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Disease Predictor: A Disease Prediction App

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Abstract: Mobile technologies have become digital fabric of our lives. We are living in an age where these mobile technologies can help us do various things which one could not even think of a little while ago .One such thing can be the prediction of a disease. People tend to get suffered to or sometimes even die from certain diseases which could easily be cured, if those were known beforehand. This lack of knowledge sabotages the health of a person and can create deeper repercussions. Disease Predictor aims at predicting your disease and provides you all the necessary information you need to know about the disease. It tells what the user needs to do after he/she has predicted the disease so that the same disease can be prevented before it actually takes place. The end user can report the symptoms based on which the disease can be diagnosed. These symptoms are then processed to take out the correct disease(s) which can occur in near future.

I. INTRODUCTION

From ancient times to renaissance, it is seen that people do not take the issue of their health seriously and simply ignore it when it comes to maintain it to lead a good, happy life. The reason behind this ignorance can be different but the result is somewhat the same.

The Disease Predictor app helps user to diagnose a disease in real time by selecting the various symptoms through a given list. The symptoms selected are then processed to take out the chances of a disease to occur. There can be more than one disease predicted for a same set of symptoms but may be with different percentage of chances of occurrence. The details of the disease are also given with useful information such as all the possible symptoms, detailed explanation of the disease and the next steps that are to be taken forward so as to prevent the disease without even going to any doctor or dispensary.

The Disease Predictor app also creates an alert in regular time intervals after a certain prediction to ensure that whether the user has followed the steps provided post the diagnosis for ceasing the disease.

II. BACKGROUND

A mobile app is a software application developed specifically for use on small, wireless computing devices, such as smartphones and tablets, rather than desktop or laptop computers. Mobile applications are available at different application stores over the internet which are specific platform based. Some of the popular application stores are Google Play Store, Apple App Store, Windows Store and Blackberry App World. Mobile apps are designed with consideration for the demands and constraints of the devices and also to take advantage of any specialized capabilities they have. Mobile applications make use of phone's hardware and perform specific tasks.

III. IMPLEMENTATION

Disease Predictor is implemented in four modules named as Login, Symptoms List, Diagnosis Report and Alert Unit. User's details are stored in the online host database. As user installs this on his smartphone then he has to first register on the application. On the homepage of the user, Disease Predictor will ask for the permission from the android operating system. After that a background Service is called which returns the list of objects. Objects are then parsed to get the applications that run in Foreground.

In the alert module, a Broadcast Receiver is made to set the alert using Alarm Manager and to broadcast the alert.

IV. TOOLS, SERVICES AND METHODS

This section explains the hardware and software requirements for developing the Disease Predictor application and its interface, tested features of the app, what the app will do, the constraints under which it must operate and how the app react to external input.

A. Hardware Platform

This app has been developed using 4 GB of RAM, i3 2.4 GHz 500 GB Hard disk space but the Minimum requirement of such kind of application development for a machine is:

1) 1.8 GHz or faster processor

2) 2 GB of RAM (2.5 GB if running on a virtual machine)
3) 10 GB (NTFS) of available hard disk space 5400 RPM hard drive

B. Software Platform

This app is developed on a platform of Microsoft Windows 10 Operating System. Microsoft Windows is a series of graphical interface operating systems designed, developed, marketed, and sold by Microsoft onwards from November 20, 1985. The most recent versions of Windows are windows 8.1 and 10.The Other Supported Operating systems are:

1) Windows 7 SP1 (x86 and x64)
2) Windows 8 (x86 and x64)

V. DEVELOPMENT TOOLS AND STORAGE

Android Studio, ADT plugin and Google Android SDK have been used to develop Disease Predictor app for designing and developing this app. Android Studio is an integrated development environment (IDE). It contains a base workspace and an extensible plug-in system for customizing the environment. Android Development Tools (ADT) is a plugin for the Android Studio IDE that is designed to provide an integrated environment to build Android applications. ADT extends the capabilities of IDE to let developers set up new Android projects, create an application UI, add packages based on the Android Framework API, debug their applications using the Android SDK tools, and export signed (or unsigned) .apk files in order to distribute their applications. It is a freeware available to download. It is the official IDE for Android Application Development. The Google Android software development kit (SDK) includes a comprehensive set of development tools. These include a debugger, libraries, a handset emulator based on QEMU, documentation, sample code, and tutorials.

A. Functionalities (Use Case Diagram)

Users of the app can sign up and login to access the details. Once the user is logged in he/she can use the symptom list to diagnose a disease and set the alert system for taking appropriate actions to prevent it as shown in graphical representation.

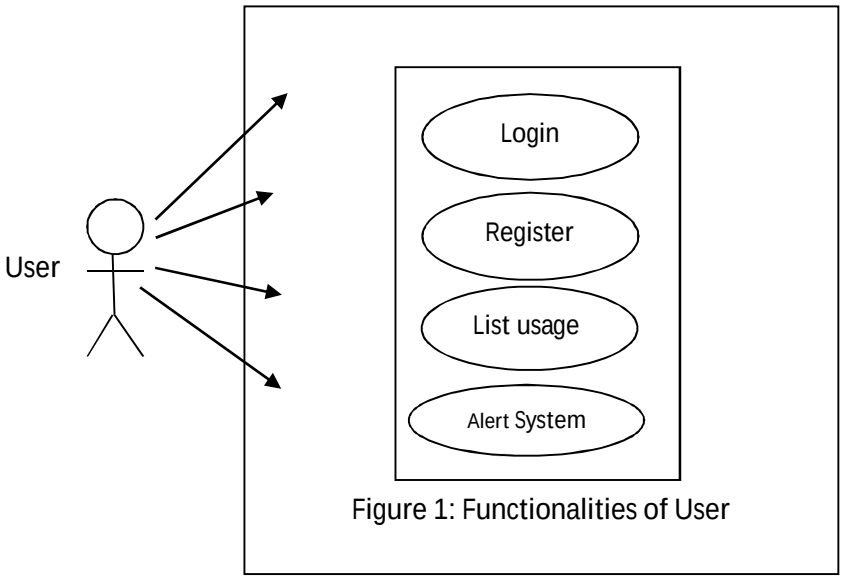

Figure 1: Functionalities of User

VI. EMULATION AND TEST

Android Emulation Software is used to provide a virtualized environment, this emulator help develop and test Android applications without using a physical device. This app is tested on Android 5.0.1 Lollipop Platform. The virtual device mimics actual physical device by which the behavior of app can be tested.

VII. RESULT ANALYSIS

Disease Predictor users are now able to predict the disease from which they are suffering or are going to suffer through their smartphones.

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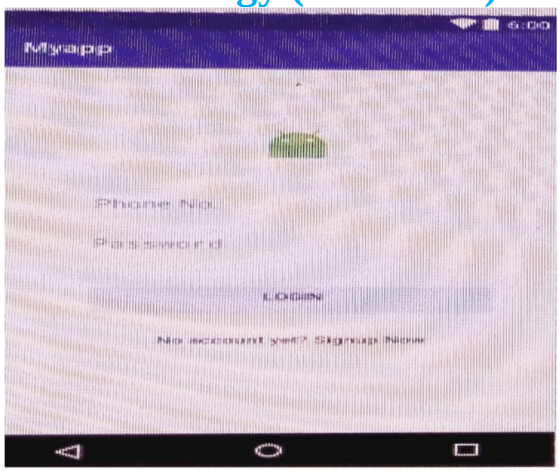
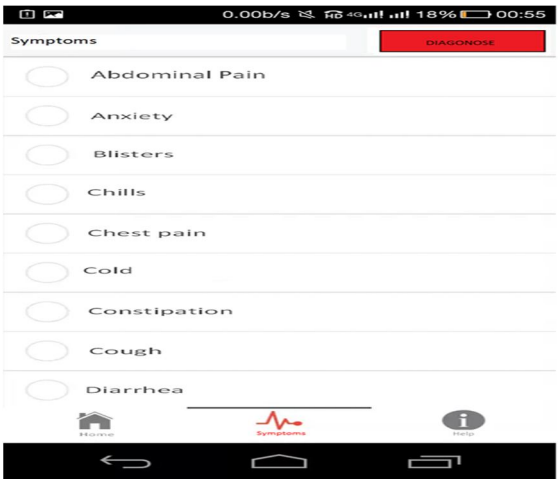
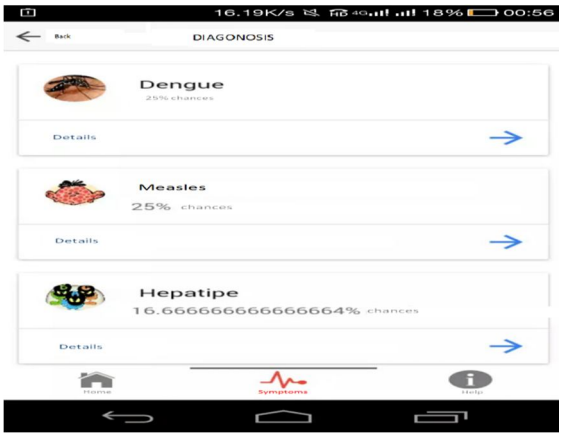


Login Page



Home Page (Symptom List)



Diagnosis Page (Predicted Disease List)

VIII. SECURITY AND ISSUES

The securities issues related to this app are minimal as it only relates to the hacked accounts. The general issues related to Disease Predictor app are dynamic validations over the internet as data stored on web host. The other issue is that when accessing that user must be connected to internet and our app background services need to be running in the background in order to synchronize data.

Slow down speed of web host may create an issue.

IX. CONCLUSION AND FUTURE SCOPE

Disease Predictor is a useful app in terms of what actions does it take to up bring one's health by simply taking out positive results to improve it. Disease Predictor serves the all purposes as described above.

The future scope for this application is endless but there can be various things that can certainly be added so as to uplift the performance of this app. Various new features can be added such as a new search option for the disease list so that the user can always search for the symptoms rather than just scrolling the list down to select it, a proper detailed view of the symptom so that the user can understand the complex term being used for its symptom, an option to choose the language by the user so that he can understand the app properly and also by making the app to be launched in every OS available so as to target a larger audience.

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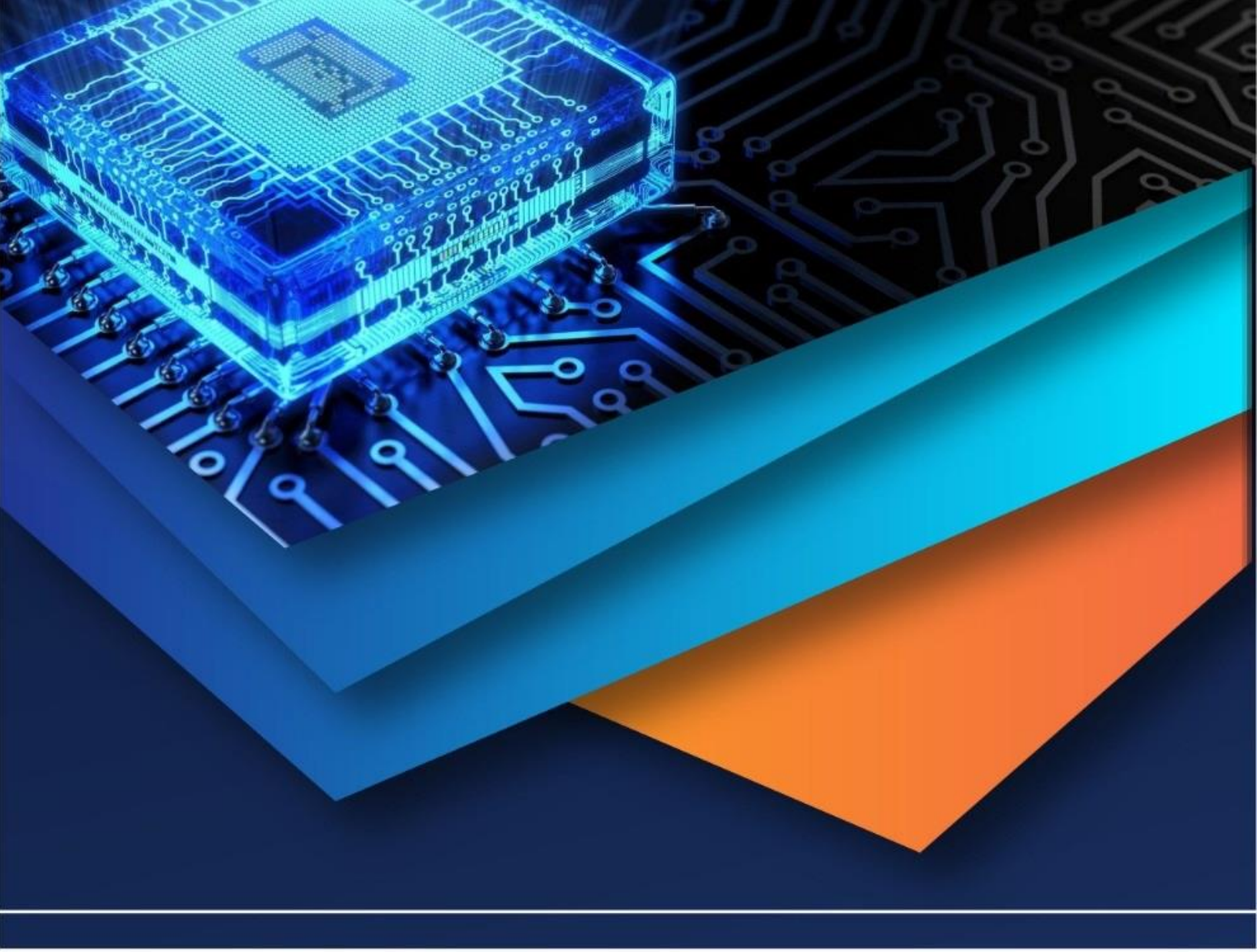

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