

Health Prediction System using Data Mining

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1

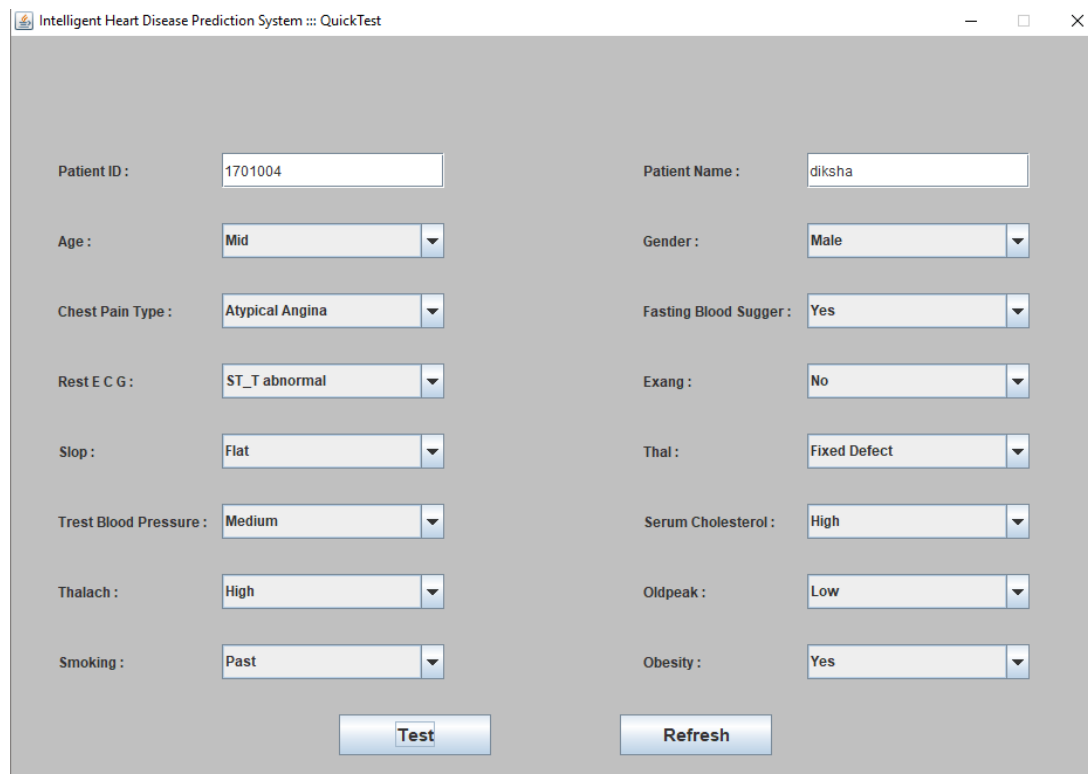
ABSTRACT

With the modern technology, human being wants to save his money and time in every aspect, therefore, in Health Science, before going to any doctor people try to gather knowledge about their own health at first and after that, they opt the specific doctor and hence we need the smart Health Prediction System.

Keywords: Chest Pain type, ECG, Slop, Blood Pressure, Thalach, Blood Sugar, Exang, Thal.

1. INTRODUCTION

In our present scenario, people rush to different doctors for some particular illness and it is because people are not aware of their actual health condition for this our smart Health Prediction System will help people to find what is the actual cause of their illness and will help people to contact right doctors for cure. The system will take symptoms as inputs and give the chance of being ill and the corresponding probability.



The screenshot shows a web application window titled "Intelligent Heart Disease Prediction System :: QuickTest". The interface contains a form with the following fields and values:

| | | | |
|-----------------------|-----------------|-----------------------|--------------|
| Patient ID : | 1701004 | Patient Name : | diksha |
| Age : | Mid | Gender : | Male |
| Chest Pain Type : | Atypical Angina | Fasting Blood Sugar : | Yes |
| Rest ECG : | ST_T abnormal | Exang : | No |
| Slop : | Flat | Thal : | Fixed Defect |
| Rest Blood Pressure : | Medium | Serum Cholesterol : | High |
| Thalach : | High | Oldpeak : | Low |
| Smoking : | Past | Obesity : | Yes |

At the bottom of the form, there are two buttons: "Test" and "Refresh".

Figure 1. Symptoms

2. MODULES

2.1 Login Module

The admin can log into the system to perform the specific functions. The login page is the first page of the system where the system asks for the username and password from the admin and on verification the next page will be opened that will show a list of functions to be performed.



Figure 2. Login Module

3. FUNCTIONALITIES

3.1 Quick Test

In this functionality, the person is able to check his condition on a random basis by providing values of some given options as per the tested scenario.

3.2 Add Patient

In this functionality, system is used to add new patient and the patient id will be generated automatically.

3.3 Test Report

In this, the test report of a patient is generated by searching the required patient id also it can also be printed.

3.4 All Details

In this, details of all the patients are been shown up on the screen.

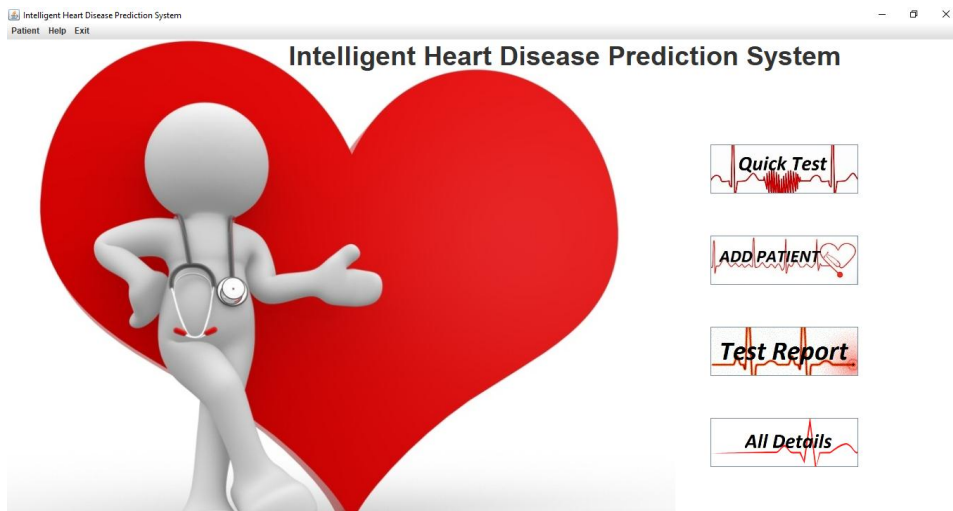


Figure 3. Functionalities

4. METHODS USED

Naïve Bayes Theorem, Chi-square Theorem

Naïve Bayes is a classification technique which assumes that the presence of a particular feature in a class is unrelated to the presence of any other feature. Naive Bayes model is easy to build and particularly useful for very large data sets.

$$P(c | x) = \frac{P(x | c)P(c)}{P(x)}$$

Likelihood
Class Prior Probability
↓
↓
Posterior Probability
Predictor Prior Probability

$$P(c | X) = P(x_1 | c) \times P(x_2 | c) \times \dots \times P(x_n | c) \times P(c)$$

Figure 4. Naive Bayes Formula

A chi-squared test, also written as χ^2 test, is any statistical hypothesis test where the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true.

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

χ^2 = the test statistic \sum = the sum of
 O = Observed frequencies E = Expected frequencies

Figure 5. Chi-squared Formula

5. LANGUAGE AND IDE

JAVA and Net Beans IDE

Net Beans is an IDE which helps to implement projects using JAVA language syntax and specifically used to use swing application development kit. Here we are using the NetBeans IDE 8.0.2 to develop the system.

6. CONCLUSION

The system is capable to tell a person whether he has a chance of meeting disease or not. And hence saves time and money of a person.

7. FUTURE SCOPE

The collection of more and more and also real reports based data will help to increase the efficiency of the system.

8. REFERENCES

- [1] Beant Kaur and Williamjeet Singh (2014), *IJRITCC-OCTOBER 2014*, ISSN: 2321-8169, India.
- [2] Chaitanya Kaul, Ashmin Kaul and Saurav Verma (2015), *2015 IEEE*, 978-1-4799-6818-3/15.
- [3] Nikita Kamble, Manjiri Harmalkar, Manali Bhoir and Supriya Chaudhary (2017), Smart Health Prediction System using Data Mining.