# Umadevi M

## Final Project

# PROJECT TITLE

## PATIENT RISK PREDICTION

This project is about predicting health risk of a patient

# AGENDA

- Problem statement
- Project overview
- End users
- Solution and value proposition
- “WOW” factor in the project
- Modelling and results

# PROBLEM STATEMENT

The project aims to develop a predictive model for assessing patient risk levels, including the likelihood of hospital readmission, disease progression, adverse drug reactions, and mortality. By leveraging machine learning techniques and patient data, the model will enable early identification of patients at higher risk, facilitating proactive interventions and personalized healthcare planning to improve patient outcomes and healthcare delivery.

# PROJECT OVERVIEW

**1.Objective:** Develop predictive model for patient risk assessment.
**2.Scope:** Predict risks like hospital readmission, disease progression, mortality.
**3.Methodology:** Collect data, preprocess, develop predictive models.
**4.Expected Outcomes:** Improve patient outcomes, enhance decision-making.
**5.Target Audience:** Healthcare providers, administrators, policymakers.
**6.Impact:** Empower patients, enhance healthcare delivery.

# WHO ARE THE END USERS?

**1.Healthcare Providers:**

Early risk identification for tailored interventions.

**2.Patients:**

Personalized risk assessment for informed decisions.

**3.Healthcare Systems:**

Streamlined workflows and proactive interventions.

**4.Public Health Agencies:**

Informed policies to address disparities.

**5.Researchers:**

Tool for advancing knowledge in patient risk assessment.

# YOUR SOLUTION AND ITS VALUE PROPOSITION

•**Solution:**
- Develop predictive model for patient risk assessment.
- Utilize machine learning techniques and patient data.
- Implement user-friendly interface for integration into healthcare systems.

•**Value Proposition:**
- Improved Patient Outcomes: Early risk identification for tailored interventions.
- Personalized Care: Informed decision-making for patients.
- Efficient Healthcare Delivery: Streamlined workflows for providers.
- Public Health Impact: Informed policies to address disparities.
- Advancing Knowledge: Tool for research in patient risk assessment.

# THE WOW IN YOUR SOLUTION

**1.Innovative Technology:** Cutting-edge machine learning for predictive patient risk assessment.
**2.Personalized Care:** Empowering patients with tailored risk assessments.
**3.Proactive Healthcare:** Early identification of risks for timely interventions.
**4.Efficiency and Cost Savings:** Streamlining workflows and reducing healthcare costs.
**5.Public Health Impact:** Informing policies to address disparities and improve population health.
**6.Advancement of Knowledge:** Driving research and innovation in patient risk assessment.

w

# MODELLING

**1.Data Preparation:** Cleaned and engineered features from patient data.
**2.Model Selection:** Chosen algorithms tailored to patient risk assessment.
**3.Model Development:** Configured predictive model architecture with suitable parameters.
**4.Model Training:** Trained model with optimized parameters on prepared data.
**5.Model Evaluation:** Assessed performance using accuracy, precision, recall, and F1-score.
**6.Interpretability:** Enhanced model interpretability for transparent predictions.

# RESULTS

**1.Model Performance Metrics:** Accuracy, precision, recall, F1-score, AUC.
**2.Confusion Matrix:** Visualizes classification performance across risk levels.
**3.Feature Importance Analysis:** Highlights key predictors of risk levels.
**4.Comparative Analysis:** Compares performance of multiple models, if applicable.
**5.Limitations and Considerations:** Discusses constraints and influencing factors.
**6.Validation and Generalization:** Assesses model's reliability across diverse populations.