User Guide

 Version 4.3.1

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1 Entrance

1.1 Insurix AI Platform

Insurix is empowering insurance companies with data-driven forecasts using machine learning technology and designed to forecast fraud detection, premiums, possible customer claims and repair cost.
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1.2 Key features

- Fraud Detection: Predict suspicious claims using anomaly detection algorithms to minimize financial losses.
- Dynamic Premiums: Calculate optimized premiums based on historical data and risk assessment.
- Customer Claims Forecasting: Provide a reliable estimation of likely claims based on trends and individual policy details.
- Cost Prediction: Forecast mending/repair costs to streamline resource allocation and planning.

1.4 Challenges faced in the insurance sector

- Increasing fraud cases.
- Difficulty in optimizing premium calculations
- Uncertainty in predicting customer claims and repair costs.

Insurix is a powerful product to these issues using advanced machine learning.

1.5 How it works

Data Input: Historical customer data, claim records, repair costs, fraud cases, etc.

Feature Extraction: Key features like demographics, claim history, payment patterns, and inspection records.

Model Training: Use ML.NET models to analyze patterns and predict outcomes;

- Fraud detection (classification models).
- Premium calculations (regression models).
- Claim predictions (time-series forecasting).
- Repair cost estimates (regression models).

1.6 Benefits

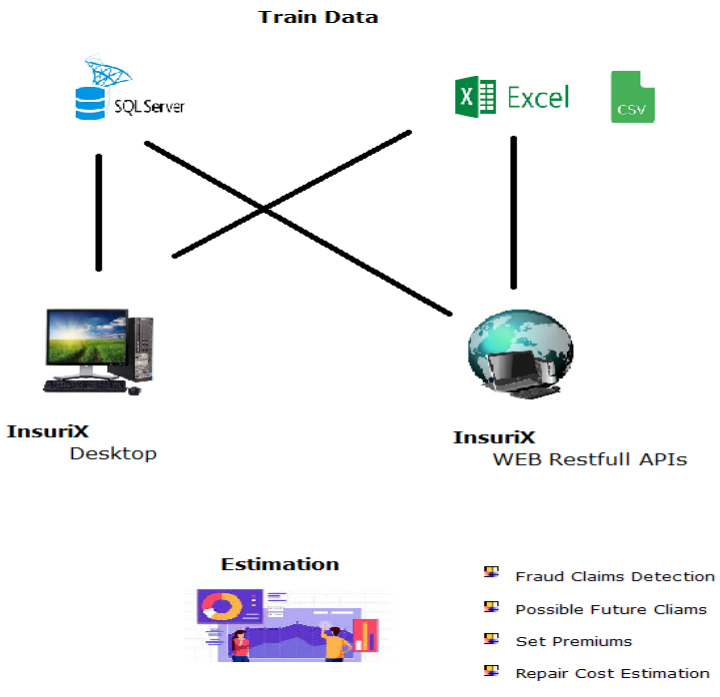
- Reducing financial losses due to fraud.
- Increasing profitability through data-driven premium optimization
- Enhancing customer satisfaction with accurate claim forecasting.
- Streamlining operations with mending cost predictions.
- Increased customer acquisition by 15%.
- Reduced unplanned payouts by 20%.
- Improved resource allocation efficiency by 25%.

1.7 Technical Overview

Algorithm Used: Decision trees for fraud detection, linear regression for premium calculations, and forecasting models for claims.

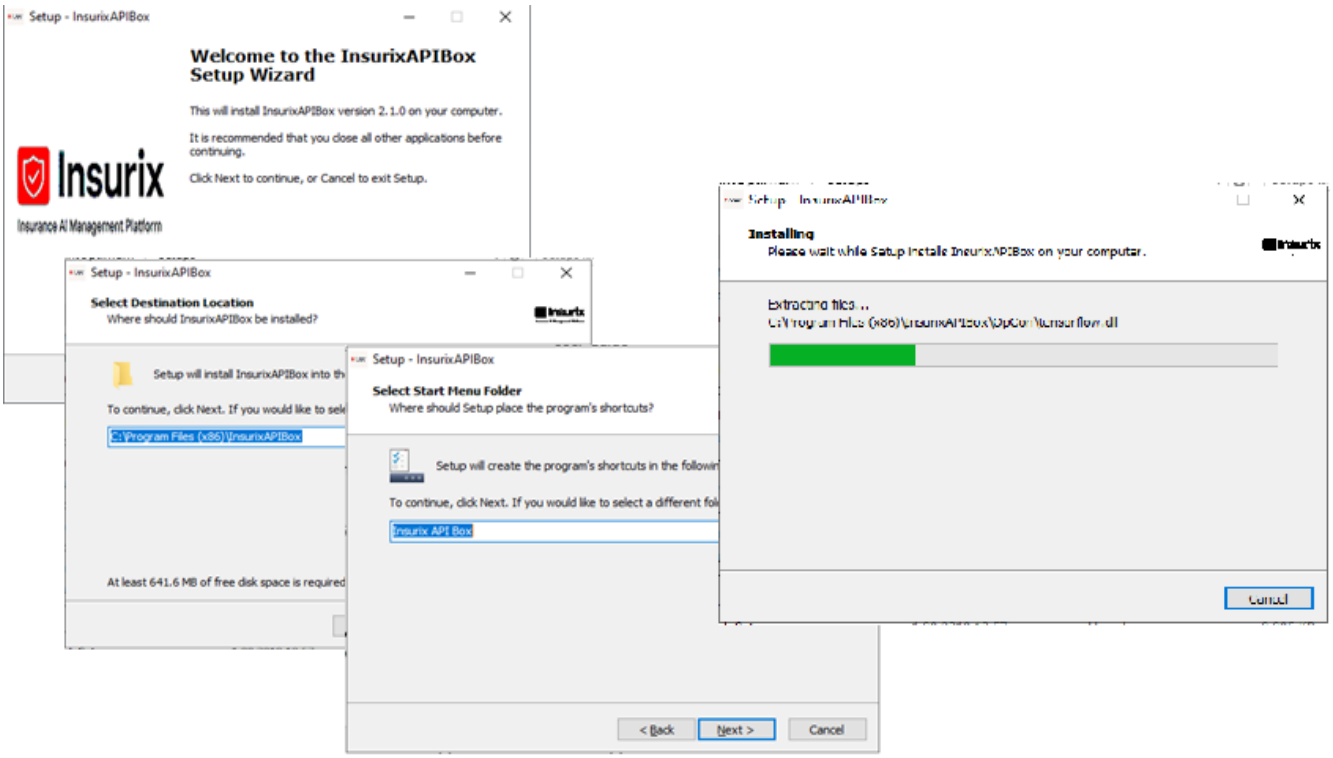
Evaluation Metrics: MAE, RMSE for numerical predictions, and Precison, recall, F1 Socre, accuracy for fraud detection.

Integration : Insurix Framework for desktop applications and Restfull API Platform for web application integration.



2. Setup

Run Insurix.Setup.exe;

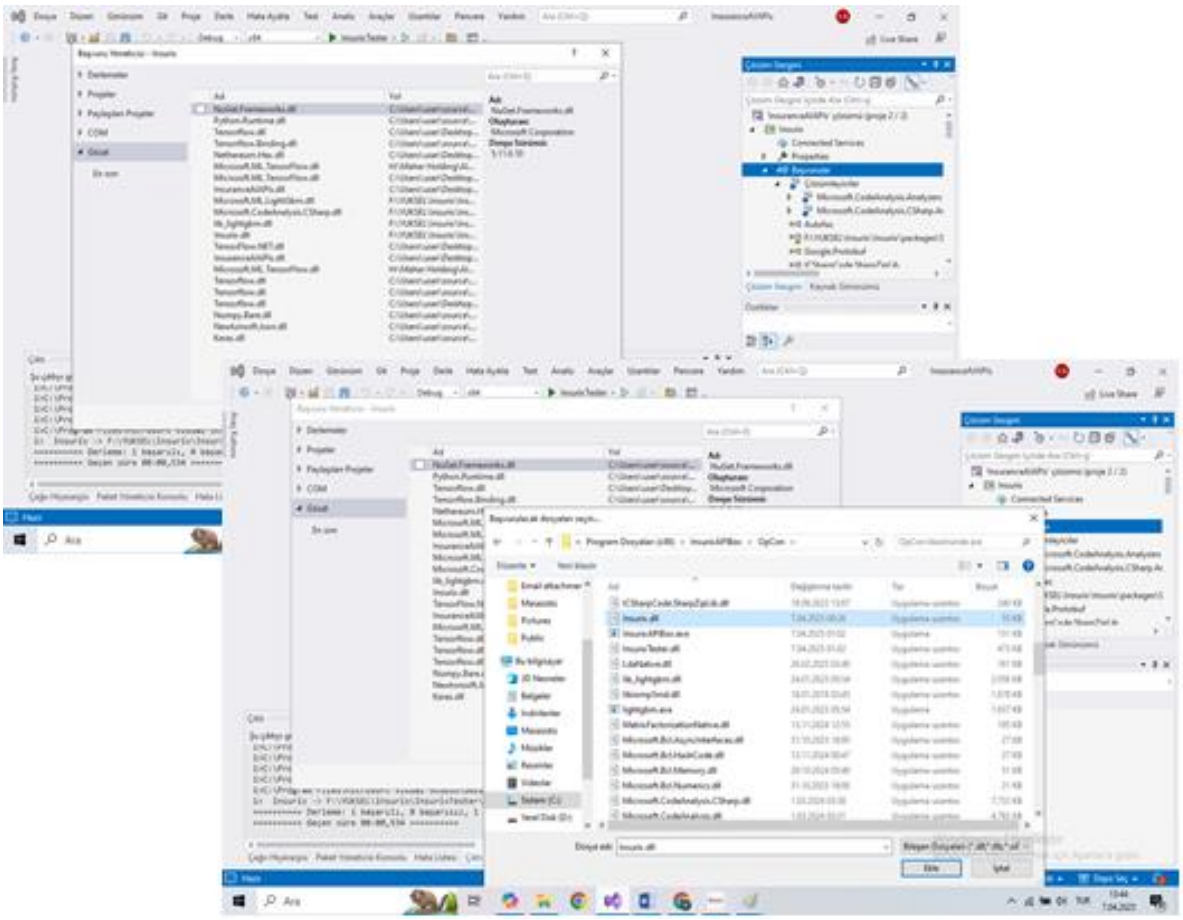


Insurix Platform setup will deliver executables (API platform (insurix.dll) for desktop and web integration), shortcuts (Insurix API Box for testing, removing setup..etc) for start menu, sample excel files and MS SQL Database.

3. Platform Integration & Example Usage

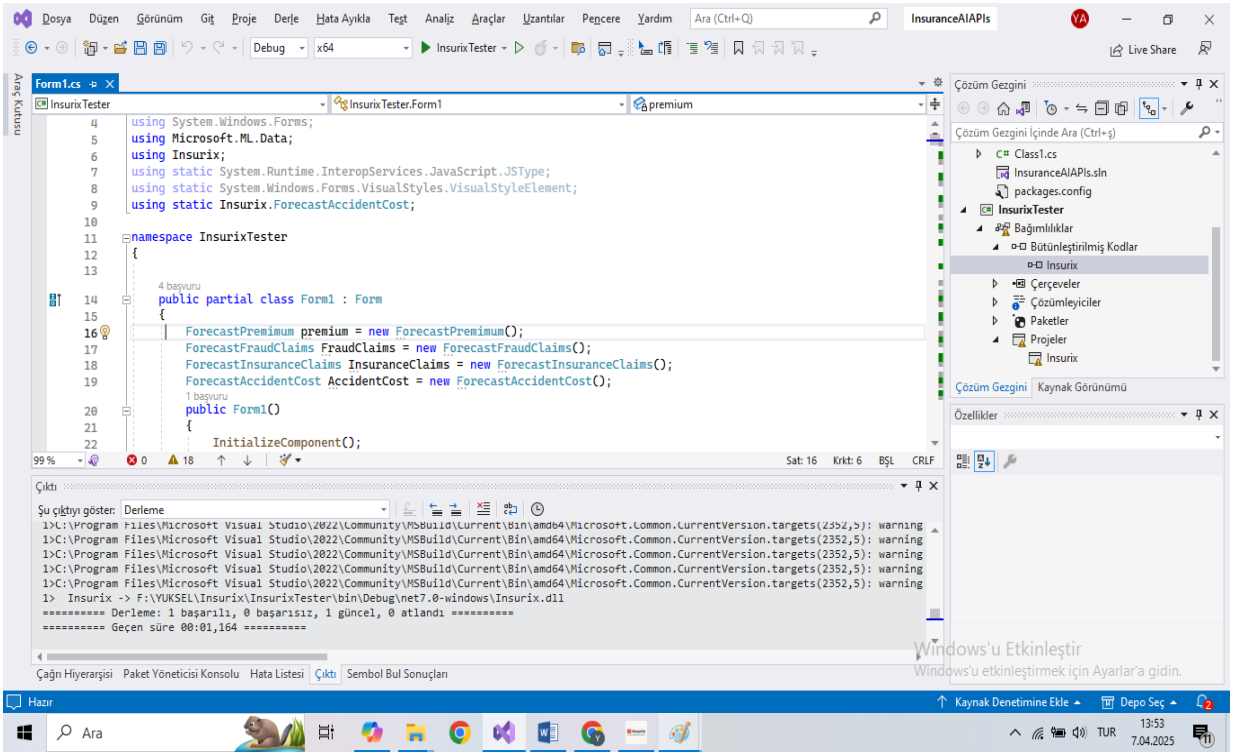
3.1 Integration

Run Visual Studio 20XX and create a project(Forms..etc) then click add a reference for the project.



Select insurex.dll from your setup directory under installation path.

Add "using insurex;" line into .cs file in which you will use API methods.



Each API function contains methods below;

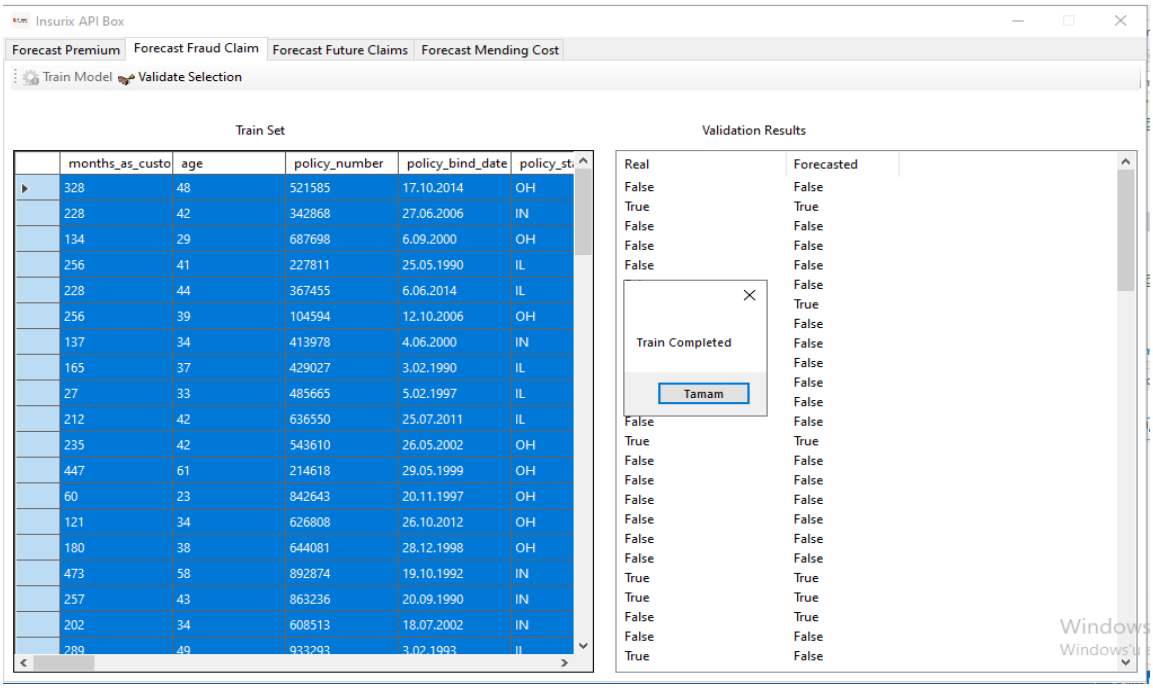
1. LoadandTrainModel– training data and making test validations, returns performance metrics (MulticlassClassificationMetrics, RegressionMetrics, BinaryClassificationMetrics) about training.

2. MakeSinglePrediction – Sending single a prediction request and get response as labels and score in ModelPrediction structure.

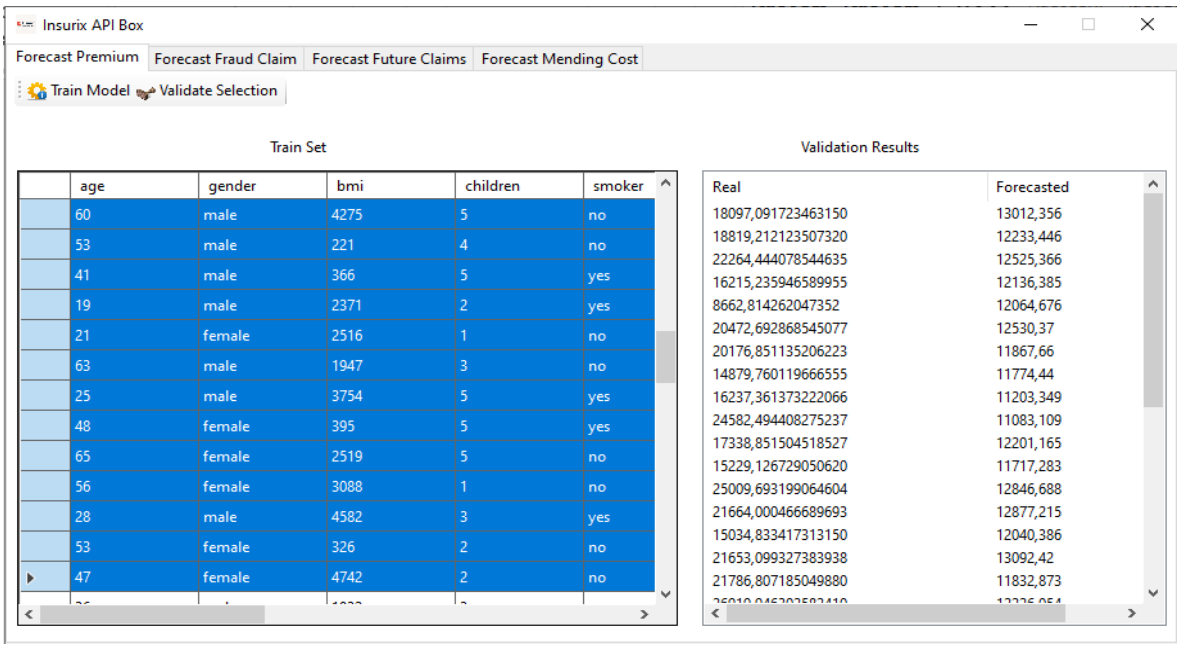
3. InsertData – feed historical, accident Images..etc to Database.

3.2 Example Usage

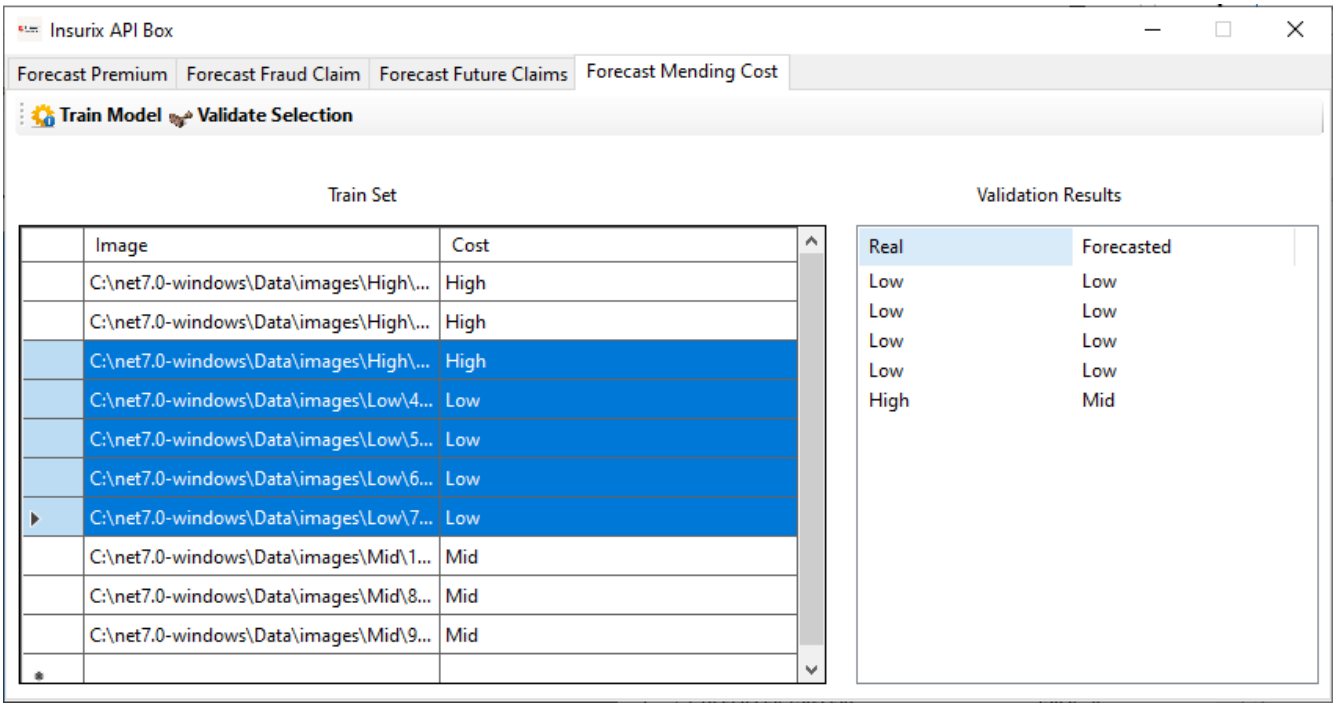
Loading and training data set, model is updated.



Validation with trained model.



Multi Class Image Classification for repairing cost estimation.



Detecting potential future claims.