Scope of Work

Project Title: Predictive Health Insurance Premium Model

Client: Portfolio Project

Service Provider: Shijin Ramesh – Data Scientist

Project Overview

The goal of this project is to build and deploy a high-accuracy predictive model that can estimate health insurance premiums based on a person's:

- Age
- BMI
- Smoking habits
- Medical history
- Financial profile

The solution will support insurance underwriters by providing quick and accurate premium estimates through a cloud-hosted application.

This Scope of Work covers Phase 1 – MVP (Minimum Viable Product).

Project Objectives

- Achieve at least 97% prediction accuracy
- Ensure that 95% of predictions are within ±10% difference from the actual premium
- Deploy the model to the cloud for remote usage
- Provide an interactive Streamlit app for underwriting teams to input data and get predictions instantly

Scope of Work – Phase 1

1. Data Collection & Preprocessing

- Import and clean the dataset
- Handle missing values and outliers
- Perform Exploratory Data Analysis (EDA)

2. Model Development

- Train and compare multiple ML algorithms

- Improve model performance using tuning and segmentation
- Finalize the best model for deployment

3. Model Deployment

- Deploy the approved model to a secure cloud platform
- Ensure system stability and availability

4. Streamlit App Development

- Build an easy-to-use interface for underwriters
- Display prediction results clearly and instantly
- Include transparency on how the prediction was made

5. Testing & Validation

- Test with real-world-like scenarios
- Validate prediction quality and business accuracy

6. Documentation & Knowledge Transfer

- Provide documentation for:
    - Data flow
    - Model features
    - How to use the Streamlit app
- Assist underwriters in adapting the tool

7. Project Deliverables

- Cleaned and processed dataset
- Trained and optimized ML models
- Cloud-deployed model + API
- Streamlit user application
- Documentation for business users
- Model + code repository

8. Project Management

Primary Contact:
Shijin Ramesh – Data Scientist

Communication Plan:

- Weekly progress updates
- Bi-weekly review with stakeholders

Acceptance Criteria

- Model deployed successfully to the cloud
- Accuracy meets the agreed benchmark (**≥ 97%**)
- Streamlit application is functional and user-friendly
- Stakeholder approval on final testing