Hybrid Calculator

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Abstract— **This paper presents a common platform to carry out different types and calculations for different types of peoples from different walks of life**

I. INTRODUCTION

It is a simple calculator like other functioning calculator's which receives the user response does its calculation and displays the output. There is a change in this calculator as it does not do the four basic operation but many more than that as the name suggests. It is made by looking at people from different streams having problem in calculations or mainly the time delay in calculations due to lack of proper resources.

Hybrid calculator is a best option as it asks the user about the calculations he needs to do, takes the response, process it and displays the result in just fractions of a second. So, this is made by keeping people from different sectors into the mind. It is fascinating as it does calculations like resistance accord to colour bands, day calculations based on the date and many more…

II. STUDY OF PREVIOUS SYSTEM

A. Windows Calculator Application.

It is a Windows based calculator developed by Microsoft which is developed using C++.It is one of the few applications bundled in all versions of Windows and since then the calculator is upgraded with more capabilities. It is generally available with four basic modes namely Standard, Scientific, Programmers and recently added graphing mode.

B. Total Calculator

It is an android application available at playstore developed by Woosungsft. It is a very handy application to use and there are many different versions of calculators that are well thought out and implemented with simplicity and efficiency. It is an application which does its functioning without in any way being intrusive.

C. Calculator Plus-All in one Multi Calculator Free

It is an android application available at playstore developed by Gigantic Apps. It is a complete and easy to use multi calculator app which allows to handle all necessary calculations for everyday life. It is a all in one calculator with best utility which helps to solve simple calculations and problems from complex calculations and many other exciting calculations.

III. MOTIVATION

Today people from different streams use many different types of calculators according to their respective fields and work, but they fail to find a calculator which does any type of calculations in just fractions of second. They need to have different calculators for different calculations. So, the main motivation behind developing this application are the people from different sectors of education and different walks of life. It is fascinating as it does calculations like resistance accord to colour bands, day calculations based on the date and many more…

A. Uniqueness of the Project

1.The Graphics

This project contains a very good graphics and understandable graphic user interface.

2.User Input

It is expected to give the output with minimum number of inputs from the user. The user needs not to hesitate for calculating the values at substages and provide them, instead with minimum inputs the output is produced.

3.Prior Requisites

This App is designed in a such a way that it expects very less prior information regarding a particular calculator as the basic information is provided.

IV. PROPOSED SYSTEM

A. What is the System?

For the completion of this particular project, an android based application is proposed which would include all the possible calculators out listed for the completion of this project.

1) Information regarding the selection: Firstly it will include information about the selection for user to enhance his/her information and some information regarding the expected input for better functioning.

2) Error Handaling : The App will show all the errrors where the user would be going against the input guidelines required for the app to function.

3) Various Calculators: It include various calculation for the user namely: **Temperature, Angle, Weight and Mass, Length, Speed, Time, Area, Power, Volume, Energy, Data, Pressure, Ressistance, Day and Programmers Calculator.**

B. Reason for Selecting Android System.

The main reason being that Android rules the app market and its ability to run on one more device than its competitors. Manufactures that make devices supporting Android aps out number those developing to suit ios apps.

Since android caters to a large number of users from different backgrounds, apps tend to be cheaper as compared

to ios apps as well as more free downloads are also available, compared to other platforms.

It has many other various reasons for selecting it as the basis of this project.

C. *Target audience for this Project*

The main target sector for this project would be the Education sector.It targets at both adults and teens who require to perform calculation on daily basis, so as to reduce their efforts and save their time.

D. *Development Stratergies*

It would be developed as an android app using Android Studio 4.0 which would be a multi activity app with minimum possible api. It would be developed using the powerful language JAVA. The designing of the App is done using xml and the backend logic is developed using JAVA.

IMPLEMENTATION STRATERGY

The following listed are the basic requirements for this project

A.Hardware requirements

Your development workstation should meet or exceed these hardware requirements:

1.A 64-bit environment is required for Android 2.3.x (Gingerbread) and higher versions, including the master branch. You can compile older versions on 32-bit systems.

2.At least 250GB of free disk space to check out the code and an extra 150 GB to build it. If you conduct multiple builds, you need additional space.

3.Note: If you're checking out a mirror, you need more space as full Android Open Source Project (AOSP) mirrors contain all Git repositories that have ever been used.

4.If you're running Linux, you need at least 16 GB of available RAM/swap.

B. Software Requirements

For this Project development, Android 4.0 is used.

Your workstation must have the software listed below. These requirements apply to the AOSP master branch. For Android versions 8.0 (Oreo or O) through 5.0 (Lollipop or L), consider using the included Docker file to ease installation of all required packages. For the manual method, see Supporting Older Versions.

1.OS

If you're developing against the AOSP master branch, use either Ubuntu 18.04 (Bionic Beaver) or the latest versions of macOS and Xcode with command line tools installed.

Warning: Building on Windows is NOT supported.

2.JDK

The master branch of Android in AOSP comes with a prebuilt version of OpenJDK, so no additional installation is required.

Older versions of Android require a separate installation of the JDK. On Ubuntu, use OpenJDK.

3.Key packages

The AOSP master branch comes with a prebuilt version of Make, so no additional installation is required. Git is similarly installed as part of the Establishing a Build Environment process.

Finally, ensure your system has Python 2.7.

4.Device binaries

Download previews, factory images, drivers, over-the-air (OTA) updates, and other blobs below. For details, see Obtaining proprietary binaries.

Preview binaries (blobs) for AOSP master branch development

Factory images for supported devices running tagged AOSP release branches

Binary hardware support files for devices running tagged AOSP release branches

5.Build toolchain

Android 8.0 and higher support only Clang/LLVM for building the Android platform. Join the android-llvm group to pose questions and get help. Report NDK/compiler issues at the NDK GitHub.

For the Native Development Kit (NDK) and legacy kernels, GCC 4.9 included in the AOSP master branch (under prebuilt) may also be used.

6.API Requirement

New apps must target Android 10 (API level 29) or higher and app updates must target Android 9 (API level 28) or higher. Every new Android version introduces changes that bring significant security and performance improvements as well as enhance the user experience of Android overall.

→Although you can run Android studio in 2 GB Ram but it is recommended to use at least 4 GB ram, and if 8 GB ram is available, then it will be great experience.

Now for processing power, Intel core i3 clocked at nearly 2 GHz is enough to handle most normal android application, but if you are writing big apps, you'll need better processor like i5 or i7.

And last, if we have a good one android device, we can use it for testing, because physical device work fast and more powerful than pc emulator.

C.Reason for selecting

1.Java

Java has not only catered to the best option for the development of mobile applications but also utility apps that are Android-based but also offers to develop native apps by using native tools. In fact, with the help of java app development company, you can code in other languages and in a very easy way and with least efforts.

2.Easy to design

The drag and drop facility provided by Android Studio IDE is very feasible to use. If you are very new to

android development and you have no prior knowledge regarding the xml designing then also you can design your apps very easily using the drag and drop feature.

3.Android over IOS

The main reasons being

- Open Source
- Portable
- Easily accessed
- Flexible
- Majorly used

TEST CASES

Some of the Test Cases were performed to avoid the errors which included

1. If user enters wrong type of input other than expected.
2. Verified whether the calculation takes less time or more.
3. Verified for the correctness of Output.

SCOPE AND FUTURE WORK

This android application will only be available to android users only. It is not supported for any other system. As the number of students and the adults targeted at will never reduce in the future world, so we can say that by the time we can bring new modifications into this project and make it available to the users to meet the demand.
For future we can say that according to the requirements we can extend the functionality of this Project to work on a broad basis

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