Android Application Development

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What is Android?

- Android is a software package and linux based multitasking operating system for mobile devices such as tablets and smartphones.
- Android is the most widely used mobile operating system.
- The goal of android project is to create a successful real-world product that improves the mobile experience for end users.
- Android provides a flexible and customizable platform for developing applications, enabling developers to create a wide range of mobile experiences.

History of Android

- Android Inc. started the development with initial goal to create an advanced operating system for cameras.
- In 2005, Google acquired Android Inc., and it was announced that Android would be developed as an open-source platform for mobile devices.
- The Open Handset Alliance, a consortium of several hardware, software, and telecommunications companies, was formed to collaborate on the development of Android.
- Thereafter, there have been different versions like Cupcake, Donut, Gingerbread, Ice Cream Sandwich, Oreo, Nougat etc.

Android Platform Architecture

System Applications
(Dialer, Email, Contacts etc.)

Java API Framework
(Content Providers and Managers)

Android Runtime(ART) and Core libraries

Hardware Abstraction Layer(HAL)

Linux Kernel

Components of Android Application

Following are the main components of an Android application:

1.   Activities

2.   Views

3.   Intents

4.   Services

5.   Content Providers

6.   Fragments

7.   AndroidManifest.xml
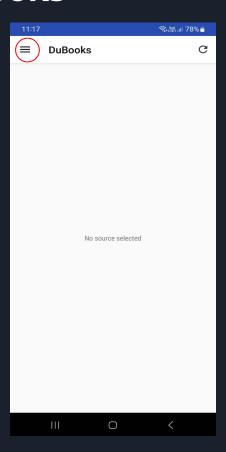
Requirements for Application Development

Some key requirements for Android application development:
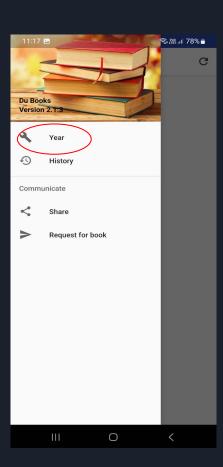
- Java Development Kit (JDK)
- Android Studio
- Programming language like Java, Kotlin, JS (React) etc.
- Android SDK
- Emulator or Phone

Applications Developed

1. DuBooks
- Language used : Java
- Database : SQLite
- Number of Activities: 4
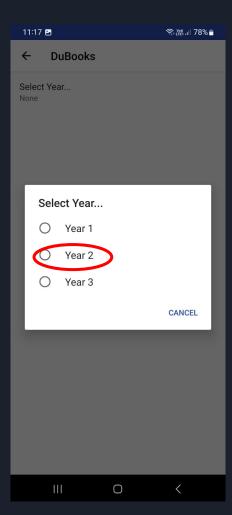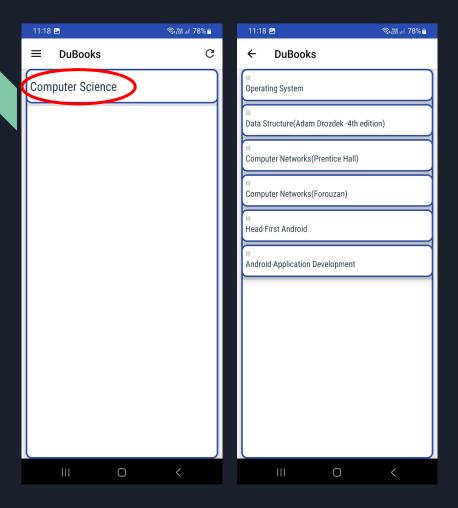- Content is read from Github and then is parsed as JSON.

DuBooks

- Setting Year Preference

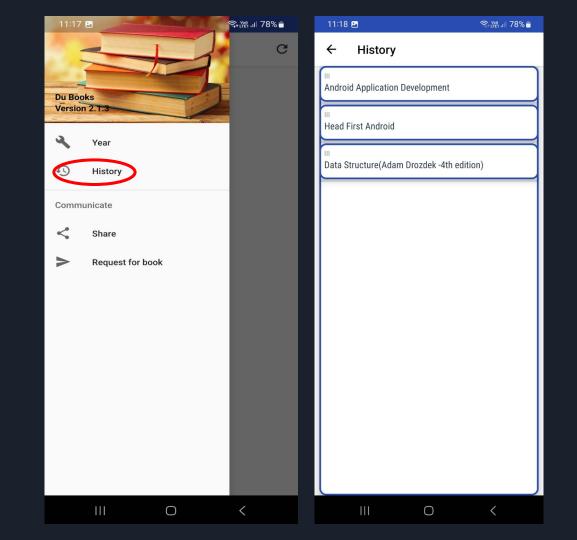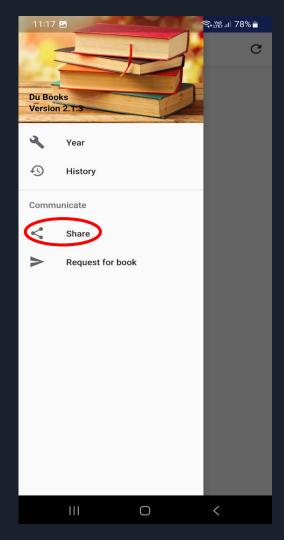Preferences refer to a way of storing and retrieving user settings or configuration options within an application.

Once the user select Year preference and goes back to Main Activity it will read the JSON object from Github
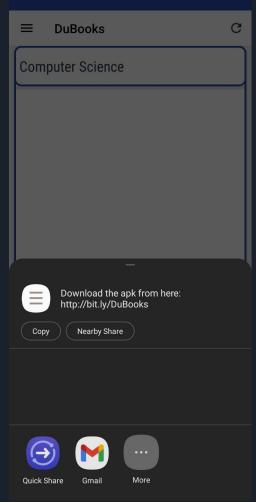
https://raw.githubusercontent.com/user7797/DuBooks/master/year_two.json

```
{
  "year": "Year 2",
  "mainlist": [
    {
      "course": "Computer Science",
      "list": [
        {
          "semester": "III",
          "subject": "Operating System",
          "link": "https://drive.google.com/open?id=1RB-YrrAr2OVTopMgeM0oTpPK4W-KFf0c"
        },
        {
          "semester":"III",
          "subject":"Data Structure(Adam Drozdek -4th edition)",
          "link":"https://drive.google.com/open?id=15TLaOH9o1catlJCrsJ65RjmXuSeLL8su"
        },
        {
          "semester": "III",
          "subject": "Computer Networks(Prentice Hall)",
          "link": "https://drive.google.com/open?id=1kE31HaBZ11HlZsNrYrbwfnihDcahXIV5"
        },
        {
          "semester":"III",
          "subject":"Computer Networks(Forouzan)",
          "link":"https://drive.google.com/open?id=1S3TgTlhmpu7lgxi6KyjhpYxdl-9v4IuD"
        },
        {
          "semester": "III",
          "subject": "Head First Android",
          "link": "https://drive.google.com/open?id=1-OTGxvQhFTQIAEmC9DlZA_UpWBIVYjRP"
        },
        {
          "semester": "III",
          "subject": "Android Application Development",
          "link":"https://drive.google.com/open?id=1eYcUqs4miBbIl-6LW5g7Kn8m1EHPq-j8"
        }
      ]
    }
```

- Once user clicks on any book it will be added to history database.
- This will use Content Provider and SQLite database.

2. DuNation

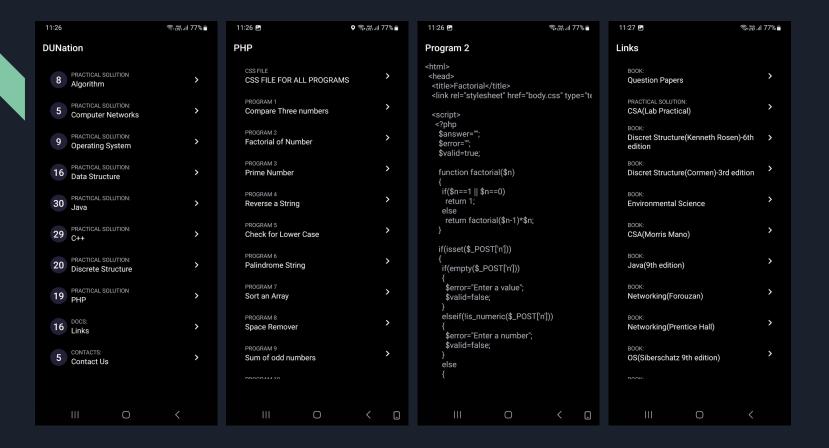- Language used : Java
- Database : Firebase
- Number of Activities: 1
- Content is read from Firebase Real Time Database.

Firebase

- Comprehensive mobile and web application development platform provided by Google.
- It is a BaaS (Backend as a Service).
- Offers Real-time Database using NoSQL.

DUNation

8	PRACTICAL SOLUTION: Algorithm	›
5	PRACTICAL SOLUTION: Computer Networks	›
9	PRACTICAL SOLUTION: Operating System	›
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PHP

CSS FILE CSS FILE FOR ALL PROGRAMS	›
PROGRAM 1 Compare Three numbers	›
PROGRAM 2 Factorial of Number	›
PROGRAM 3 Prime Number	›
PROGRAM 4 Reverse a String	›
PROGRAM 5 Check for Lower Case	›
PROGRAM 6 Palindrome String	›
PROGRAM 7 Sort an Array	›
PROGRAM 8 Space Remover	›
PROGRAM 9 Sum of odd numbers	›
PROGRAM 10	

Program 2

```html
<html>
 <head>
  <title>Factorial</title>
  <link rel="stylesheet" href="body.css" type="te

  <script>
   <?php
    $answer="";
    $error="";
    $valid=true;

    function factorial($n)
    {
     if($n==1 || $n==0)
      return 1;
     else
      return factorial($n-1)*$n;
    }

    if(isset($_POST['n']))
    {
     if(empty($_POST['n']))
     {
      $error="Enter a value";
      $valid=false;
     }
     elseif(!is_numeric($_POST['n']))
     {
      $error="Enter a number";
      $valid=false;
     }
     else
     {
```

Links

BOOK: Question Papers	›
PRACTICAL SOLUTION: CSA(Lab Practical)	›
BOOK: Discret Structure(Kenneth Rosen)-6th edition	›
BOOK: Discret Structure(Cormen)-3rd edition	›
BOOK: Environmental Science	›
BOOK: CSA(Morris Mano)	›
BOOK: Java(9th edition)	›
BOOK: Networking(Forouzan)	›
BOOK: Networking(Prentice Hall)	›
BOOK: OS(Siberschatz 9th edition)	›
BOOK:	

THANK YOU