# Classification Models

Description: Predicts a category or label from input data.

## Examples:

* Spam Detection: Email is classified as Spam or Not Spam.
* Disease Prediction: Patient is Diabetic or Non-Diabetic.
* Sentiment Analysis: Review is Positive, Negative, or Neutral.

## QA Relevance:

* Bug classification (UI bug, API bug, etc.)
* Test case prioritization (high-risk vs low-risk)

# Regression Models

Description: Predicts a continuous numeric value.

## Examples:

* House Price Prediction: Predict price based on features.
* Stock Price Forecasting: Estimate future stock value.
* Temperature Prediction: Predict tomorrow’s temperature.

## QA Relevance:

* Performance testing (e.g., response time prediction)
* Test data generation with realistic values

# NLP (Natural Language Processing) Models

Description: Processes and understands human language.

## Examples:

* Chatbots: GenAI assistants like ChatGPT.
* Language Translation: English to Hindi.
* Text Summarization: Summarize long articles.

## QA Relevance:

* Chatbot testing
* Test case generation from requirements
* Multilingual support validation

# Vision Models (Computer Vision)

Description: Analyzes and understands images or videos.

## Examples:

* Face Recognition: Unlock phone using face.
* Object Detection: Detect cars, pedestrians.
* Medical Imaging: Detect tumors in X-rays.

## QA Relevance:

* UI layout comparison
* OCR validation (e.g., scanned forms)

# Generative Models

Description: Generates new data similar to training data.

## Examples:

* Image Generation: Create images from text.
* Text Generation: Write articles or code.
* Music Generation: Compose music.

## QA Relevance:

* Test data generation
* Mock API response creation
* AI-generated content validation

# Reinforcement Learning Models

Description: Learns by trial and error to maximize rewards.

## Examples:

* Game Playing: AI learns to play chess.
* Robotics: Robot learns to walk.
* Self-driving Cars: Learn to drive safely.

## QA Relevance:

* RPA testing
* Game testing
* Self-learning system validation
* What is AI testing and why is it different from traditional testing?  **Testing AI-based systems** (like chatbots, recommendation engines, image classifiers, etc.)
*  Or using **AI tools to assist in testing** traditional software
*  Validate model predictions (classification, regression)
*  Test NLP responses (chatbots, translation)
*  Check image recognition accuracy (vision models)
*  Monitor model drift over time
*  Evaluate fairness and bias in predictions
*  Use AI tools to auto-generate test cases or detect flaky tests