Predictive Modelling in LLMs

Presentor:
Sankalpa Pokharel

2025 Year 3rd Quarter

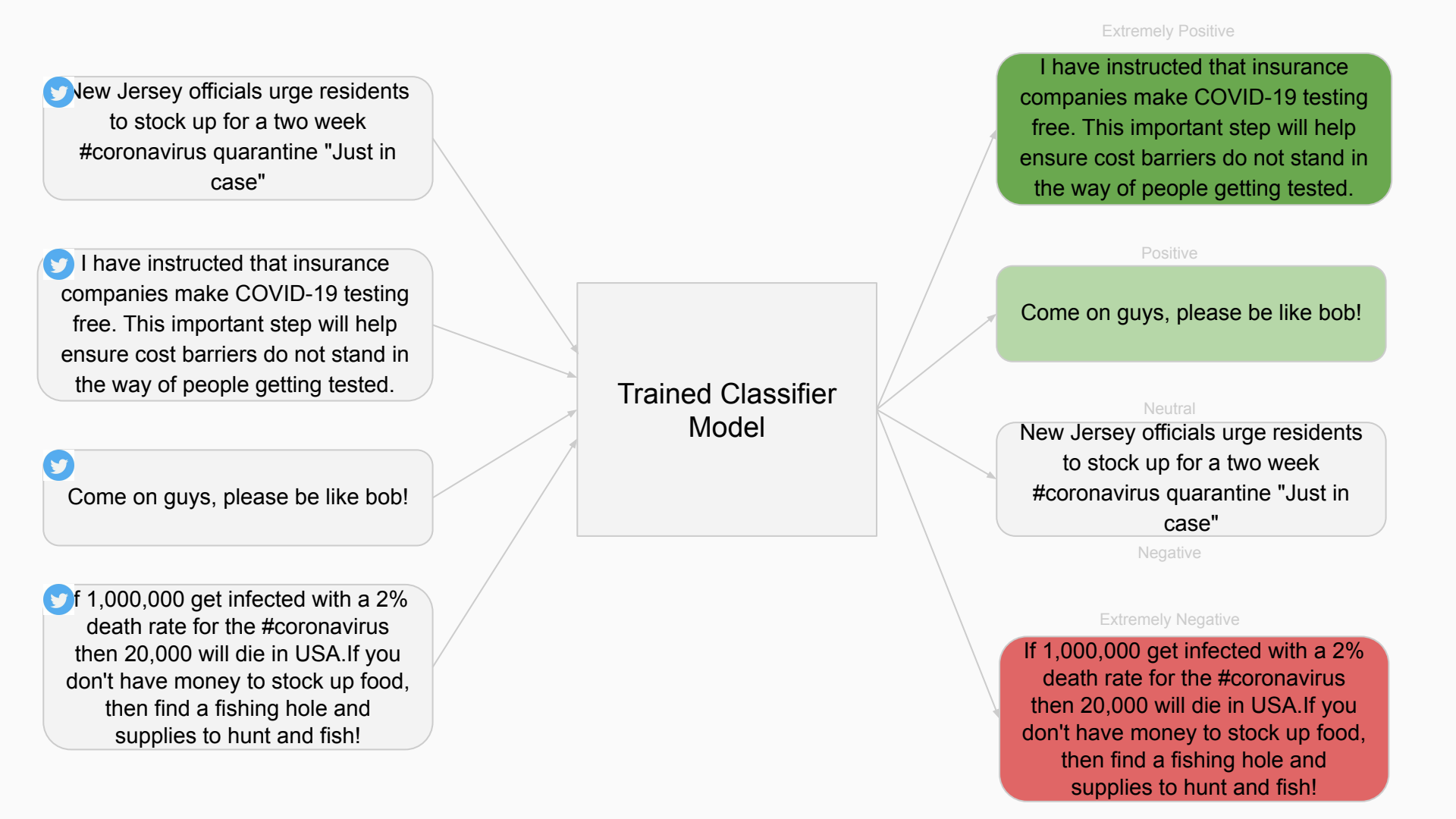
Predictive Modeling

Predictive modeling uses historical data to make informed guesses about future or unseen outcomes

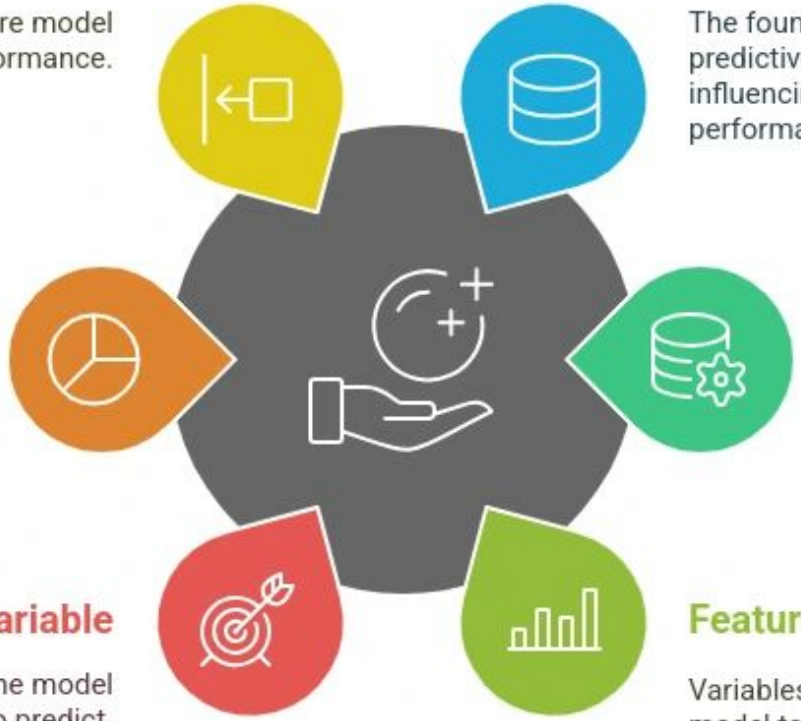
Involves building models that learn patterns from data and can generalize to new cases.

Common examples:

- Movie recommendations
- Detecting spam emails
- Email spam filtering


New Jersey officials urge residents to stock up for a two week #coronavirus quarantine "Just in case"
I have instructed that insurance companies make COVID-19 testing free. This important step will help ensure cost barriers do not stand in the way of people getting tested.
Come on guys, please be like bob!
If 1,000,000 get infected with a 2% death rate for the #coronavirus then 20,000 will die in USA.If you don't have money to stock up food, then find a fishing hole and supplies to hunt and fish!
Trained Classifier Model
Extremely Positive
I have instructed that insurance companies make COVID-19 testing free. This important step will help ensure cost barriers do not stand in the way of people getting tested.
Positive
Come on guys, please be like bob!
Neutral
New Jersey officials urge residents to stock up for a two week #coronavirus quarantine "Just in case"
Negative
Extremely Negative
If 1,000,000 get infected with a 2% death rate for the #coronavirus then 20,000 will die in USA.If you don't have money to stock up food, then find a fishing hole and supplies to hunt and fish!

Components of Predictive Modeling



Evaluation Metrics

Tools to measure model performance.

Data

The foundation of predictive modeling, influencing performance.

Training and Testing Data

Datasets used to train and evaluate the model.

Algorithms

Methods used to analyze data and make predictions.

Target Variable

The outcome the model aims to predict.

Features

Variables used by the model to predict outcomes.

Predictive Modeling Workflow

1. Prepare Data
   Clean and preprocess features

2. Select Model Type
   E.g., logistic regression, decision trees, neural networks

3. Train the Model
   Fit the model on historical data

4. Evaluate Performance
   Use metrics like accuracy, precision, RMSE, etc.

5. Make Predictions
   Apply model to new/unseen data

Role of LLMs in Predictive Modeling

- Data Understanding
  Get summaries, identify missing values or types
- Feature Engineering
  Suggest new features, extract from text
- Model Selection
  Recommend algorithms suited to your task
- Code Generation
  Write code for training, tuning, and evaluation
- Result Interpretation
  Explain model outputs in plain language

Come on guys, please be like bob!