INSURANCE PREMIUM PREDICTION

INTRODUCTION:-

- INSURANCE PREMIUM PREDICTION IS a web app which has a Machine Learning model running at the back. The purpose of developing this app is to predict premium cost of the California . This model is based on the insurance record in califonia dataset.
- Based on the the current condition of the people its predict the cost.
- App is deployed on cloud server(heroku).
- NOTE:- this web app only predict premium cost for different region of California.

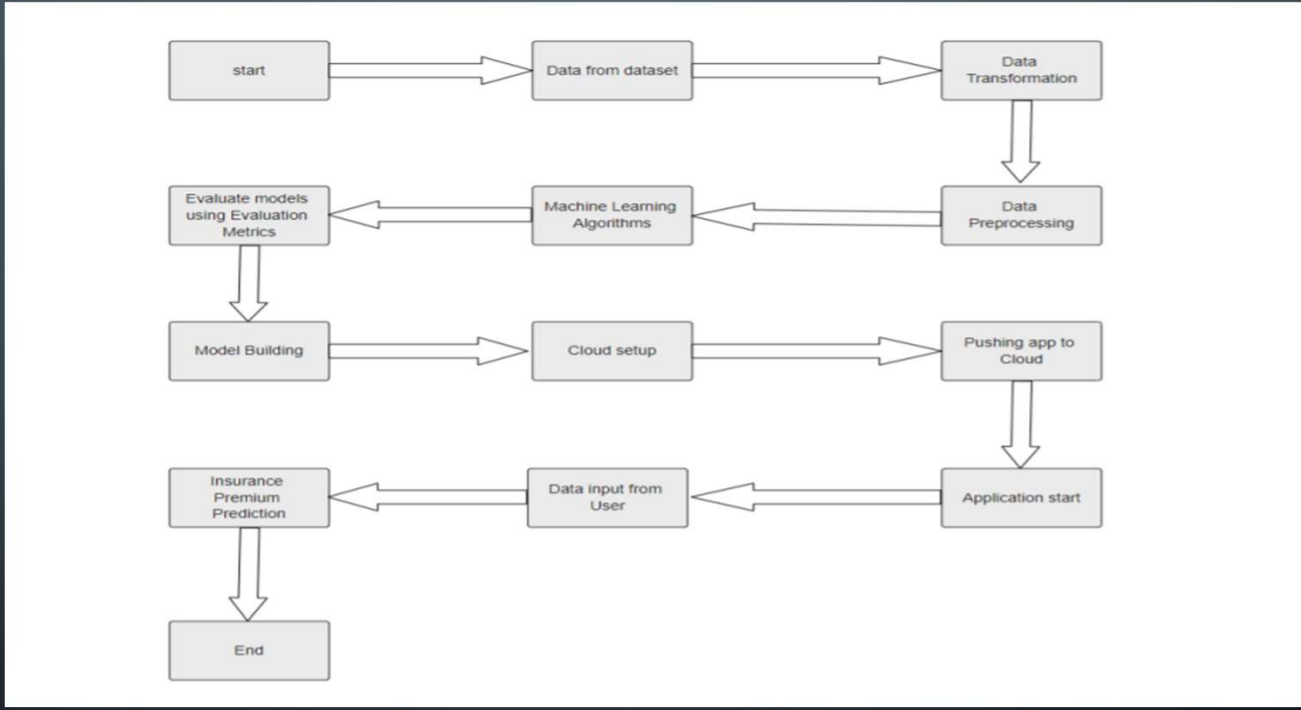
Objective:

The goal of this project is to give people an estimate of how much they need based on their individual health situation. After that, customers can work with any health insurance carrier and its plans and perks while keeping the projected cost from our study in mind. This can assist a person in concentrating on the health side of an insurance policy rather han the ineffective part.

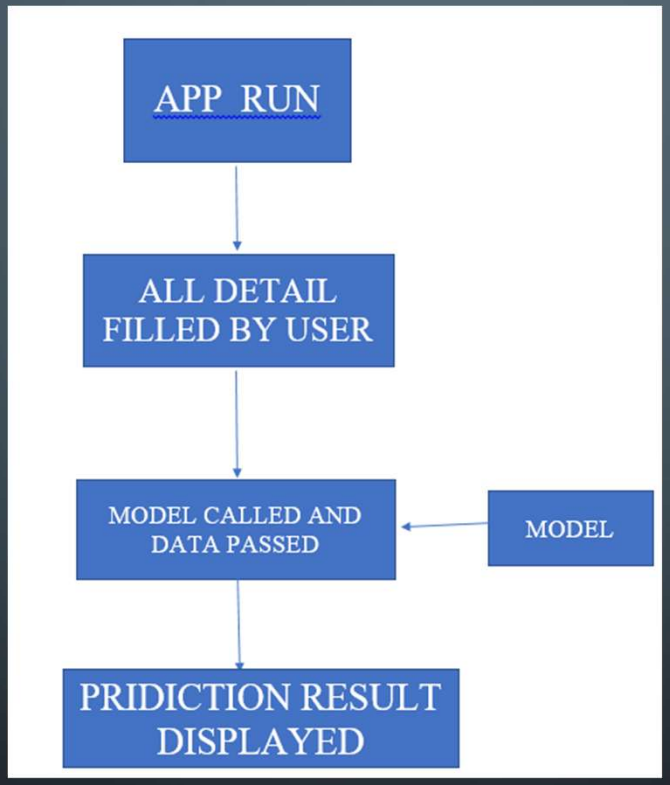
Benefits:

- Predict the estimate price to spend on Insurance Premium
- Gives better understanding of available Insurance Plans
- Helps by concentrating on the health side of an Insurance

Architecture:



Flow Diagram:



Data Validation and Transformation:

- Data Type validation: The data type of Input features is specified in the Machine Learning model. It is validated when we enter values in the Web UI.
- Categorical Conversion: The Categorical features are converted into Numerical values using 'Label Encoding' or 'One Hot Encoding' methods.

Model Training:

- Data Export from source :

  The accumulated data from source is exported in csv format for model training

- Data Preprocessing

  - Performing EDA to get insight of data like identifying distribution , outliers ,trend among data, etc
  - Check for null values in the columns. If present impute the null values.
  - Encode the categorical values with numeric values.
  - Perform Robust Scalar to scale down the values.

Model Selection:

- After the models are trained, we find the best fitting model for our data. For each model, hyperparameters are tuned (where needed).
- We calculate the R2 score, k-fold Cross Validation score and Root Mean Square Error Value for every model and select the best fitting model for production.

Prediction

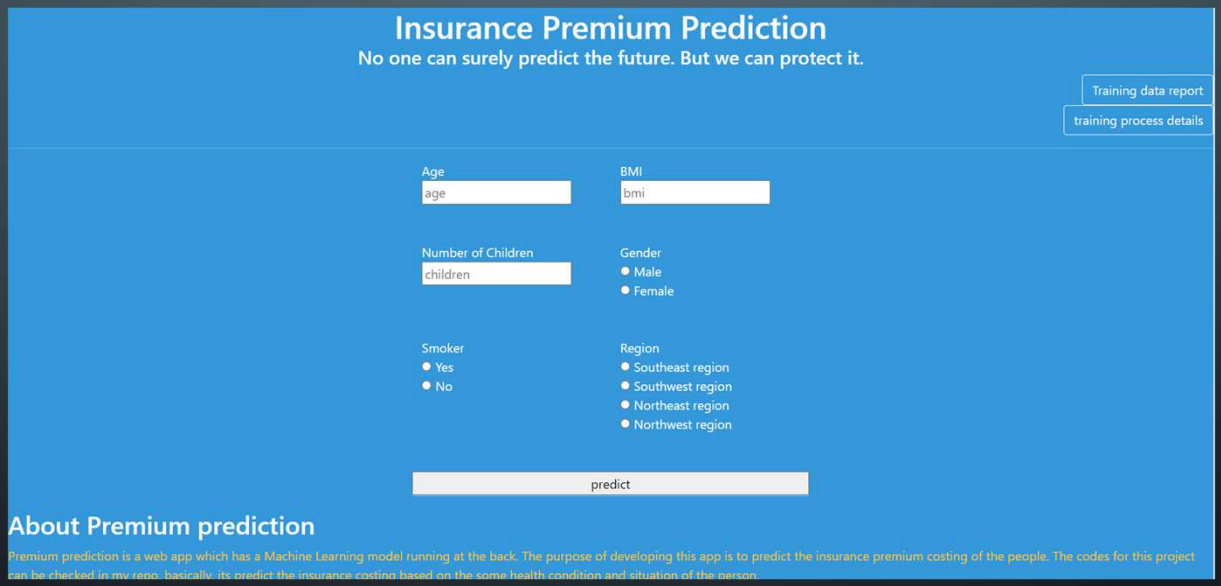
- The testing files are shared in the batches and we perform the same Validation operations ,data transformation and data insertion on them.
- The accumulated data from source is used for prediction
- We perform data pre-processing techniques on it.
- Random Forest Regressor model created during training is loaded
- The model is loaded and is used to predict the data based on User Input data gathered through the Web UI
- Once the prediction is done , the predictions are displayed in the Web UI.

App Tour:

Step 1. first visit the given URL link below:-

URL.

Step 2. after visiting url have reached to home page of app. On the home page fill the required filed and click on predict.



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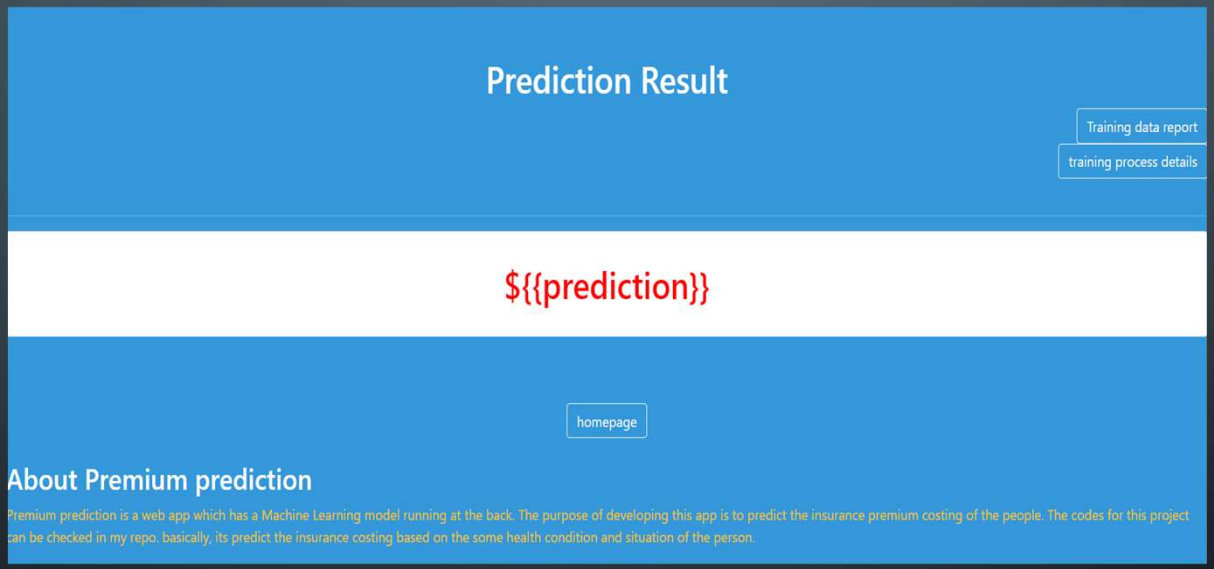
Step 4. after filling all the details just click on predict button. After clicking on predict you have reached to result page which contain the prediction result .
Similar to image shown below:-



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Step 5. there is also a section of see the report of the data set on which the mode is trained and also a button for see how the training and selection of the model is done .