cause mistakes that impact customers' lives.

2.2 PROPOSED SYSTEM

Using AI we get solutions which are designed to automate, simplify, and speed up the process of claims handling, which leads to increased customer satisfaction and cost savings in operations. AI-based applications are extremely effective in collecting and processing claims data, verifying and analyzing them. With the help of AI, customer experience can be improved to so much extent.

CHAPTER 3

THEORETICAL ANALYSIS

3.1 BLOCK DIAGRAM

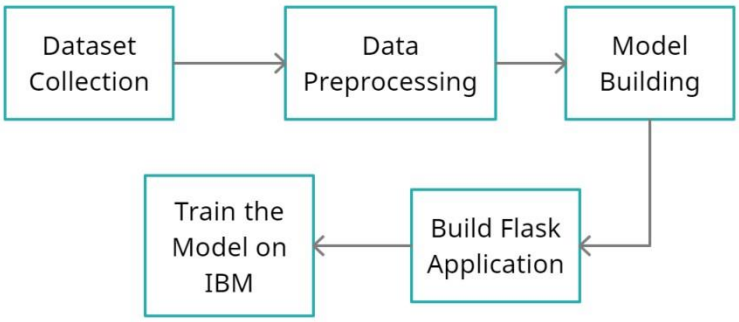

Figure 3.1.1: Block Diagram of Project

3.2 HARDWARE AND SOFTWARE DESIGNING

HARDWARE DESIGNING:

The hardware required for the development of this project is:

- Processor : Intel® CoreTM i5-9300H
- Processor speed : 2.4GHz
- RAM Size : 8 GB DDR
- System Type : X64-based processor

SOFTWARE DESIGNING:

The software required for the development of this project is:

- Desktop GUI : Anaconda Navigator
- Operating System : Windows 10(and other higher version)
- Front end : HTML,CSS,JAVASCRIPT
- Programming Language : PYTHON
- Cloud Computing Service : IBM Cloud Services
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CHAPTER 4

EXPERIMENTAL ANALYSIS

4.1 ANALYSIS OR INVESTIGATION MADE WHILE WORKING

A Health insurance prediction has been a high-interest research area, as it requires noticeable effort and knowledge of the field expert. Considerable number of distinct attributes are examined for the reliable and accurate prediction. To build a model for predicting the price of used cars in we applied machine learning technique (Random Forest). Furthermore, the model was evaluated using test data and the accuracy of 87.38% was obtained.

Random Forest Regressor:

Random forest is a meta estimator that fits a number of classifying decision trees on various sub-samples of the dataset and uses averaging to improve the predictive accuracy and control over-fitting. The sub-sample size is controlled with the max_samples parameter if bootstrap=True (default), otherwise the whole dataset is used to build each tree.

Python Flask:

Flask is a micro web framework written in Python.Extensions exist for object-relational mappers, form validation, upload handling, various open authentication technologies and several common framework related tools. Flask is used for the backend, but it makes use of a templating language called Jinja2 which is used to create HTML, XML or other markup

formats that are returned to the user via an HTTP request. Flask offers a diversified working style while Django offers a Monolithic working style. It is designed as a web framework for restful API development

CHAPTER 5

FLOWCHART

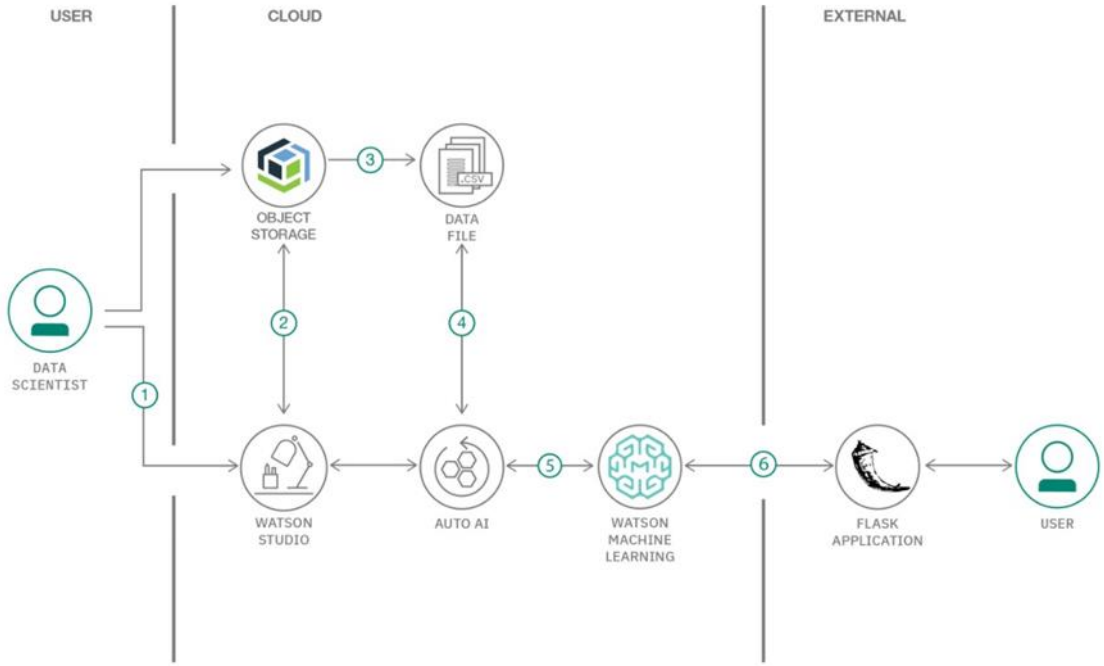

Figure 5.1: Flowchart of the Project

Project Flow:

1. Install Required Libraries.

2. Data Collection.
    - Collect the dataset or Create the dataset

3. Data Pre- processing.
    - Import the Libraries.
    - Importing the dataset.

- Understanding Data Type and Summary of features.
- Take care of missing data & create columns.
- Data Visualization.
- Drop the column from dataframe ,merge the dataframes.
- Observing Target,Numerical and Categorical Columns
- Label Encoding & Splitting the Dataset into Dependent and Independent variables
- Splitting Data into Train and Test.

4. Model Building
    - Training and testing the model
    - Evaluation of Model Saving the Model

5. Application Building
    - Create an HTML file Build a Python Code

6. Final UI
    - Dashboard Of the flask app.

CHAPTER 6

RESULT

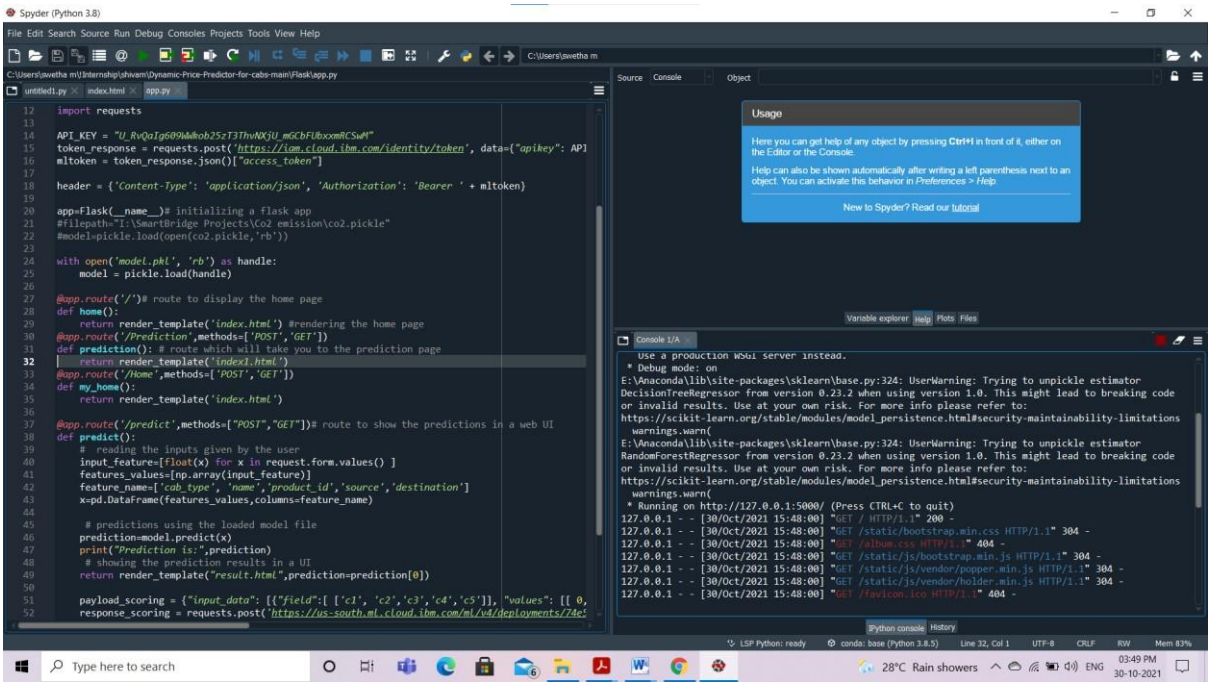

Figure 6.1: Output Page

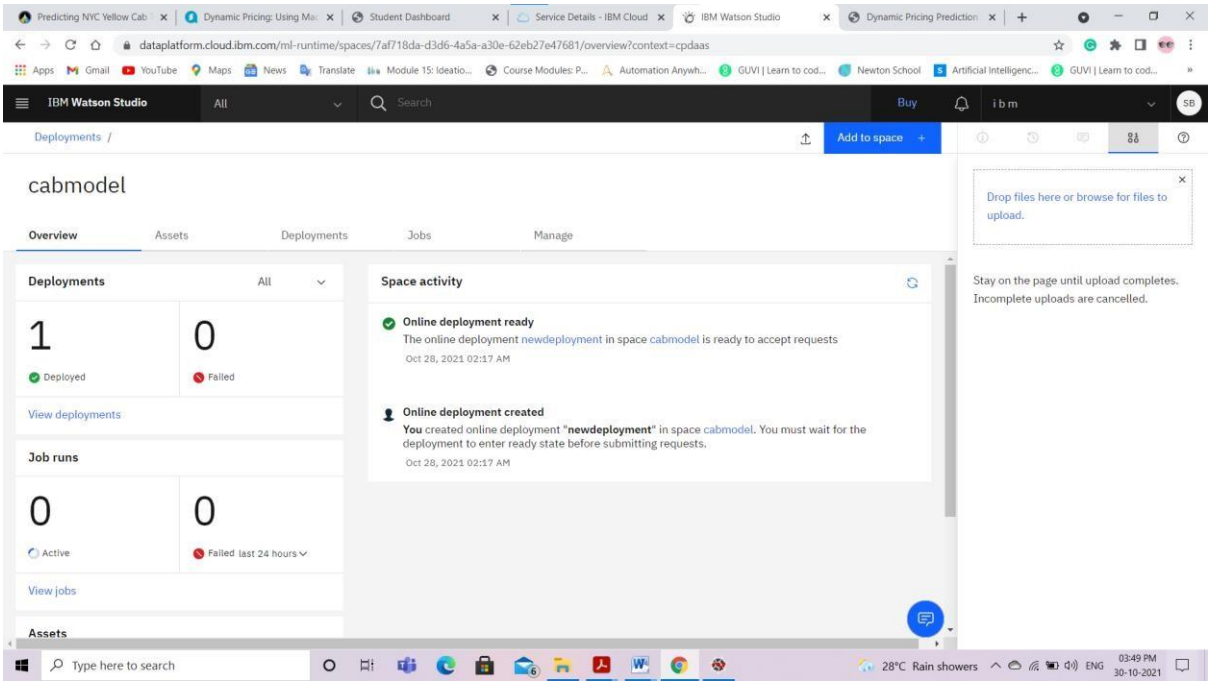

Figure 6.2: Deploying Project in IBM Cloud

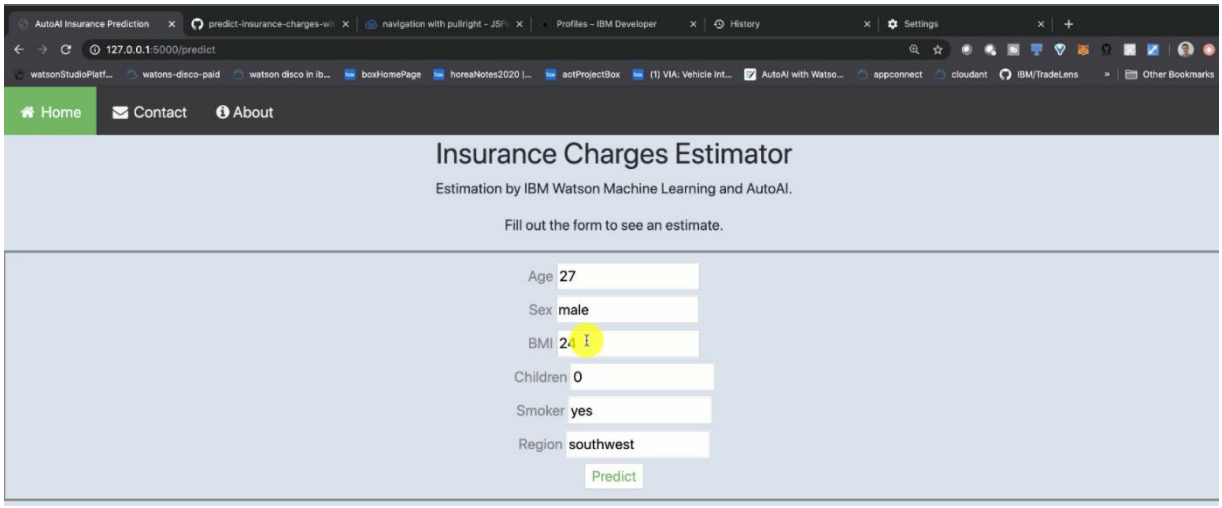

Figure 6.4: Prediction Page

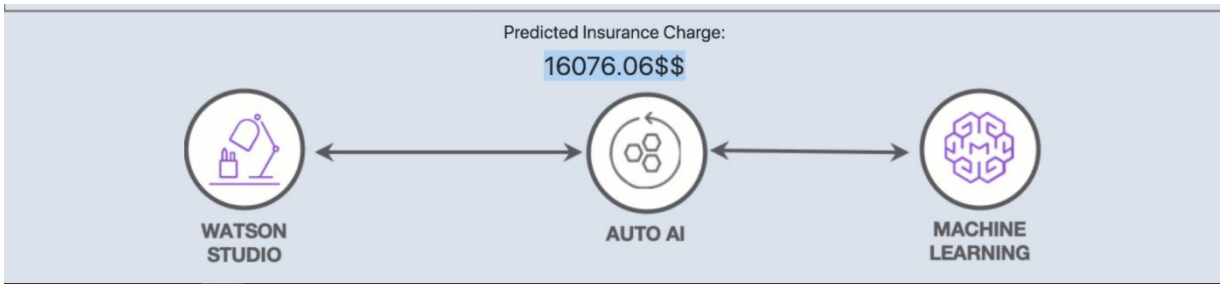

Figure 6.5: Result page

CHAPTER 7

ADVANTAGES AND DISADVANTAGES

Advantages

● The customer will be able to know the premium to be paidon his own and there will be the customer satisfaction increases and there will be no wrong claims either by the customer or the insurance company.

● The sales for the company increases and it is also proved already that 32% stock price increase on an average has been to the companies which adopted the AI application.

Disadvantages

● Lacks creativity

● Chances Of unemployment

● Chances of company making fraud using the technology

CHAPTER 8

APPLICATIONS

● Support in Clinical Decisions

● Enhance Primary Care and Triage through

● Robotic Surgeries

● Virtual nursing assistants

● Aiding in the accurate diagnosis

● Minimizing the burden of EHR use

CHAPTER 9

CONCLUSION AND FUTURESCOPE

Conclusion

Machine learning algorithms can effectively scan all the incoming data, interpret instead of insurance agents, and provide faster settlement to end-users. So the workload decreases and the customer satisfaction can be improved. Customers can also get to know the factors for the increase in the premium to be paid by them and can control them like smoking etc. So it is profitable to both company and the customers.

Future scope

Machine learning algorithms can be used by the customers to select the best insurance policy based on the given data to them and the customers only can chose the best plan. The future scope of this project can be the above mentioned point.