

Athlete Medal Prediction Web Application

Overview

This project is a **Streamlit web application** that predicts whether an athlete will win a medal based on their physical and performance attributes. The model is built using **Random Forest Classification** and trained on an athlete dataset. The web application allows users to upload their dataset, preprocess it, train the model, and make predictions interactively.

Features

- **Upload Dataset:** Users can upload their dataset in CSV format.
- **Data Preprocessing:** Handles missing values and encodes categorical variables.
- **Model Training:** Uses a **Random Forest Classifier** to train on the uploaded data.
- **Prediction:** Users can input new athlete data to predict medal-winning probability.
- **Visualization:** Displays data insights and model performance metrics.

Technologies Used

- **Python**
- **Streamlit** (for the web application UI)
- **Pandas** (for data handling and preprocessing)
- **Scikit-Learn** (for machine learning model training)
- **Matplotlib & Seaborn** (for data visualization)

Installation

To run this project locally, follow these steps:

1. Clone the Repository

```
git clone https://github.com/your-username/athlete-medal-prediction.git
cd athlete-medal-prediction
```

2. Create a Virtual Environment (Optional but Recommended)

```
python -m venv env
source env/bin/activate # On macOS/Linux
env\Scripts\activate # On Windows
```

3. Install Dependencies

```
pip install -r requirements.txt
```

4. Run the Streamlit App

`streamlit run app.py`

Link to the file :

<https://drive.google.com/file/d/1qBHhebDjC1cMlzWBIS7YStZRtE3eYPJ5/view?usp=sharing>