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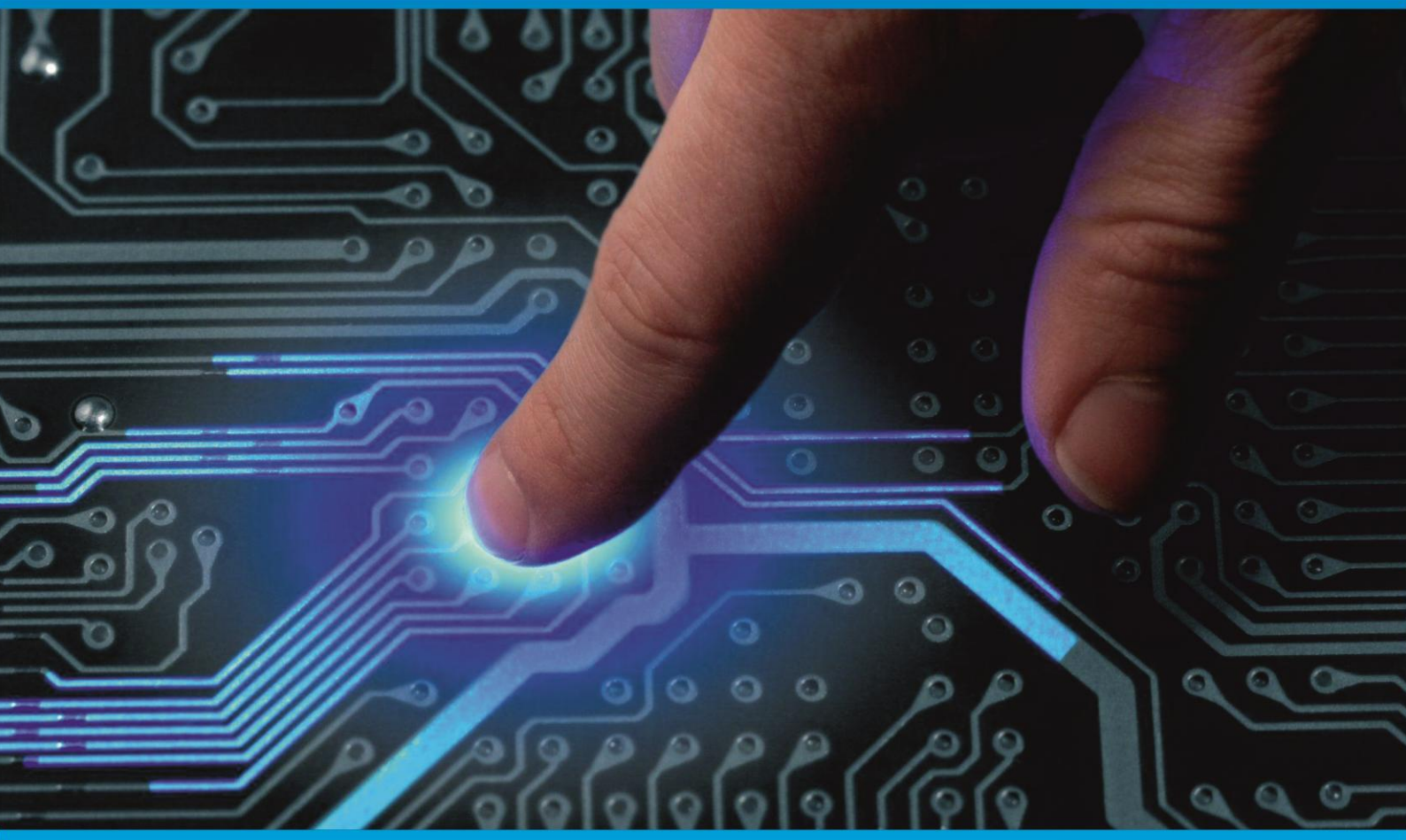

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Implementation of Simple Five Operation Performer Calculator

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ABSTRACT: Calculators are small, portable electronic devices used to perform simple as well as complex calculations in a fraction of second.. Scientific calculators were made to solve the scientific calculations. But in the 21st century where people have started using laptops, tablets, smartphones etc. then why would they carry such calculators. So in this research paper I am introducing an android application known as the All in one calculator, where in all sorts of calculations from simple arithmetic calculations to long scientific calculations can be done in just a click on the smartphone screen. The users of this application will have a tool to do all sorts of calculations with ease.

KEYWORDS: Android, Calculator, Application, Smartphones.

I. INTRODUCTION

The idea of a calculator came from Abacus used long back in 2000 BC; after that there were various inventions and mechanical calculators came in use. Android powers hundreds of millions of mobile devices in more than 190 countries around the world. It's the largest installed base of any mobile platform and growing fast—every day another million users power up their Android devices for the first time and start looking for apps, games, and other digital content. Mobile software serves individual functionality of the users able by Android platform are called Android applications, generally known as “apps”. I have attempted to create a calculator that works on almost all android devices and returns accurate output. Not only does it perform all the basic operations like addition subtraction multiplication and division but it also calculates area and volume.

II. LITERATURE REVIEW

1. The Successful Implementation of Graphic Calculators Inside the U.S. in High Schools and in Colleges/Universities:

Three studies Penglase and Arnold (1996), Barton (2001), and Ellington (2006) provide meta-analyses of research studies about the successful implementation of graphic calculators inside the U.S., both on the high school and college level. Penglase and Arnold (1996) traced the history of graphics calculator usage and the beginning of research studies on their use. They report that although these calculators were in use in the 1980s, it was not until 1990 that the first research study appeared. In their synthesis of research from 1990 to 1995 in dissertations and scholarly journals, they came to three conclusions regarding studies of these calculators regarding functions, modeling and graphing: (a) studies suggest that graphic calculators facilitate learning of graphing concepts and functions, as well as spatial visualization skills; (b) they promote exploration and investigation into mathematics among learners; and (c) they show emphasis from algebraic manipulation to graphical investigation and examination between geometric, algebraic, and graphical representations.

2. Use of graphic calculators in high schools:

Heller, Curtis, Jaffe, and Verboncoeur (2005) investigated the connection between student achievement in algebra and use of the graphic calculator. In Oregon and Kansas, 458 high school students from two suburban school districts participated in a test that determined whether those with access to graphic calculators performed better than those without these calculators. Results from the posttest showed that students with access to and instruction in graphic calculators scored higher than those without. The scores were even higher among those with more instructional time spent on using these calculators, and when instructors spent more time learning how to use these calculators during math instruction. The implication was that graphic calculators were successful in helping students perform in algebra, provided that enough instructional time was devoted to using these calculators, and provided that instructors received professional development in learning how to teach using graphic calculators.

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3. Balance of calculator usage in GCSE and IGCSE / Certificate Mathematics:

All GCSE and IGCSE / Certificate Mathematics specifications permit calculators in at least part of the qualification assessment; however, the extent of calculator usage varies considerably. The total weighting of assessment in which calculators are permitted ranges from a minimum of 50% to a maximum of 100%. Variability in calculator usage across the specifications relates directly to the subject criteria or framework documents for these qualifications. The qualifications without restrictions on calculator usage (GCSE Methods in Mathematics and IGCSE / Certificate Mathematics) have 100% calculator assessment.

4. Use of graphic calculator in colleges:

The case study by Gerren (2008) of an instructor and 11 students in an American community college algebra course showed that the graphic calculator could be an effective tool in the teaching algebra. When the instructor placed the graphic calculator as the essential tool for the instructor and promoted students' independent use of this calculator, the study found that instruction was delivered at a high level, and it provided multiple representations of concepts and solutions that traditional methods of teaching algebra do not explore. Students reported that the calculator was beneficial in improving their understanding of lessons and facilitating improved course achievement. Additionally, most participants had never used the graphic calculator before but chose to use it for class tests, as they perceived that it helped them to perform optimally

5. Students' attitudes about mathematics and graphic calculators:

Ellington's 2006 meta-analysis of studies on graphic calculator use among middle school, high school and college students, which was cited earlier, also examined students' attitudes. The analysis found that those who used the graphic calculator had more positive attitudes toward math compared with those who did not use the calculators. Not surprisingly, the students also expressed that they liked using these calculators while learning mathematics.

6. The Importance of Technology in Teaching Mathematics:

Technology is important in teaching math successfully, as revealed in the next three articles. There is a significant lack of applications of technology in most math courses offered in U.S. colleges. When external tools such as the graphic calculator are used in the classroom, students can excel in math. Leng (2011) concluded that technology was used successfully at a secondary school in Singapore where students learned calculus, and professors and students benefited from its use. Students realized the importance of using technology, and they learned the subject much better when it was implemented.

7. Instructors' Reluctance to Use the Graphic Calculators:

The study by Abu-Naja (2010) clearly showed the acceptance of graphic calculators in a high school in Israel. Two control groups were used to investigate the effects of using the graphic calculator in the analysis of positivity and negativity of mathematical functions. The experimental group used the graphic calculator, and the control group used a traditional method lecturing by the instructor. The findings revealed that the experimental group attained a better understanding of positive and negative mathematical functions than the control group, and the students in the experimental group showed a better approach and attitude during the entire training process. A significant improvement in their thinking processes was found in the experimental group. This study emphasized the importance of using a graphic calculator in achieving gains with students in an intermediate algebra class versus the results obtained in the group that did not use the graphic calculator.

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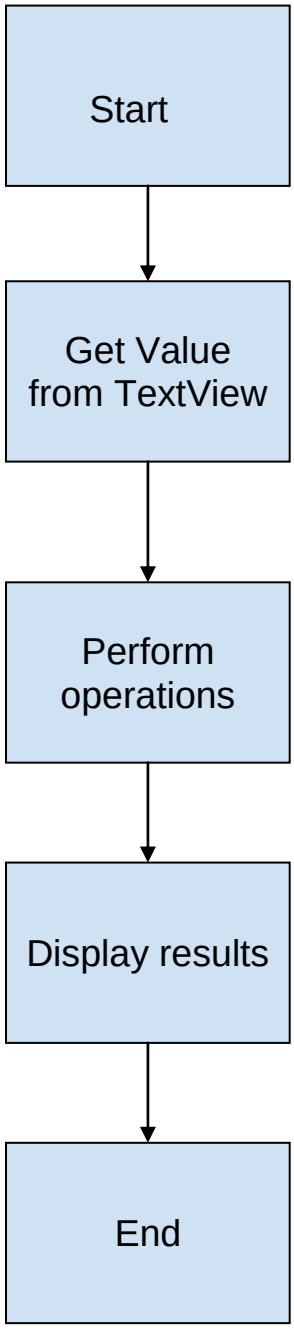
III. FLOW CHART



1. The activity starts and the the user enters values (numbers) into a textView with the help of buttons
2. The java code then gets all the numbers from the text view
3. the user enters the operation he wants to perform
4. the numbers are accepted the operation is performed and the output is displayed to the user through the same textView

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IV. PROPOSED METHODOLOGY

Android provides a number of standard UI controls that enable a rich user experience. Designers and developers should thoroughly understand all of these controls for the following reasons:They are faster to implement. It can take up to ten times longer to develop a custom control than to implement a user interface with standard Android controls.They ensure good performance. Custom controls rarely function as expected in their first implementation. By implementing standard controls, you can eliminate the need to test, revise and improve custom controls. Moreover, while designers will spend a great deal of time thinking about how a control should look, they may not always consider the many ways in which a custom control will behave in the user's hands. Items on a mobile device often need to grow and shrink in size as they are pinched, or scroll if they are part of a list.Android applications are composed of "activities" which are unique, focused actions a user can take. Because it can be difficult or time-consuming to scroll, zoom in, or click links on a small screen, it is recommended that an app display only one activity per screen. This practice presents the user with only the most relevant information and allows them to launch a new screen for additional information, or click the "back" button to view the previous activity. While a screen can expose multiple tasks, it should help the user complete just one activity at a time. Android UI screens are frequently resized, both on the fly via pinch and zoom as well as at start-up when Android adjusts the size of the UI to fit the screen size of the mobile device on which it's running. In order to make the most of the screen size and handle this resizing gracefully, Android provides a number of screen layout options.A smartphone should only display one activity per screen due to its small screen size. Tablet devices, however, offer additional screen real estate and are often used in a similar setting as a desktop or notebook, meaning the application could show more information at once on the screen. Using an Android construct called fragments, designers and developers can merge portions of the UI onto one large screen or split them into individual screens for use on small screens. This can help to reduce the number of interactions a user must perform on a device with a large screen and eliminate wasted space.Android applications typically borrow from other applications already on the device. Using intents you can simplify both the programming requirements for your app and offer simpler, less cluttered screens.If your app needs to perform a function beyond its core abilities such as opening a photo, looking up a contact, or playing a video, the team should investigate whether a tool that can perform that function already exists in the OS or in a popular third-party app. If so, you can leverage that functionality using intents.

V. IMPLEMENTATION

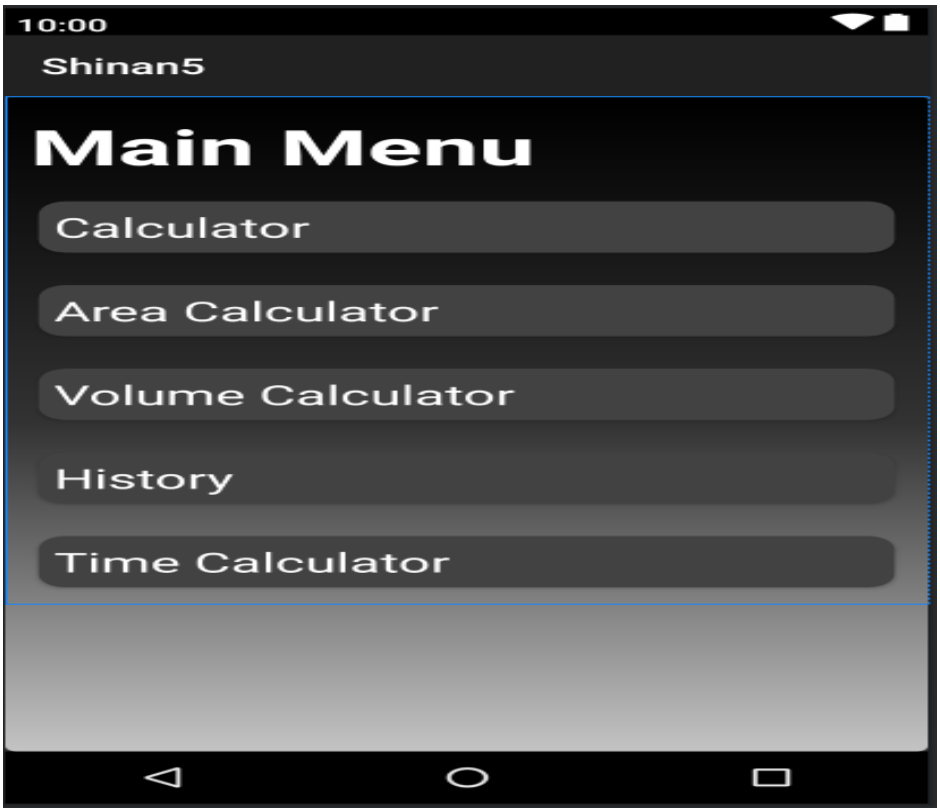

Fig1 Main Menu

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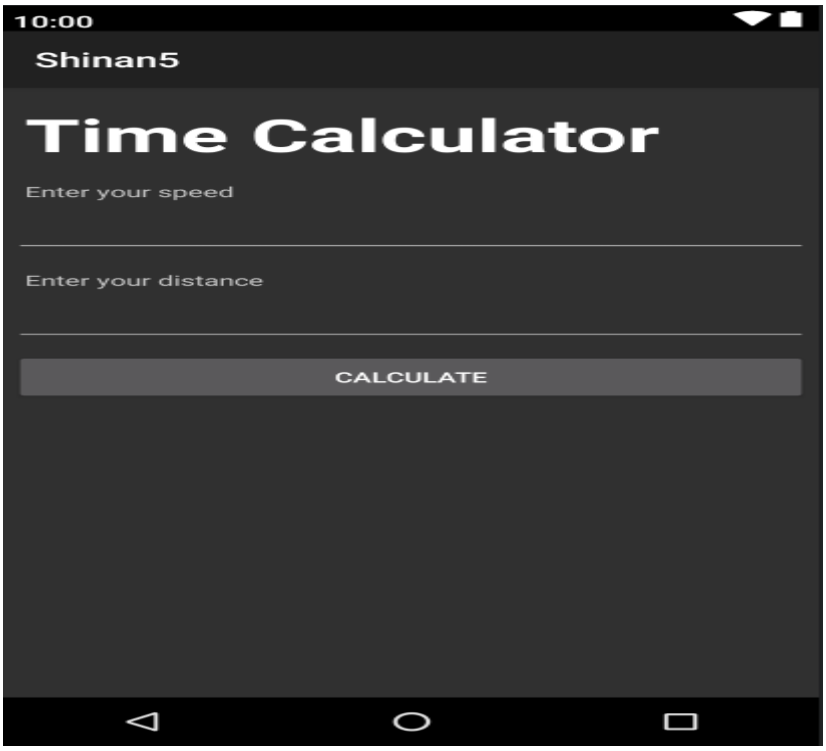

Fig2 Time Calculator

Fig3 Area Calculator

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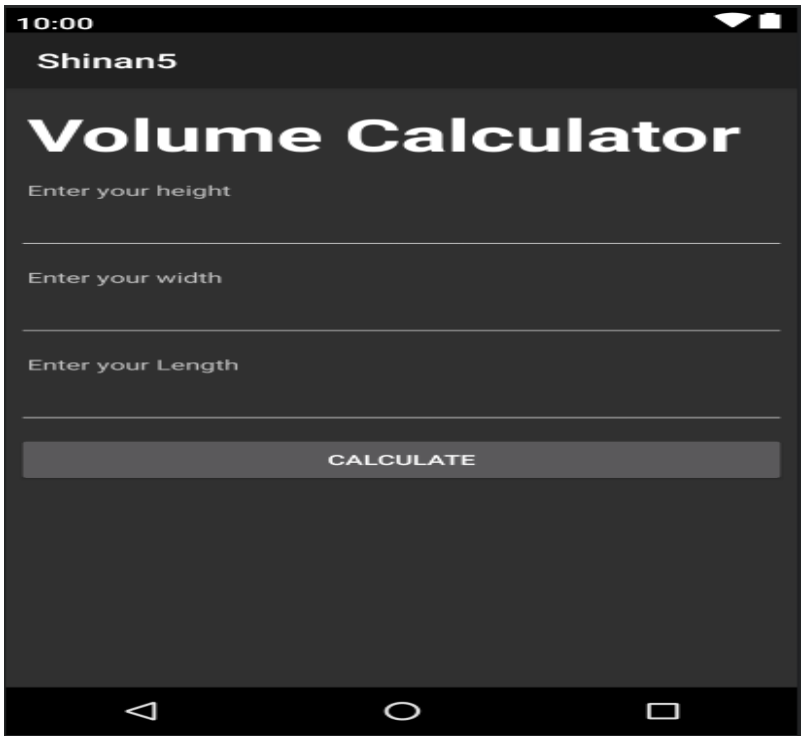

Fig4 Volume Calculator

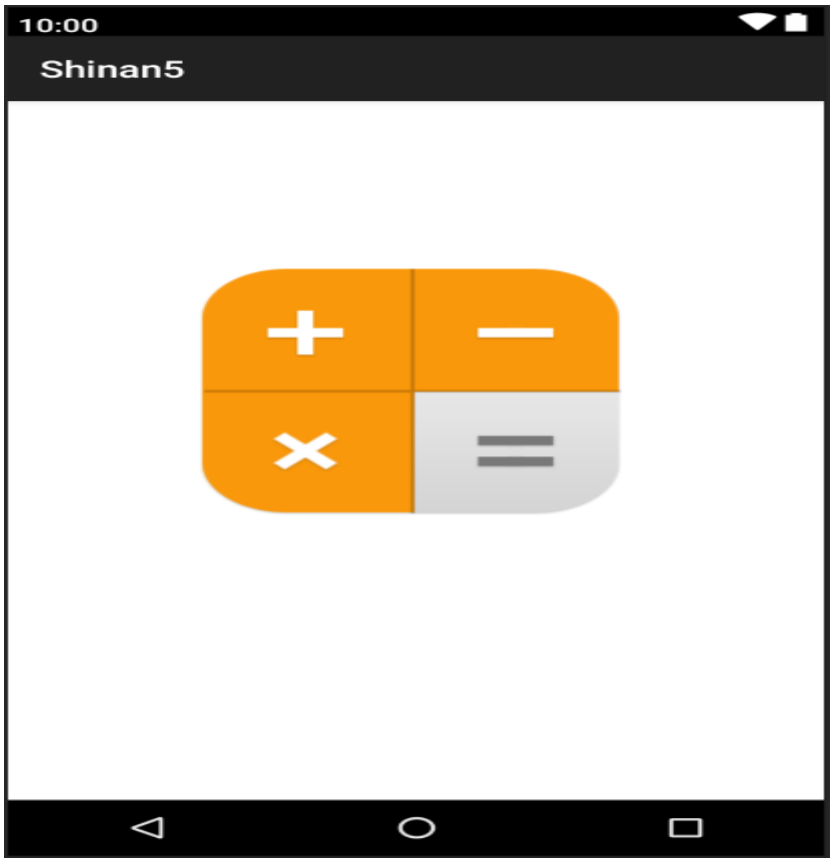

Fig5 SplashScreen

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Fig 6 Calculator

VI. RESULT

After all of the work had been put into android studio creating different layouts and java activities, we can safely say that the project has come under an end and the whole process included a lot of debugging and code gathering it was worth it as the application turned out to be an success and will help students across the globe with mathematical calculations and make the lives of students easier

VII. CONCLUSION

This application was designed for one specific department. But there are several ways in which it can be utilized with a little more addition and editing. Thinking strictly for academic purpose, it can be extended to a larger system keeping log of routines, results, notice and schedules for different departments and respective teachers and students. For that a server with much capacity and more memory space will be needed to run the application. There would be separate administrator panels for separate departments. These can work under a central administration panel of university authority. A central notice board can be added containing updates about the whole university and not only a department.

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