

## **Title:** Predicting Medical Insurance Costs Using Machine Learning

### **Abstract:**

This project focuses on predicting medical insurance costs using machine learning techniques. By leveraging a dataset containing individual characteristics (age, sex, BMI, etc.) and medical history, we aim to develop a model that accurately predicts the insurance costs for an individual. We will utilize various regression algorithms and evaluate their performance to identify the most suitable model for this task. The goal is to provide insights into the factors influencing medical insurance costs and facilitate informed decision-making for both insurance providers and individuals.

### **Libraries Used:**

1. **pandas:** For data manipulation and analysis.
2. **NumPy:** For numerical computations and array operations.
3. **scikit-learn:** For machine learning algorithms, including regression models, data preprocessing tools, and model evaluation metrics.
4. **matplotlib and seaborn:** For data visualization.

### **Result:**

After training and evaluating the models, we may achieve a high R-squared value (e.g., 0.85) indicating a good fit of the model to the data. This implies that the model is able to explain a significant portion of the variance in medical insurance costs. Further analysis of feature importance can reveal which factors have the most impact on predicted costs.

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