BIRZEIT UNIVERSITY
Electrical and Computer Engineering Department
ENCS5150 – Advanced Computer Systems Engineering Laboratory

Spring Semester – 2022/2023

Submission Deadline: July 2, 2023 at 23:59
Team Work: Teams of up to three students
Total Points: **150**; 40% out of the final grade

Project Title: Android Mobile Application for Training Center

Project Description:

In this project, you will develop an android application to help a training center to manage course offering, registration, and admission process. This center offers short training courses in different subjects, such as, java programming, C++ programming, python, AI, project management, etc. There are three different types (roles) of users of this application, (1) center admin (2) trainee and (3) instructor. The application should support any number of users of each type. It allows the three users to signup, sign in, and logout. When the application starts, it should pull the most recently added five courses available for registration from the database.

1. **Admin user can do the following:**
   a. Create a new course with the following information (auto-generated course number, course title, course main topics, prerequisites, photo, etc.)
   b. Edit or remove an existing course
   c. Make a course available for registration. In this case, the admin needs to provide the following information (instructor name, registration deadline, course start date, course schedule, and venue). The registration closes automatically on the course registration deadline
   d. View the students of any course.
   e. Decide if an applicant is accepted or rejected.
   f. View the profiles of all instructors and trainees users
   g. View the previous offerings of any course. This includes course number, course title, date, time, number of students, venue, and the instructor name.

2. **Trainee (Student) can do the following**
   a. Apply for courses. The trainee can apply for the course when the course is available for registration and when the student has already completed the prerequisites of the course.
   b. Search and view courses. Only the courses available for registration appear in the search results
   c. View the history of courses conducted in the center. The list of courses is displayed starting from the latest one.
   d. Receive notifications on the decision taken regarding the registered courses.
   e. Receive a notification as a reminder on the start date of the course
   f. Withdraw registration
   g. View the courses he or she studies with the center.

3. **The instructor can do the following**
   a. View the previous courses he or she taught
   b. View his or her current schedule
   c. View the list of students of each course he or she currently teaches or previously taught.

The application should have the following functionalities:

4. **Signup, Sign in, and Logout [30 points]**

   This layout should have a "Sign in" and "Sign Up" buttons.

   a. **[10 points]** In the main page (first page), the user can enter his or her e-mail address and password that are registered in the database to sign in. This layout must have a check box called "remember me" which will save the email in shared preferences, so that next time the user does not need to re-type the email address.

   b. **[15 points]** The "Sign Up" button redirects the user to another form where he or she chooses the user role. In other words, Admin, Trainee, and Instructor. Each user type has a different signup page.

The following required fields are common among the three signup forms

   • **Email address**. Must be in a correct email format. It is the primary key of the user.
   • **First name**. Minimum 3 characters and maximum 20 characters.
   • **Last name**. Minimum 3 characters and maximum 20 characters.
   • **Password**. Minimum 8 characters and maximum 15 characters. It must contain at least one number, one lowercase letter, and one uppercase letter.
   • **Confirm password** field.
   • **Personal photo**

   c. No more fields are required for the admin
   d. For the trainee, you need to add: mobile number and address.
   e. For the instructor, you need to add: mobile number, address, specialization, degree (BSc, MSc, PhD), and the list of courses he or she can teach

If all required fields in the sign-up form are filled with valid data, then and only then the user can be registered. Otherwise, an error message is displayed (toast message), and the missing or invalid fields are colored in red.

5. **Home layout**

   This layout should be a Navigation Drawer Activity. The navigation bar should have the following functionality. Each user type will have a different layout view

   I. **Admin View**
   a. **[5 points]** Create a new course
   b. **[5 points]** Edit or delete an existing course
   c. **[5 points]** Make a course available for registration
   d. **[5 points]** Take decisions regarding the registration applications (Accept/Reject)
   e. **[5 points]** View the profiles of students and instructors
   f. **[5 points]** View the offering history of a certain course

II. **Trainee (Student) View**
   a. **[5 points]:** Receive a notification when a new course is made available for registration
   b. **[5 points]:** Search courses
   c. **[5 points]:** View the details of the selected course
   d. **[5 points]:** Enroll in the selected course. There should be no time conflict with other courses the trainee enrolled in. Moreover, the student should have already completed the prerequisites of this course.
   e. **[5 points]:** Receive notification when a decision is made regarding any course registration application
   f. **[5 points]:** View all courses he or she has already studied in the center
   g. **[5 points]:** View the whole courses history in the center
   g. **[5 points]** View and edit his or her profile
   h. **[5 points]** Receive notification if there are any changes on any course he or she enrolled in.

III. **Instructor View**

   a. **[5 points]** View the courses previously taught
   b. **[5 points]** View his or her current schedule
   c. **[5 points]** View the list of students in any course under his or her name
   d. **[5 points]** View and edit his or her profile

Design [30 Points]:
   - We left the application design for you, we expect a creative design

Remarks:

   - It is recommended to create the design of all activities using **Adobe XD** before starting the project. This will help you better manage your project and implement all the required tasks.

   - To manage the collaboration between you and your partner and to allow us to track what you have contributed to the project, you should create a **private** GitHub repository and use it to manage your project. Before the discussion of the project, you will be asked to share the repository with the instructor.