**Complete Android Application Code**

Appendix VIII: Android Application Code

**Login Activity: XML**

<?xml version = "1.0" encoding = "utf-8"?>

<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"

tools:context="com.example.maids1.MainActivity">

<TextView android:text = "MAIDS"

android:layout\_width="wrap\_content"

android:layout\_height = "wrap\_content"

android:id = "@+id/textview"

android:textSize = "75dp"

android:layout\_alignParentTop = "true"

android:layout\_centerHorizontal = "true" />

<TextView

android:layout\_width = "wrap\_content"

android:layout\_height = "wrap\_content"

android:text = "Meis Intrusion Detection System Remote Control"

android:id = "@+id/textView"

android:layout\_below = "@+id/textview"

android:layout\_centerHorizontal = "true"

android:textSize = "35dp" />

<EditText

android:layout\_width = "wrap\_content"

android:layout\_height = "wrap\_content"

android:id = "@+id/editText"

android:hint = "Enter Name"

android:focusable = "true"

android:textColorHighlight = "#ff7eff15"

android:textColorHint = "#ffff25e6"

android:layout\_marginTop = "6dp"

android:layout\_below = "@+id/imageView"

android:layout\_alignParentLeft = "true"

android:layout\_alignParentStart = "true"

android:layout\_alignParentRight = "true"

android:layout\_alignParentEnd = "true" />

<ImageView

android:id="@+id/imageView"

android:layout\_width="match\_parent"

android:layout\_height="314dp"

android:layout\_below="@+id/textView"

android:layout\_marginTop="4dp"

android:src="@drawable/a22a" />

<EditText

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:inputType="textPassword"

android:ems="10"

android:id="@+id/editText2"

android:layout\_below="@+id/editText"

android:layout\_alignParentLeft="true"

android:layout\_alignParentStart="true"

android:layout\_alignRight="@+id/editText"

android:layout\_alignEnd="@+id/editText"

android:textColorHint="#ffff299f"

android:hint="Password" />

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Attempts Left:"

android:id="@+id/textView2"

android:layout\_below="@+id/editText2"

android:layout\_alignParentLeft="true"

android:layout\_alignParentStart="true"

android:textSize="25dp" />

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="New Text"

android:id="@+id/textView3"

android:layout\_alignTop="@+id/textView2"

android:layout\_alignParentRight="true"

android:layout\_alignParentEnd="true"

android:layout\_alignBottom="@+id/textView2"

android:layout\_toEndOf="@+id/textview"

android:textSize="25dp"

android:layout\_toRightOf="@+id/textview" />

<Button

android:id="@+id/button2"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_alignParentBottom="true"

android:layout\_marginStart="-3dp"

android:layout\_marginLeft="-3dp"

android:layout\_marginBottom="15dp"

android:layout\_toEndOf="@+id/textview"

android:layout\_toRightOf="@+id/textview"

android:text="Cancel" />

<Button

android:id="@+id/button"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_alignParentBottom="true"

android:layout\_marginEnd="4dp"

android:layout\_marginRight="4dp"

android:layout\_marginBottom="15dp"

android:layout\_toStartOf="@+id/textview"

android:layout\_toLeftOf="@+id/textview"

android:text="login" />

</RelativeLayout>

**Login Activity: Code**

package com.example.maids1;

import android.app.Activity;

import android.graphics.Color;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.TextView;

import android.widget.Toast;

import android.content.Intent;

import com.example.maids1.myapplication.R;

public class MainActivity extends Activity {

Button b1, b2;

EditText ed1, ed2;

TextView tx1;

int counter = 3;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

b1 = findViewById(R.id.button);

ed1 = findViewById(R.id.editText);

ed2 = findViewById(R.id.editText2);

b2 = findViewById(R.id.button2);

tx1 = findViewById(R.id.textView3);

tx1.setVisibility(View.GONE);

b1.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

if (ed1.getText().toString().equals("admin") &&

ed2.getText().toString().equals("admin")) {

Toast.makeText(getApplicationContext(),

"Login in...", Toast.LENGTH\_SHORT).show();

Intent intent = new Intent(v.getContext(), Main3Activity.class);

startActivity(intent);

} else {

Toast.makeText(getApplicationContext(), "Wrong Credentials", Toast.LENGTH\_SHORT).show();

tx1.setVisibility(View.VISIBLE);

tx1.setBackgroundColor(Color.RED);

counter--;

tx1.setText(Integer.toString(counter));

if (counter == 0) {

b1.setEnabled(false);

}

}

}

});

b2.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

finish();

}

});

}

}

**Data Visualization & Action Control Activity: XML**

<?xml version="1.0" encoding="utf-8"?>

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"

xmlns:app="http://schemas.android.com/apk/res-auto"

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

android:orientation="vertical"

android:layout\_width="fill\_parent"

android:layout\_height="fill\_parent"

tools:context="com.example.maids1.Main3Activity">

<WebView

android:layout\_width="fill\_parent"

android:id="@+id/webView"

android:layout\_above="@id/buttonlayout"

android:layout\_height="fill\_parent" >

<WebView

android:id="@+id/webView2"

android:layout\_width="fill\_parent"

android:layout\_height="fill\_parent"

android:layout\_x="5dp"

android:layout\_y="400dp" />

</WebView>

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:orientation="horizontal"

android:layout\_width="fill\_parent"

android:layout\_height="wrap\_content"

android:layout\_alignParentBottom="true"

android:id="@+id/buttonlayout" >

<Button

android:id="@+id/button1"

android:layout\_height="wrap\_content"

android:layout\_width="wrap\_content"

android:layout\_weight="1.0"

android:layout\_alignParentBottom="true"

android:text="Retrieve Intrusion Database"

android:drawableLeft="@drawable/dbicon3"

/>

<Button

android:id="@+id/button2"

android:layout\_height="wrap\_content"

android:layout\_width="wrap\_content"

android:layout\_weight="1.0"

android:layout\_alignParentBottom="true"

android:layout\_toRightOf="@+id/button1"

android:text="Retrieve RasPI Stats"

android:drawableLeft="@drawable/statsicon3"

/>

<Button

android:id="@+id/button3"

android:layout\_height="wrap\_content"

android:layout\_width="wrap\_content"

android:layout\_weight="1.0"

android:layout\_alignParentBottom="true"

android:layout\_toRightOf="@+id/button2"

android:text="Test LED Module"

android:drawableLeft="@drawable/ledicon3"

/>

<Button

android:id="@+id/button4"

android:layout\_height="wrap\_content"

android:layout\_width="wrap\_content"

android:layout\_weight="1.0"

android:layout\_alignParentBottom="true"

android:layout\_toRightOf="@+id/button3"

android:text="Activate MAIDS"

android:drawableLeft="@drawable/activateicon3"

/>

<Button android:id="@+id/button5"

android:layout\_height="wrap\_content"

android:layout\_width="wrap\_content"

android:layout\_weight="1.0"

android:layout\_alignParentBottom="true"

android:layout\_toRightOf="@+id/button4"

android:text="Deactivate MAIDS"

android:drawableLeft="@drawable/deactivateicon3"

/>

</LinearLayout>

</RelativeLayout>

**Data Visualization & Action Control Activity: Code**

package com.example.maids1;

import android.annotation.SuppressLint;

import android.app.Activity;

import android.graphics.Bitmap;

import android.os.AsyncTask;

import android.os.Bundle;

import android.os.StrictMode;

import android.view.View;

import android.webkit.WebSettings;

import android.webkit.WebView;

import android.webkit.WebViewClient;

import android.widget.Button;

import android.widget.ImageView;

import android.widget.Toast;

import com.example.maids1.myapplication.R;

import com.jcraft.jsch.Channel;

import com.jcraft.jsch.ChannelExec;

import com.jcraft.jsch.ChannelSftp;

import com.jcraft.jsch.JSch;

import com.jcraft.jsch.Session;

import java.io.BufferedInputStream;

import java.io.BufferedOutputStream;

import java.io.ByteArrayOutputStream;

import java.io.File;

import java.io.FileOutputStream;

import java.io.OutputStream;

import java.util.Properties;

public class Main3Activity extends Activity {

private Button mButton1;

private Button mButton2;

private Button mButton3;

private Button mButton4;

private Button mButton5;

private Button mButton6;

private WebView webView;

private ImageView imageView;

private Bitmap bimage = null;

private String username = "pi";

private String password = "srgawain2264";

private String host = "192.168.0.19";

private int port = 22;

private static JSch jsch = new JSch();

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main3);

if (android.os.Build.VERSION.SDK\_INT > 9) {

StrictMode.ThreadPolicy policy = new StrictMode.ThreadPolicy.Builder().permitAll().build();

StrictMode.setThreadPolicy(policy);

}

mButton1 = findViewById(R.id.button1);

mButton1.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

Toast.makeText(getApplicationContext(),

"Retrieving DB Information...", Toast.LENGTH\_SHORT).show();

WebView htmlWebView = findViewById(R.id.webView);

htmlWebView.setWebViewClient(new CustomWebViewClient());

WebSettings webSetting = htmlWebView.getSettings();

webSetting.setJavaScriptEnabled(true);

webSetting.setDisplayZoomControls(true);

htmlWebView.loadUrl("https://singular-gar-5555.dataplicity.io/maidsintrusion.php");

}

});

mButton2 = findViewById(R.id.button2);

mButton2.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

Toast.makeText(getApplicationContext(),

"Retrieving RasPI Stats...", Toast.LENGTH\_SHORT).show();

WebView htmlWebView = findViewById(R.id.webView2);

htmlWebView.setWebViewClient(new CustomWebViewClient());

WebSettings webSetting = htmlWebView.getSettings();

webSetting.setJavaScriptEnabled(true);

webSetting.setDisplayZoomControls(true);

htmlWebView.loadUrl("http://192.168.0.19:8080/");

}

});

mButton3 = findViewById(R.id.button3);

mButton3.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

Toast.makeText(getApplicationContext(),

"Testing LEDs Remotely...", Toast.LENGTH\_LONG).show();

// Do something

@SuppressLint("StaticFieldLeak") final AsyncTask<Integer, Void, Void> execute = new AsyncTask<Integer, Void, Void>() {

@Override

protected Void doInBackground(Integer... params) {

try {

testLedsCommand(username,password,host,port);

} catch (Exception e) {

e.printStackTrace();

}

return null;

}

}.execute(1);

Toast.makeText(getApplicationContext(),

"LEDs Test Completed...", Toast.LENGTH\_LONG).show();

}

});

mButton4 = findViewById(R.id.button4);

mButton4.setOnClickListener(new View.OnClickListener() {

@SuppressLint("StaticFieldLeak")

@Override

public void onClick(View view) {

Toast.makeText(getApplicationContext(),

"Activating MAIDS Remotely...", Toast.LENGTH\_SHORT).show();

// Do something

final AsyncTask<Integer, Void, Void> execute = new AsyncTask<Integer, Void, Void>() {

@Override

protected Void doInBackground(Integer... params) {

try {

maidsOnCommand(username,password,host,port);

} catch (Exception e) {

e.printStackTrace();

}

return null;

}

}.execute(1);

}

});

mButton5 = findViewById(R.id.button5);

mButton5.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

Toast.makeText(getApplicationContext(),

"Deactivating MAIDS Remotely...", Toast.LENGTH\_SHORT).show();

// Do something

@SuppressLint("StaticFieldLeak") final AsyncTask<Integer, Void, Void> execute = new AsyncTask<Integer, Void, Void>() {

@Override

protected Void doInBackground(Integer... params) {

try {

maidsOffCommand(username,password,host,port);

} catch (Exception e) {

e.printStackTrace();

}

return null;

}

}.execute(1);

}

});

}

class CustomWebViewClient extends WebViewClient {

@Override

public boolean shouldOverrideUrlLoading(WebView view, String url) {

view.loadUrl(url);

return true;

}

}

public String testLedsCommand(String username, String password, String host, int port)

throws Exception {

//JSch jsch = new JSch();

Session session = jsch.getSession(username, host, port);

session.setPassword(password);

// Avoid asking for key confirmation

Properties prop = new Properties();

prop.put("StrictHostKeyChecking", "no");

session.setConfig(prop);

session.connect();

// SSH Channel

ChannelExec channelssh = (ChannelExec) session.openChannel("exec");

ByteArrayOutputStream baos = new ByteArrayOutputStream();

channelssh.setOutputStream(baos);

// Execute command

channelssh.setCommand("python3 ~/testleds.py");

channelssh.connect();

channelssh.disconnect();

return baos.toString();

}

public String maidsOnCommand(String username, String password, String hostname, int port)

throws Exception {

//JSch jsch = new JSch();

Session session = jsch.getSession(username, hostname, port);

session.setPassword(password);

// Avoid asking for key confirmation

Properties prop = new Properties();

prop.put("StrictHostKeyChecking", "no");

session.setConfig(prop);

session.connect();

// SSH Channel

ChannelExec channelssh = (ChannelExec) session.openChannel("exec");

ByteArrayOutputStream baos = new ByteArrayOutputStream();

channelssh.setOutputStream(baos);

// Execute command

channelssh.setCommand("python3 ~/maids\_final\_python\_code\_22102019\_bak1.py");

channelssh.connect();

channelssh.disconnect();

return baos.toString();

}

public void maidsOffCommand(String username, String password, String hostname, int port)

throws Exception {

//JSch jsch = new JSch();

Session session = jsch.getSession(username, hostname, port);

session.setPassword(password);

// Avoid asking for key confirmation

Properties prop = new Properties();

prop.put("StrictHostKeyChecking", "no");

session.setConfig(prop);

session.connect();

// SSH Channel

ChannelExec channelssh = (ChannelExec) session.openChannel("exec");

ByteArrayOutputStream baos = new ByteArrayOutputStream();

channelssh.setOutputStream(baos);

// Execute command

channelssh.setCommand("python3 ~/reboot.py");

channelssh.connect();

channelssh.disconnect();

//return baos.toString();

}

}