HIGH LEVEL DESIGN

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Contents

Abstract

We get at the details of the personal state of being healthy facts to say what will take place in the future with insurance reward of beings. seven regression 1 models naming having an effect equal to the input regression 1, Decision Tree regression 1, random 2 Forest regression 1, degree of slope making stronger regression 1, KNN have been used to make a comparison of and in comparison the operation of these algorithms 3. training knowledge unit was used for training design to be copied and that training scaled-copy helped to come up with some statements of what will take place in the future. Then the predicted amount was made a comparison of with current facts to test and make certain of the scaled-copy act of having no error. Later accuracies 4 of all these models were made a comparison of. It was gathered that rate of change making stronger and random 2 Forest algorithms 3 done better than the still in the same way copies made to scale. degree of slope making stronger is best was good, right for in this example because it gives best put value written music like to other copies made to scale.

1.0 Introduction

1.1 Why this High-Level Design Document?

The purpose of this High-Level document is to add necessary detailsto current project description to represent a suitable model for coding. This document is used as a reference manual for how the model interact at a high-level.

The HLD will

- Presents all design aspects and define them in detail.
- Describe the user interface being implemented.
- Describe the hardware and software interfaces.
- Describe the performance requirements.
- Include design feature and the architecture of the project.

1.2 Scope

The HLD document presents the structure of the system, such as the database architecture, application architecture, and technology architecture. The HLD uses non-technical to middle-technical terms which should be understandable to the administrators of the system.

1.3 Definitions

Term	Description
Database	Collection of all the information
IDE	Integrated Development Environment
API	Application Programming Interface
KPI	Key Performance Indicator
VS Code	Visual Studio Code
EDA	Exploratory Data Analysis
KNN	KNearest Neighbors

2.0 General Description

2.1 Product Perspective

The Insurance premium estimation is a machine learning based predictive model which will help us to predict the premium of thepersonal for health insurance.

2.2 Problem Statement

To develop an API interface to predict the premium of insurance usingpeople individual health data and analyzing the following:

- To detect BMI value affects the premium.
- To detect smoking affects the premium of the insurance.
- To create API interface to predict the premium

2.3 Proposed Solution

The solution proposed here is an estimating premium of insurance based on people health data and this can be implemented to performabove mention use cases. In first case, analyzing how BMI value affectthe people health as well as premium of the insurance. In the second case, if model detects the smoking affecting the premium, we will inform that to people. And in the last use case, we will be making an interface to predict the premium.

2.4 Further Improvements

2.5 Technical Requirements

The solution can be a cloud-based or application hosted on an internalserver or even be hosted on a local machine. For accessing this application below are the minimum requirements:

- Good internet connection.
- Web Browser.

For training model, the system requirements are as follows:

- +4 GB RAM preferred
- Operation System: Windows, Linux, Mac
- Visual Studio Code / Jupyter notebook

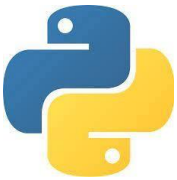
2.6 Data Requirements

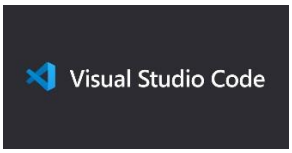
Data requirements completely depends on out problem statement.

- Comma separated values (CSV) file.
- Input file feature/field names and its sequence should be followedas per decided.

2.7 Tools Used

Python programming language and frameworks such as NumPy, Pandas, Scikit-learn, Plotly, Flask are used to build the whole model.



- Pandas is an open-source Python package that is widely used fordata analysis and machine learning tasks.
- NumPy is most commonly used package for scientific computingin Python.
- Plotly is an open-source data visualization library used to createinteractive and quality charts/graphs.
- Scikit-learn is used for a machine learning.
- Flask is used to build API.
- VS Code is used as IDE (Integrated Development Environment)
- GitHub is used as version control system.
- Front end development is done using HTML/CSS.
- Heroku is used for deployment of the model.

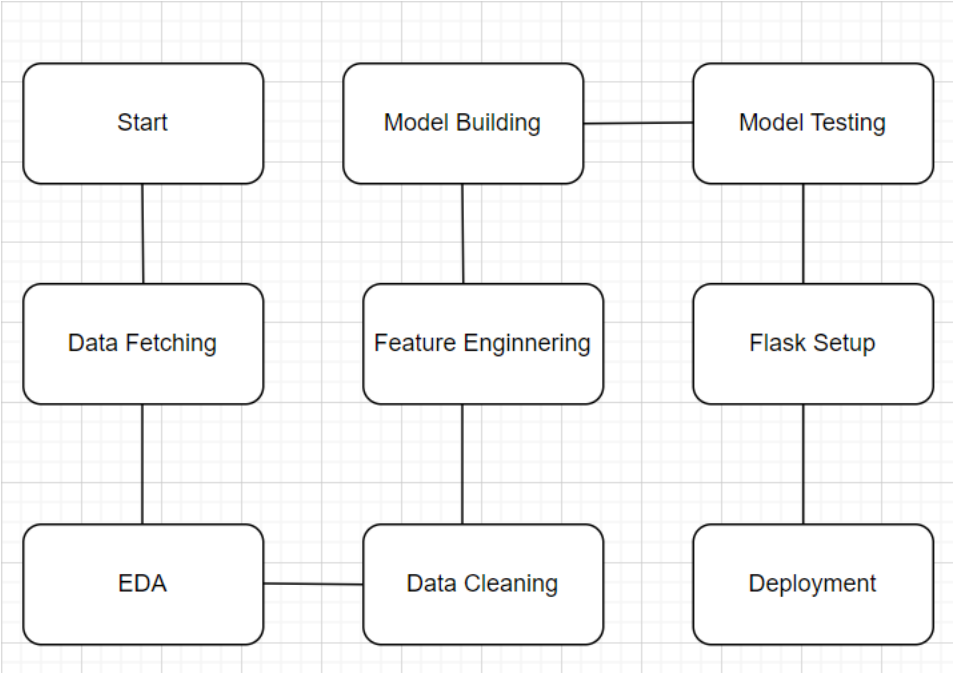
2.8 Constraints

2.9 Assumptions

The main objective of the project is to develop an API to predict the premium for people on the basis of their health information. Machinelearning based regression model is used for predicting above mentioned cases on the input data.

3.0 Design Details

3.1 Process Flow



3.2 Event Log

The system should log every event so that the user will know whatprocess is running internally.

Initial Step-By-Step Description:

- The system identifies at what step logging required.
- The system should be able to log each and every system flow.
- Developer can choose logging method. You can choose databaselogging.

System should not hang out even after using so many loggings.

4.0 Performance

4.1 Reusability

The entire solution will be done in modular fashion and will be API oriented. So, in the case of the scaling the application, the componentsare completely reusable.

4.2 Application Compatibility

The interaction with the application is done through the designed userinterface, which the end user can access through any web browser.

4.3 Deployment

5.0 Dashboards

A dashboard is a data visualization and analysis tool that displays on one screen the status of key performance indicators (KPIs) and otherimportant business metrics.

As a high-level reporting mechanism, dashboards provide fast ‘big-picture’ answer to critical business questions and assist and benefitdecision making in several ways:

- Communicating how premium is varies with BMI value.
- Visualizing relationship of gender with premium in easy-to-understand way.

6.0 Conclusion

This system shows us that the different techniques that are used in order to value the how much amount of reward needed on the base of person state of being healthy place, position. After getting at details it shows how a smoker and non-smokers acting on the amount of value. in addition, important point or amount different between male and female monies used, needed. act of having no error, which plays a key part in prediction-based system. From the results we could see that degree of slope making stronger turned out to be best working scaled-copy for this hard question in terms of the act of having no error. Our statements of what will take place in the future help user to have knowledge of how much amount reward they need on the base of their current state of being healthy place, position.