ASSIGNMENT NO. 2

1 Aim :

Write a Mobile App program using J2ME /Python /Scala /Java /Android to check the palindrome in a given string.

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 :

    1. String

- Output :

    1. Is Palindrome
    2. Is not a Palindrome

- Function :

    1. reverseString()
    2. matchBothStrings()

- Success : The string accepted is Palindrome

- Failure : The string accepted is not a Palindrome

5 Algorithm :

- Start

- Accept string

- Reverse the accepted string

- if $originalString.equals(reverseString)$ // that is palindrome

    – return true // String is palindrome

- else

    – return false // String is not palindrome

- 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 includes 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 Android Application Development:

6.3 Creating new project

- Open Android Studio

- Select "Create new Android app"

- Set minimum SDK version

- Set the package name for the application

- Select the starting *Activity*

- Finish creating the project

6.4 Android Application Components

1. **Android Manifest**: All the components of the Android application are loosely coupled by the application manifest. It hat describes each component of the application and how they interact.

2. **Activity**: An activity represents a single screen with a user interface,in-short Activity performs actions on the screen. For example, an email application might have one activity that shows a list of new emails.

3. **Services**: A service is a component that runs in the background to perform long-running operations. For example, a service might play music in the background while the user is in a different application.

4. **Broadcast Receivers**: Broadcast Receivers simply respond to broadcast messages from other applications or from the system. For example, applications can also initiate broadcasts to let other applications know that some data has been downloaded to the device and is available for them to use, so this is broadcast receiver who will intercept this communication and will initiate appropriate action.

5. **Content Providers**: A content provider component supplies data from one application to others on request. The data may be stored in the file system, the database or somewhere else entirely.

6.5 Palindrome

- Palindrome is a word, phrase, number, or other sequence of characters which reads the same backward or forward. Allowances may be made for adjustments to capital letters, punctuation, and word divider.

7 Testing :

7.1 Positive / Negative Testing

Positive Testing :
If the reverse of original entered string matches the original entered string then the entered string is palindrome.
Example- Input: "121"
Output: true

Negative Testing :
If the reverse of original entered string does not match the original entered string then the entered string is palindrome.
Example- Input: "122"
Output: false

8   Conclusion :

We have successfully developed an Android Mobile Application to check whether a given string is palindrome or not.