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FRAMINGHAM RISK SCORECALCULATOR

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ABSTRACT

Internet has catered to the various requirements and searches in almost every field for decades. Lately, the world is moving towards mobile devices .One of the major problem in healthcare is to estimate the 10-year cardiovascular risk of an individual. In order to overcome this risk, we have developed a mobile application because people have silently and slowly moved towards mobile devices, leaving behind the desktop PCs. Almost every work, small or big, has the possibility and capability of being done through mobile devices. The demand nowadays is to get everything done in the least possible time. Our mobile application is mainly used to calculate Framingham Risk Score by getting the following factors as input from an individual. The factors include Age, Total cholesterol, HDL cholesterol, Systolic blood pressure, smokers /non-smokers. The Framingham Risk Score depends on discoveries from the Framingham Heart Study.The calculated risk score varies based on gender and age. High hazard was most generally found in patients with cutting edge age and was more typical in men than ladies. There are some current models for this venture like mdcalc.com, Framingham Risk Calculator application.All existing models does not have any factors like History of hypertensive medication, diabetics etc. So we added some parameters for solving the calculation problems in a better way .Our app will help users to calculate their risk score accurately and heart beat rate for further process. It provides a simple, easy-to-use tool which allows the rapid calculation of a 10-year risk of Coronary Heart Disease.

Keywords—Healthcare,10-year cardiovascular risk, Framingham Risk Score, Age, HDL cholesterol, Systolic blood pressure, smokers /non-smokers.

I. INTRODUCTION

The category of patients involves all human beings-teachers, students, businessmen, housewives, children and also all of us have a busy hectic schedule. Today's life is full of responsibilities and stress. So people are prone to diseases of different types and it is our duty to make ourselves stay fit and healthy. If the patient stays at home then he or she might calculate the risk score of the heart disease easily.

In our developing and technology dependent life we totally rely on gadgets, especially smart phones. Today everyone has a smart phone. With this, we get an opportunity to use technology in a better way so that it can be made useful to us. And it plays an important part in our daily life and helps us staying fit in many ways.

The application is designed on Eclipse. It can be helpful in the defence sector and emergency conditions (accidents) and can spread health care awareness. It is life-saving, money saving and time-saving application which is easy to use and provides a good user interface.

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II. OVERVIEW

2.1 Android Studio

Android Studio is the authority Integrated Development Environment (IDE) for Android application improvement, in view of IntelliJ IDEA.It was announced on May 16, 2013, at the Google I/O conference. Android Studio is uninhibitedly accessible under the Apache License 2.0.Android Studio was in early get to see organize beginning from rendition 0.1 in May 2013, at that point entered beta stage beginning from adaptation 0.8 which was discharged in June 2014.The first stable build was released in December 2014, starting from version 1.0.Based on Jet Brains IntelliJ IDEA software, Android Studio is composed particularly for Android improvement. It is accessible for download on Windows, Mac OS X, and Linux, and supplanted Eclipse Android Development Tools (ADT) as Google's essential IDE for local Android application advancement. Android Studio offers, much more, highlights that improve your profitability when building Android applications, for example,

1. A flexible Gradle-based build system. A fast and feature-rich emulator
2. A unified environment where you can develop for all Android devices v
3.Code templates and GitHub integration to help you build common app features and import sample code. Extensive testing tools and frameworks.
4.Build up instruments to get the execution, ease of use, adaptation similarity, and different issues.
5. Built-in support for Google Cloud Platform, making it easy to integrate Google Cloud Messaging and App Engine.

2.2 Android SDK

The android programming improvement unit comprises of many bundles. It is broadly utilized for improvement of the android application. The SDK get connected with the obscuration and give the entire coordinated advancement condition for the application improvement which will keep running on the Android working framework fueling a cell phone. Programming advancement unit comprises of a debugger, libraries, documentation, test code, instructional exercises, an emulator which run comparable like handset gadgets and it has some default handset gadgets profiles.

III. PROPOSED SYSTEM

3.1 System Description

The Framingham Risk Score is a gender-specific algorithm used to estimate the 10- year cardiovascular risk of an individual. The Framingham Risk Score was first created in light of information got from the Framingham Heart Study, to gauge the 10-year danger of creating coronary illness.

With a specific end goal to evaluate the 10-year cardiovascular illness chance, cerebrovascular occasions, fringe conduit malady, and heart disappointment were along these lines included as infection results for the 2008 Framingham Risk Score, over coronary illness.

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3.2 Software Requirements

- Operating System : Windows 7/8
- Programming Language: Java
- User Interface :GUI
- S/W Tool : Android Studio
- Platform : Android SDK

3.3 Hardware Requirements

- Processor : Intel i3 Processor
- Hard Disk : 500GB
- RAM : 256MB minimum

3.4 Framingham Risk Score

Parameters needed:

- Age
- Gender
- Total Cholesterol
- High Density Lipoprotein
- Smoking Status
- Systolic Blood Pressure

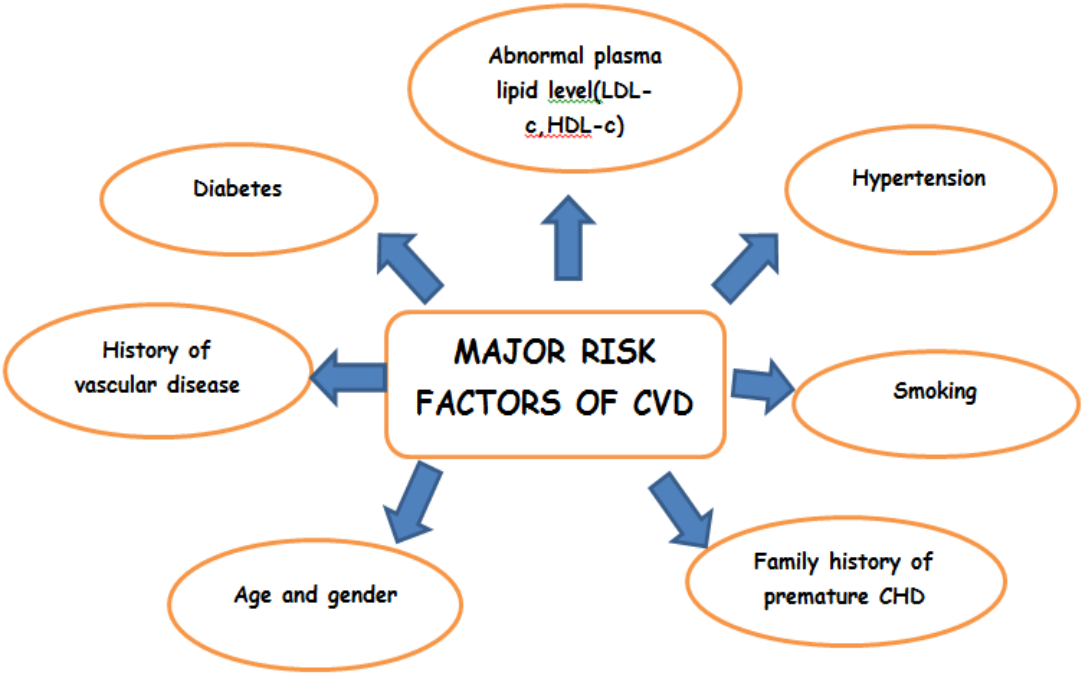

Fig.1: Framingham risk factors

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IV. MODULE DESCRIPTION

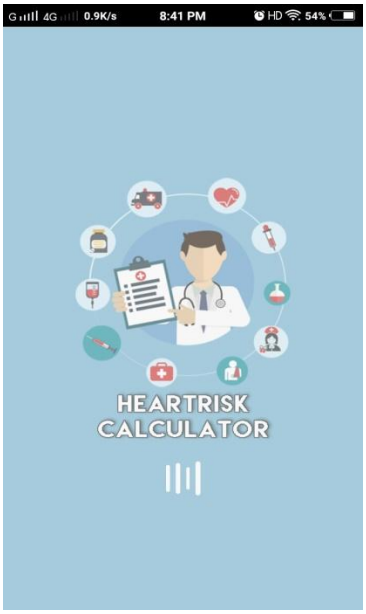
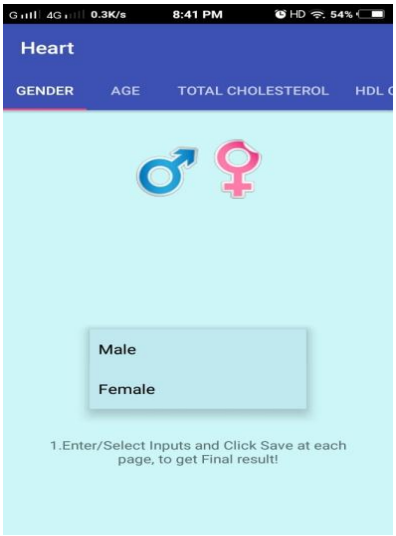


Fig.2 Home Screen

4.1 Risk Factors Module

It helps to keep track of the risk factors involved in calculating Framingham Risk Score. User can enter the values of risk factors like

- Gender
- Age
- Total Cholesterol
- High Density Lipoprotein
- Systolic Blood Pressure
- Treatment for Blood pressure
- Smoking Status
- Diabetes.



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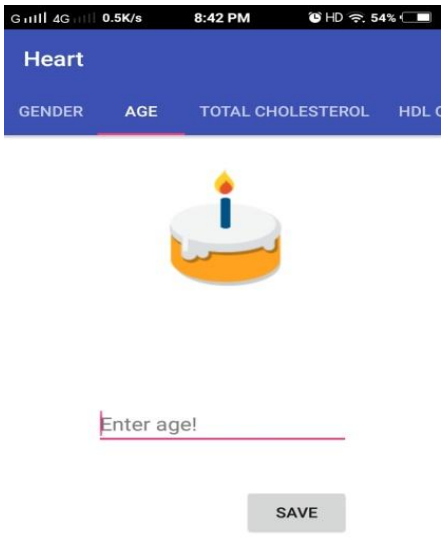

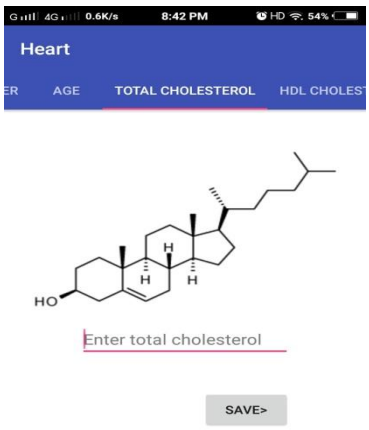

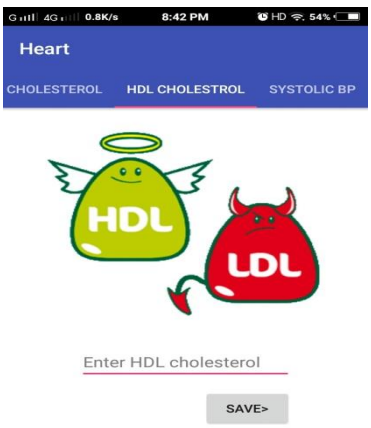

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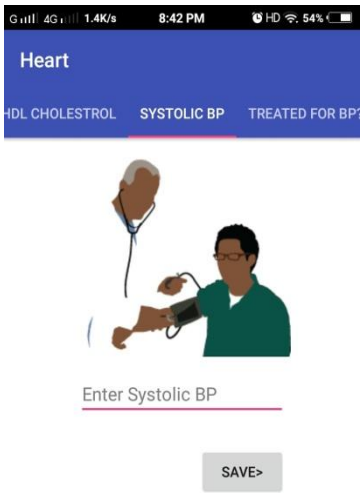

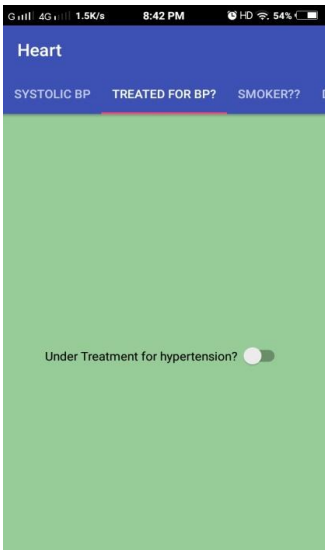

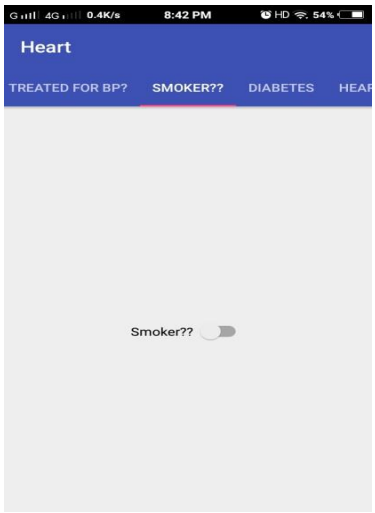

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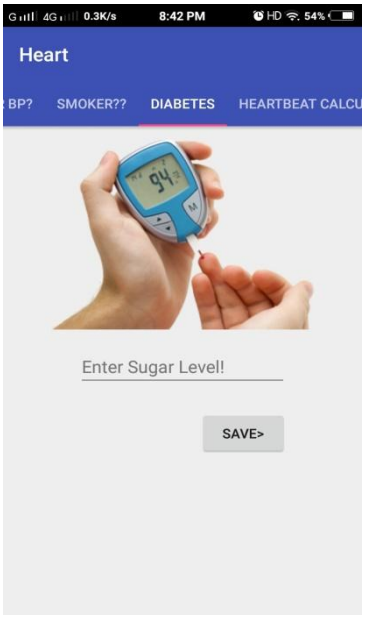

4.2 Heart Beat Calculator

The user should launch the heart beat sensor to calculate the heart beat rate. For this, the user should place his/her finger on the camera along with flash. Image processing is done to determine the change in the red pixel in real-time video input.

Fig.3 Screenshot for heart beat module

4.3 Risk Score Module

By analyzing all the factors that are entered by the user, Risk Score is calculated using various measures and finally, the risk score is displayed in a text view.

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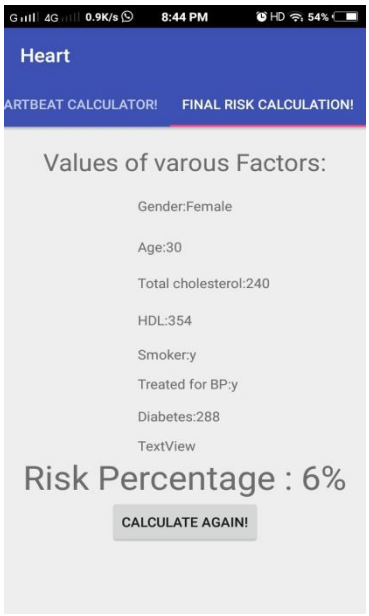

Fig.4 Screenshot for Final Risk Score

IV. CONCLUSION

The hazard evaluation instrument above utilizations data from the Framingham Heart Study as prescribed by the 2009 CCS Canadian Cholesterol Guidelines to foresee a man's shot of creating cardiovascular infection in the following 10 years, changed for family history (twofold the CVD chance rate if any CVD introduce in a first degree relative before age 60). In men more than 50 or ladies more than 60 of middle of the road hazard whose LDL-C does not as of now recommend treatment, hsCRP can be utilized for chance stratification. As data were lacking in Framingham Risk Score in the rural community, this project will give invaluable insight into the scope. The motive of the project is to "Develop a Nation with healthy and wealthy people" and the project will fulfill the requirements of all individuals. The Framingham Study, with compatible discoveries from different examinations in the U.S. what's more, abroad, started an unrest in the comprehension of the individual and the mass causes and the Preventability of heart assault and stroke. It gave a sound premise to effective restorative activity and wellbeing advancement strategy to lessen the demise rate from these maladies. The Framingham Study today has new accentuations on the danger of specific infection indications, for example, heart disappointment, fringe supply route illness, stroke sorts, and arrhythmias.It explores new risk characteristics such as the Apo lipoproteins and their regulating genes, homocysteine, blood clotting factors, and inflammation. And its scope is widened to the study of a whole set of chronic conditions such as obesity, diabetes, and cardiac enlargement, and other diseases including osteoporosis, cancer, and Alzheimer's disease. Its emphasis is on individual causes and risk prediction rather than on the socio cultural environmental causes of common and epidemic diseases. This project seems to be small but in realization, we had to code a lot and maintain our focus throughout on the given requirements. We stumbled upon a variety of problems and had to comb through books and websites and try for ourselves. Here we have mentioned a few of the constraints which we managed to get through eventually. The result will in a good, clean and peaceful environment. The project has been completed

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successfully which covers the maximum requirement given by Industry Mentor. The constraints have been met and overcome with success. The system is designed as like it was decided earlier in the design phase.

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