AI Model Development Task for Predictive Analysis

Hiring an AI Developer for Targeted Predictive Modeling and Feature Ranking

Project Task Overview

- Develop an AI model to predict 'Target_Value' based on 90 features.
- Initial model to be built for basic accuracy and feature ranking.
- Secondary model using best features from the first model.
- Training/Testing period: Year 2000-2022 data.
- Validation period: Year 2023.
- Desired models: Google TimesFM and IBM Granite.

Model Development Requirements

1. **Initial Model**
   - Develop a basic predictive model to evaluate accuracy and feature importance.
   - Plot a feature ranking chart to identify key features.

2. **Feature Extraction**
   - Select best features based on the initial model's ranking.

3. **Secondary Model**
   - Use selected features to create a more refined model.

4. **Validation with 2023 Data**
   - Feed 2023 data one by one to the trained model for prediction.
   - Plot actual vs predicted values for 2023.
   - Calculate accuracy score for 2023 predictions.

Data Preparation and Partitioning

- Total data period: Year 2000 to Year 2023.
- Data from Year 2000 to 2022: Used for training and testing.
- Data from Year 2023: Used for validation and final accuracy scoring.

Modeling Approach and Desired Frameworks

- **Initial Model**: Basic model to gauge feature importance and achieve baseline accuracy.
- **Feature Ranking**: Plot showing the ranked importance of each feature.
- **Secondary Model**: Using selected best features for refined predictions.
- **Frameworks**: Preferred models include Google TimesFM and IBM Granite.

Prediction and Validation for 2023

- Use trained model to predict 'Target_Value' for 2023 data inputs.
- 2023 data will be provided sequentially to get predictions.
- Generate a chart comparing actual vs predicted values for 2023.
- Calculate the overall accuracy score for 2023 predictions.

Expected Deliverables

- Initial model with feature importance ranking.
- Feature ranking chart to highlight key variables.
- Secondary model with best-selected features.
- Prediction results and accuracy score for Year 2023.
- Actual vs predicted values plot for Year 2023.