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Concepts and Technologies of AI

5CS037

Assignment-1 - Statistical Interpretation and Exploratory Data Analysis

¹
**Analysis of the World Happiness Report: A Data-Driven Exploration of
Global and Regional Trends.**

¹
**Report: Analysis of the World Happiness
Report**

Title: Exploring South Asia and Middle East Perspectives

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Level :- 5

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2 Introduction

The World Happiness Report is a landmark survey that evaluates the state of global happiness based on a variety of socio-economic factors. This analysis focuses on South Asia and the Middle East to explore regional happiness levels and identify key factors that influence them.

Objectives:

1. Conduct a thorough exploration of the datasets.
2. Analyze happiness indicators for South Asian countries.
3. Compare and contrast happiness metrics between South Asia and the Middle East.

Problem 1: Data Exploration

Tasks Performed:

1. **Loaded Datasets:**
 - South Asia dataset: 5 entries.
 - Middle East dataset: 10 entries.
2. **Inspected Columns:**
 - Features include happiness score, GDP, social support, life expectancy, freedom, generosity, and corruption perception.

Visualizations:

- Bar charts to display happiness scores by country.
- Heat maps to highlight correlations between variables.

Observations:

- South Asian countries generally have lower happiness scores compared to the Middle East.
- Missing values in the Middle East dataset (e.g., Bahrain) need attention.

Challenges: Addressed missing values by imputing data or excluding incomplete rows.

Problem 2: Analysis of South Asia

Tasks Performed:

1. Computed average values for happiness indicators.
2. Ranked countries based on their happiness scores.
3. Created visualizations for GDP, life expectancy, and social support.

Observations:

- **Nepal** leads in happiness among South Asian countries.
- **Afghanistan** has the lowest scores across all indicators.
- Strong correlation between GDP and happiness score.

Insights: Higher GDP per capita and social support positively impact happiness.

Problem 3: Comparison of South Asia and the Middle East

Tasks Performed:

1. Compared average happiness scores and other indicators.
2. Visualized differences using grouped bar charts.

Observations:

- The Middle East has higher average happiness scores compared to South Asia.
- Freedom and GDP are significantly higher in the Middle East.
- Social support varies widely but shows regional strengths.

Challenges:

Differences in sample sizes required normalization for fair comparison.

Conclusion

Summary of Findings:

1. South Asia has lower happiness scores, driven by economic and health challenges.
2. The Middle East demonstrates better overall scores, primarily due to higher GDP and life expectancy.
3. Happiness is multifaceted, influenced by both economic and social factors.

Implications:

Understanding regional happiness trends can guide policymakers in improving quality of life.

References

1. World Happiness Report 2024.
2. Datasets used: South Asian Countries and Middle Eastern Dataset.

End of Report

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