COSC522

M7.9 Project Abstract

Group 5

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Predicting Happiness Score: The Role of Socio-Cultural and Political Factors in Regional Well-being

This project aims to develop a regression-based machine learning model for predicting the happiness score of regions with high accuracy. Utilizing the World Happiness Report dataset from Kaggle, we conducted feature extraction by analyzing the **correlation between various features, eliminating highly correlated and irrelevant variables**. We explored two regression algorithms—**Support Vector Regression (SVR) and Deep Learning Scalar Regression**- to assign appropriate weights to the features. The performance of each model was fine-tuned and evaluated using a holdout set. Evaluation metrics, including Mean Absolute Error (MAE), Mean Squared Error (MSE), and R-squared, were employed to assess the predictive accuracy of the models. Furthermore, we discussed the limitations of the current approach and outlined potential future directions for improvement.

The results from this project aim to provide valuable insights and perhaps, recommendations to policymakers for fostering environments that enhance well-being. Ultimately, the project seeks to contribute to a deeper understanding of happiness measurement and its enhancement across various socio-cultural contexts, supporting global well-being initiatives.

Dataset Link ->

* <https://www.kaggle.com/datasets/khushikyad001/world-happiness-report?select=world_happiness_report.csv>

The goals we would like to achieve for this project are;

1. Positive R-squared value as close to 1 as possible.
2. Any insights into what creates an improved measure of happiness.

Project plan:

| Activity | Assignee | Target Date |
| --- | --- | --- |
| Analyze Data |  |  |
| Preprocessing |  |  |
| Apply SVR and calculate r2 score |  |  |
| Apply Deep learning and calculate r2 score |  |  |
| Documentation |  |  |
| study other implementation and compare results |  |  |
| Adjust if needed |  |  |