

# AIML with Data Science Advance Project

## 1. Fake News Detection using NLP & Deep Learning

**Tech Stack:** Python, TensorFlow/Keras, BERT, NLTK, Sklearn

- Use real-world datasets from Kaggle or news APIs.
- Train models like LSTM or transformers to classify news.
- Integrate with a web dashboard using Flask or Streamlit.

## 2. Healthcare: Predicting Disease from Symptoms

**Tech Stack:** Python, Scikit-learn, Pandas, Streamlit

- Use classification algorithms (Random Forest, XGBoost).
- Optionally integrate symptom-checking chatbot.
- Deploy as a web app to make it interactive.

## 3. AI-based Image Caption Generator

**Tech Stack:** Python, CNNs + RNNs, TensorFlow/Keras, COCO dataset

- Combine convolutional neural networks for image encoding and RNNs (like LSTM) for text generation.
- Train on large datasets to create captioning models.

## 4. House Price Prediction with Explainable AI

**Tech Stack:** Python, XGBoost/LightGBM, SHAP, Matplotlib

- Predict prices using regression.
- Use SHAP for interpretability.
- Build dashboards with Streamlit.

## 5. Customer Churn Prediction

**Tech Stack:** Python, Logistic Regression, Decision Trees, Tableau

- Model customer behavior to predict churn.
- Include business metrics and visualizations.

## 6. Music Genre Classification

**Tech Stack:** Python, Librosa, CNN, Scikit-learn

- Extract features like MFCCs using Librosa.
- Train CNNs for audio classification.

## 7. Stock Price Forecasting with LSTM

**Tech Stack:** Python, Keras, Pandas, Matplotlib

- Use time-series data to predict future prices.
- Visualize trends and predictions.

## 8. Personalized Recommendation System (Hybrid)

**Tech Stack:** Python, Surprise library, Content-based + Collaborative Filtering

- Build a movie or product recommender.
- Enhance with hybrid techniques for better performance.

### **Tech Stack:**

- Python
- Scikit-learn
- Pandas
- NLTK / TextBlob
- TfidfVectorizer
- Logistic Regression (or other ML models)

### **Goal:**

Build a model to detect whether a news article is *fake* or *real* using Natural Language Processing and Machine Learning.