Project Proposal: Life Expentancy prediction using prediciton Machine Learning

1. Project Idea:

Developing a machine learning model to predict life expectancy based on demographic, socioeconomic, and health-related factors.

2. Relevance to Sustainable Development Goals (SDGs):

Predicting life expectancy using machine learning techniques aligns with the third Sustainable Development Goal (SDG) of ensuring healthy lives and promoting well-being for all at all ages. By leveraging data on demographic, socioeconomic, and environmental factors, this project aims to develop a predictive model that can estimate life expectancy accurately. Such a tool can inform policymakers and healthcare professionals about the key determinants of health outcomes, enabling targeted interventions to improve access to healthcare, reduce poverty, and address other factors influencing life expectancy disparities within and across populations.

3. Data Description :

- Data are collected via Kaggle, UN World Population data, and the data format (CSV),
- Data Size < 500 Mb
- Data preprocessing steps required:
  - Import Needed Libraries
  - Read datset into DataFrame
  - Features Metadata
  - DataFrame Shape
  - Data Cleaning
  - Data Visualization
  - Data Preprocessing
  - Building ANN Model.

4. Approach (Machine Learning):

A machine learning approach is ideal for predicting life expectancy due to the complex and multidimensional nature of the data. Machine learning algorithms can effectively capture nonlinear relationships and interactions among demographic, socioeconomic, and health-related factors. Additionally, they offer a balance between predictive accuracy and interpretability, essential for informing public health policies and interventions.

5. Literature Examples:

V. Bali, D. Aggarwal, S. Singh and A. Shukla, "Life Expectancy: Prediction & Analysis using ML," 2021 9th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions) (ICRITO), Noida, India, 2021, pp. 1-8, doi: 10.1109/ICRITO51393.2021.9596123. keywords: {Biological system modeling;Sociology;Medical services;Predictive models;Planning;Reliability;Statistics;Life Expectancy (LE);Machine Learning (ML);Predicted Life Expectancy (PrLE).

Harizaj, M., Idrizi, O. & Harizaj, A. (2023). Machine learning algorithms for predicting life expectancy. Advanced Engineering Days, 6, 132-134.

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