

Palestine Technical University – Kadoorie College of Engineering and Technology Department of Computer Systems Engineering

Course name:

# Software Engineering

Project title:

DEVELOPING A CENTRALIZED COURSE PORTAL FOR ACADEMIC CENTERS IN PALESTINE

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**Chapter 1:Introduction**

**--in progress**

**Abstract:**

**--at the end of project**

**Chapter 2: The Entity Relationship Data Model**

**2-1-1 Entities:**

To make our database ER diagram simpler to understand, we have divided **the entities** into several functional groups:

* **User Management:** Student, UserAccount, Admin, Teachrer.
* **Course Management**: Course, Center, CourseMaterials, CourseSchedule.
* **User Preference:** CenterFotSchoolStudent, AcademicCenter.
* **Scheduling & Events:** CourseSchedule, ClassRoom, Event.
* **Notifications & Communications:** Notifications ,Phone.
* **Financial Transactions:** Payment.
* **Feedback:** Feedback.

**2-1-2 Entities Description:**

**UserAccount:** Manages login credentials and user profiles. Attributes often include username, password, and user role.

**Admin:** Users with elevated privileges to manage the system. Attributes could include admin ID and access level.

**Teacher:** Instructors responsible for teaching courses. Attributes may include teacher ID, name, and subject expertise.

**Student:** Represents individuals enrolled in the academic center. Holds personal information, academic major, and enrollment status.

**Course:** Contains details of courses offered, including name, associated class rooms, and related materials like syllabus.

**CourseMaterials:** Educational content provided for courses.

**CourseSchedule:** Timetable details for courses- Manages when and where courses are held, detailing the weekly schedule and location.

**Centers:** Details the centers or departments within the academic center, including the courses they offer and a bio for the center.

**CenterForSchoolStudent:** Preferences for students regarding centers..

**AcademicCenter:** Specialized centers focused on academic excellence.

**Notifications:** Sends messages to users, such as reminders or alerts, and tracks whether they have been read.

**Phone:** Contact information for communication.

**Payments:** Handles financial transactions related to course enrollments, including payment amounts and methods.

**Feedback:** User-submitted evaluations and comments.

**2-2 Entities & Attributes:**

1. **UserAccounts**
   * UserID (PK)
   * Username
   * PasswordHash
   * LastLogin
   * Role
   * Email
   * {Phone}
2. **Student**
   * StudentID (PK)
   * FirstName
   * LastName
   * Email
   * PasswordHash
   * {Phone}
   * Date Of Birth
   * Age()
3. **Admin**
   * AdminID (PK)
   * FirstName
   * LastName
   * Email
   * Role
4. **Teacher**

* TeacherID (PK)
* TeacherName
* Email
* Salary
* Qulalificiation
* {Phone}

1. **Center**
   * CenterID (PK)
   * Name
   * Email
   * Bio
   * CoursesTaught
2. **Courses**
   * CourseID (PK)
   * CourseName
   * Credits
   * Description
   * Syllabus
3. **CourseSchedule**
   * ScheduleID (PK)
   * CourseID (FK)
   * DayOfWeek
   * StartTime
   * EndTime
   * Location
4. **CourseMaterials**
   * MaterialID (PK)
   * Title
   * Description
   * FileType
   * UploadDate
5. **Payments**
   * PaymentID (PK)
   * Amount
   * DatePaid
   * PaymentMethod
6. **Notifications**
   * NotificationID (PK)
   * Message
   * DateSent
   * IsRead
7. **Feedback**
   * FeedbackID (PK)
   * Subject
   * Message

**2-3 Relationships:**

* **Student** to **CourseSchedule**: student can be scheduled for many course sessions, and a course schedule can include many students.
* **Student** to **Course**: A student can review multiple courses, and a course can have multiple reviews.
* **Student** to **Course**: students can list multiple course they wish to take, and a courses can be in many students wish list.
* **Payments** to **Student**: Each student has a payment record.
* **Teacher** to **CourseSchedule**: A teacher can teach many course appointments, and a course can be taught by many teachers.
* **UserAccounts** to **Students/Admins**/**Teacher**: A user account is linked to one subclass which represented by disjoint specialization.
* **Notifications** to **UserAccount**: A user account can receive multiple notifications.
* **Feedback** to **UserAccount**: A user can submit multiple feedback entries.
* **Phone** to **UserAccount**: A user can have multiple phone numbers.
* **Center** to **Course**: A center offers multiple courses.
* **Center** to **UserAccount:** multiple users can visit multiple centers.
* **Center** to **AcademicCenter\ CenterForSchoolStudent**: A center is linked to one subclass which represented by disjoint specialization.
* **CourseSchedule** to **Courses**: Each course has multiple schedules.
* **CourseSchedule** to **ClassRoom**: A classroom can be used for many course schedules.
* **CourseMaterials** to **Courses**: A course can have multiple materials.

Educational Centers (CenterID ,CenterName, Location, CenterType, Email, Bio)

Course( CourseID, CourseName, CourseStatus , Description)

Center\_Course(CenterID. CourseID)

CorseDetails (Day, Hour ,Year, Semester , CourseID, TeacherID, StudentID, ClassRoomID)

CourseMaterial (Material ID ,Title, File Type, Description, CourseID)

ClassRoom (ClassID,Capacity )

Student (StudentID, StudentName, Email , {Phone}, Date Of Birth, Age())

Student\_Course(StudentID, CourseID, rating, PaymentID)

Teacher (TeacherID ,TeacherName ,Email ,Salary , Qulalificiation, {Phone})

Admin (AdminID , AdminName, Email , Role)

UserAcount (UserID , UserName, Email, { Phone})

UserPhone(UserID,PhoneNumber)

Payment (PaymentID, Amount, Recived Date,)

Notifications (NotificationID ,Message, DateSent, IsRead, UserID)

Feadback(FeadbackID , Message, UserID)

Visit(CenterID, UserAccount)