University of Pune

Abeda Inamdar Senior College

Computer Science Books App

by

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M.Sc. Computer Science II

Final Year Project 2019 – 2020

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Declaration of Authorship

I hereby declare that this project is entirely my own work and that it has not been submitted as an exercise for a degree at any other university

Name: _____

Date: _____

"Whether you want to uncover the secrets of the universe, or you want to pursue a career in the 21st century, basic computer programming is essential skill to learn. "

Stephen Hawking,
Theoretical Physicist, Cosmologist and Author.

University of Pune, Abeda Inamdar Senior College

Abstract

College of Arts, Commerce and Science

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M.Sc. Computer Science final year: 2019 - 2020

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The aim of this project is to investigate the use of Android by developing an Android application which made use of android programming. The specific function of the application is to provide student's studying in Computer Science with proper books related to respective subjects without having to pay or to issue it for a small duration.

The technologies used in this project are Android Software Development Kit (SDK) and Java. The Android SDK is used to develop the frontend and Java is used for backend connectivity.

Acknowledgement

I would like to thank my supervisor, Prof. **Vijaya Pese,** for the support, guidance, inspiration and constructive suggestions that were helpful in the preparation of this project

I would also like to thank my friends and classmate for all the help and support they have given me during successful completion of this project.

Finally, I would like to thank my parents and my parrots, Toto, Sheru and Mooney who have been great to me throughout my whole life, and without whom none of this would have been possible.

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Introduction

1.1 Aims

The aim of this project was to design one such application which will provide students of Computer Science to read books related to the respective subjects.

In order to make it easier to get Books, I developed an Android application which will allow students with Books, Seminars, Research Papers and University syllabus in just one application without having to download it.

1.2 Motivation

A lot of students buy each subject books every year which is equivalent to 10 text books per student, after the term ends the students might throw the book away or sell in cheap price.

So, in order to save extra money and to reduce paper usage students can download this application and read books for free without any additional downloading charges.

1.3 Project Overview

- CS Books is one application that you need for preparation of your Bachelor's and Master's degree in Computer Science.

- This application is specially designed for students.

- It provides with multiple books pdf with respect to the syllabus of particular degree.

- It provides you with various Research Papers in technology which might be beneficial if you want to score extra grades.

- This application provides you with seminars of various subject's topics with details which will enhance student's knowledge.

- It's available for free you don't need to pay for any books

- The size of the application is 40Mb

- You can install the apk on your android device to run the application.

- This application can run 98% of Android devices.

- The minimum Android version is Jelly beans.

Features

- Allows you to Read books on the go.

- Consists of various Computer Science books pdf's

- You don't need to download any book.

- Free of charge.

- It will not utilize your disk space.

- Yearly updates.

- Size is less.

- No need to pay for any book.

- One-time Installation use forever.

- Easy to learn for the seminar's provided in the application.

- It is User Friendly.

Design and Implementation

3.1 Code

- Include the highlighted Line in the Build <u>Gradle Module</u> file

```
apply plugin: 'com.android.application'

android {
    compileSdkVersion 28
    buildToolsVersion "29.0.2"
    defaultConfig {
        applicationId "com.example.csbook"
        minSdkVersion 17
        targetSdkVersion 28
        versionCode 1
        versionName "1.0"
        testInstrumentationRunner
"androidx.test.runner.AndroidJUnitRunner"
    }
    buildTypes {
        release {
            minifyEnabled false
            proguardFiles getDefaultProguardFile('proguard-android-
optimize.txt'), 'proguard-rules.pro'
        }
    }
}

dependencies {
    implementation fileTree(dir: 'libs', include: ['*.jar'])
    implementation 'androidx.appcompat:appcompat:1.1.0'
    implementation 'com.google.android.material:material:1.0.0'
    implementation
'androidx.constraintlayout:constraintlayout:1.1.3'
    implementation 'androidx.navigation:navigation-fragment:2.0.0'
    implementation 'androidx.navigation:navigation-ui:2.0.0'
    implementation 'androidx.lifecycle:lifecycle-extensions:2.0.0'
    testImplementation 'junit:junit:4.12'
    androidTestImplementation 'androidx.test.ext:junit:1.1.1'
    androidTestImplementation 'androidx.test.espresso:espresso-
core:3.2.0'

    implementation 'com.github.barteksc:android-pdf-viewer:2.8.2'

}
```

- Include the following in the Fragment.xml file depends on how many fragments you want to use in the Navigation Drawer Activity.

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
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:layout_width="match_parent"
    android:layout_height="match_parent">


    <Button
        android:id="@+id/btnOpen"
        android:layout_width="300dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="46dp"
        android:layout_marginEnd="65dp"
        android:layout_marginBottom="408dp"
        android:background="@android:color/background_light"
        android:text="Distributed Database"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        tools:ignore="MissingConstraints" />

    <Button
        android:id="@+id/btnOpen2"
        android:layout_width="300dp"
        android:layout_height="wrap_content"
        android:layout_marginStart="46dp"
        android:layout_marginEnd="65dp"
        android:layout_marginBottom="321dp"
        android:background="@android:color/background_light"
        android:text="Digital Image Processing"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        tools:ignore="MissingConstraints" />


</androidx.constraintlayout.widget.ConstraintLayout>
```

- Include the following in the Activity_home.xml file depends on how many Activities you want to use in the Navigation Drawer Activity.

```xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.coordinatorlayout.widget.CoordinatorLayout
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:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".ResearchActivity">

    <com.google.android.material.appbar.AppBarLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:theme="@style/AppTheme.AppBarOverlay">

        <androidx.appcompat.widget.Toolbar
            android:id="@+id/toolbar"
            android:layout_width="match_parent"
            android:layout_height="?attr/actionBarSize"
            android:background="@android:color/holo_orange_light"
            app:popupTheme="@style/AppTheme.PopupOverlay"
            app:title="Research Papers" />

    </com.google.android.material.appbar.AppBarLayout>

    <include layout="@layout/content_research" />



    <com.github.barteksc.pdfviewer.PDFView
        android:id="@+id/pdf15"
        android:layout_width="match_parent"
        android:layout_height="match_parent">

    </com.github.barteksc.pdfviewer.PDFView>

</androidx.coordinatorlayout.widget.CoordinatorLayout>
```

- Include the following in the new empty activity file depends on how many Activities you want to use in the Navigation Drawer Activity.

```java
package com.example.csbook;

import android.os.Bundle;

import com.github.barteksc.pdfviewer.PDFView;
import com.google.android.material.floatingactionbutton.FloatingActionButton;
 com.google.android.material.snackbar.Snackbar;

import androidx.appcompat.app.AppCompatActivity;
import androidx.appcompat.widget.Toolbar;

import android.view.View;

public class Main3Activity extends AppCompatActivity {
    PDFView book2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main3);
        Toolbar = findViewById(R.id.toolbar);
        setSupportActionBar(toolbar);


        getSupportActionBar().setDisplayHomeAsUpEnabled(true);

        book2=(PDFView) findViewById(R.id.pdf6);

        book2.fromAsset("M.Sc. Computer Science   (For
Colleges)_23.072019 (1).pdf").load();

    }

}
```

- ■ Include the following in the Main_Activity.Java activity file in the Navigation Drawer Activity.

```java
package com.example.csbook;
import android.content.Intent;
import android.os.Bundle;
import android.view.Menu;

public class MainActivity extends AppCompatActivity {
    private AppBarConfiguration mAppBarConfiguration;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Toolbar = findViewById(R.id.toolbar);
        setSupportActionBar(toolbar);
            DrawerLayout drawer =
findViewById(R.id.drawer_layout);
        NavigationView = findViewById(R.id.nav_view);
        // Passing each menu ID as a set of Ids because each
        // menu should be considered as top level destinations.
        mAppBarConfiguration = new AppBarConfiguration.Builder(

                R.id.nav_home, R.id.nav_gallery, R.id.nav_slideshow,
                R.id.nav_tools, R.id.nav_share, R.id.nav_send)
                .setDrawerLayout(drawer)
                .build();
        NavController = Navigation.findNavController(this,
R.id.nav_host_fragment);
        NavigationUI.setupActionBarWithNavController(this,
navController, mAppBarConfiguration);
        NavigationUI.setupWithNavController(navigationView,
navController);
    }

    @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;
    }
```
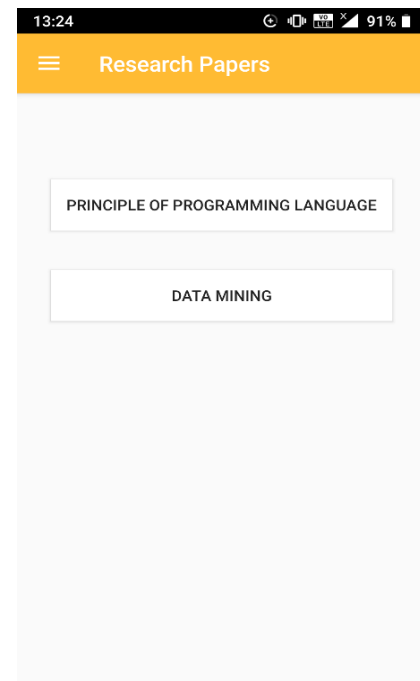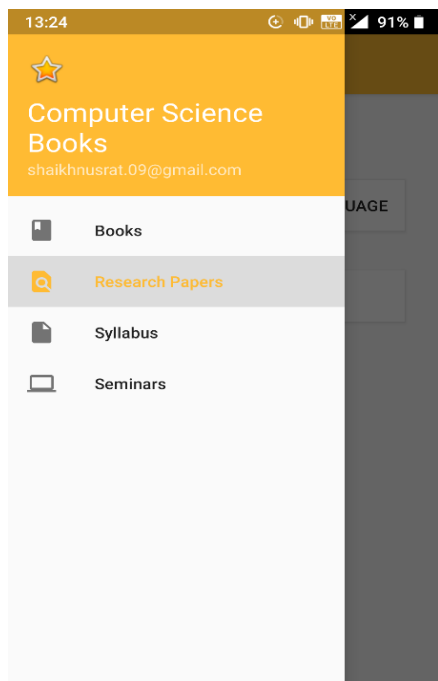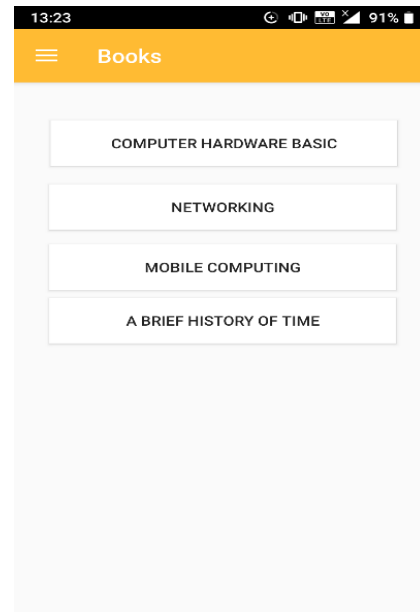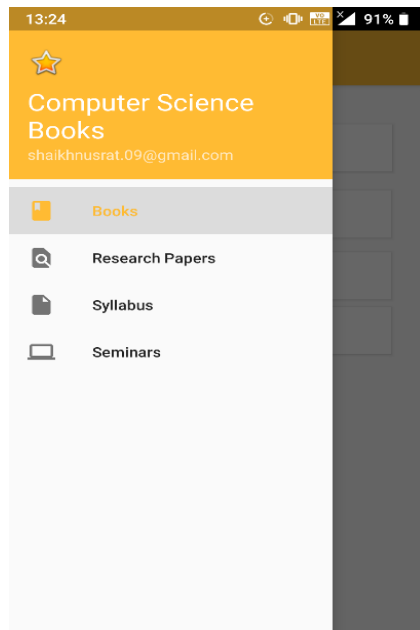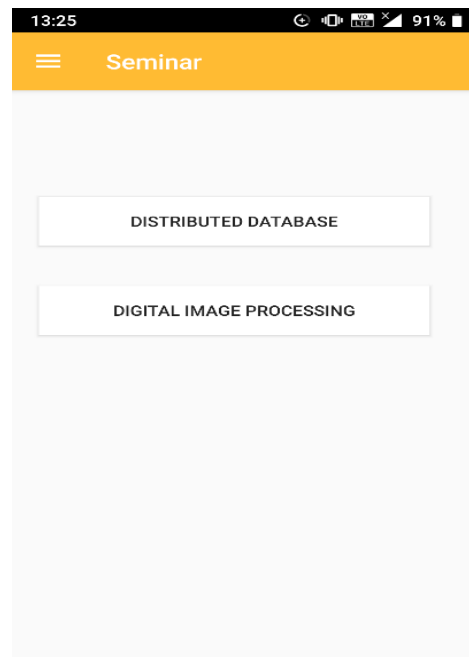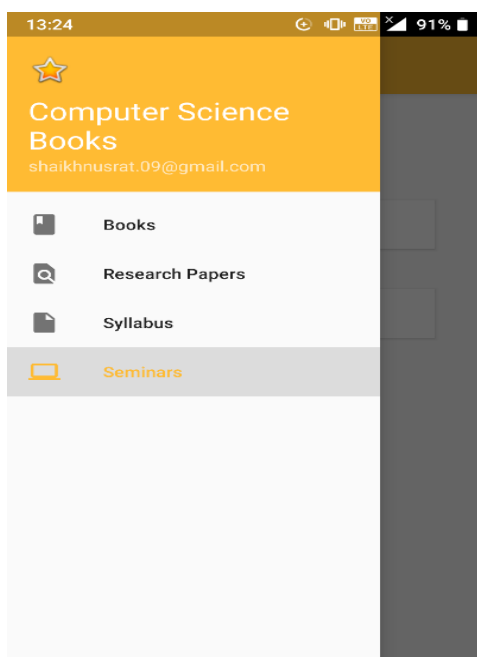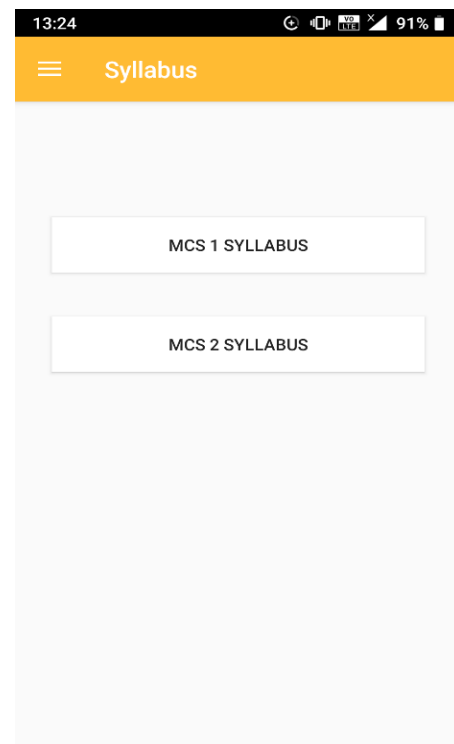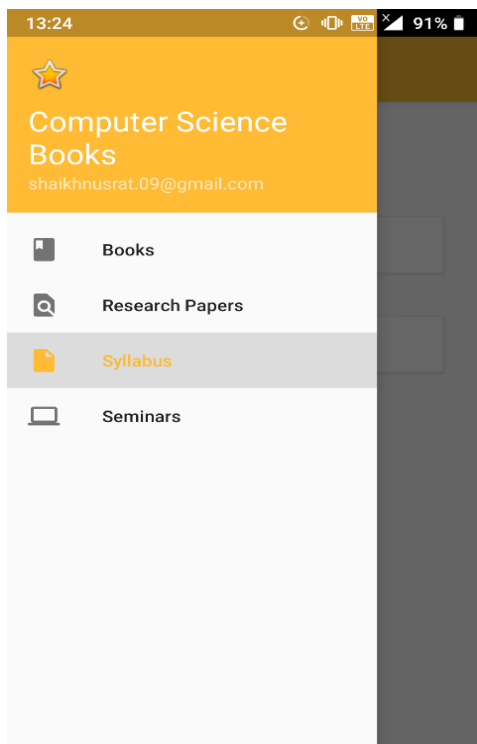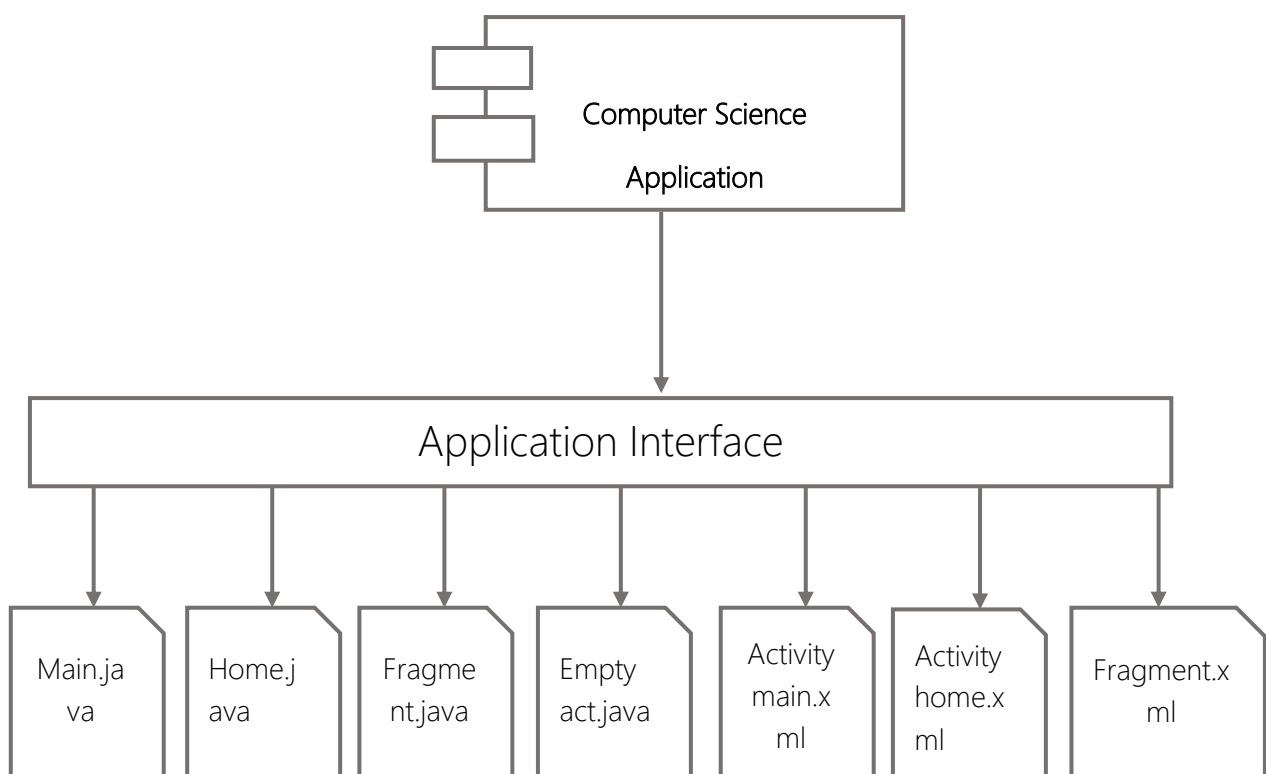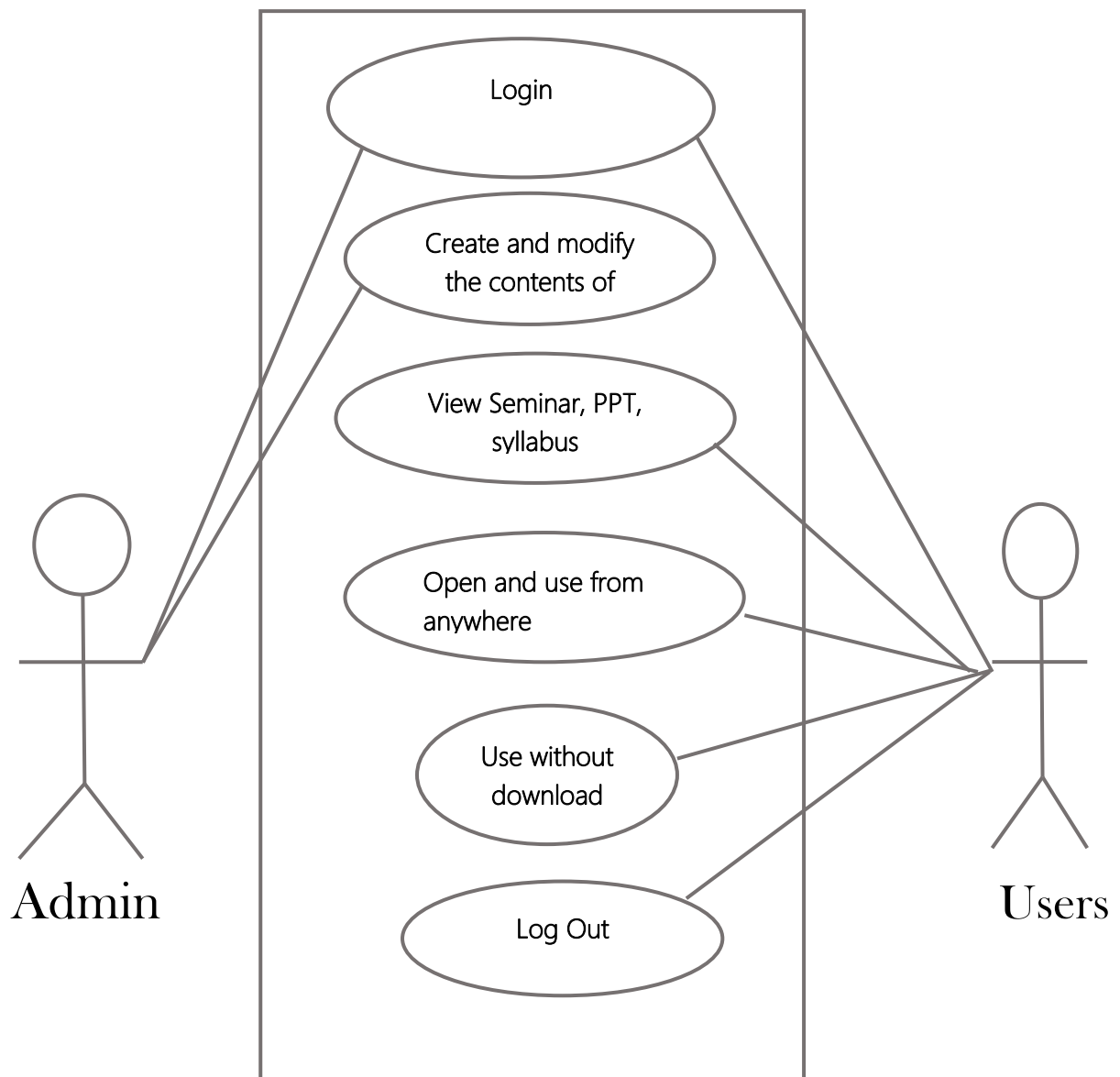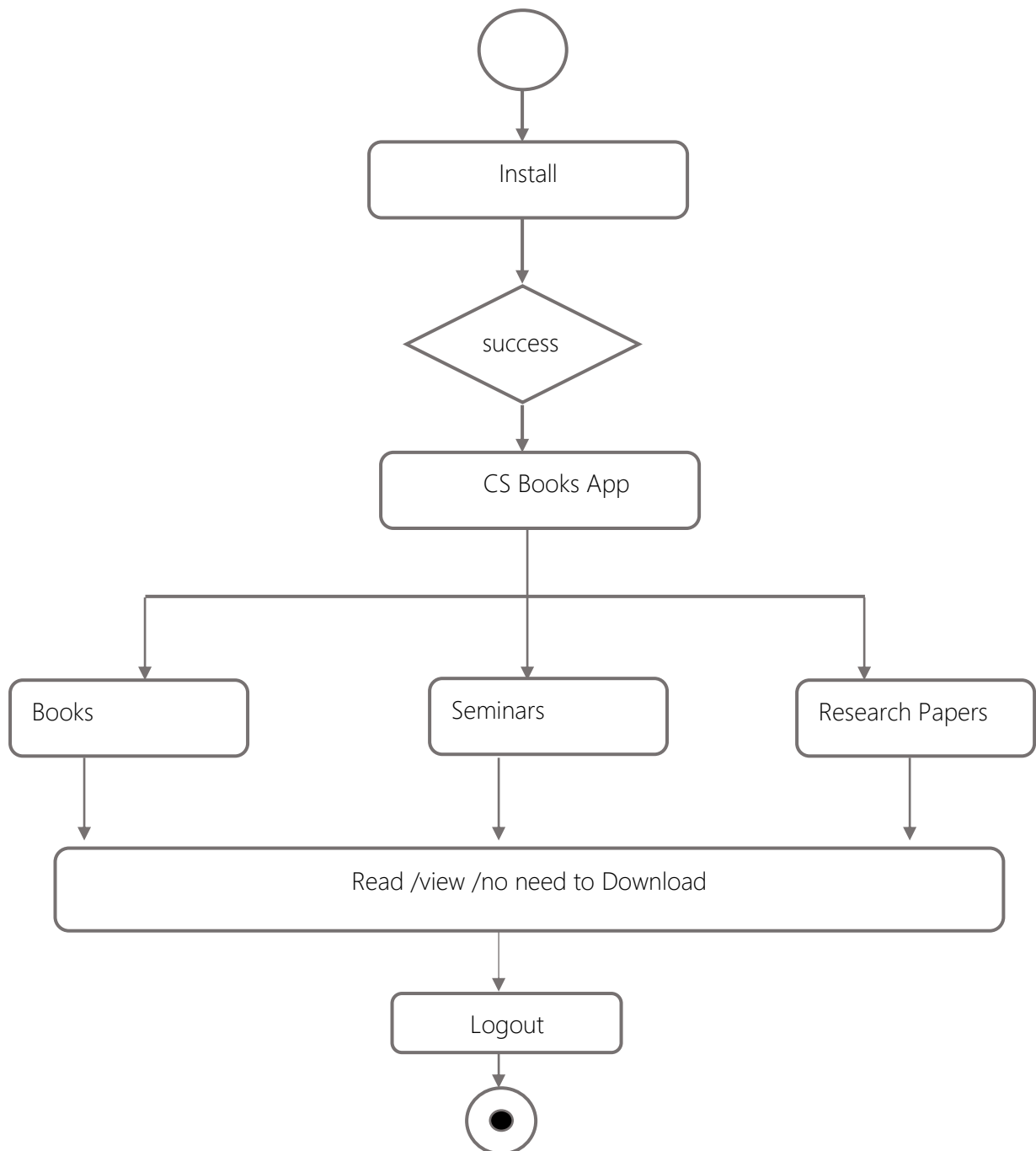
3.2 Screen Shots
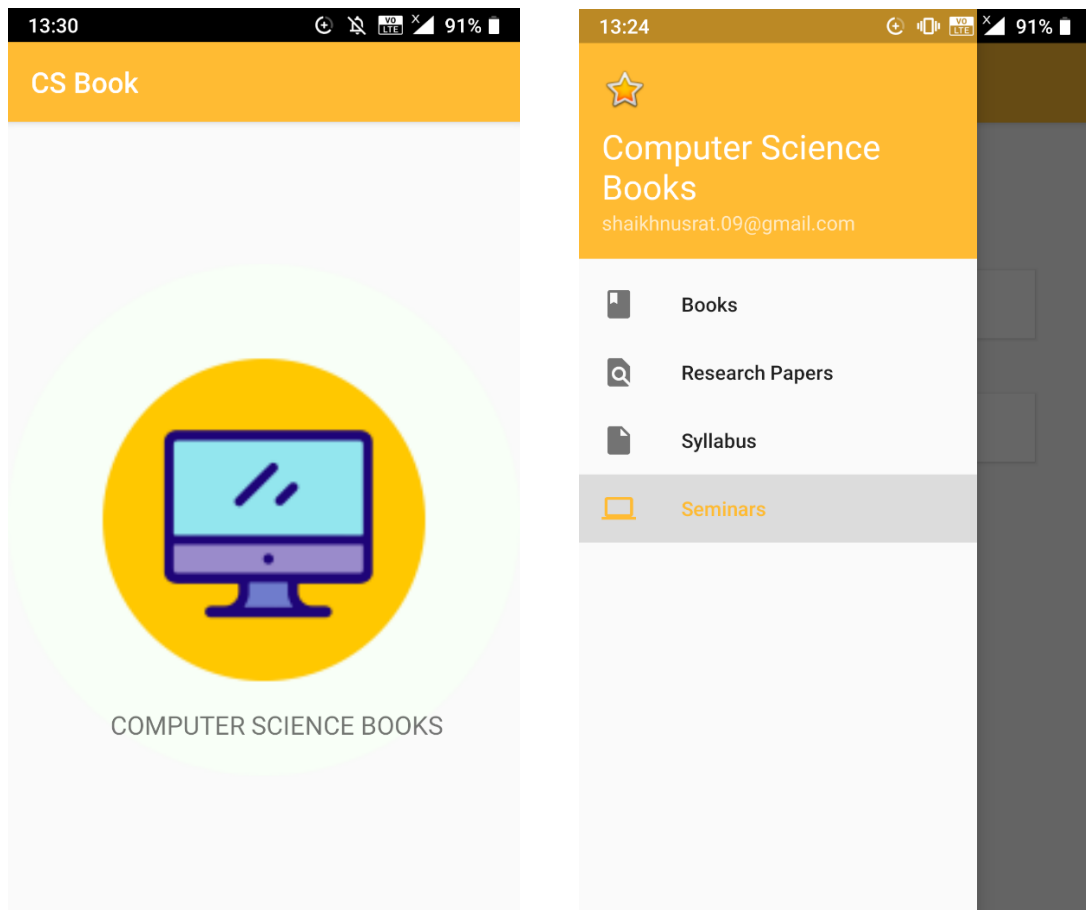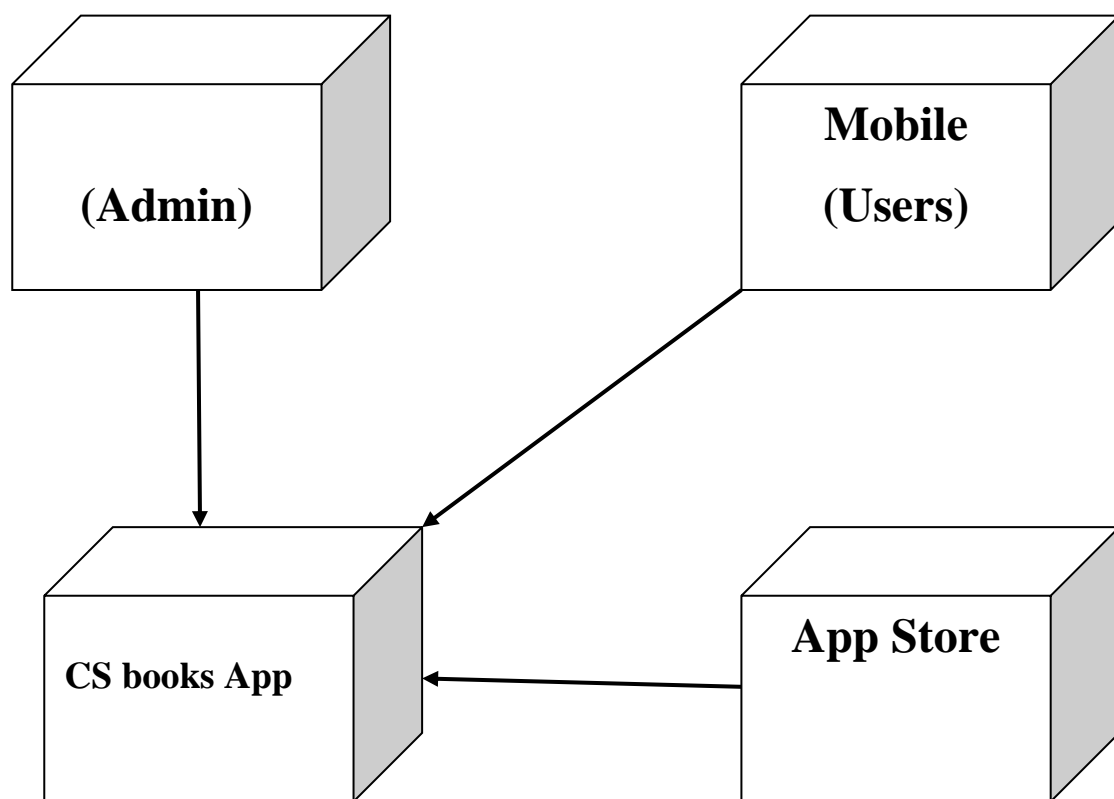
3.3 UML Diagrams

A. Component Diagram

B. Use Case Diagram

C. Activity Diagram

D. Class Diagram

```
┌─────────────────────────┐                    ┌─────────────────────────┐
│    Main Activity .java   │                    │    Home Activity .java   │
├─────────────────────────┤                    ├─────────────────────────┤
│ + homeactivity.java      │                    │  +fragment.java          │
│ +fragment.java           │                    │  + Basic Activity.java   │
│ + Basic Activity.java    │                    │                          │
└─────────────────────────┘                    └─────────────────────────┘
           ▲  1                                            ▲  1….*
           │                                               │
      1    │      ┌─────────────────────────┐      1       │
           └──────│       CS Books App       │──────────────┘
                  ├─────────────────────────┤
                  │ + main Activity.java     │
      1           │ + homeactivity.java      │      1
           ┌──────│ +fragment.java           │──────┐
           │      │ + Basic Activity.java    │      │
     1….*  ▼      └─────────────────────────┘      ▼  1….*
┌─────────────────────────┐                    ┌─────────────────────────┐
│    Basic Activity.java   │                    │       Fragment.java      │
├─────────────────────────┤                    ├─────────────────────────┤
│  +fragment.java          │                    │  +activitymain.xml       │
│                          │                    │  +activityhome.xml       │
│                          │                    │  +fragment.xml           │
└─────────────────────────┘                    └─────────────────────────┘
```
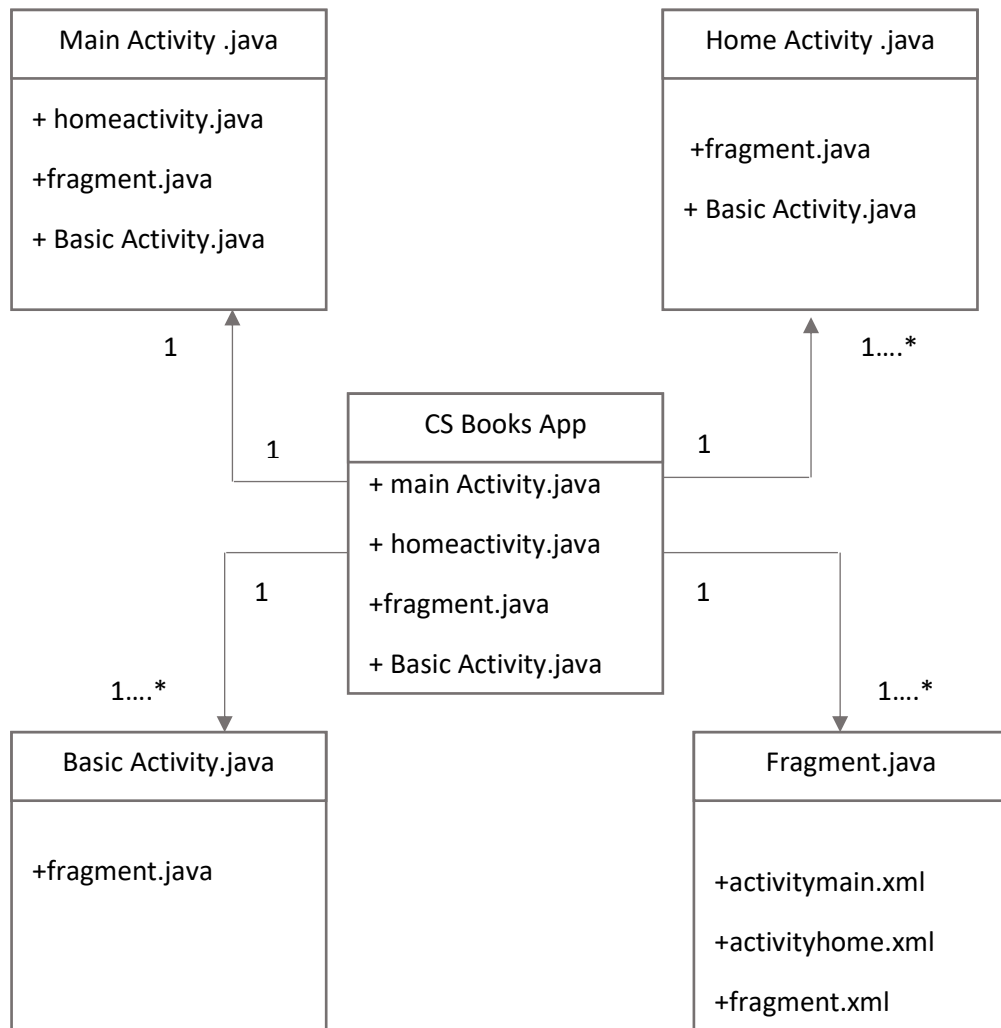
E. Deployment Diagram

Conclusion

The various methods I implemented for the development of application were described. Finally, there are brief description on techniques I have used, the UML diagrams provided in the report show the relationship of components, the code provided describes overall functions & variables usage and the Screen Snaps shows the working of the App.

Bibliography

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