Assignment 3

Total Marks=30

1. A class has N subjects in total, but each student may register for a different subset of these subjects. This situation can be represented using a 2D non-uniform (jagged) array, where:
   - Each row corresponds to a student.
   - The columns in each row store marks for the subjects that student actually took.
   - Alongside, a *subjectId* array is maintained per student to indicate which subjects those marks correspond to.

   Write a Java program that allows the following operations:
   a. **enterMarks()** → Accept marks of all students along with the subject IDs.
   b. **average(studentId)** → Find the average marks of a given student.
   c. **highestInSubject(subjectId)** → Find the highest mark scored in that subject (only among students who took it).
   d. **display()** → Display all students with their subjects and marks. **[Marks=2+2x4=10]**

2. A gym wants to manage details of its members. Each member has:
   - memberId (int)
   - name (String)
   - plan (String → "Monthly", "Quarterly", "Yearly")
   - fee (double)

   Write a **Java program** that supports the following menu options. First create an array of objects by repeatedly calling the addMember() functions. Note that your *Driver* class should be different than the *Member* class. UML diagram depicting the data members and functions of the *Member* class is given in the next page.
   a. **addMember()** → Create a new Member object and store it in an array.
   b. **searchMemberById()** → Search and display details of a member given their memberId.
   c. **displayAll()** → Display all registered members.
   d. **totalFeeCollected()** → Calculate and display the total fee collected from all members.

e. **exit()** → Exit program. **[Marks = Class Creation (5)+Menu Creation (5)+ Functions (2x5)=20]**

Member
-memberId : int -name: String -plan: String -fee: double
<<constructor>>Member(memberId:int) + Member(id:int, n:String, p:String, f:double) + getMemberId() : int + getName() : String + getPlan() : String + getFee() : double + display() : void