

PROFESSIONAL TRAINING REPORT

at

Sathyabama Institute of Science and Technology

(Deemed to be University)

Submitted in partial fulfillment of the requirements for the award of

Bachelor of Technology Degree in

Information Technology

By

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DEPARTMENT OF INFORMATION TECHNOLOGY

SCHOOL OF COMPUTING

SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited with Grade “A” by NAAC

JEPPIAAR NAGAR, RAJIV GANDHI SALAI,

CHENNAI – 600119, TAMILNADU

DECEMBER 2020



SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
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SCHOOL OF COMPUTING

BONAFIDE CERTIFICATE

This is to certify that this Professional Training Report is the bonafide work of Abhinash Kumar (Reg. No. 37120002) who underwent the professional training in “**JAVA Tutorial using android studio**” under our supervision from August 2020 to December 2020.

Internal Guide

Dr.Senduru Srinivasulu, M.E.,Ph.D.

Head of the Department

Dr.R.Subhashini, M.E.,Ph.D.

Submitted for Viva voce Examination held on_____

Internal Examiner

External Examiner

DECLARATION

I, Abhinash Kumar (Reg. No.37120002) hereby declare that the Professional Training Report on “**JAVA Tutorial using android studio**” done by me under the guidance of **Dr.Senduru Srinivasulu,M.E.,Ph.D**, at Sathyabama Institute Of Science And Technology is submitted in partial fulfillment of the requirements for the award of Bachelor of Technology in Information Technology.

DATE:

PLACE:

SIGNATURE OF THE CANDIDATE

ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to **Board of Management of SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

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ABSTRACT

Introduction:-

The era of mobile technology opens the windows to the android app. The websites are vanishing and the mobile phones are emerging. It's the time to change from conventional websites to apps, so, I made this app named "JAVA tutorial.apk" the android application software. This will become an easier way for the students to learn the basics of this programming language. I chose this domain because in the age of smartphones and smart gadgets android plays a very important role in it and almost everyone uses smartphones with this OS.

Android is a mobile operating system developed by Google, based on a modified version of the Linux kernel and other open source software and designed primarily for touchscreen mobile devices such as smartphones and tablets. In addition, Google has further developed Android TV for televisions, Android Auto for cars, and Wear OS for wrist watches, each with a specialized user interface. Variants of Android are also used on game consoles, digital cameras, PCs and other electronics.

Java Tutorial is a complete Java Learning Guide containing topics of Core Java with programs and their outputs. The content of this java tutorial app having a great focus on simplicity, easy to understand language, basic programming example for every topic. Vastly described OOPS concepts. So learn java on the go anywhere.

About the application:-

- This app is been created using XML and JAVA in Android studio.
- This app contains every basic components on java with explanation and syntax.
- In this app every topic contains a valid example with output which makes the person easier to understand.
- Every main topics are divided into different boxes which contains different subtopics with its explanations and examples.
- Some of the topic contains pictorial examples for easier understandings.
- We also added some important interviewed questions with answers which help the person for preparations

**Chapter
No.**

TITLE

1 INTRODUCTION

- 1.1 OUTLINE OF THE PROJECT
- 1.2 LITERATURE REVIEW
- 1.3 PROBLEM STATEMENT
- 1.4 OBJECTIVES
- 1.5 CHAPTER ORGANISATION

**2. ALGORITHMS AND METHODS(GIVE THE NAME OF THE ALGORITHM /
METHODOLOGY)**

- 2.1 GENERAL
- 2.2 OVERVIEW
- 2.3 MODUALR DESIGN
- 2.4 SUMMARY

3 SYSTEM IMPLEMENTATION

- 3.1 GENERAL
- 3.2 OVERVIEW OF THE PLATFORM
- 3.3 RESULTS AND DISCUSSION
- 3.4 SUMMARY

4 CONCLUSION AND FUTURE WORK

- 4.1 SUMMARY
- 4.2 FUTURE WORK

REFERENCES

APPENDIX

- A. SOURCE CODE
- B. SCREEN SHOTS
- C. PUBLICATIONS (IF ANY)

CHAPTER 1:-

INTRODUCTION

What is Android?

Android is a mobile operating system developed by Google, based on a modified version of the Linux kernel and other open source software and designed primarily for touchscreen mobile devices such as smartphones and tablets. In addition, Google has further developed Android TV for televisions, Android Auto for cars, and Wear OS for wrist watches, each with a specialized user interface. Variants of Android are also used on game consoles, digital cameras, PCs and other electronics.

Android Inc. was founded in Palo Alto, California, in October 2003 by Andy Rubin, Rich Miner, Nick Sears, and Chris White. Rubin described the Android project as "tremendous potential in developing smarter mobile devices that are more aware of its owner's location and preferences". The early intentions of the company were to develop an advanced operating system for digital cameras, and this was the basis of its pitch to investors in April 2004. The company then decided that the market for cameras was not large enough for its goals, and by five months later it had diverted its efforts and was pitching Android as a handset operating system that would rival Symbian and Microsoft Windows Mobile.

Initially developed by Android Inc., which Google bought in 2005, Android was unveiled in 2007, with the first commercial Android device launched in September 2008. The operating system has since gone through multiple major releases, with the current version being 9.0 "Pie", released in August 2018. The core Android source code is known as Android Open Source Project (AOSP), and is primarily licensed under the Apache License. Android is also associated with a suite of proprietary software developed by Google, including core apps for services such as Gmail and Google Search, as well as the application store and digital distribution platform Google Play, and associated development platform.

These apps are licensed by manufacturers of Android devices certified under standards imposed by Google, but AOSP has been used as the basis of competing Android ecosystems, such as Amazon.com's Fire OS, which utilize their own equivalents to the Google Mobile Services. Android has been the best-selling OS

worldwide on smartphones since 2011 and on tablets since 2013. As of May 2017, it has over two billion monthly active users, the largest installed base of any operating system, and as of June 2018, the Google Play store features over 3.3 million apps.

Applications and Features:

You will find all the android applications at the top layer and you will write your application and install on this layer. Example of such applications are contacts, books, browsers, services etc. Each application perform a different role in the over all applications.

The android is a powerful operating system and it supports large number of applications in Smartphones. These applications are more comfortable and advanced for the users. The hardware that supports android software is based on ARM architecture platform.

The android is an open source operating system means that it's free and any one can use it. The android has got millions of apps available that can help you managing your life one or other way and it is available low cost in market at that reasons android is very popular.

Features:

- Head set layout
- Storage
- Connectivity: GSM/EDGE, IDEN, CDMA, Bluetooth, WI-FI, EDGE,3G,NFC, LTE,GPS.
- Messaging: SMS, MMS, C2DM (could to device messaging), GCM (Google could messaging)
- Multilanguage support
- Multi touch
- Video calling
- Screen capture
- External storage
- Streaming media support

- Optimized graphics

Android Applications

Android applications are usually developed in the Java language using the Android Software Development Kit. Once developed, Android applications can be packaged easily and sold out either through a store such as Google Play or the Amazon Appstore. 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 more than 1 million new Android devices are activated worldwide. This tutorial has been written with an aim to teach you how to develop and package Android application. We will start from environment setup for Android application programming and then drill down to look into various aspects of Android applications.

Technology used:-

Front End

- **Android software development kit :-**

The 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. Currently supported development platforms include computers running Linux, Mac OS X 10.5.8 or later, and Windows XP or later. As of March 2015, the SDK is not available on Android itself, but the software development is possible by using specialized Android applications.

Android Studio, made by Google and powered by IntelliJ, is the official IDE; however, developers are free to use others. Additionally, developers may use any text editor to edit Java and XML files, then use command line tools (Java Development Kit and Apache Ant are required) to create, build and debug Android applications as well as control attached Android devices (e.g., triggering a reboot, installing software package(s) remotely).

- **Java development kit:-**

The Android build process depends on a number of tools from the JDK. Check out the build system overview documentation. The first big piece we need from JDK is javac- all your source code written in Java needs to be compiled before it can be converted to the DEX format.

Once your code has been compiled, dexed, and packaged into an APK, we need jar signer to sign the APK. There are some efforts out there to bring Java 8 features to Android, most notably gradle-retrolambda. Some of these require JDK 8 to compile properly.

Tools used for project :-

- **Android Studio**

Android Studio is the official Integrated development environment (IDE) for Android platform development. It was announced on May 16, 2013 at the Google I/O conference. Android Studio is freely available under the Apache License 2.0.

Android Studio was in early access preview stage starting from version 0.1 in May 2013, then entered beta stage starting from version 0.8 which was released in June 2014.

The first stable build was released in December 2014, starting from version 1.0. Based on JetBrains' IntelliJ IDEA software, Android Studio is designed specifically for Android development. It is available for download on Windows, Mac OS X and Linux. and replaced Eclipse Android Development Tools (ADT) as Google's primary IDE for native Android application development.

Android Tool 1: Eclipse w/ADT

Although Eclipse is not the only Java development environment that can be used to develop Android applications, it is by far the most popular. This is partially due to its cost (free!) but mostly due the strong integration of the Android tools with Eclipse. This integration is achieved with the Android Development Tools (ADT) plug-in for Eclipse, which can be downloaded from the Android website.

Android Tool 2: The SDK and AVD Manager

This tool serves a number of important functions. It manages the different versions of the Android SDKs (build targets) that you can develop for, as well as third-party add-ons, tools, device drivers, and documentation. Its second function is to manage the Android Virtual Device configurations (AVDs) you use to configure emulator instances.

Android Tool 3: Android Debug Bridge

The Android Debug Bridge (ADB) connects other tools with the emulator and devices. Besides being critical for the other tools (most especially the Eclipse ADT plug-in) to function, you can use it yourself from the command line to upload and download files, install and uninstall packages, and access many other features via the shell on the device or emulator.

CHAPTER 2:-

Algorithms and Methods

AlgorithmParameters:-

```
public class AlgorithmParameters
extends Object
java.lang.Object
↳ java.security.AlgorithmParameters
```

This class is used as an opaque representation of cryptographic parameters.

An `AlgorithmParameters` object for managing the parameters for a particular algorithm can be obtained by calling one of the `getInstance` factory methods (static methods that return instances of a given class).

Once an `AlgorithmParameters` object is obtained, it must be initialized via a call to `init`, using an appropriate parameter specification or parameter encoding.

A transparent parameter specification is obtained from an `AlgorithmParameters` object via a call to `getParameterSpec`, and a byte encoding of the parameters is obtained via a call to `getEncoded`.

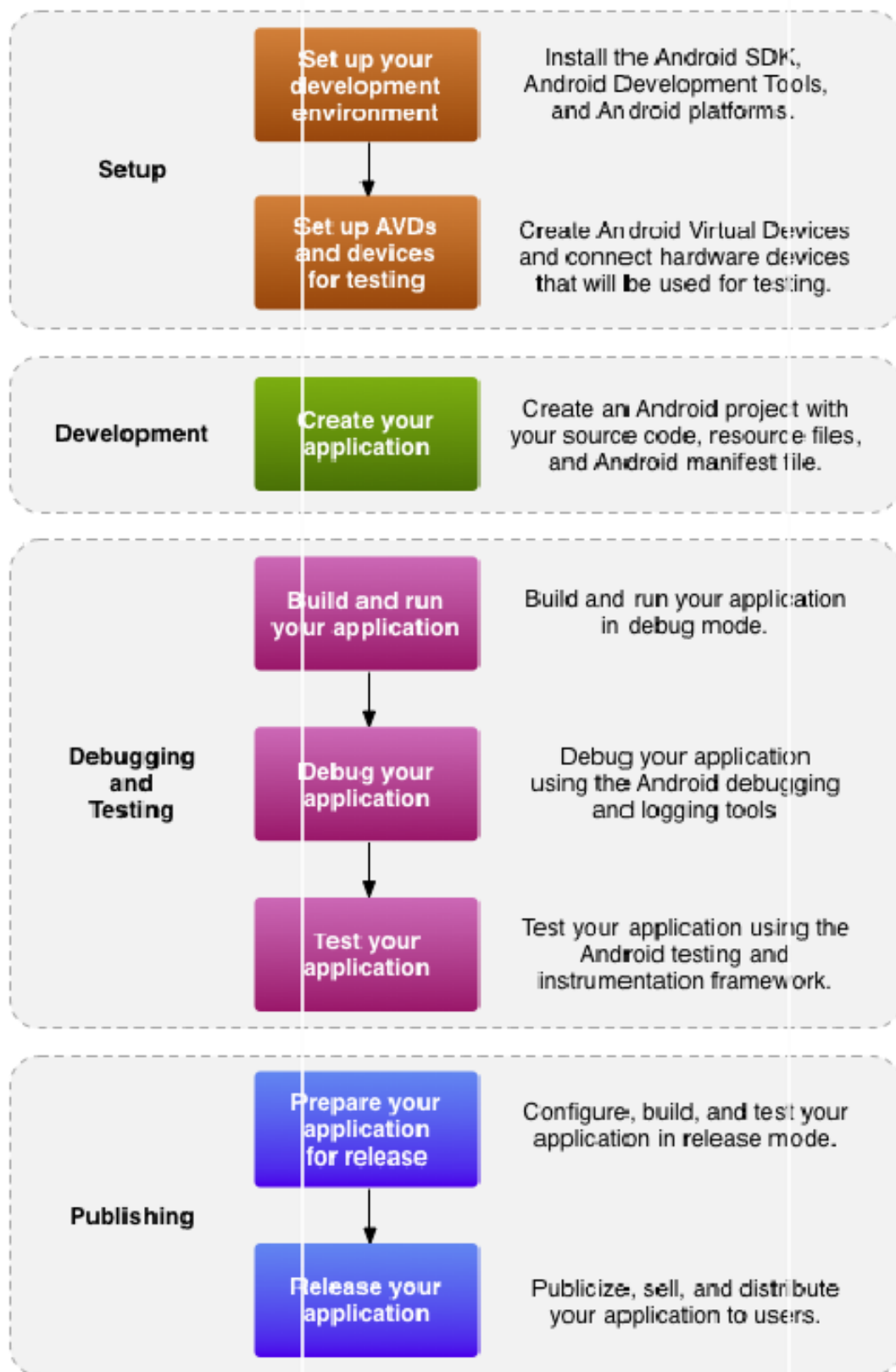
Android provides the following `AlgorithmParameters` algorithms:-

Algorithm	Supported API Levels
AES	1+
BLOWFISH	10+
ChaCha20	28+
DES	1+
DESede	1+
DH	1+

DSA	1+
EC	26+
GCM	22+
IES	1-8
OAEP	1+
PBEwithHmacSHA1AndAES_128	26+
PBEwithHmacSHA1AndAES_256	26+
PBEwithHmacSHA224AndAES_128	26+
PBEwithHmacSHA224AndAES_256	26+
PBEwithHmacSHA256AndAES_128	26+
PBEwithHmacSHA256AndAES_256	26+
PBEwithHmacSHA384AndAES_128	26+
PBEwithHmacSHA384AndAES_256	26+
PBEwithHmacSHA512AndAES_128	26+
PBEwithHmacSHA512AndAES_256	26+
PKCS12PBE	1+
PSS	1-8,24+

These algorithms are described in the [AlgorithmParameters](#) section of the [Java Cryptography Architecture Standard Algorithm Name Documentation](#).

Creation of android app:-



CHAPTER 3

SYSTEM IMPLEMENTATION

My project is on android Application name JAVA Tutorial.

The objective of this JAVA Tutorial android application is to provide user the basic knowledge about the programming language JAVA. This application contains all the basic informations about the programming language JAVA with the basic examples on specific topics which will help user to learn it easily.

This app will have four activities:-

1. Introduction on JAVA
2. Basic concepts
3. Concepts with examples
4. Some important questions

The main objective of this application is user can use this app at their home and gain their knowledge without any tutor, know about language easily, Gain their programming skills and knowledge and implement their skills for real world.

System specification:-

For using this application the user must have the smartphone with mobile Version Android 4.2(Jellybean) or upper versions .

Platform Architecture

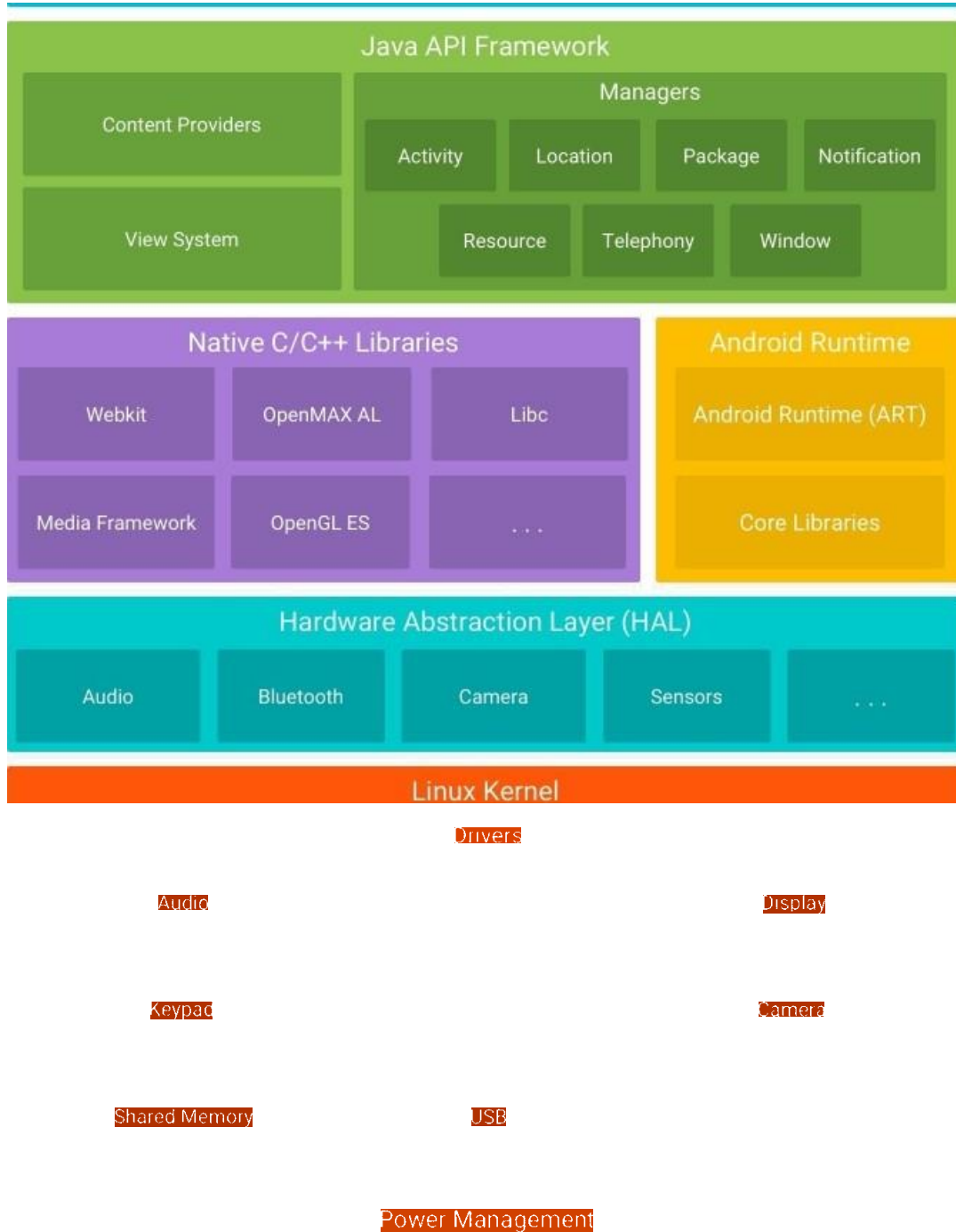
Android is an open source, Linux-based software stack created for a wide array of devices and form factors. The following diagram shows the major components of the Android platform

System Apps

Calendar

Calendar

Camera



Chapter 4

Conclusion And Summary

Summary:-

The objective of this JAVA Tutorial android application is to provide user the basic knowledge about the programming language JAVA. This application contains all the basic informations about the programming language JAVA with the basic examples on specific topics which will help user to learn it easily. The main objective of this application is user can use this app at their home and gain their knowledge without any tutor, know about language easily, Gain their programming skills and knowledge and implement their skills for real world. For using this application the user must have the smartphone with mobile Version Android 4.2(Jellybean) or upper versions .

Future Work:-

People using smart-phones are requesting for better applications and want to update existing ones, which in turn created a huge scope for Android application development in India. Presently there are between 50–70 thousand professional mobile app developers in India. This number is absolutely insufficient. By 2020 we will have over billion phones connected to the internet. My estimate is that we will need 20 million app developers at that time.

APPENDIX

Source Code:-

->Activity main (XML):-

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/back"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context=".MainActivity" >

    <ImageButton
        android:id="@+id/start"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_alignParentRight="true"
        android:layout_marginRight="15dp"
        android:src="@drawable/click" />

</RelativeLayout>
```

->Main Activity(JAVA):-

```
package com.uniqtech.java1;

import android.app.Activity;
import android.content.Intent;
import android.os.Bundle;
import android.view.Menu;
```

```

import android.view.View;
import android.view.View.OnClickListener;
import android.widget.ImageButton;

public class MainActivity extends Activity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ImageButton img = (ImageButton) findViewById(R.id.start);
        img.setOnClickListener(new OnClickListener() {

            @Override
            public void onClick(View v) {
                // TODO Auto-generated method stub
                Intent i1 = new Intent(MainActivity.this, Listview.class);
                startActivity(i1);
            }

        });
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }
}

```

JavaTutorial [C:\Users\User\AndroidStudioProjects\third\JavaTutorial] - ...app\src\main\res\layout\activity_main.xml [app] - Android Studio

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

JavaTutorial

Project

JavaTutorial

gradle

gradlew

gradlew.bat

import-summary.txt

JavaTutorial.iml

local.properties

settings.gradle

External Libraries

app

src

main

res

layout

activity_main.xml

activity_main.xml

MainActivity.java

listview.xml

listview.java

listview.xml

listview.java

activity_main.xml

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

xmlns:tools="http://schemas.android.com/tools"

android:layout_width="match_parent"

android:layout_height="match_parent"

android:background="@drawable/back"

android:paddingBottom="16dp"

android:paddingLeft="16dp"

android:paddingRight="16dp"

android:paddingTop="16dp"

tools:context=".MainActivity" >

<ImageButton

android:id="@+id/start"

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:layout_alignParentBottom="true"

android:layout_alignParentRight="true"

android:layout_marginRight="15dp"

android:src="@drawable/click" />

</RelativeLayout>

Palette

34%

27

Nexus 4

8:00

JavaTut

CLICK HERE

Help improve Android Studio by sending usage statistics. Please click I agree if you want to help make Android Studio better or I don't agree otherwise...

Device File Explorer

Event Log

21:18 CRLF+ UTF-8 Context: <no context>

Gradle sync finished in 14s 981ms (from cached state) (8 minutes ago)

->LIST VIEW(XML):-

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context=".Listview" >

    <ListView
        android:id="@+id/listview"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content" >
    </ListView>
</RelativeLayout>
```

->LIST VIEW(JAVA):-

```
package com.uniqtech.java1;

import android.app.ListActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.ListView;

public class Listview extends ListActivity {
    String sr[] = { "Introduction to Java programming",
        "Programming Constructs", "Classes and Objects",
        "Arrays and String", "Inheritance", "Exception ",
```

```
"Packages and Interface", "Multithreading",  
"IMPORTANT INTERVIEW QUESTION" };
```

```
public void onCreate(Bundle savedInstanceState) {  
  
    super.onCreate(savedInstanceState);  
  
    ListView lv = (ListView) findViewById(R.id.listview);  
  
    ArrayAdapter<String> ad = new  
ArrayAdapter<String>(Listview.this,  
                    android.R.layout.simple_list_item_1, sr);  
    setListAdapter(ad);  
}  
  
public void onListItemClick(ListView lv, View v, int pos, long id)  
  
{  
  
    super.onListItemClick(lv, v, pos, id);  
    switch (pos) {  
    case 0:  
        Intent i = new Intent(Listview.this, Introduction.class);  
        startActivity(i);  
        break;  
  
    case 1:  
        Intent i1 = new Intent(Listview.this, Programming  
Construct.class);  
        startActivity(i1);  
        break;  
  
    case 2:  
        Intent i2 = new Intent(Listview.this, Newclass.class);  
        startActivity(i2);  
        break;
```

case 3:

```
    Intent i3 = new Intent(Listview.this, Arrayandstring.class);  
    startActivity(i3);  
    break;
```

case 4:

```
    Intent i4 = new Intent(Listview.this, Inheritance.class);  
    startActivity(i4);  
    break;
```

case 5:

```
    Intent i5 = new Intent(Listview.this, Excep.class);  
    startActivity(i5);  
    break;
```

case 6:

```
    Intent i6 = new Intent(Listview.this, Pack.class);  
    startActivity(i6);  
    break;
```

case 7:

```
    Intent i7 = new Intent(Listview.this, Thread1.class);  
    startActivity(i7);  
    break;
```

case 8:

```
    Intent i8 = new Intent(Listview.this, Question1.class);  
    startActivity(i8);  
    break;
```

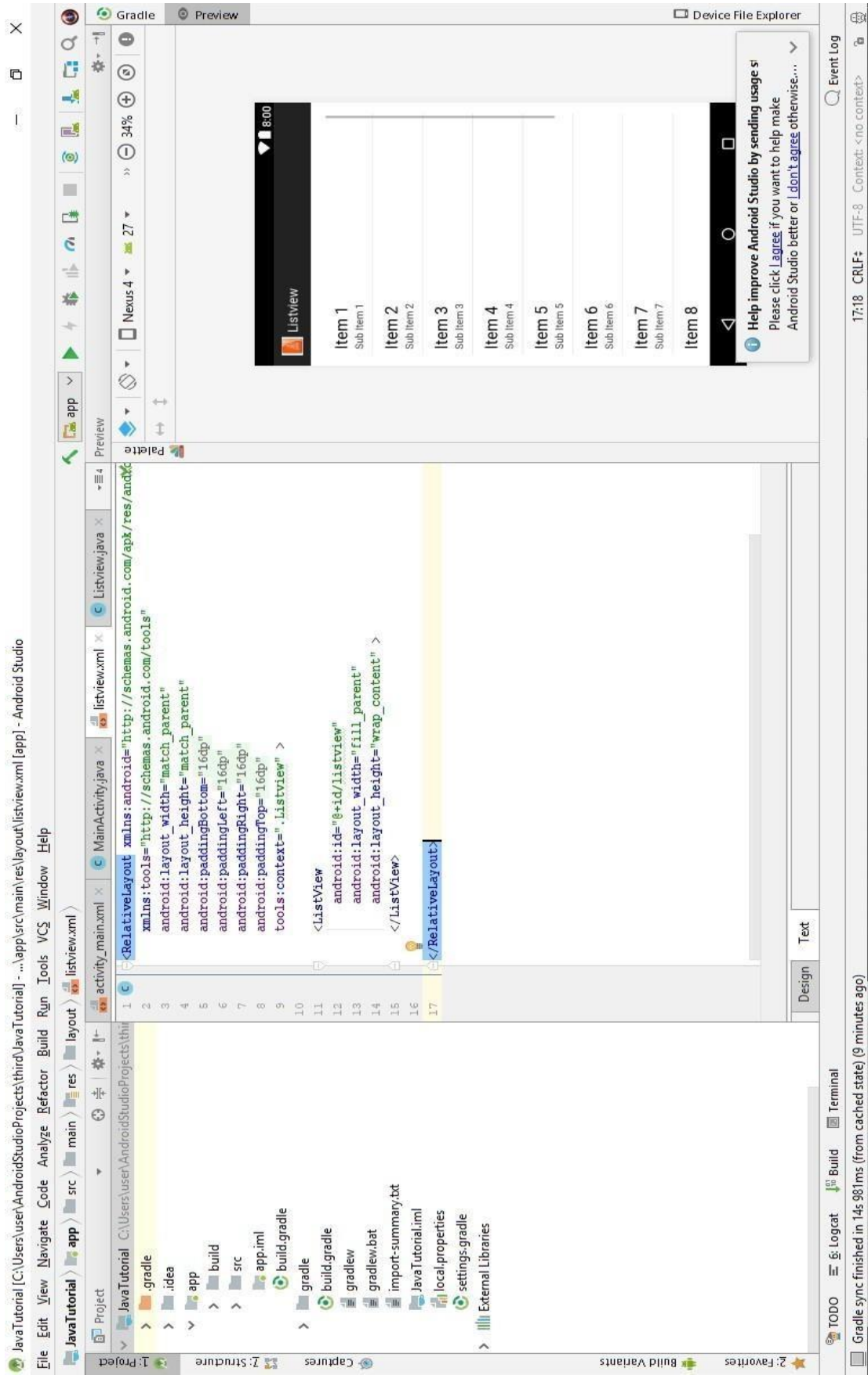
default:

```
    break;
```

```
}
```

```
}
```

```
}
```



->INTRODUCTION(XML):-

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/images"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context=".Introduction" >
```

```
<Spinner
    android:id="@+id/spin"
    android:layout_width="200dp"
    android:layout_height="50dp"
    android:layout_alignParentBottom="true"
    android:layout_centerHorizontal="true"
    android:layout_marginBottom="62dp"
    android:textAlignment="gravity"
    android:textColor="#FF0000" />
```

```
<ImageView
    android:id="@+id/imageView1"
    android:layout_width="200dp"
    android:layout_height="200dp"
    android:layout_alignRight="@+id/spin"
    android:layout_centerVertical="true"
    android:layout_marginRight="14dp"
    android:src="@drawable/begining" />
```

```
<TextView
```

```

        android:id="@+id/textView1"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_above="@+id/imageView1"
        android:layout_alignParentRight="true"
        android:layout_marginBottom="26dp"
        android:text="INTRODUCTION"
        android:textColorHighlight="#008000"
        android:textSize="30sp"
        android:textStyle="bold|italic" />

```

```
</RelativeLayout>
```

->INTRODUCTION(JAVA):-

```

public class Introduction extends Activity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.introduction);
        String src[] = { "Select", "Java", "Variables", "Literals",
"Operators" };

        ArrayAdapter<String> adapter = new
ArrayAdapter<String>(
                    Introduction.this,
android.R.layout.simple_list_item_1, src);
        final Spinner sp = (Spinner) findViewById(R.id.spin);

        sp.setAdapter(adapter);
        sp.setOnItemSelectedListener(new
OnItemSelectedListener() {

```

```

@Override
public void onItemSelected(AdapterView<?> arg0, View
arg1,
int arg2, long arg3) {
    switch (arg2) {
    case 1:
        Intent i1 = new Intent(Introduction.this,
Javaintro.class);

        startActivity(i1);

        break;
    case 2:
        Intent i2 = new Intent(Introduction.this,
Variables1.class);

        startActivity(i2);
        break;
    case 3:
        Intent i3 = new Intent(Introduction.this,
Literalss.class);

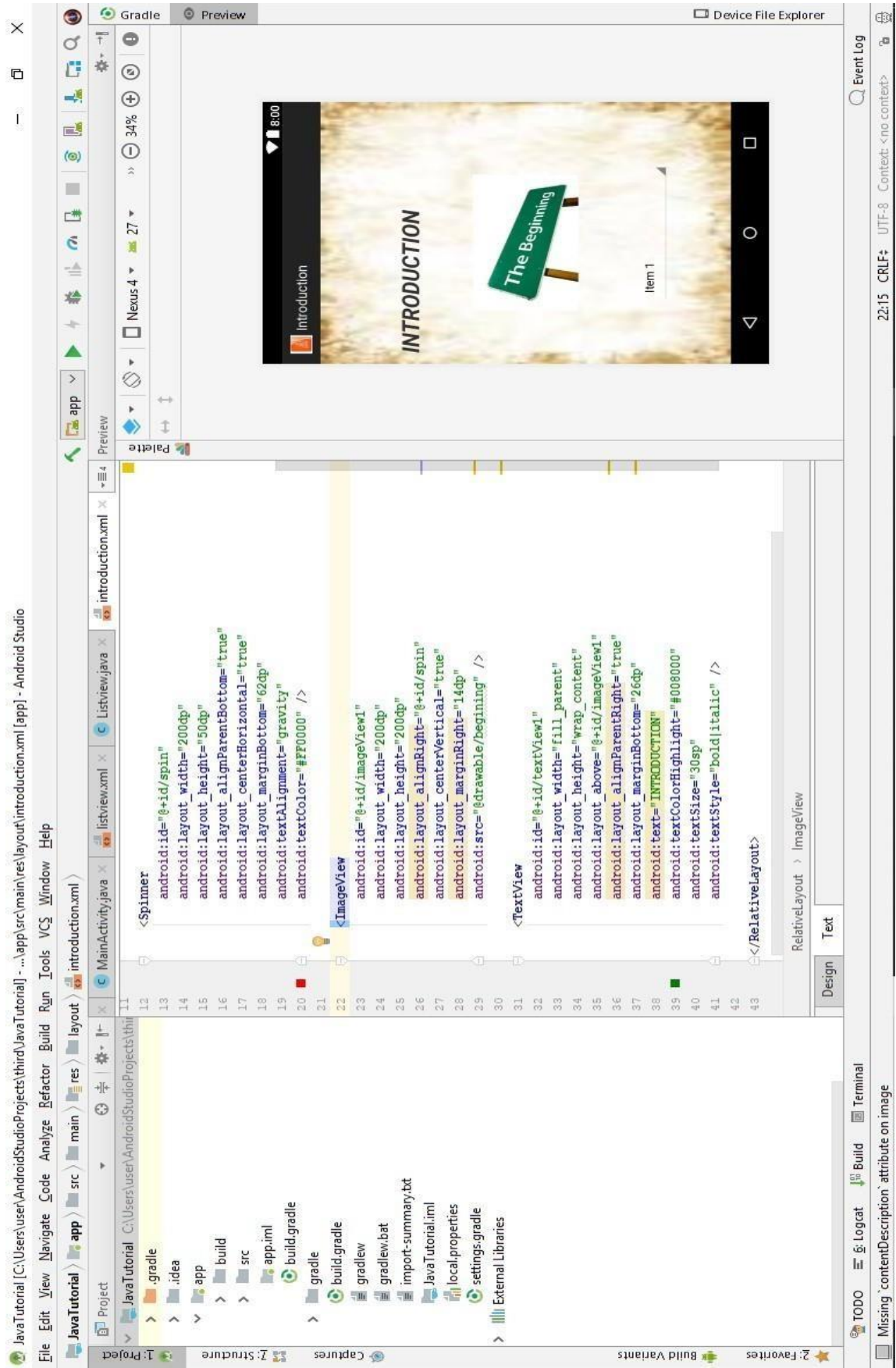
        startActivity(i3);
        break;
    case 4:
        Intent i4 = new Intent(Introduction.this,
Operators.class);

        startActivity(i4);
        break;
        // TODO Auto-generated method stub
    default:
        break;
    }
}

@Override
public void onNothingSelected(AdapterView<?> arg0) {
    // TODO Auto-generated method stub

```

```
        }  
    });  
}  
@Override  
public boolean onCreateOptionsMenu(Menu menu) {  
    // Inflate the menu; this adds items to the action bar if it is  
    present.  
    getMenuInflater().inflate(R.menu.introduction, menu);  
    return true;  
}  
}
```



REFERENCES

1. [https://en.wikipedia.org/wiki/Android_\(operating_system\)](https://en.wikipedia.org/wiki/Android_(operating_system))
2. <https://developer.android.com/docs/>
3. <https://www.slideshare.net/jawedakhtar21/synopsis-on-android-application>
4. <http://eagle.phys.utk.edu/guidry/android/lifecycleMethods.html>
5. <https://developer.android.com/guide/topics/security/cryptography>
6. <https://medium.com/mindorks/writing-a-modular-project-on-android-304f3b09cb37>