Life-Expectancy-ML-Project

By

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**1. Project Pipeline and Steps**

* **Step 1: Data Acquisition and Cleaning:** The initial step involved loading the dataset and performing a thorough cleaning process to handle missing values and remove inconsistencies.
* **Step 2: Exploratory Data Analysis (EDA):** Visualizations and statistical analysis were performed to understand the relationships between the features and the target variable, life expectancy.
* **Step 3: Feature Engineering and Data Preparation:** The data was prepared for the machine learning model. This included one-hot encoding for categorical variables and splitting the data into training and testing sets.
* **Step 4: Model Training and Evaluation:** A Linear Regression model was trained on the prepared data. Its performance was evaluated using standard metrics.
* **Step 5: API Development and Deployment:** The trained model was deployed as a RESTful API using FastAPI, making it accessible for real-time predictions.

**2. Tools and Technologies Used**

* **Data Analysis:** Python, Pandas, Matplotlib, Seaborn
* **Machine Learning:** Scikit-learn
* **API Development:** FastAPI, Uvicorn
* **Deployment:** pyngrok (for creating a live public URL)
* **Documentation & Version Control:** GitHub, Markdown