



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].

The avenue that is being be subsequent to here for demographic analysis of the dengue disease which includes symptoms [10, 11]. In this research paper concern the indication of dengue disease. They indicate the result for dengue status is dengue or no dengue. According to all symptoms, than they concern to doctor in which some pre-diagnosis parameters are collected [12].

Table 1. Symptoms of Dengue Virus

Attributes	Possible Values
Period of Fever	Three Days, Four Days, Five Days
Fever Temperature	100°C, 102°C, 104°C
Rashes or Red spots	Yes or No
Pain behind Eyes	Yes or No
Headache	Yes or No
Muscle and Joint Pain	Yes or No
Nausea or Vomiting	Yes or No
Low Heart Rate	Yes or No
Fatigue	Yes or No
Result	Dengue or No Dengue

II LITERATURE FOR DENGUE DISEASE

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.

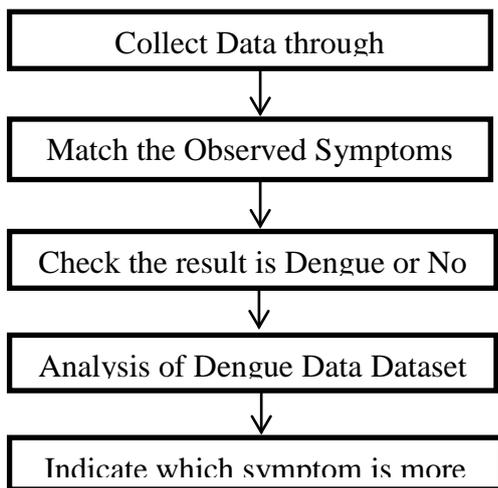


Fig. 1 Flow Chart of Methodology

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.

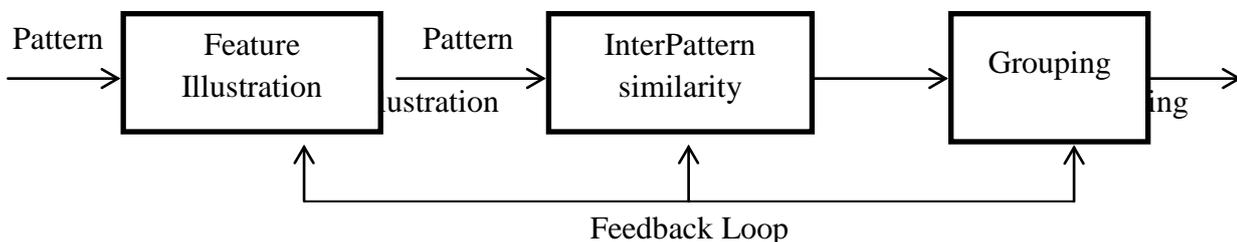


Fig.2 Stages of Loop

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.

	A	B	C	D	E	F	G	H	I	J	K
	Age(in ye.)	Gender	Marital St.	Period of	Fever Tem	Rashes/Re	Pain Behir	Muscle an	Low Heart	Neausea c	Fatigue
1	<25	Female	Single	Five Days	104 °F	Yes	Yes	Yes	Yes	Yes	Yes
2	<25	Male	Single	Three Day	104 °F	No	No	Yes	Yes	No	No
3	<25	Male	Married	Five Days	104 °F	Yes	Yes	Yes	Yes	Yes	Yes
4	25-60	Female	Married	Four Days	104 °F	Yes	Yes	No	Yes	Yes	No
5	<25	Female	Single	Three Day	102 °F	Yes	No	Yes	Yes	No	No
6	25-60	Female	Married	Four Days	104 °F	Yes	No	Yes	No	No	No
7	25-60	Male	Married	Five Days	104 °F	Yes	Yes	Yes	Yes	Yes	Yes
8	<25	Male	Single	Three Day	104 °F	No	No	Yes	No	No	No
9	<25	Male	Single	Five Days	104 °F	Yes	Yes	Yes	Yes	Yes	Yes
10	>60	Male	Married	Five Days	104 °F	Yes	Yes	Yes	Yes	Yes	Yes
11	>60	Female	Married	Four Days	104 °F	No	Yes	No	Yes	Yes	No
12	25-60	Male	Married	Three Day	102 °F	Yes	No	Yes	Yes	No	No
13	<25	Female	Single	Three Day	104 °F	No	No	Yes	No	No	No
14	<25	Male	Single	Five Days	104 °F	Yes	Yes	Yes	Yes	Yes	Yes
15	25-60	Female	Married	Four Days	104 °F	No	No	Yes	Yes	No	No
16	25-60	Male	Married	Four Days	104 °F	Yes	Yes	No	Yes	No	No
17	25-60	Female	Married	Five Days	104 °F	Yes	Yes	Yes	Yes	Yes	Yes
18	25-60	Female	Married	Five Days	104 °F	Yes	Yes	Yes	Yes	Yes	Yes
19	25-60	Female	Single	Three Day	104 °F	Yes	No	Yes	No	No	No
20	25-60	Male	Married	Four Days	104 °F	Yes	No	Yes	Yes	No	No
21	25-60	Female	Married	Five Days	104 °F	Yes	Yes	Yes	Yes	Yes	Yes
22	>60	Male	Married	Five Days	104 °F	Yes	Yes	Yes	Yes	Yes	Yes
23	>60	Female	Married	Four Days	104 °F	No	No	Yes	Yes	No	No
24	<25	Female	Married	Four Days	104 °F	Yes	Yes	Yes	No	No	No
25	25-60	Male	Married	Three Day	104 °F	No	Yes	No	Yes	No	No

Fig. 3 Dengue Dataset

Gender	Marital.Status	Period.of.Fever	Fever.Temperature	Rashes.Red.Spots	Pain.Behind.Eyes	Muscle.and.Joint.Pain	Low.Heart.Rate	Neausea.or.Vomiting	Fatigue	DengueStatus
Female	Single	Five Days	104 of	Yes	Yes	Yes	Yes	Yes	Yes	Dengue
Male	Single	Three Days	100 of	No	No	Yes	Yes	No	No	No Dengue
Male	Married	Five Days	104 of	Yes	Yes	Yes	Yes	Yes	Yes	Dengue
Female	Married	Four Days	102 of	No	Yes	No	Yes	Yes	No	No Dengue
Female	Single	Three Days	102 of	No	No	Yes	Yes	No	No	No Dengue
Female	Married	Four Days	100 of	No	No	Yes	No	No	No	No Dengue
Male	Married	Five Days	104 of	Yes	Yes	Yes	Yes	Yes	Yes	Dengue
Male	Single	Three Days	102 of	No	No	Yes	No	No	No	No Dengue
Male	Single	Five Days	104 of	Yes	Yes	Yes	Yes	Yes	Yes	Dengue
Male	Married	Five Days	104 of	Yes	Yes	Yes	Yes	Yes	Yes	Dengue
Female	Married	Four Days	100 of	No	Yes	No	Yes	Yes	No	No Dengue
Male	Married	Three Days	102 of	No	No	Yes	Yes	No	No	No Dengue
Female	Single	Three Days	100 of	No	No	Yes	No	No	No	No Dengue
Male	Single	Five Days	104 of	Yes	Yes	Yes	Yes	Yes	Yes	Dengue
Female	Married	Four Days	100 of	No	No	Yes	Yes	No	No	No Dengue
Male	Married	Four Days	102 of	No	Yes	No	Yes	No	No	No Dengue
Female	Married	Five Days	104 of	Yes	Yes	Yes	Yes	Yes	Yes	Dengue
Female	Single	Three Days	100 of	No	No	Yes	No	No	No	No Dengue
Male	Married	Four Days	102 of	No	No	Yes	Yes	No	No	No Dengue
Female	Married	Five Days	104 of	Yes	Yes	Yes	Yes	Yes	Yes	Dengue
Male	Married	Five Days	104 of	Yes	Yes	Yes	Yes	Yes	Yes	Dengue

Fig. 4 Dengue Results

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 2. Gender Demographic Profile

Demographic Profile	No. of Patients(N=100)
Gender	Frequency
Male	53
Female	47

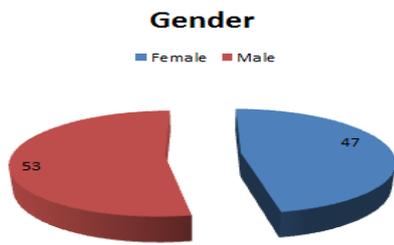


Fig. 5 Gender Demographic Profile

ii. Age

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

Table 3. Age Demographic Profile

Demographic Profile	No. of Patients(N=100)	
	Male	Female
Age(in years)		
<25	23	18
25-60	24	23
>60	6	6

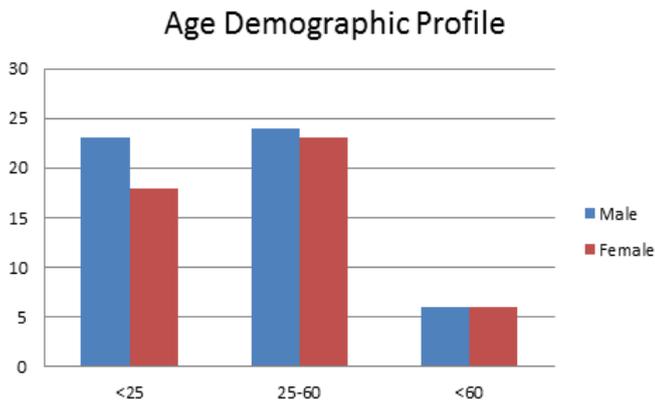


Fig. 5 Age Demographic Profile

iii. DEMOGRAPHIC PROFILE

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

Demographic Profile

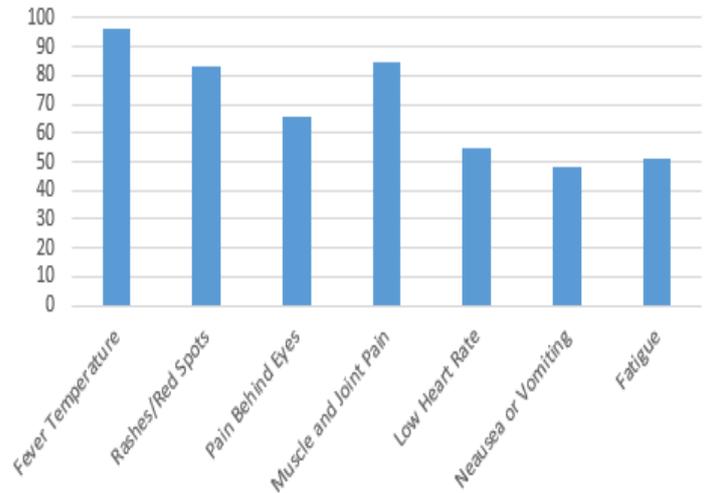


Fig. 6 Signs and Symptoms of cases (n=100)

VI CONCLUSION

In this research paper, we have concluded, 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.

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