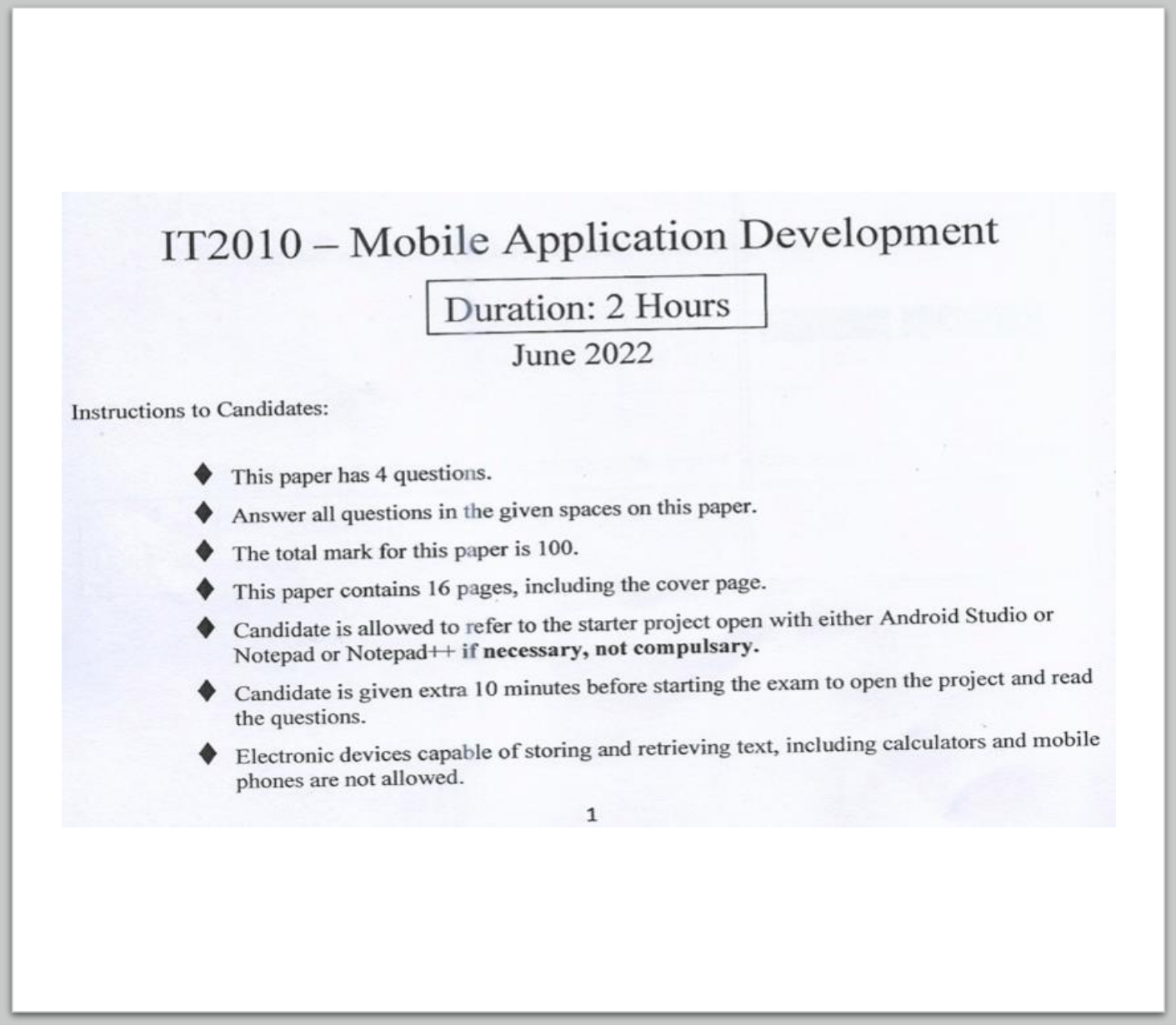
MADD

2022 past paper

Pharmacy App

Paper structure

- Q1 : INSERT - drugs
- Q2 : VIEW/SEARCH -search
- Q3 : INSERT/UPDATE -order
- Q4 : -payment



IT2010 – Mobile Application Development

Duration: 2 Hours

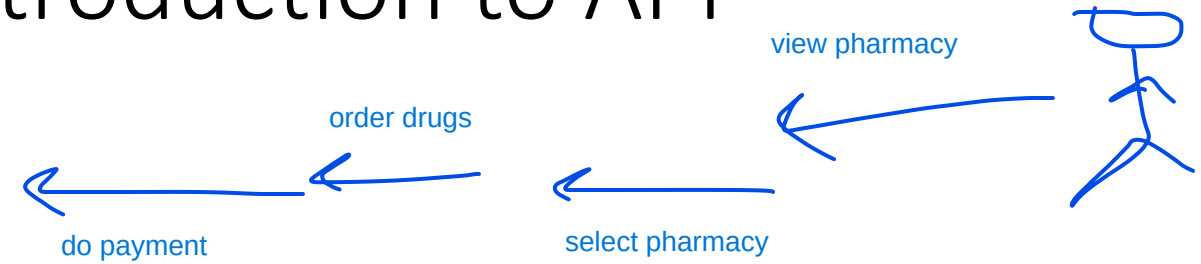
June 2022

Instructions to Candidates:

- This paper has 4 questions.
- Answer all questions in the given spaces on this paper.
- The total mark for this paper is 100.
- This paper contains 16 pages, including the cover page.
- Candidate is allowed to refer to the starter project open with either Android Studio or Notepad or Notepad++ if **necessary, not compulsary.**
- Candidate is given extra 10 minutes before starting the exam to open the project and read the questions.
- Electronic devices capable of storing and retrieving text, including calculators and mobile phones are not allowed.

1

Introduction to APP



The "YouHealth" pharmacy is available with their services online to their customers with an Android mobile app. The mobile app has the following features.

- An Admin can add new pharmacies.
- Customers can View available pharmacies.
- Customers can select a pharmacy from pharmacies list and make an order for drugs.
- Customer can do payments for the order.

The following questions are based on the above scenario. Answer all questions in the given spaces.

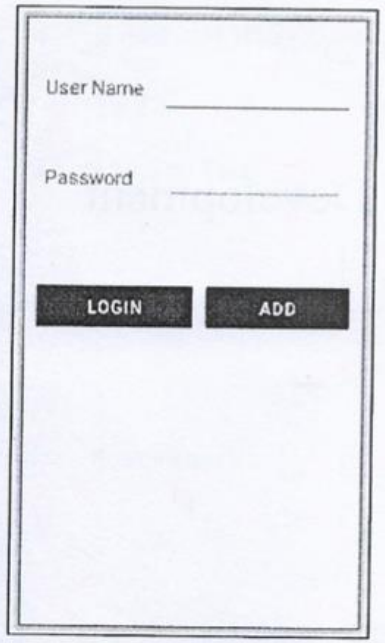
Question 1

Design

Question 01 – LoginActivity **(20 marks)**

The following Activity is designed to do the following.

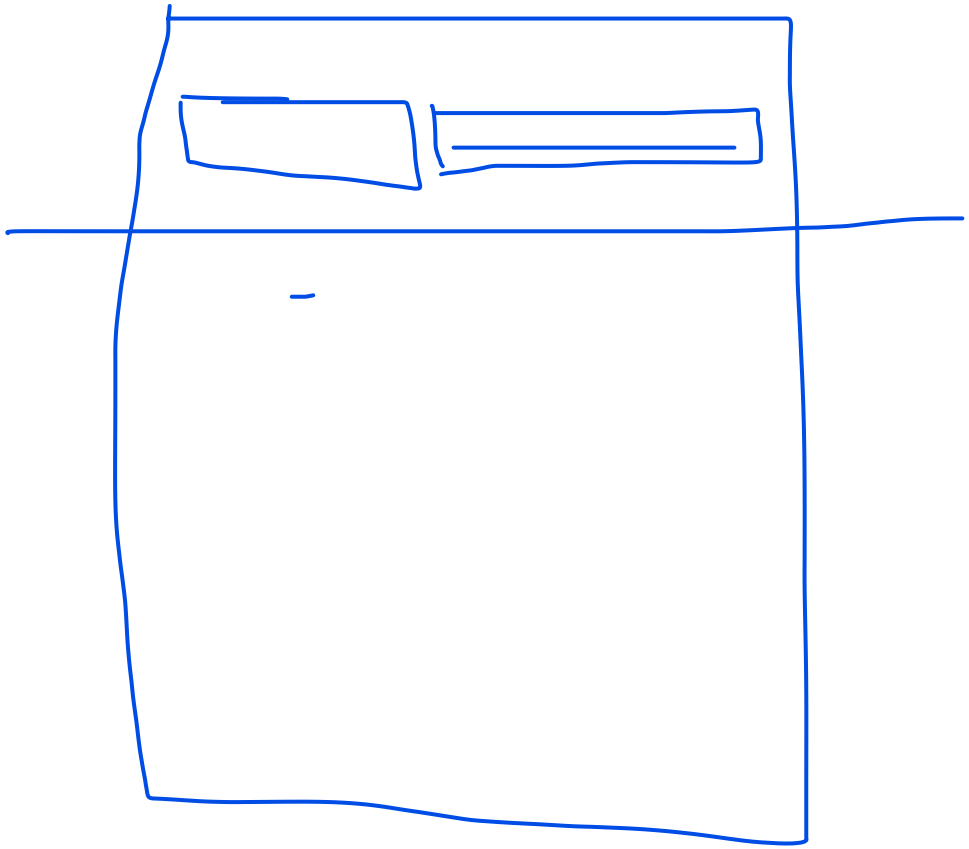
Note: Database related functions are written in Database.java class. addInfo() function in Database.java class is written to add new user and readInfo() function is written to read all users and return Boolean true if the entered user exists in the database.



Database.java
addInfo() = add new user
boolean:readInfo() = read all users

extends SQLiteOpenhelper

a) Username and password should be aligned with their dedicated text fields to be appeared in a same horizontal line. Which constraint do you need to make for this? (2 marks)



Baseline Constraint

b) Once the user enters a username and password and click on Add button, it will add the user if he /she is not available in the database. Fill in the blanks to complete the button click event of Add button.

```
add.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {

        if (TextUtils.isEmpty(uName.getText().toString()) || TextUtils.isEmpty(uPass.getText().toString())) {
            Toast.makeText( context: Login.this,  text: "Please insert name and password!", Toast.LENGTH_LONG).show();
        } else if (db.readInfo(uName.getText().toString(), uPass.getText().toString()) == true) {
            Toast.makeText( context: Login.this,  text: "Data Already Exist!", Toast.LENGTH_LONG).show();
        } else {
            boolean isInserted = db.addInfo(uName.getText().toString(), uPass.getText().toString());

            if (   i.                                    )
                Toast.makeText( context: Login.this,  text: "Data Inserted!", Toast.LENGTH_LONG).show();
                ii.
            } else {
                Toast.makeText( context: Login.this,  text: "Couldn't Inserted!", Toast.LENGTH_LONG).show();
            }
        }
    }
});
```

check whether they are null

user doesn't exist

i. Write the statement to fill in the blank with correct If condition. (2 marks)

isInserted

ii. Write the statements to fill this space marked as (ii) to clear the username and password data fields after successfully inserting them into the database. (2 marks * 2 = 4 marks)

```
uName.setText(null);
uPass.setText(null);
```

c) If the entered details are available in the database and user clicks on the Login button, he/she will be redirected to the "AddNewPharmacy" layout. Complete the following code itself to fulfill the above requirement. (4 marks)

```
signin.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {

        if (TextUtils.isEmpty(uName.getText().toString()) || TextUtils.isEmpty(uPass.getText().toString())) {
            Toast.makeText( context: Login.this,  text: "No Input!", Toast.LENGTH_LONG).show();
        } else {
            ;
            if (db.readInfo(uName.getText().toString(), uPass.getText().toString()) == true) {
                Toast.makeText( context: Login.this,  text: "Exist!", Toast.LENGTH_LONG).show();
                Intent i = new Intent(LoginActivity.this,AddNewPharmacy.class);
                startActivity(i);
            } else {
                Toast.makeText( context: Login.this,  text: "Doesn't Exist!", Toast.LENGTH_LONG).show();
            }
        }
    }
});
```

d) With a later version of the application, assume that you are required to insert an image of the user when adding a new user (Note: The image will be selected from the phone gallery). The image should be added at the center of the screen. As the developer, you are responsible to develop this requirement along with the particular design changes. Assume that the layout is designed on a ConstraintLayout.

i. Briefly explain the design process you will follow to do this. (5 marks)

- Drag login and add button to the bottom of the screen
- Modify constraints of login and add button
- Insert an Image View and Add it's Constraints
- Add a ID to Image View
- Right Click on Image View & center
- [Select vertical and horizontal center

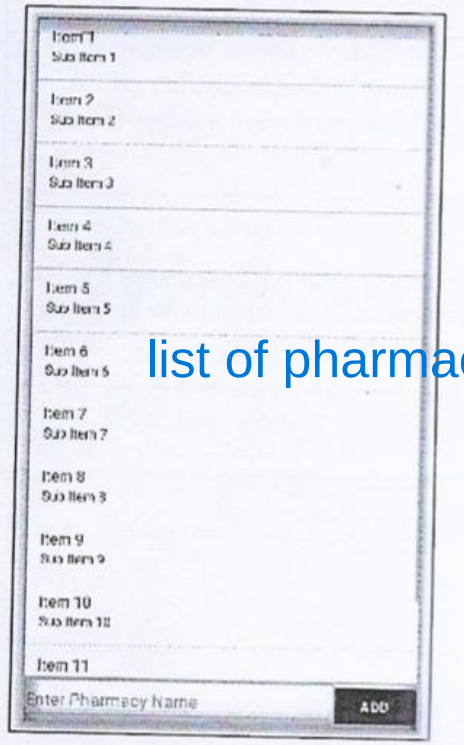
ii. Assume that a sample image should be appeared by default when you demonstrate it to your client. So that you are going to add an image as a project assert and add it to the image view. Write the correct XML code snippet to set the image named as “user.png”. (3 marks)

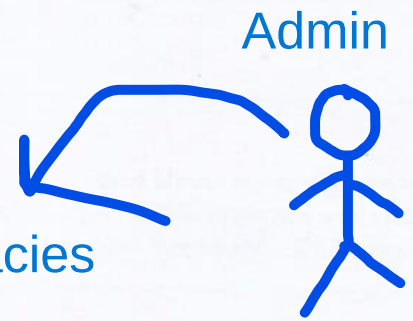
android:src ="@drawable/user"

Question 2

Question 02 –AddNewPharmacyActivity **(15 marks)**

The admin is able to view all available pharmacies and add a new pharmacy name from the following layout. Answer the following questions based on this.





list of pharmacies

add pharmacy

a) What are the different UI elements you have to use to design this layout? (4 marks)

ListView
Linear Layout/Constraint Layout
EditText
Button

b) "Enter Pharmacy Name" should be included in the Strings.xml file as a string resource value. Write the correct code snippet to be added in the Strings.xml file. (2 marks)

<string name ="epname">Enter Pharmacy Name</string>

c) The above mentioned value should be retrieved as the hint appeared as “Enter Pharmacy Name” to the correct UI element attribute. Write the correct XML code snippet in the following. (2 marks)

```
<EditText
android:hint = "@string/epname" />
```

d) All registered pharmacies are saved in Pharmacies table in the database. viewData() function in the server end includes the SQLite query and is written to read all pharmacies and return them as follows.

```
public Cursor viewData(){
    SQLiteDatabase db=this.getReadableDatabase();
    String query= "Select * from "+DB_TABLE;
    Cursor cursor=db.rawQuery(query, selectionArgs: null);

    return cursor;
}
```

DatabaseClass

Select the correct order of code lines to complete the following code snippet which is written to display all pharmacies along with its frontend. (4 marks)

```
userlist=findViewById(R.id.users_list);
```

```
listItem=new ArrayList<>();
private void viewData() {
    Cursor cursor= db.viewData();
    if(cursor.getCount()==0){
        Toast.makeText( context: AddNewPharmacy.this, text: "No Data Found",Toast.LENGTH_LONG).show();
    }
    else{
        while (cursor.moveToNext()){
            listItem./* Question 02 d) -- A */
        }
        adapter=new ArrayAdapter<>( context: this, android.R.layout.simple_list_item_1,listItem);

        /* Question 02 d) -- B */
    }
}
```

object of helper class

for arraylists no insert

```
i.  A - insert(cursor.getString(1));   B - userlist.setAdapter(adapter);
ii. A - add(cursor.getString(1));      B - userlist.setAdapter(adapter);
iii. A - add(cursor.getString(i));     B - userlist.setAdapter(adapter);
iv. A - add(cursor.getString(1));      B - userlist.addtoAdapter(adapter);
v.  A - insert(cursor.getString(1));   B - userlist.addtoAdapter(Adapter);
```

e) The newly added pharmacy name should be inserted to database when click on the add button. Underline the correct code snippet with the space named as A to complete the following button click event. Note that insertData() function is written in the server end with relevant SQLite code as given below.

(3 marks)

```
public boolean insertData(String name){
    SQLiteDatabase db=this.getWritableDatabase();
    ContentValues contentValues=new ContentValues();
    contentValues.put(NAME,name);
    long result=db.insert(DB_TABLE, nullColumnHack: null,contentValues);
    return  result!=-1;
}
```

```
add_data.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String name=add_name.getText().toString();
        if(!name.equals("") && db./* Question 02 e)     A     */       ){
            Toast.makeText( context: AddNewPharmacy.this, text: "Data Added",Toast.LENGTH_LONG).show();
            add_name.setText(null);
            listItem.clear();
            viewData();
        }
        else{
            Toast.makeText( context: AddNewPharmacy.this, text: "No Data Added",Toast.LENGTH_LONG).show();
        }
    }
});
```

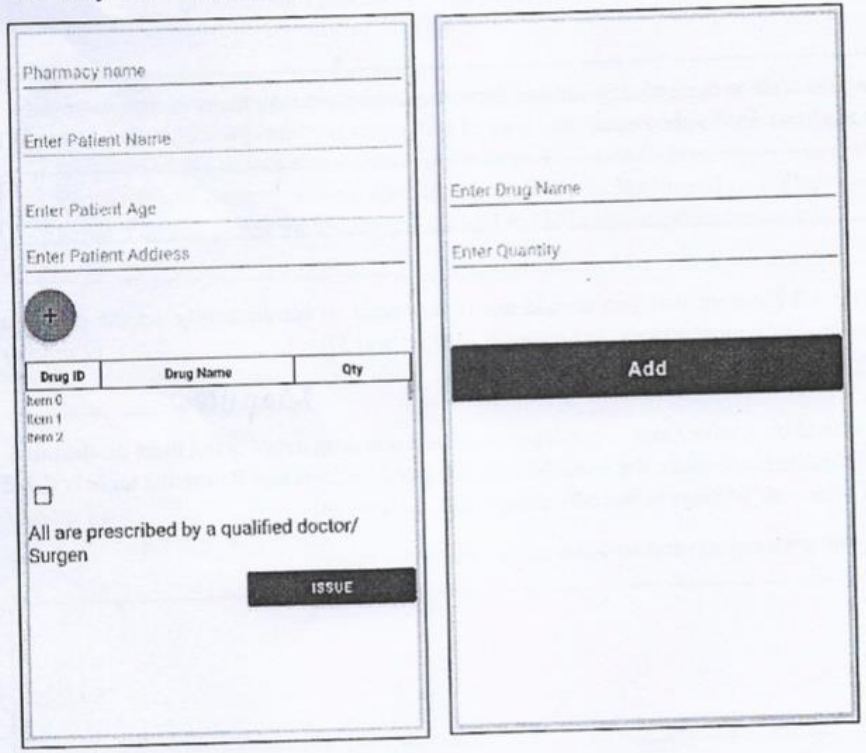
i. insertData(view.name)
ii. insertData(String name)
iii. insertData(name)
iv. insertData(i)
v. insertData(add_name)

Note: When the user selects a pharmacy from the list, he/she will redirect to the PurchaseDrugsActivity.

Question 3

Question 3 – PurchaseDrugsActivity **(30 marks)**

Patients can purchase drugs from the selected pharmacy. The following layout A is designed to order the required drugs with patient details. At each time when the user wants to add a new drug item, he/she must click on the + icon and then he / she will redirect to the layout B (AddDrugs.java) to enter the drug name with the quantity. When that drug is added there, the drugs table appear on layout A will be updated with the newly added drug details.



Layout A *Layout B*

a) Pharmacy Name text field is filled by default with the selected pharmacy name when the user opens layout A. So that it is not allowed to be edited by the users.

i. Write the java code to dynamically restrict that text field not to editable by users. Note: You can create additional variables/ objects by your own whenever necessary. (4 marks)

```
EditText pharname;
pharname = findViewById(R.id.pharname);
pharname.setEnabled(false);
```

ii. Write the java code to receive the pharmacy name coming as an extra message when starting layout A. (4 marks)

Note: You can suggest any tag value and use any variables whenever necessary.

```
Intent i = getIntent();
String username = getStringExtra("Name")
```

iii. Write the java code to dynamically set the above received pharmacy name at the top of the layout A as shown in the above picture. (3 marks)

```
pharname.setText(username);
```

iv. What is the UI Element that you should use if you want to automatically set the patient's location instead of patient address in Layout A in Question 3? (2 marks)

Map View

b) i. The checkbox should be disabled and not checked if at least one drug detail is not there on the table. Write the java code statement to make the checkbox disabled and not checked before the table is filled with records. (Only the code belongs to the checkbox would be enough) (4 marks)

Note: You can define your own objects and variable names when necessary.

```
CheckBox checkbox;
checkbox = findViewById(R.id.checkbox);
checkbox.setEnabled(false);
checkbox.setChecked(false);
```

ii. The Issue button appears in Grey color until the user checks the statement, "All are prescribed by a qualified doctor/surgeon". When the user tick on the checkbox, the Issue button should be changed its color into Blue (color code = Color.BLUE). Write the java code snippet to implement this scenario. (5 marks)

Note: You can define your own objects and variable names when necessary.

```
Button btn = findViewById(R.id.btnIssue);
if(checkbox.isEnabled() && checkbox.isChecked()){
        btn.setBackground(Color.BLUE);
}
```

iii. Assume that the Issue button does not appear to the user until the checkbox is checked. Select the correct code snippet to make the button visible to the user. (Note that UI element ID is btn and Button object created is btnIssue) (3 marks)

I. btn.setVisibility(View.Visible)

II. btnIssue.setVisibility(View.Visible)

III. btnIssue.setVisibility(View.Enable = true)

IV. btn.setVisibility(View.Enable = true)

V. btnIssue.setVisibility(View.Enable = 1)

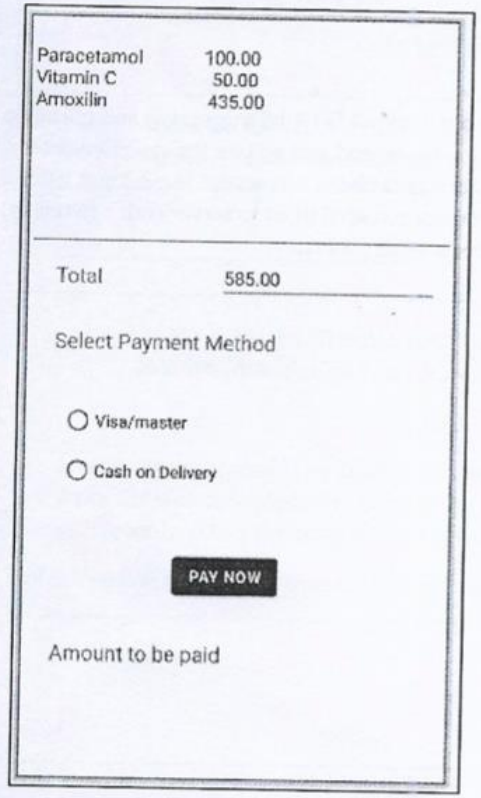
c) When the user adds a new drug and required quantity from layout B (AddDrugs.java) and clicks on Add button, the inserted values should be first sent to the server end and update the drugs inventory. addNewDrug() function is written in server end (dbHelper.java class)) to accept these input values. Write the java code to retrieve the user inputs from the layout and send them to server end. (5 marks)
Note: You can define your own objects and variable names when necessary.

```
EditText et = findViewById(R.id.editTextperson);
EditText et2 = findViewById(R.id.editTextperson2);

DBHelper db = new DBHelper():

db.addNewDrugs(et.getText().toString(),Integer.parseInt(et2.getText().toString());
```

Question 4

Question 4 – PaymentsActivity **(30 marks)**

a) Assume that the purchased drugs along with the quantity will be saved in the database with price for each item in Purchase table. Write the java code to retrieve the content added at the moment **from the database and display them** as a table as displayed on the picture given below with the total. Explain in your words when necessary. (12 marks)



```
// Server end
```

```
// Frontend
```

b) Users are given two options to be paid the amount either by a card payment or as Cash on Delivery payment. If the user selects Card payment option, he/she will be given an 5% offer.

Write the java code to calculate the discounted total according to the selected card type and display the final amount to be paid on the text field and make its font color as Red. (color code = Color.RED) (8 marks)

c) Briefly explain what have already applied or/and how you can apply your knowledge on Mobile UI design principles to this layout with examples to improve the user experience. (5 marks)

d) Write 3 functional test cases and 2 unit test cases to regarding this payment layout. (5 marks)

e) Briefly explain the usage of following UI elements. (1*5=5 marks)

i. RadioGroup –

ii. E-mail –

iii. Multiline Text –

iv. Card View –

v. SearchView -