Practical Assessment

Description

A gym centre requests for an application to handle two types of members: Platinum member or Silver member. Each membership is represented by a member id (`String type`) and a name (`String type`). In addition, for Platinum members, they need to pay monthly fee and only allow to visit the gym centre for up to 12 times per month. Their monthly fee is recorded whereas the Silver members only need to pay annual fee once a year and number of visits per month are unlimited. So the annual fee and number of visits per year are recorded instead.

Define and implement a **hierarchy of classes** to represent Member, Platinum members and Silver members. You must include:

(i) data items or instance variables (for all the classes)
(ii) properties for all data items with accessor or getter only.
(iii) constructors to initialize ALL the data in the classes (for all the classes)
(iv) an abstract method in the parent/base class called `feePerVisit( )` which will return the fee for every single visit to the gym centre. For Platinum member, the fee is the monthly fee divided by 12, and for the Silver members, the fee is the annual fees divided by the number of visits per year.
(v) Override the toString method in all classes in order to display the detail information of each member.

To test the classes, you are required to provide the test program as described below:

- Write a Console-based application to create the `Member` objects that represents the member objects in **Table 1** and store them in an Array or `ArrayList` of `Member` objects.

No.	***Type***	***MemberID***	***Name***	***Monthly Fee (RM)***	***Annual Fee (RM)***	***Visit Per Year***
1	PlatinumMember	P1901	Peter Lai	220	-	-
2	Silver Member	S1625	Jimmy Lim	-	3000	50
3	PlatinumMember	P1815	Mary Kuok	220	-	-
4	SilverMember	S1318	John Lau	-	3000	99
5	SilverMember	S1709	Jay Chow	-	3000	250

Table 1

- Provide a menu with the following options:
  - **List** – Displays the type, member id, name and fee per visit for each member object; displays monthly fee for Platinum member and displays annual fee fees and number of visit per year for Silver member. Each display should contain an appropriate heading and column captions.
    (Note: You must use toString method)
  - **Highest** – Finds and displays all details of the member with highest fee per visit charges.
  - **Lowest** – Finds and displays all details of the member with lowest fee per visit charges.
  - **Average** – Calculates and displays average fee per visit charges of all members.
  - **Search** – Finds a member's name based on the member id given.
  - **Exit** – Close and exit the application