SIMATS ENGINEERING

Saveetha Institute of Medical and Technical Sciences
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Engineer to Excel

Student Name: S. Asif **Reg. No.: 192424121**

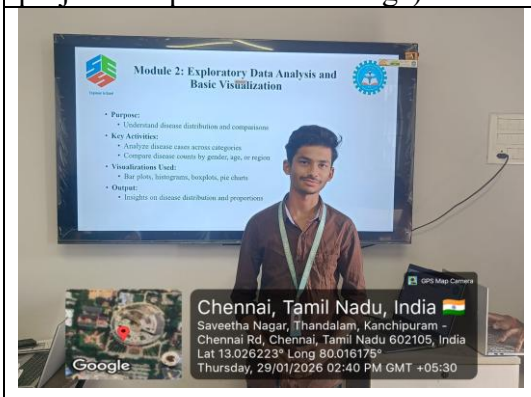
Course Code: **DSA0613** **Slot: A**

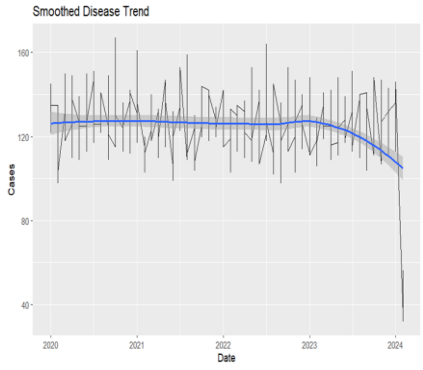
Course Name: **Data Handling and Visualization for Data Analytics**

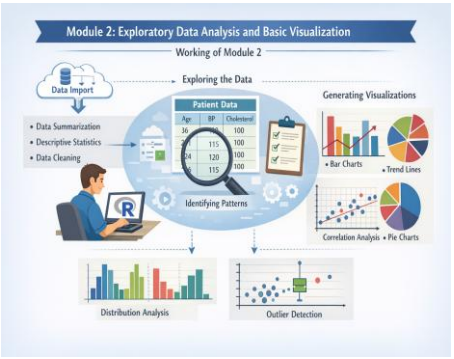
Course Faculty: DR. KUMARAGURUBARAN T & DR. SENTHILVADIVU S

Project Title: Healthcare Data Analysis and Visualization for Disease Trend Monitoring Using R

Module Photographs: (3 photographs –Module Photo, Individual student contribution module work in the project and presentation image)







Project Description: This module focuses on processing the acquired heart rate data to remove noise, enhance signal quality, and extract meaningful health information. The digital heartbeat data received from the acquisition module is analyzed to detect normal and abnormal heart rate patterns. The processed data is then prepared for visualization and long-term monitoring, enabling effective health assessment and decision support.

Module 2: Exploratory Data Analysis and Basic Visualization

Information:

The Heartbeat Data Processing and Analysis module receives raw BPM values from the data acquisition unit and performs signal filtering and data normalization to improve accuracy. Noise caused by body movement or sensor fluctuation is minimized using smoothing and averaging techniques. The system computes statistical parameters such as minimum heart rate, maximum heart rate, average BPM, and variation over time. Threshold-based analysis is applied to identify abnormal conditions such as tachycardia (high heart rate) or bradycardia (low heart rate). The processed and validated data is organized into structured format for further visualization and cloud-based analytics.

Outcome:

The module produces clean, accurate, and meaningful heart rate data by eliminating noise and identifying critical patterns. This processed information enables reliable health trend analysis, early detection of irregular heartbeat conditions, and effective visualization for continuous health monitoring.

Student Signature **Guide Signature**