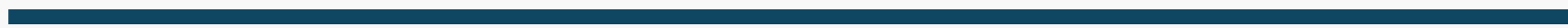Prepared by Keith Hau Zhe Hsiang

Project Proposal

Heart-attack Predictions for Indonesia

Problem Statement

Cardiovascular disease remains a leading cause of mortality worldwide, and Indonesia is no exception. Despite advances in healthcare, many cases of heart attacks in Indonesia go undiagnosed or are detected too late due to a lack of early warning systems and comprehensive data analysis.

Tasks

1. To analyze health and demographic data to identify key risk factors for heart attacks in Indonesia.
2. To develop a predictive model that can estimate heart attack risk using machine learning techniques.
3. To provide insights that support early detection and prevention strategies in Indonesian healthcare.

Tools and Technologies

- Pandas: For data manipulation, cleaning, and exploration.
- NumPy: For numerical operations on the dataset.
- Matplotlib/Seaborn: For data visualization (graphs, heatmaps, etc.).
- Scikit-learn: For encoding categorical variables (one-hot encoding, label encoding) and preprocessing (scaling features).

Hypothesis Example:

Null Hypothesis (H_0): Health and lifestyle factors do not have a meaningful effect on the risk of heart attacks in people in Indonesia.

Alternative Hypothesis (H_1): Health and lifestyle factors do have a meaningful effect on the risk of heart attacks in people in Indonesia.

Impact: Helps doctors identify high-risk patients early. Use Case: Hospitals can use the model to screen patients during routine check-ups.

Potential Challenges:

- Data Quality Issues: Missing or inaccurate data can affect model accuracy.

- Feature Selection: Identifying key risk factors can be challenging.

Future

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Integration with Healthcare Systems:
Integrating the predictive model into electronic
health records (EHR) for seamless usage by
healthcare providers.

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Thank you