**Main Classes and Their Responsibilities**

**1. User**

* **Attributes:**
* **user ID int**
* **first\_name str**
* **last\_name str**
* **date of birth Date**
* **phone num str**
* **Email str**
* **Password str**
* **Role str (Admin/Trainer/Trainee)**
* **Relationships:**
  + **Parent of: Admin, Trainer, Trainee (Inheritance)**

**Methods:**

**Login (email, password)**

**Logout ()**

* **Sign Up (first**
* **\_name, last\_name, date of birth, phone num ,email, password, role (Admin/Trainer/Trainee))**

**Display Information (user\_id){full\_name,phone\_num,DOF,email,role }**

**Reset Password (user\_id)**

**receive notification(user\_id)**

**2. Admin *(inherits from User)***

* **Responsibilities**:
  + Manage users (create/update/delete)
  + Create/update/delete courses and sessions And Trainings
  + Assign trainers
  + Monitor attendance
  + Generate reports & certificates

**3. Trainer *(inherits from User)***

* **Responsibilities:**
  + **Upload and manage training materials**
  + **Provide feedback to trainees**
  + **Create assessments**
  + **Track session performance**

4. Trainee *(inherits from User)*

* Responsibilities:
  + Enroll in Trainings
  + View and complete materials/assessments
  + Give feedback
  + View/download certificates
* Trining :

trainingID: int

title: str

description: str

createdBy: str

createdDate: date

status: str # e.g. Active, Completed, Archived , hidden

courses: List[Course]

enrolledTrainees: List[Trainee]

5. Course

* Attributes: course ID, title, description, created By (Admin), assigned Trainer , trining Id
* Relationships:
  + Has many: Session, Training Material, Assessment
  + Assigned to: Trainer
  + Enrolled by: many Trainees

**6. Session**

* **Attributes: session ID, course ID, start Time, end Time, status , completed , notCompleted**
* **Relationships:**
  + **Belongs to: Course**
  + **Has many: Attendance, Notification**

7. TrainingMaterial

* Attributes: materialID, title, fileURL, uploadedBy (Trainer),date of upload
* Relationships:
  + Belongs to: Course

9. Attendance

* Attributes: sessionID, traineeID, status (present/absent), timestamp
* Relationships:
  + Linked to: Session, Trainee

**10. Certificate**

* **Attributes**: certificateID, traineeID, courseID, dateIssued, file
* **Relationships**:
  + Issued to: Trainee
  + For: Training

11. Feedback

* Attributes: feedbackID, traineeID, courseID, rating, comments
* Relationships:
  + Given by: Trainee
  + For: Course
  + Viewed by: Trainer, Admin

### **UML Class Relationships Summary**

* **User ⟶ Admin, Trainer, Trainee (Inheritance)**
* **Admin creates and manages Course, Session, and assigns Trainer**
* **Trainer uploads TrainingMaterial, creates Assessment, gives Feedback**
* **Trainee enrolls in Course, attends Session, completes Assessment, receives Certificate**
* **Session tracks Attendance and sends Notification**
* **Course includes TrainingMaterial, Session, Assessment, and receives Feedback**