# README: AI Development Workflow - Patient Readmission Prediction

This project demonstrates an end-to-end implementation of the AI Development Workflow using a case study on hospital readmissions. The objective is to predict if a patient is likely to be readmitted within 30 days of discharge using machine learning.

## 📁 Folder Structure

AI\_Development\_Workflow/  
├── AI\_Development\_Workflow\_Assignment.docx # Full theoretical assignment writeup  
├── AI\_Readmission\_Workflow\_Report.docx # Practical model implementation report  
├── AI\_Workflow\_Diagram.png # Visual diagram of AI development process  
├── readmission\_model.ipynb # Colab Jupyter Notebook  
├── sample\_readmission\_data.csv # Sample patient dataset

## 📌 How to Run the Project

1. Open `readmission\_model.ipynb` in Google Colab.  
2. Upload `sample\_readmission\_data.csv` via the Colab file sidebar.  
3. Run all cells to train and evaluate the model.

## 📈 Model Summary

- Model: Random Forest Classifier  
- Precision: 1.0  
- Recall: 1.0  
- Evaluation: Confusion matrix, precision, and recall calculated.

## ✅ Tools Used

- Python 3.11  
- Google Colab  
- scikit-learn  
- pandas  
- Word (.docx) for documentation  
- draw.io (or similar) for the AI Workflow diagram

## 📚 Author

James Mukoma – AI & GIS Enthusiast | Director of ICT, Garissa County