Sundae Maker

An Android Application

A project report submitted in partial fulfillment of the requirements for CIPP

Colloquium Intern Project Presentation

Submitted by

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ABSTRACT

In the present 21st Century every person needs a viable and easy access to undertake any task. The ease that the present technologies provide saves our lots of time and effort.

The projects I have completed during the internship are as following.

Sundae Maker
This is an Android Application for having the fun with sundaes. Create, dress up and decorate your very own delicious ice-cream sundae with lots of scoops, toppings, syrups to choose from. User can save and share with friends on social networking sites.
Also developed similar apps like Cake Maker , Pizza Maker etc.

Live Wallpaper
It is also an Android Application. Live Wallpaper gives the functionality to switches the wallpaper from a collection of wallpapers automatically at particular interval of time which is set by user.

Keywords - Android, Mobile Application, External Storage, Services.

TABLE OF CONTENTS

ABBREVIATIONS

Definition OR Abbreviation	Description
ADT	Android Development Tools
API	Application Programming Interface
APK file	Android Application Pac**k**age file
AVD	Android virtual Device
GUI	Graphical user Interface
IDE	Integrated Development Environment
SDD	Software Design Document
SDK	Software Development Kit
DVM	Dalvik Virtual Machine
XML	e**X**tensible **M**arkup **L**anguage

Company Profile

inoxApps is a young and fast growing product based android apps and gaming company of IIT Delhi alumni with more than 35 Mn downloads on the Google Play Store.

Inoxapps is a team of 60-65 young geeks who want to change the world of android apps & games.

They come up with crazy game and application ideas, design them, brainstorm and code them up and publish them on the Play Store.

Specialties

Mobile Applications, Mobile Games, App Marketing, Free App Monetization

Website

http://inoxapps.com

Industry

Internet

Type

Privately Held

Company Size

60-65 employees

Founded

2011

Founder And Co-Founder

Nikunj Jain and Sachin Agrawal.

CHAPTER 1

INTRODUCTION

1.1 Problem Statements

Sundae Maker

Includes a sampling of items for building the most delicious, real or wacky ice cream sundaes! Build the ultimate ice cream sundaes from a huge selection of ingredients!

- Pick your cone, special ice cream dish or bowl!
- Select your scoop of Ice Cream, scoop after scoop of flavors!
- Add the syrups! One for each scoop or layer after layer of sweets!
- Next cover your creation with Candy Toppings, Fruit Toppings, Chopped Nuts or more!
- Finally add extra decorations to make your sundae extra special!

Live Wallpaper

A Live Wallpaper is a type of application that works on a mobile device using the Android operating system. The application works as a wallpaper – providing the background image for the home screen—but also works as a conventional application.

This is a Holi Live Wallpaper . very beautiful and attractive holi pics can be shuffled or moved on android home screen after a duration . This duration can be set by user.

For run the live wallpaper go to your home screen
Now press Menu →Wallpaper →Live Wallpaper→Holi Live Wallpaper

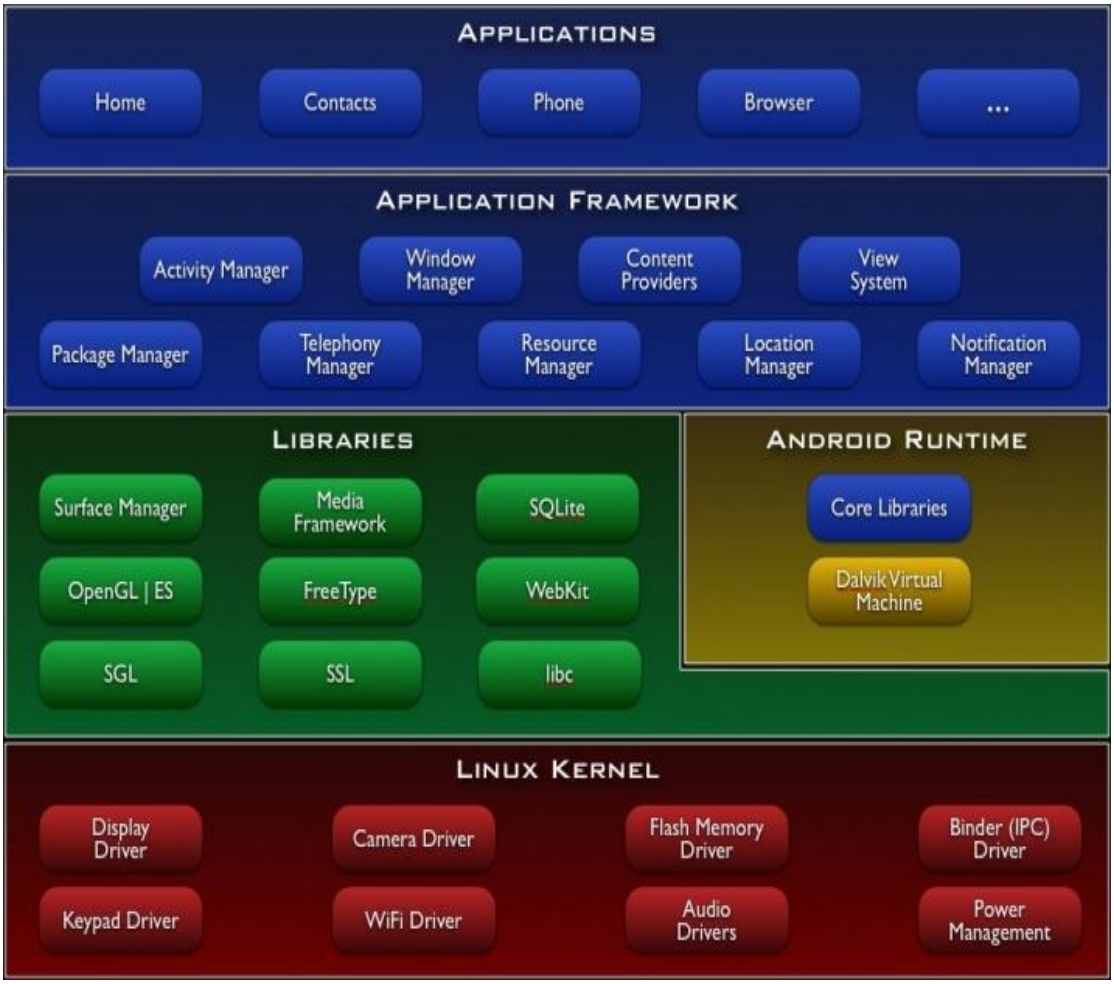
- In settings section a person can set duration how fast these wall papers will move on its android phone home screen.
- User can share this with your friends through social networking sites like facebook, twitter, gmail and messaging etc.

1.2 Android Platform and other Technologies used

1.2.1 Android Architecture

Android operating system contains a lot of applications such as calculator, contacts . Application Frameworks enables reusability and replacement functionality of components; Android architecture provides different libraries such as for multimedia, database, and for security ; and the Linux kernel is mainly responsible for the management of memory and security [1] .

Every Android application runs in its own VM(virtual machine).



Android platform architecture Diagram.

1.3.2 Android Application and Development Environment

Android applications uses Java language for coding, they compiled the source code into byte codes that is converted into an executable .dex file which is known as Dalvik executable file, by using converter called dx.Then this file is compiled in android package file (apk file), This .apk file we can easily install on Android OS devices.

Linux system is multi user , taking into mind this aspect of android OS, Android application can be behaved as an independent individual Linux user. Every application which is running on the system is identified by the unique ID called Linux user id . Each and every process that is running on the system, has its own VM(virtual machine)[1].

Every android application uses for basic components . These are also called the building block of any any android application. These are following:-

1 . Activity

Activity is the core component of every android application; Every activity correspond to a task that is done by application. An activity can also be viewed as an independent screen. User interface through which user interacts to do functioning like calling activity, show list view of items etc. Android application uses many activities according to its requirements. For example This application has an activity that shows the list of video lectures which are present either on SD-card or resides on the Server and another activity for play video lecture along with index , bookmark ,subtitle and menu [2].

2 . Services

Services are mainly run in the background ,Like after a period updating the GUI of a particular activity is done by services . we can implement Services where operations are time consuming and processes which are to be scheduled and that can running regularly. Services doesn't have User Interfaces [2].

3. Content Providers

Content Providers are used as interface to data. A content provider which helps to maintain data which is shared among different applications. Data is shared and modified using content providers according to the needs for a particular application. Permission for modifying the data has to be given in android manifest.xml file . For data security and data encapsulation content providers are used [2].

4. Broadcast receivers

Broadcast receivers announce the announcements made by system. Like Examples if battery is low broadcast receiver announces this information and also informs for update that ready to download. Broadcast Receivers initiate services for doing something [2].

One of the major pros of developing the application on android platform is its cheap and easiness of the development environment.

1.3.3 JAVA

Java is a high-level programming language that is developed by Sun Microsystems. Java is an object-oriented programming language which is similar to C++, but this is simplified to eliminate language features that is the reason for common programming bugs and errors. Java source code files with .java extension is compiled into byte codes which having .class extension, This .class file then executed by the Java interpreter. We can run Compiled Java code on most of the systems , Java runtime environments and interpreters, are termed as Java Virtual Machines ,that exists for most of the operating systems, that includes UNIX, Macintosh OS, and Windows. By using just-in-time compiler (JIT) , we can convert the byte code into machine language instructions[3].

1.3.4 XML

XML is an acronym for Extensible Markup Language . That is defined in 1998 by World Wide Web Consortium (W3C)[4] .

1.3.5 External Storage

Android-compatible devices support for a storage which is shared "external storage" that we can use for storing different files. This can be of two types, first one is a removable storage (Like an SD card or pen drive) and other is internal which is not removable storage. The files which are saved in external storage are public and these files can be modified by the user after enabling USB mass storage option for communicating the device to the computer[5].

1.4 Used Softwares and Packages

We have used the following software to develop the application:

- Java Development Kit 1.7
- Java Runtime Environment 1.7
- Eclipse
- Android SDK
- ADT Plug-in

All these are Open Source software's and are freely available.

CHAPTER 2

METHODOLOGY, TESTING AND RESULTS

2.1 Implementation of the Android Applications

Here we explain the implementation of the applications. The different resources and source files those are used for developing the application are explained here.

2.1.1 Android Manifest with its purpose

Android manifest .xml file describes the major information that is required for the android devices in which the application is to be run . There are different components of application like , permission , xml version , activities, services, broadcast receivers, content providers , etc are declared in androidmanifest.xml file. This file is also used for declaring different permission like Internet access, SD card access , Wi-Fi access ,camera access, and other hardware etc.

In this minimum and Target API version for application can also be declared.

Additionally, different activities of the application are also included in android manifest file. There is a snapshot of code of the Android manifest file of our application.

Code Snippet of the androidmanifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.android.vcr"
    android:versionCode="1"
    android:versionName="1.0" >

    <uses-sdk android:minSdkVersion="7" />

    <application
        android:icon="@drawable/ic_launcher"
        android:label="@string/app_name" >
        <uses-permission android:name="android.permission.MOUNT_UNMOUNT_FILESYSTEMS" />
        <uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
        <uses-permission android:name="android.permission.INTERNET"/>

        <uses-feature android:name="android.hardware.wifi"/>

     <activity
            android:name=".Splash"
            android:label="@string/app_name" android:screenOrientation="landscape" >
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
```

2.1.2 User Interface with function implementation

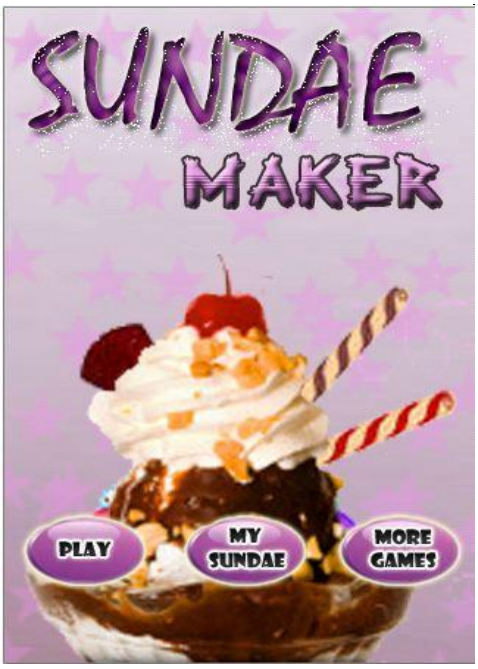
This section of report give information the user interface of the android application. Different views and different View Group objects are mainly used for building the user interface in android application.

A view object is an object that can be represented as a data structure and that can stores parameters and properties of layout and the content that is on the given specific area of Screen. In resource/layout folder xml files contains the Graphical Interface of particular activity.

SUNDAE MAKER

This application contains six different activities . The first one activity class is the Splash screen .

The below snapshot displays the main layout view that represents the initial point of the application. And by clicking on Play user will be redirect to the next screen “Landing.java”.



Main Screen

Landing Screen

Code Snippet of Main Screen

```
ImageButton btnplay = (ImageButton)findViewById(R.id.play);
btnplay.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View view)

    {
        mp = MediaPlayer.create(getApplicationContext(), R.raw.select_button);
        mp.start();
        startActivity( new Intent( LandingScreen.this, Sundae.class ) );
    }
});
```

Code Snippet of Landing Screen (Function to select toppings from a grid)

```
@Override
protected void onActivityResult(int requestCode, int resultCode, Intent data) {
    super.onActivityResult(requestCode, resultCode, data);
    if(requestCode==1&&resultCode==RESULT_OK){
        index1= data.getIntExtra("index1",0);

        if(index1==1)
        {
            a= data.getIntExtra("wall_id",0);
            RelativeLayout dl =(RelativeLayout) findViewById(R.id.sundae_frags);
            dl.setBackgroundResource(a);

        }
        if(index1==2)
        {
            b = data.getIntExtra("dish_id",0);
            ImageView dish1 =(ImageView) findViewById(R.id.dish1);
            dish1.setImageResource(b);
            dish1.setVisibility(View.VISIBLE);
            Splash.id1[Splash.position]=R.id.dish1;
            Splash.position++;
            dish1.setOnClickListener(this);
            dish1.setOnTouchListener(this);
        }
```

On the Landing Screen there are 4 different image buttons at the top. First of all user have to select a wall from “Walls” then dish , scoops and extras in the same way. User can select one or more scoops, toppings , extras.


```
void function2()
{

    ibw.setBackgroundResource(R.drawable.walls);
    ibd.setBackgroundResource(R.drawable.dish_change);
    ibs.setBackgroundResource(R.drawable.scoops);
    ibe.setBackgroundResource(R.drawable.extras);
    //Animation anim = AnimationUtils.loadAnimation(getApplicationContext(), R.anim.s
    gridView = (GridView) findViewById(R.id.wall_gridview);
     gridView.setAnimation(anim);
     anim.start();
    gridView.setAdapter(new ImageAdapter3(this));

    gridView.setOnItemClickListener(new OnItemClickListener()
    {
        @Override
        public void onItemClick(AdapterView parent,
        View v, int position, long id)
    {
            mp = MediaPlayer.create(getApplicationContext(), R.raw.select_item);
             mp.start();
             Intent intent= new Intent();
             intent.putExtra("dish_id",imageIDs3[position] );
            //intent.putExtra("position", position);
             intent.putExtra("index1", 2);
             setResult(RESULT_OK,intent);
             finish();
         }
```

After Selecting the raw materials user will be redirect to the landing Screen with all his raw materials and can decorate and design the sundae with zooming facilities to increase and decrease in size of raw materials.

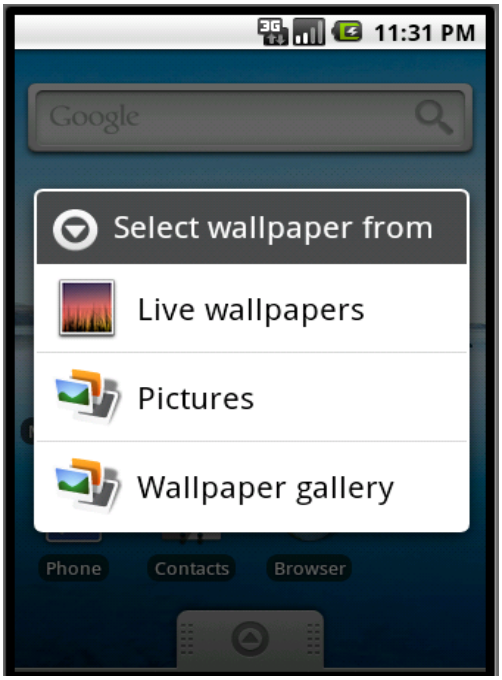
Code Snippet to save the image in phone

```
void saveandforward(){
    try {
        Calendar cal = Calendar.getInstance();
        SimpleDateFormat sdf = new SimpleDateFormat ("yyyyMMddHHmmss");
        filename = sdf.format(cal.getTime());
        //File fname = new File (APP_FILE_PATH,filename);
        final FileOutputStream out = new FileOutputStream(new File(APP_FILE_PATH ,filename +".jpg"));

        Bundle extras = getIntent().getExtras();
        final Bitmap bm = (Bitmap)extras.get("done_id");
        bm.compress(Bitmap.CompressFormat.JPEG, 90, out);
        out.flush();
        out.close();

    }catch (Exception e) {
        e.printStackTrace();
    }
```

LIVE WALLPAPER



Here user can set the frame rate by which wallpapers can switches automatically.And after setting wallpaper “Home Screen” of the user will be shown like this.

Code Snippet for Live Wallpaper Setting

```
public class LiveWallpaperSettings extends PreferenceActivity implements
        SharedPreferences.OnSharedPreferenceChangeListener,
        MobclixAdViewListener {
    /**
     * {@inheritDoc}
     */
    private MobclixMMABannerXLAdView adview_banner;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);



        getPreferenceManager()
                .setSharedPreferencesName("LiveWallpaperSettings");

        setContentView(R.layout.pref);

        addPreferencesFromResource(R.xml.settings);
        getPreferenceManager().getSharedPreferences()
                .registerOnSharedPreferenceChangeListener(this);

        // TextView title=(TextView) findViewById(R.id.text);
        // title.setText(R.string.title);
```

Code Snippet to switches the wallpaper from the collection

```
    CubeEngine() {
        Resources res = getResources();
        int i;

        for (i = 0; i < NUM_RES; i++) {
            int id = res.getIdentifier("boot_00" + (100 + (i + 1)),
                    "drawable", "com.hezapps.almudena_fernandez");
            mPics[i] = BitmapFactory.decodeResource(res, id);
        }

        if (i >= NUM_RES) {
            SharedPreferences localSharedPreferences1 = LiveWallpaperService.this
                    .getSharedPreferences("LiveWallpaperSettings", 0);
            mPrefs = localSharedPreferences1;
            mPrefs.registerOnSharedPreferenceChangeListener(this);
            SharedPreferences localSharedPreferences2 = mPrefs;
            onSharedPreferenceChanged(localSharedPreferences2, null);
            return;
        }

    }
```

2.2 Results

Results and Testing is a major challenge in order to perform a final check up of the application .This operation is carried out by using the various hardware devices and virtual emulators to make the application robust.

In this application , testing is taken in consideration to perform the testing of mobile application. The testing is defined as an algorithm to testing the application which focuses on the functionalities and features of an application.

The tests are carried out on android 2.3.5 Samsung Galaxy Young S5360 and on all other emulators to confirm that application have capability for multiple screen support..

Adding into the context the multitasking issues while testing the application confines the portability of the application. Such as the application should be able to work in efficient manner.

With the development of the android applications, this is necessary to perform the different tests and which can measure the transparency, performance and reliability of the application of the android device while running the new application. There shouldn't be any disruption from the basic application.

2.3 Conclusion

The advancement in mobile technology is to contribute in different ways of our lives that can varies from enjoying with the entertainment, education applications ,games and many other useful tools.

Cake Maker is an application in which user can create and decorate cakes for birthday and can share the same with the birthday boy on facebook, gmail and on other social networking sites.

Live Wallpaper is an application by which user will not feeling bored by seeing the same wallpaper every time.

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