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DEPARTMENT OF COMPUTER ENGINEERING
SUBJECT: Artificial Intelligence and Machine Learning

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Experiment 9 & 10	
AIM :	Mini Project
TITLE:	Insurance Score Predictor
Theory:	**The Insurance Score Predictor** project aims to develop a machine learning model that can predict insurance costs based on medical records data. The project consists of the following key components: **1. Data Pre-processing:** The medical records data was preprocessed using Google Colab, which involved cleaning, handling missing values, and preparing the data for model training. **2. Model Training:** Two machine learning models were trained on the preprocessed data: - Linear Regression - Random Forest The best performing model, which was the Random Forest model, was saved as a pickle file for deployment. **3. Web Application:** A web application was developed using Django (backend) and React (frontend) to allow users to interact with the insurance cost prediction model. The saved Random Forest model pickle file was integrated into the Django application. **Data Preprocessing (Google Colab)** The data preprocessing steps performed in Google Colab included: • Importing the necessary libraries (e.g., pandas, numpy, sklearn) • Loading the medical records dataset • Handling missing values

- Encoding categorical variables
- Splitting the data into training and testing sets
- Scaling the features using standard scaler

Model Training

Two machine learning models were trained on the preprocessed data:

1. Linear Regression:

- The linear regression model was trained on the training data.

- The model's performance was evaluated on the test data.

- The model's pickle file was saved for deployment.

2. Random Forest:

- The random forest model was trained on the training data.

- The model's performance was evaluated on the test data.

- The model's pickle file was saved for deployment.

The Random Forest model was found to have better performance and was selected for integration into the web application.

Web Application (Django and React)

The web application was built using Django for the backend and React for the frontend. The key features of the web application include:

1. User Interface: The React frontend provides a clean and intuitive user interface for interacting with the insurance cost prediction model.

2. Model Integration: The saved Random Forest model pickle file was integrated into the Django backend, allowing the web application to utilize the trained machine learning model for predictions.

	3. Prediction Functionality: Users can input their medical records data into the web application, and the application will use the integrated Random Forest model to predict their insurance costs. **4. Responsive Design:** The web application was designed to be responsive, ensuring a seamless user experience across different devices and screen sizes. By combining the data preprocessing, model training, and web application components, the Insurance Score Predictor project provides a comprehensive solution for predicting insurance costs based on medical records data.
Collab Link:	https://colab.research.google.com/drive/1KF87J81hl5vbbIUWB_9pvp9Vj8L0BMGC
Github Repo Link:	https://github.com/manishjadhav9/InsuranceCostPredictor