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Medical Diagnosis Problem Statement (change title)

Multi class classification

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In the ideal scenario, the test results of the patient, upon reception by the concerned doctor, he/she should be able to correctly predict whether or not a patient suffers/has a particular disease.

. However, in the current scenario, many patients go in for a second opinion, where they consult another doctor and then based on these meetings, decide the future course of action.

This situation of getting second opinions, from the patient's perspective is a costly affair, as the doctor's consultation fees are not exactly "patient-friendly! Also valuable time is lost on the patients', getting an alternative opinion, which could prove deadly if the patient does really have the disease.

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The solution proposed is to build a Medical Diagnosis System, that can predict whether or not a particular patient has a particular disease or not. The doctor can then use it to corroborate his/her conclusions.

The input to the system will be the user's test reports. Based on the training that the system has received (on past data collected), it will predict whether the patient really has a disease or not. i.e, a Classification System.

The accuracy of the model, depends upon the a lot of factors such as the amount of data collected, it's veracity, the model used to classify and the complexity of the hypothesis.

→ Input (Lab test reports,
test report → published paper
How you use extracting
— data from lab reports to slow
— extraction technique
— traning model } → Literature survey
classification

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SOFTWARE REQUIREMENTS SPECIFICATION

for

CANCER DIAGNOSTIC SYSTEM.

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1. INTRODUCTION

1.1 Purpose

The purpose of this document is to present a detailed description of the Web application for the Cancer Diagnostic System. It will explain the purpose and features of the system, the interfaces of the system and what the system will do. This document is intended for both the stakeholders and developers of the system.

1.2 Product Scope.

This software system will be a Web application for all the hospitals and medical practitioners. This system will be designed to provide highly accurate diagnosis of cancer, and thus minimize the need for a patient to seek a second opinion.

1.3 Intended Audience

This document is to be read by the development team, the project managers, marketing staff, testers and documentation writers. All the stakeholders may review the document to learn about the project document and to understand the requirements.

1.4 References

IEEE, IEEE Std 830-1998. IEEE Recommended Practice for SRS. IEEE Computer Society, 1998.

2. OVERALL DESCRIPTION

2.1 Product Perspective.

The software product being developed is a web-based application which obviates the need for a second opinion by maximizing the accuracy of diagnosis. Refer to the attached use diagram for further information..

2.2 User Classes and Characteristics.

2.2.1 Customers:

The customers who intend to use this software product should be legal medical practitioners under the code of Medical Ethics Regulation 2002 - [INDIA]. The customers are expected to know their way around web applications..

2.2.2 DBA:

The DBA is expected to have a field appropriate College degree and experience of atleast 2 years as a DBA and an additional 5 years in the IT field. He/She has the privilege to update information on the database and technical expertise on database management..

2.2.3 Data Entry Level Personnel:

They must have atleast a high school diploma or equivalent certification. They do not have the privileges to directly access or modify the database without the permission of the DBA.

2.3 Functional Requirements.

This subsection presents the identified functional requirements for Cancer Diagnostic System.

2.3.1 Customers:

The identified functional customer requirements that directly relate to the customers of the subject CDS, are listed below:

(1) The authenticated medical practitioner shall be able to login into the system to use the software.

(2) The authenticated medical practitioner shall be able to choose the type of cancer that he/she is testing the diagnosis for.

(3) The user shall be able to input the data in the appropriate fields.

(4) The user shall be able to print the tabulated result by the software product.

(5) The user is expected to fill in certain mandatory fields for the diagnostic process.

2.3.2 DBA:

The identified functional DBA requirements that directly relate to the DBA of the CDS, are listed below:

(1) The DBA is expected to authenticate a user, only after verification.

(2) The DBA shall be provided with privileges to insert, delete, update and search for registered users' records.

(3) The DBA shall be provided with privileges to update the test and train sets of data.

2.4 Nonfunctional Requirements

This subsection presents the identified nonfunctional requirements for the CDS.

2.4.1 Performance:

(1) The server shall be capable of supporting atmost 10^8 concurrent users.

2.4.2 Human Engineering:

(1) Incase of the entry of an invalid datapoint in any field, the user is requested to correct it..

2.4.3 Security:

(1) The results of a patient are strictly confidential.

(2) The login password must have a bit strength of atleast 80 bits.

(3) The authenticated medical practitioner must be logged into the system, only from one remote computer, at a time..

good

bits.