Heart Disease Prediction Project - Documentation

# 1. Medallion Architecture

The Medallion Architecture is used to organize data into layers to ensure data quality and efficient processing:

Bronze Layer: Raw data from sources is ingested and stored in mongodb. Minimal transformation is applied.

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Silver Layer: Cleaned and enriched data is processed here, including handling missing values, encoding, etc.

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- Gold Layer: Aggregated, normalized and ready-to-use data, suitable for training ML models and serving predictions.  
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# 2. Model Development

This phase includes all activities to train an accurate and robust heart disease prediction model:  
  
Data Preprocessing: Missing value treatment, encoding categorical variables, and feature scaling.  
Feature Selection: Selected relevant features such as age, sex, cp, trestbps, etc.  
Model Training: Trained models like Logistic Regression, Random Forest, etc. Final choice based on accuracy.  
 Hyperparameter Tuning: GridSearchCV or RandomSearchCV used for optimal model configuration.  
Evaluation: Evaluated using accuracy, precision, recall, and ROC-AUC scores.

# 3. API Documentation

\*\*Endpoints:\*\*

/health - GET - Returns status of the API.

/predict - POST - Takes patient data in JSON and returns prediction and risk.

\*\*Example POST request JSON for /predict:\*\*

{  
 "age": 63,  
 "sex": 1,  
 "cp": 3,  
 "trestbps": 145,  
 "chol": 233,  
 "fbs": 1,  
 "restecg": 0,  
 "thalach": 150,  
 "exang": 0,  
 "oldpeak": 2.3,  
 "slope": 1,  
 "ca": 0,  
 "thal": 2  
}

\*\*Sample Response:\*\*

{  
 "prediction": "High Risk",  
 "probability": 0.8421  
}

## 4. Testing with Postman

Set method to POST and URL to https://aiml-task-2.onrender.com/predict  
 Set header: Content-Type: application/json  
 Add the above sample JSON in the body  
 Send request to view the prediction  
 Similarly, send GET request to /health to check API status

Sample screen shots

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Render link : https://aiml-task-2.onrender.com