

ASSIGNMENT NO. 1

1 TITLE:

Write a mobile application to generate a Scientific calculator using J2ME/Python/Scala/C++/Android.

2 OBJECTIVE:

- To understand Android Operating System.
- To implement Mobile Application Using Android OS.

3 SOFTWARE REQUIREMENT:

- Java Development Kit (JDK)
- Android Studio IDE
- Android Operating System

4 MATHEMATICAL MODEL:

Consider a set S consisting of all elements related to a program. The mathematical model is given as below.

$$S = \{input, output, function, success, failure\}$$

- Input
 - Numbers
- Output
 - Result
- Functions
 - Add()
 - Subtract()
 - Multiply()
 - Divide()
 - sin
 - cos
 - tan
- Success: Result is displayed
- Failure: Wrong Result is displayed

5 ALGORITHM:

- Start
- Accept the Number from the User
- Perform the computation
- Stop

6 THEORY:

6.1 Android:

Android is an open source mobile operating system (OS) currently developed by Google, based on the Linux kernel and designed primarily for touchscreen mobile devices such as smartphones and tablets. Android was built from the ground-up to enable developers to create compelling mobile applications that take full advantage of all a handset has to offer. It was built to be truly open.

Android has an active community of developers and enthusiasts who use the Android Open Source Project (AOSP) source code to develop and distribute their own modified versions of the operating system.

Android provides access to a wide range of useful libraries and tools that can be used to build rich applications. Also included is a full set of tools that have been built from the ground up alongside the platform, providing developers with high productivity and deep insight into their applications.

6.2 Trigonometric Function:

- `sin public static double sin(double a)`

Returns the trigonometric sine of an angle. Special cases:

- If the argument is NaN or an infinity, then the result is NaN.
- If the argument is zero, then the result is a zero with the same sign as the argument.

The computed result must be within 1 ulp of the exact result. Results must be semi-monotonic.

Parameters:

a - an angle, in radians.

Returns:

the sine of the argument.

- `cos public static double cos(double a)`

Returns the trigonometric sine of an angle. Special cases:

- If the argument is NaN or an infinity, then the result is NaN.

The computed result must be within 1 ulp of the exact result. Results must be semi-monotonic.

Parameters:

a - an angle, in radians.

Returns:

the cosine of the argument.

- `tan public static double tan(double a)`

Returns the trigonometric sine of an angle. Special cases:

- If the argument is NaN or an infinity, then the result is NaN.
- If the argument is zero, then the result is a zero with the same sign as the argument.

The computed result must be within 1 ulp of the exact result. Results must be semi-monotonic.

Parameters:

a - an angle, in radians.

Returns:

the tangent of the argument.

7 TESTING:

7.1 Positive/Negative Testing:

Positive Testing:

If the give Input is valid then it computes the number and give the value.

Example:2+3+4+5

Result:14

Negative Testing:

If the give Input is not valid then it will give error.

Example:2+3+4+

Result>Error

8 CONCLUSION:

We have successfully developed an Android Mobile Application for Scientific Calculator