

DAB 304 Healthcare Analytics Proposal

Group Members:

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Introduction:

Healthcare analytics refers to the methodical gathering and analysis of medical data for the purpose of improving decision-making. Insight into things like patient care, expenses, clinical data, and more are produced because of it. Analytics has the capacity to enhance treatment, save costs, and reach out to patients for hospitals, pharmaceutical firms, insurers, and practitioners.

Analytics is being leveraged for things like:

- Developing new business models
- Streamlining administrative processes
- Reducing diagnostic and clinical wait times
- Improving staffing and scheduling
- Enhancing the patient experience
- Introducing predictive billing
- Creating impactful outreach
- Improving care protocols and procedures

About Dataset:

Dataset link: [Heart Failure Prediction Dataset | Kaggle](#)

According to estimates, 17.9 million people die from cardiovascular diseases (CVDs) each year, which accounts for 31% of all fatalities worldwide. Heart attacks and strokes account for four out of every five CVD fatalities, with premature deaths accounting for one-third of these deaths among those under the age of 70. This dataset comprises 11 variables that can be used to predict a potential heart illness. Heart failure is a common occurrence brought on by CVDs.

A machine learning model can be very helpful in the early diagnosis and care of people with cardiovascular disease or who are at high cardiovascular risk (due to the presence of one or more risk factors including hypertension, diabetes, hyperlipidaemia, or previously existing illness). This dataset contains total 12 columns, some columns are numerical, and some are categorical. The description of the columns are listed below.

Data description:

1. Age: age of the patient
2. Sex: sex of the patient
3. ChestPainType: chest pain type
4. RestingBP: resting blood pressure
5. Cholesterol: serum cholesterol
6. FastingBS: fasting blood sugar
7. RestingECG: resting electrocardiogram results
8. MaxHR: maximum heart rate achieved
9. ExerciseAngina: exercise-induced angina
10. Oldpeak: oldpeak = ST [Numeric value measured in depression]
11. ST_Slope: the slope of the peak exercise ST segment
12. HeartDisease: output class [1: heart disease, 0: Normal]

Motivation:

- The World Health Organization's estimate provided the impetus for tackling this problem. According to estimates from the World Health Organization, about 23.6 million people would die from heart attacks by 2030.
- It is crucial for someone who has a high risk of developing heart failure to keep track of their health, but this is not always feasible or simple.
- The most challenging and complicated work in the medical industry is determining the correct condition. This enormous volume of unstructured data is a rich resource that may be efficiently pre-managed and scrutinised for crucial information extraction that influences or guides the remedial society for cost sufficiency and decision-making reinforcement.
- True coronary artery disease diagnosis cannot be achieved only based on human perception.

Evaluation:

Our hearts beat around 2.5 billion times throughout an average lifetime. It's necessary to treat it like the priceless resource that it is since it is one of the most critical organs keeping us alive. We may strive to make the project a success by using the medical records, which can be an excellent tool both to estimate the survival of each patient suffering heart failure symptoms and to discover the most significant clinical characteristics (or risk factors) that may lead to heart failure.

Resources:

- Data Collection
- Data Cleaning (MS Excel, SQL, Python)
- Exploratory Data Analysis (Python)
- Data Visualization (Excel, Tableau, IBM Cognos)

- Build and apply suitable algorithms (Python)
- Design and outcome (Website designed using word press, php, css, mysql)

Contribution:

We are total 5 members in the group.

Our contribution regarding this project is:

Introduction-Surbhi

Dataset-ALL members

Data Description-Raj

Motivation-Richa, Dharmik

Evaluation-Joyal, Dharmik

References:

- [Heart Failure Prediction Dataset | Kaggle](#)
- [A Hybrid Intelligent System Framework for the Prediction of Heart Disease Using Machine Learning Algorithms \(hindawi.com\)](#)
- [Healthcare analytics: What it is and its importance to modern healthcare \(dhge.org\)](#)
- [WHO - Search \(bing.com\)](#)