**Group Members**

Muhammad Talal

CSC-21F-085

Javeriya Naseem

CSC-21F-052

6th Semester

SINDH MADRESSATUL ISLAM UNIVERSITY

ASSIGNMENT NO 2

**Instructor : Ma’am Aqsa**

COMPARATIVE ANALYSIS OF DATA ANALYTICS IN HEART ATTACK PREDICTION

**Comparative Analysis of two papers:**

**Paper 1:**Classification of Heart attack using Decision Tree.

* **Authors:** Cheryl Ann Alexander1 and Lidong Wang.
* **Affiliation:** 1Department of Nursing, University of Phoenix, USA
* **Corresponding Authors:** Lidong Wang, Department of Engineering Technology, Mississippi Valley State University, USA

**Paper2: Prediction of Heart Attack in Coal Mining Regions Using Data Mining Techniques**

* **Authors:** K.Srinivas1, Dr.G.Raghavendra Rao2, Dr. A.Govardhan3
* **Affiliation:** NIE Institute of Technology, Koorgalli Village, Mysore

3Principal & Prof. of CSE, JNTUH College of Engineering, Kondagattu, Jagtial

**Detailed Comparative Analysis**

1. **Objective and Methodology:**

* **Paper 1:**

**Objective:**

The objective of this research is to analyse the data of a patient having heart disease through a dataset which is cleaned and preprocessed to avoid extra big data and to manage missing data for prediction of heart attack.

**Methodology:**

Few methods are used for data mining which includes cleaning of dafa by

preprocessing to have a accurate data for the prediction of heart attack.

* **Paper 2:**

**Objective:**

The objective of this research is the mining of Big data of any medical dataset of heart disease the dataset is cleaned and preprocessed to avoid extra big data and to manage missing data for prediction of heart attack.

**Methodology:**

Few methods are used for data mining which includes cleaning of dafa by

preprocessing to have a accurate data for the prediction of heart attack.

* **Models and Techniques:**
* **Paper 1:**

• Utilizes the Decision Tree model and KNN algorithm.

• Focuses on classification performance and feature importance scores to evaluate the dataset effectiveness in predicting heart attack.

• **Paper 2:**

• Utilizes Data mining techniques.

• The big data in preprocessed and cleaned by data mining techniques which reduces data to manage the dataset to predict heart attack.

**4. Results and Discussion:**

• **Paper 1:**

• Reports good performance of the decision tree model.

• Identifies key lines to predict heart attack, such as age, cp, and caa.

• **Paper 2:**

• Mainly focuses on data mining of big data using preprocessing that cleans the data and manage extra data and missing data.

• Results discussed about the cleaning data using such algorithms like KNN algorithm.

**5.Interpretation of Results**

• **Paper 1:**

• Provides a thorough analysis of the KNN algorithm and the significance of different features based on the data mining.

• Highlights key insights from the decision tree, such as the most influential features in predicting heart attack

• **Paper 2:**

• Data mining technology provides a user- oriented approach to novel and hidden patterns in the data.

**6. Visualisation**

• **Paper 1:**

But big data is not only about size, there is also the insight it derives from complex, noisy, heterogeneous, longitudinal, and voluminous data. Challenges, however, include capturing, storing, searching, sharing and analyzing. And social communication in varied digital forms is on the increase

• **Paper 2:**

There are various data mining techniques available with their suitability dependent on the domain application. Statistics provide a strong fundamental background for quantification and evaluation of results

• Uses these visualisations to compare model performance and interpret the significance of features.

**7.Discussion and Future Work**

• **Paper 1:**

• Concludes with a discussion on the effectiveness of decision trees in classification tasks and potential improvements such as mining techniques or KNN algorithm.

• Suggests exploring other machine learning algorithms to enhance predictive performance.

• **Paper 2:**

• Recommends future work to investigate other algorithms and techniques for better understanding feature significance and improving model accuracy.

**Summary:**

Both papers provide valuable insights into predicting Heart attack levels using different machine learning models. Paper 1 focuses on the analysis of big data of any medical dataset that is further preprocessed and cleaned by several algorithms., emphasising its structure and interpretability, while Paper 2 is mainly focused on mining of the big data to conclude the datasets here the medical dataset is taken and then the dataset is preprocessed by the mining techniques to have a cleaned dataset to predict the heart attack.

**Additional References**

**Paper 1:**

Al Mamoon I, Sani AS, Islam AM, Yee OC, Kobayashi F, Komaki S (2013) A proposal of body implementable early heart attack detection system, 1-4.

Morley SR (2013). Heart attack experiences described in weblogs: An analysis of sex differences. CMC Senior Theses.

**Paper 2:**

Frawley and Piatetsky-Shapiro, 1996. Knowledge Discovery in Databases:An Overview. The AAAI/MIT Press, Menlo Park, C.A.

Miller, A., B. Blott and T. Hames, 1992. Review of neural network applications in medical imaging and signal processing. Med. Biol. Engg. Comp., 30: 449-464.