**National University of Computer and Emerging Sciences, Lahore Campus**

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|---|---|---|---|
| **Course:** | **Software for Mobile Devices** | **Course Code:** | **CS-440** |
| **Program:** | **BS (Computer Science)** | **Semester:** | **Fall 2019** |
| **Duration:** | **60 Minutes** | **Total Marks:** | **30** |
| **Paper Date:** | **24-Sep-19** | **Weight** | **12.5%** |
| **Section:** | **A, B & C** | **Page(s):** | **6** |
| **Exam:** | **Midterm-I** | **Reg. No.** | |

**Instruction/Notes:** *Please solve the exam on the paper. No answer sheets to be attached*
*Students are allowed a double-sided **single** page cheat sheet.*
*While writing code, make best effort to write correct and relevant code only. Minor syntactic errors are acceptable and will be ignored during marking but overall concept and approach must be correct.*

**☺ Trust yourself, you know more than you think you do! Good Luck! ☺**

## Question 1 (10 points)

**Answer the following questions**

**1 – What is the screen density (dpi or ppi), density bucket and scale factor of the device (for example Nokia 6) which has the following hardware configuration (4 points)**

- **1080px (width) x 2160px (height) (screen resolution)**
- **Screen size: 6.0 inches**

**To find: Screen Density, scale factor and density bucket (ldpi, mdpi, hdpi,xhdpi,xxhdpi,xxxhdpi) (write each step & formula)**

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**2 – What is localization and how its handled for each language? Also give examples of 3 languages. (3 points)**

**3 – Designer gives you an image of 312px x 312px (width x height) on xxxhpdi, what will be the image's resolution on xxhdpi density bucket? (write each step) (3 points)**

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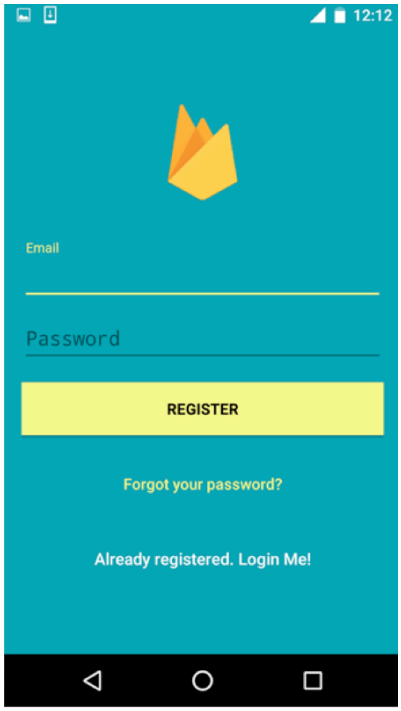
**Question 2** **(20 points)**

**A) Code the following screen using any layout or any approach (declarative or programmatic). (10)**




**Note: Don't hard code values and colors. Use references. No need to make values in strings.xml or colors.xml. Just directly use references. Use attributes margins and padding where necessary.**

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**B) When user clicks the register button values should be pass on to the next class (LoginModel.java) *from* your MainActivity.java. Check in the model that if email is : abc@abc.com and password is: 1234 then call a function showMessage(string str) in your MainActivity.java from the LoginModel.java with a success or failure message.**

**Also show a toast in the showMessage(String str) function in your main activity. Use interface communication for communication between these two classes. Your interface has only 1 method which is showMessage(String str); (10 points)**

**Interface Code (IMessage):**

```
Void showMessage(String str);
```

```
class MainActivity extends Activity ?{        class LoginModel ? {

                                                    void validate(String email, String pass){
private void registerButtonClicked(){

}                                                   }

//write remaining methods or codes                  //write remaining methods or codes
```

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**MainActivity.java** | **LoginModel.java**