DEMOGRAPHIC ANALYSIS OF DENGUE FEVER USING DATA MINING

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Abstract: Dengue burning up was fundamental advert as “water virus” correlate with plumed insects. In the universal approximately 2.5 billion persons suffered from dengue. The leading way is obstacle concluded supervising the dengue burst. We calculate the knowledge related to collected data for dengue fever that demonstrate the importance of data mining in healthcare. In this paper, thus concluded responses for dengue fever get analyzed through demographic profiles.

Keywords: Dengue Fever, Data Mining, Clustering.

I INTRODUCTION

Dengue is an astute vital poison with dormant mortal problems. Dengue burning up was fundamental advert as “water virus” correlate with plumed insects[1]. The first clinically identify dengue pestilence occurred approximately concurrently in Asia, Africa and North America in 1780’s condition as “Break Bone Fever” [2]. It is mensuration that universal approximately 2.5 billion humanity persist into vital at venture of constrict the poison while 50 million cases and 24000 causalities tend to appear in 100 regional countries [3]. The field of personal computer corporate dermatology has thus contributed to infinitely from prior in comprehension model techniques and automation information algorithms [4]. Nowadays, the medication of dengue is nonexistent. Adjoining, the going around method which is streaming up also incapable to discard the disease permanently. The leading way is obstacle concluded supervising the dengue burst[5]. Thus a concluded responsive of what aspects concerned the transference of dengue is important for capable supervising the disease [6]. Environmental aspects are ordinarily affiliate with spread out dengue virus one of the major aspect dengue is temperature [7].

Data mining is one the important and motivating range of research with the equitable of discovery intelligible knowledge from large scale data sets [8]. Healthcare is most popular field application in data mining to identify hidden and admired knowledge in health data. Data mining is used in health industry to discover fraud in health insurance, treatment at lower cost, cure the disease [9].

II LITERATURE FOR DENGUE DISEASE

Table 1. Symptoms of Dengue Virus

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period of Fever</td>
<td>Three Days, Four Days, Five Days</td>
</tr>
<tr>
<td>Fever Temperature</td>
<td>100°C, 102°C, 104°C</td>
</tr>
<tr>
<td>Rashes or Red spots</td>
<td>Yes or No</td>
</tr>
<tr>
<td>Pain behind Eyes</td>
<td>Yes or No</td>
</tr>
<tr>
<td>Headache</td>
<td>Yes or No</td>
</tr>
<tr>
<td>Muscle and Joint Pain</td>
<td>Yes or No</td>
</tr>
<tr>
<td>Nausea or Vomiting</td>
<td>Yes or No</td>
</tr>
<tr>
<td>Low Heart Rate</td>
<td>Yes or No</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Yes or No</td>
</tr>
<tr>
<td>Result</td>
<td>Dengue or No</td>
</tr>
</tbody>
</table>
III METHODOLOGY

The necessary goal of our advent is to conclude the virus based on the symptoms. For achieving this methodology, we take the main symptoms of dengue and they provide result i.e. Person is infected by Dengue or not. The dataset contain various symptoms like Period of Fever, Fever Temperature, Rashes or Red spots, Pain behind Eyes, Headache, Muscle and Joint Pain, Nausea or Vomiting, Low Heart Rate, Fatigue. We made dataset, using the information we got from patient, they suffer in fever temperature. In this paper, consider 100 patient dataset. The dataset is saved through CSV format and results concluded through our R-studio. Dengue status gets the result is Dengue or No Dengue. It also considers the analysis of dengue dataset by using clustering technique.

IV CLUSTERING

Cluster Analysis is a technique which determine the substructure of dataset by split it into definite clusters[13]. The term “Clustering” is used in various commonalities to characterize mechanism for deployment of unlabeled data[14]. It is a suitable tool for data analysis in which analogous items are group into one obstruction and likewise various items are strike in various parts [15]. Clustering is unsupervised learning process. An acceptable clustering approach will outcome high better cluster with large intra-class congruence and low inter-class congruence. In fig. 2 characterize a classical sequencing of the initial three steps, along with Evaluation Avenue where the categorization process achievement could overcome consecutive characteristic abstraction and affinity calculation [16].

1. **Pattern illustration**: Pattern illustration extract to the number of classes, accessible patterns, numbers and characteristics available for clustering.
2. **Feature illustration**: if is most efficient subset of the original characteristics to use in clustering.
3. **Inter-pattern similar**: It is defines on combination of patterns symmetric by a distance function.
4. **Data abstraction**: It is the process of express a simple and compressed illustration of a dataset.

V RESULTS AND ANALYSIS

In this paper, we calculate various responses from Patients have been collected according the questionnaire formed and it gets result of dengue is Dengue or NO Dengue. The collected response gets mined using clustering and analyzed that is presented below by considering the symptoms: Period of Fever, Fever Temperature, Rashes or Red spots, Pain behind Eyes, Headache, Muscle and Joint Pain, Nausea or Vomiting, Low Heart Rate and Fatigue. Results are implemented through observed symptoms and analysis of the dengue dataset. In the analysis, they get the dengue result is varies on Fever Temperature, Muscle and Joint Pain, Rashes/Red Spots.
Demographic Profile

The distribution of respondents according to various characteristics is described below:

i. **Gender** As listed in Table 2 below, majority of patients are males as compared to females.

<table>
<thead>
<tr>
<th>Demographic Profile</th>
<th>No. of Patients(N=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Frequency</td>
</tr>
<tr>
<td>Male</td>
<td>53</td>
</tr>
<tr>
<td>Female</td>
<td>47</td>
</tr>
</tbody>
</table>

Fig. 3 Dengue Dataset

Table 2. Gender Demographic Profile
ii. **Age**

As listed in Table 3 below, the highest propagation of the patients belongs to age group of 25-60 years, followed by <25 years. The lowest proportion is of age >60.

### Table 3. Age Demographic Profile

<table>
<thead>
<tr>
<th>Demographic Profile</th>
<th>No. of Patients (N=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (in years)</td>
<td>Male</td>
</tr>
<tr>
<td>&lt;25</td>
<td>23</td>
</tr>
<tr>
<td>25-60</td>
<td>24</td>
</tr>
<tr>
<td>&gt;60</td>
<td>6</td>
</tr>
</tbody>
</table>

iii. **DEMOGRAPHIC PROFILE**

According to the used data set of dengue, many patients are affected by Fever Temperature, Muscle and Joint Pain, Rashes/Red Spots.

VI **CONCLUSION**

In this research paper, we have concluded that the result of dengue fever status is Dengue or No Dengue and from the observed symptoms, it is analyzed that dengue fever mostly varies on fever temperature followed by muscle and joint pain and rashes/red spots.

**REFERENCES**


