

PREDICTION OF MELLITUS USING AND-OR GRAPH

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ABSTRACT: Mellitus is the chronic disorder, it is considered as one of the deadliest disorders and even hazardous than cancer which affects your body's ability to use the energy found in food. Cancer leads to multiplication of cells, but mellitus is triggered due to the increase in rate of insulin. Due to cells can't intake the glucose, its physiquess up in our blood. When the level of blood glucose is high it tends to cause damage the tiny blood vessels in your kidneys, heart, eyes, or nervous system. The content of Glucose level should be sustained at normal level.

In India, verdict of a disease is mostly done by expertise doctors, but still there are cases of wrong diagnosis and treatment. Patient are in need to undergo several tests where the cost is comparatively high and sometimes all of them are not required so in this way it will hugely increase the bill of a patient unnecessarily. So to avoid all of these, here we suggest a way in which data mining (data base of knowledge discovering) is used to predict the mellitus as well to diagnose and give the resolutions for the same.

In this paper, we are going to see how to predict whether the person is affected with mellitus and to give future reference for prediction of mellitus.

Keywords: Mellitus, data mining, prediction.

I. INTRODUCTION

Data mining is used to extract pure knowledge from dataset [1]. Mining in laymen language is extraction of metals from impurities, but here it's not metal, but knowledge extraction by removing the unwanted information, it likewise called as knowledge mining.

Mellitus is instigated due to insufficient amount of insulin in our body, it is a chronic disorder. If proper care is not taken, it gets complicated and may lead to death [2]

Mellitus is of three types: type-1, type-2 & gestational.

Mostly mellitus is caused owed to obesity. At present mellitus befalls in most people ranging from young age to old aged people.

The goal line of data mining is to gather information from the data set and to make the material as a judicious one. It includes catch exceptional patterns, and predicting the future based on former experiences and modern directions. There is a clearly a prerequisite for this technology [3].

The data mining snags include classification, associations, and sequencing, some data mining techniques include those based on rough sets, primary logic programming, and machine learning, with others [3].

Machine learning algorithms assistance its solidity due to the proficiency of handling a vast amount of data to merge data from numerous sources and assemble the background statistics in the research.

Mellitus increases the exposure of advancement heart disorder, kidney disorder, blindness, nerve jobbery and blood vessel damage [4].

Keeping your blood pressure and blood sugar at point will support to avoid its hitches [6].

This repository of mellitus catalogue helps in recognition of percussion of diabetic on different human organs. More the proficiency of prediction, more the chances of exact hardness estimations. Now this paper has disclosed various prediction methods of mellitus.

II. ANALYSING THE BASE STRUCTURE OF PLANNING

One should diagnose whether he/she has mellitus they first concern with endocrinologist. They should chase the castigation persuaded from an Endocrinologist, if mellitus is confirmed. It can be prolonged via adopting machine learning.

Mellitus ought to be acknowledged in the beginning, and then the subsidy should be seized. In order to scope them, then following steps are involved, the Endocrinologist is seized as **E** and mellitus patients seized as **MP**. Mellitus have various symptoms which is useful to verdict the result.

→ **MP** **E**

The difficulties of **MP** are communal with **E**, the given by **MP** is unstructured and not clear. The unstructured are rotated as structural feature. I.e. **UD** is seized as unstructured feature and **SD** Seized as structured detail.

→ **UD** **SD**

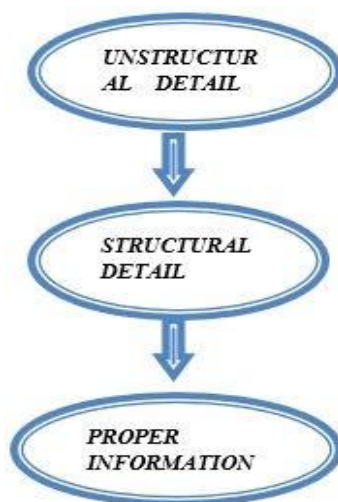


Fig 1.1 structure of planning.

After the structural data has been analyzed later subsidy is given by **E**, the discipline given by **E** should be chased by **MP**.

E(SD) → **MP**

Unstructured element is changed into structured element and then they are interpreted by using data mining techniques to boost the information given by **MP**. Subsequently interpreting the information, the proper solution given by **E** and **MP**. **S** seized as solution and **PI** seized as appropriate information.

S —→ P

The solution given by E is restrained by using tests (urine test, blood test). After further confirmation a person get cured by seizing the drugs given by E. then the person gets cured this information is warehoused in data mining. This information can be accessed at any time for retraining of information.

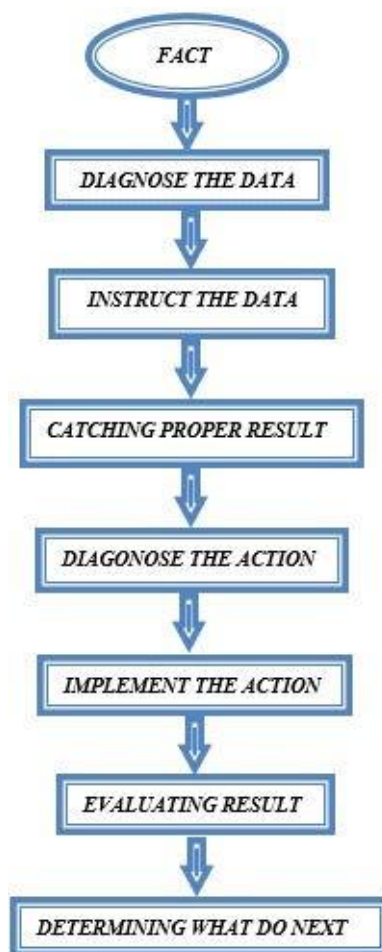


Fig 1.2 structure of planning

III. FACT OF ACQUIRING

Circumstance is a veracity which cannot be transformed nor, can any say that it is forged. An attaining technique being acquires a book for a triumph. It embodies things that you have learned or possessions you have gained. Acquiring has a formal sensitivity to it.

There are several tactics obtainable for facts of acquiring. One of the most obvious procedures used for fact acquiring is forward mapping and backward mapping. Mapping is used to consolidate multiple databases into a single database.

First, we ought to find fact linked to mellitus by demonstrating forward mapping. Then fact is given as input and converted into proper depiction.

In backward mapping the analytical representation is converted into English representation and the solution given by the backward mapping is the concluding facts.

FORWARD MAPPING

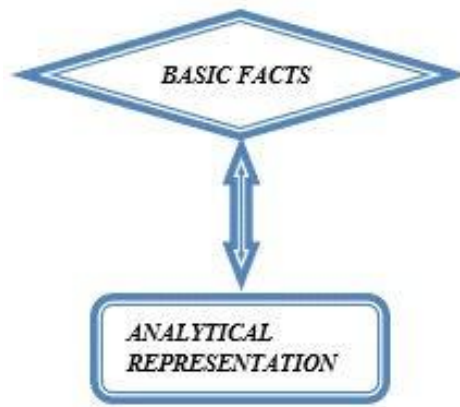


Fig 1.3 forward mapping

BACKWARD MAPPING

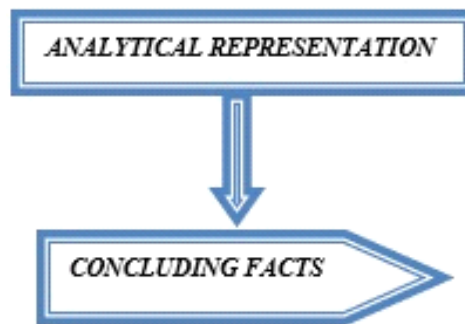


Fig 1.4 backward mapping

FACT	REPRESENTATION
X women has affected by Mellitus	English Representation
Women's (x)	Logical Representation
X: Women's(x) affected by Mellitus (x)	Formal Logical Representation
Has affected (women)	Deductive Mechanism
Women's are affected by mellitus	English representation (background representation)

Table 1.1 fact representation

FACT	REPRESENTATION
Y Men's has affected by Mellitus	English Representation
Men's (Y)	Logical Representation
Y:Men's(y) affected by Mellitus (y)	Formal Logical Representation
Has affected(Men)	Deductive Mechanism
Men's are affected by Mellitus	English representation (background representation)

Table 1.2 fact representation

FACT	REPRESENTATION
Women(X) age above (40+) has affected by mellitus	English Representation
Women's (x)	Logical Representation
X:Women's(x) above (40+) affected by mellitus	Formal Logical Representation
Above (40+) has affected(women)	Deductive Mechanism
Women's are above (40+) affected by mellitus	English representation (background representation)

Table 1.3 fact representation

FACT	REPRESENTATION
1 Million(X) women has affected by mellitus in India	English Representation
Women's (x)	Logical Representation
X:Women's 1 million (x) affected by mellitus (x)	Formal Logical Representation
1 million has affected(women)	Deductive Mechanism

1 million women are affected by mellitus	English representation (background representation)
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Table 1.4 Fact representation

FACT	REPRESENTATION
Less than 1 million Men's(y) has affected by mellitus in India	English Representation
Men's (x)	Logical Representation
Less than 1 million Y: Men's(y) affected by mellitus (x)	Formal Logical Representation
Less than 1 million has affected (Men)	Deductive Mechanism
Less than 1 million men's(y) are affected by mellitus	English representation (background representation)

Table 1.5 Fact representation

IV. TYPES OF MELLITUS

Mellitus more generally associated as diabetes. It is allied with anomalous glucose level in the blood. Diabetic is due to the two components:

1. Inappreciable preparation of insulin.
2. Inappreciable sensitivity of cells to the action of insulin.

There are three main types in mellitus these are: type-1, type-2 and gestational.

A. TYPE 1 DIABETIC

It usually inception in childhood or young adulthood [1]. It is an insulin depended diabetic or juvenile diabetic. It results from the failure of pancreas to produce sufficient insulin due to the loss of beta cells.

B. TYPE 2 DIABETIC

It can progress at any age and mainly exposed during adulthood [1]. It preliminary with insulin abrasion, a condition in which cells fail to acknowledge to insulin appropriately. It also stated as non-insulin depended diabetic. The most prevalent cause in combination of imtemperate body weight and unsatisfactory exercise.

V. GESTATIONAL DIABETIC

It is the third main form and appears in women because of pregnancy. It is diagnosed often by late pregnancy. Due to high content of sugar levels in blood a mother are disseminated over the placenta to the baby, gestational diabetes must be controlled to protect the

baby's growth and development. The risk rate of gestational diabetes to the unborn baby are even superior than risks to the mother. Hazards to the baby include atypical weight increase before birth, breathing problems at birth, and higher obesity and diabetes risk later in life. Menaces to the mother hold need of a cesarean section due to an excessively large baby, as well as impairment to heart, kidney, nerves, and eye.

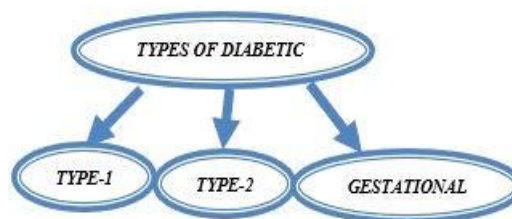


Fig 1.5 Gestational Diabetic

VI. KNOWLEDGE MANIPULATION

It is the manipulation of the knowledge to produce a appropriate prediction or a proper solution.

For example:

If the insulin level >200mg/dl. There are high chances for the occurrences of the diabetic.

AND OR GRAPHS

It is very useful to represent a solution to a specific problem, where each problem is solved separately.

OPERATI-ON	REPRESENTATION
AND	$\wedge$
OR	$\vee$

Table 1.6 Operation representation

OR GRAPH



Fig 1.6 OR Graph

AND GRAPH



Fig 1.7 AND Graph

PROBLEM

The subsequent statement below mentioned is the foremost problem of our project.

When the insulin level ≥ 126 mg/dl & ≤ 50 mg/dl. In our blood there is a high chance for the occurrence of the mellitus in human. To control predict the mellitus and provide medical care.

ASSERTION

To predict mellitus and provide medical care

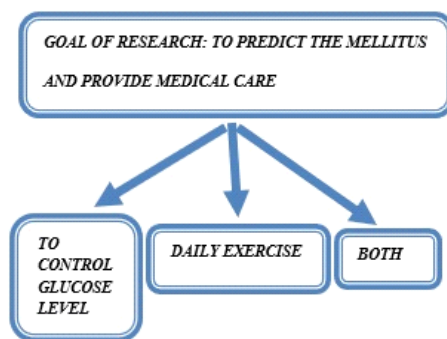
STEP 1

Creating node at top

*GOAL OF RESEARCH: TO PREDICT THE MELLITUS
AND PROVIDE MEDICAL CARE*

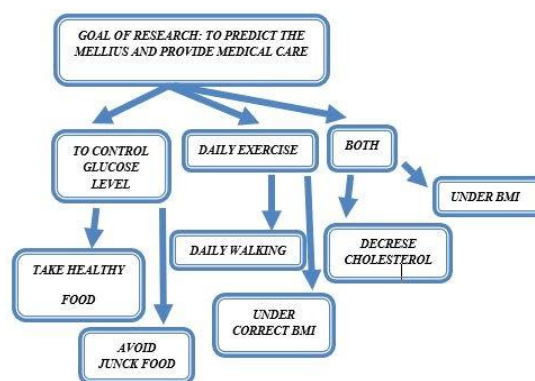
STEP 2

It splits into three nodes:



STEP 3

It is again split as:



CASE 1:

It is circumstance that in order to control glucose level, we have to follow proper healthy diet that spited up underneath to predict the mellitus.

CASE 2:

We can predict the mellitus and deliver proper medical care in mellitus. If we do need isometrics and proper diet taken.

CASE 3:

It is a mixture.

VII. TYPES OF KNOWLEDGE

In general, knowledge means gaining cognizance or understanding of a concept. The study of knowledge is called as epistemology. The following are the approaches for a good knowledge system.

A. RELATIONAL KNOWLEDGE

One of the simplest ways to store the facts or information is through the relational knowledge concept. Here the facts about the objects are present in sequential columns.

INSULIN LEVEL	MELLITUS
<100 mg/dl	Normal
100<=125mg/dl	Pre mellitus
>=126mg/dl	Mellitus

Table 1.7 Relational Knowledge

B. INHERITABLE KNOWLEDGE

It comprises of objects and attributes that inherits the new objects from the existing objects. It makes use of property inheritance where data is organized as a hierarchy of class.

INFERENTIAL

KNOWLEDGE

Here the knowledge expressed is through proper logic. It uses a set of conventions for receive new evidence.

VIII. CONCLUSION

Thus, the paper revolves around the concept of data mining techniques where they are correlated with one another of the health care sector to predict various kind of diseases and to discover the efficient way to resolve the factor and treat them as well.

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