SIMATS ENGINEERING

Saveetha Institute of Medical and Technical Sciences
Chennai- 602105

Engineer to Excel

Student Name: S. M. Junaid **Reg. No.: 192424142**

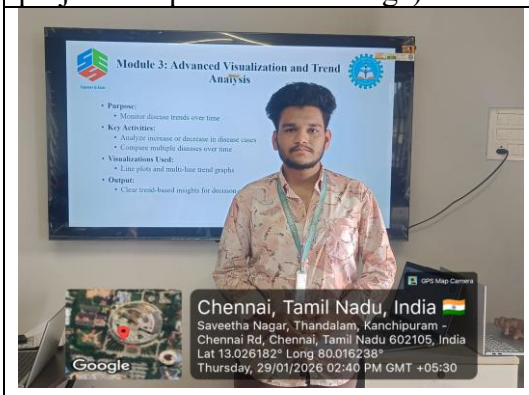
Course Code: **DSA0613** **Slot: A**

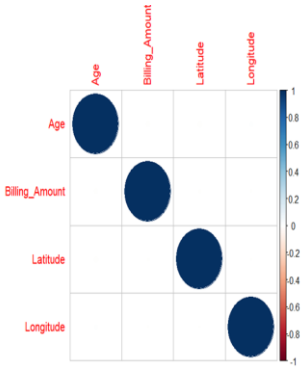
Course Name: **Data Handling and Visualization for Data Analytics**

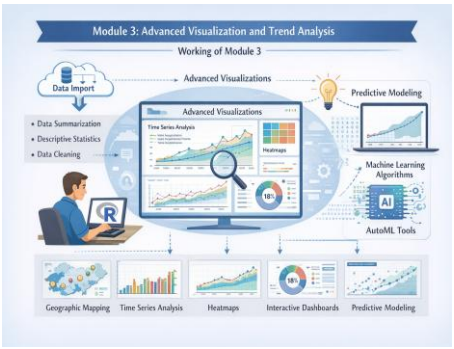
Course Faculty: DR. KUMARAGURUBARAN T & DR. SENTHILVADIVU S

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 3: ADVANCED VISUALIZATION AND INSIGHT COMMUNICATION

Information:

The Advanced Visualization and Insight Communication module utilizes graphical and interactive visualization techniques to represent complex healthcare data. Charts such as pie charts, treemaps, and trend plots are used to illustrate disease proportions and comparative distributions. Geospatial visualization is implemented using latitude and longitude coordinates to map disease spread across regions. Dimensionality reduction techniques such as Principal Component Analysis (PCA) are applied to identify hidden patterns among multiple healthcare attributes. Correlation analysis is also performed to understand relationships between variables such as age, billing amount, and disease occurrence. These visual outputs help convert analytical results into actionable healthcare insights.

Outcome:

The module successfully converts analytical results into clear and interactive visual insights. It enables effective communication of disease trends, regional impact, and key healthcare patterns, supporting informed decision-making, improved disease monitoring, and enhanced understanding of public health data.

Student Signature **Guide Signature**