Startdocument for Contribution application

Startdocument of **Monique Sabong**. Student number **5000742**.

Problem Description

When determining the annual contribution for a sports association, we have the following rules: Senior members pay €150, junior members €75. You're a senior member if you're 18 years or older. Playing members have to pay €45 bond contribution extra. For members who have been a member for more than 7 years will get a 5% discount.

You need to develop a program for each member by name, date of birth and date of entry into membership (format dd-mm-yyyy) also if the member is a playing or non-playing member. For each member, the contributions should be calculated and displayed. Furthermore, cumulatively, the total membership fee should be displayed, the average number of years of membership and displaying the youngest member gives.

Input & Output

In this section the in- and output of the application will be described.

Input

In the table below all the input (that the user has to input in order to make the application work) are described.

Case	Type	Conditions
Name of Sportclub	`String`	not empty
Name Of Member	`String`	not empty
DOB of Member	`DateTime`	dd-mm-yyyy
Member since date	`dd:mm:yyyy`	not empty
PlayingMember	`boolean`	not empty
Member ID	`int`	not empty

Output

Case	Type
The cumulative total contribution price	`float`
Youngest member at the sportclub	`String`
The average number of membership years	`int`
Contribution price for a member	`float`

Calculations

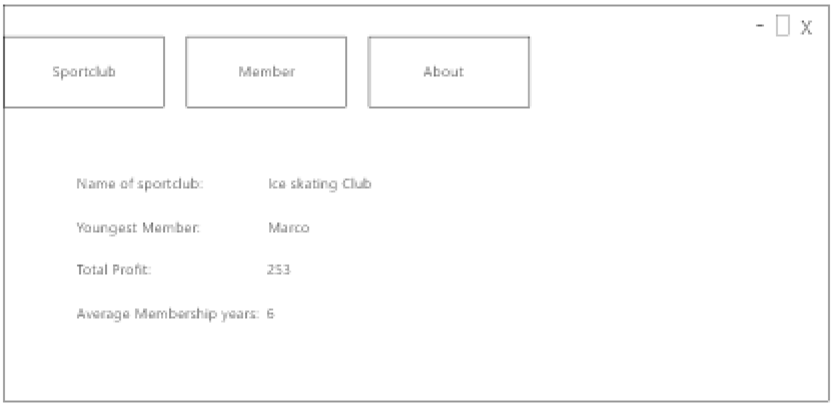
Case	Calculation
Total contribution of 1 member	The sum of all the contribution prices of 1 member
Total contribution of all the members in the sportclub	The sum of all the contribution prices of all the members
The 5% discount if a member has a membership longer than 7 years	0.05 x the total contribution price from a member

Remarks

- Input will be validated.
- Only the Main class will contain `System.out.println`
- Unit Tests will be provided.

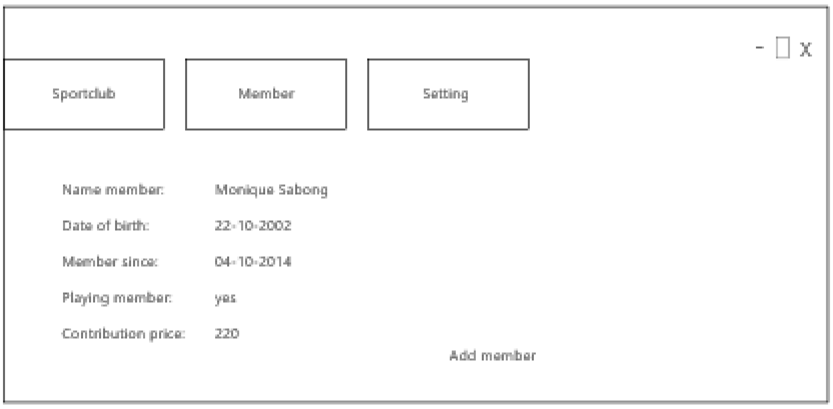
Lay-out of GUI

Sportclub page



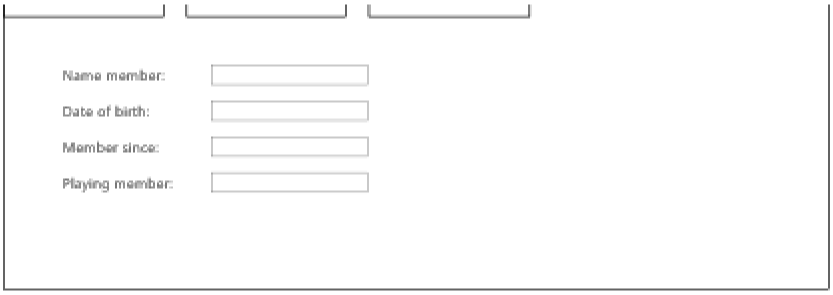
Name of sportclub: Ice skating Club
Youngest Member: Marco
Total Profit: 253
Average Membership years: 6

Member page

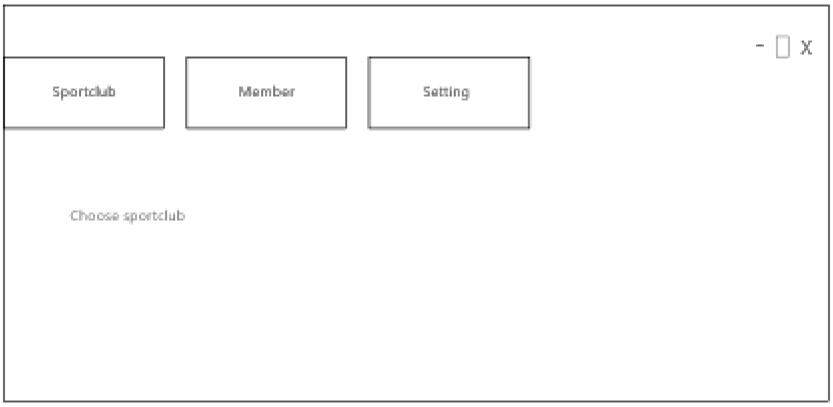


Name member: Monique Sabong
Date of birth: 22-10-2002
Member since: 04-10-2014
Playing member: yes
Contribution price: 220

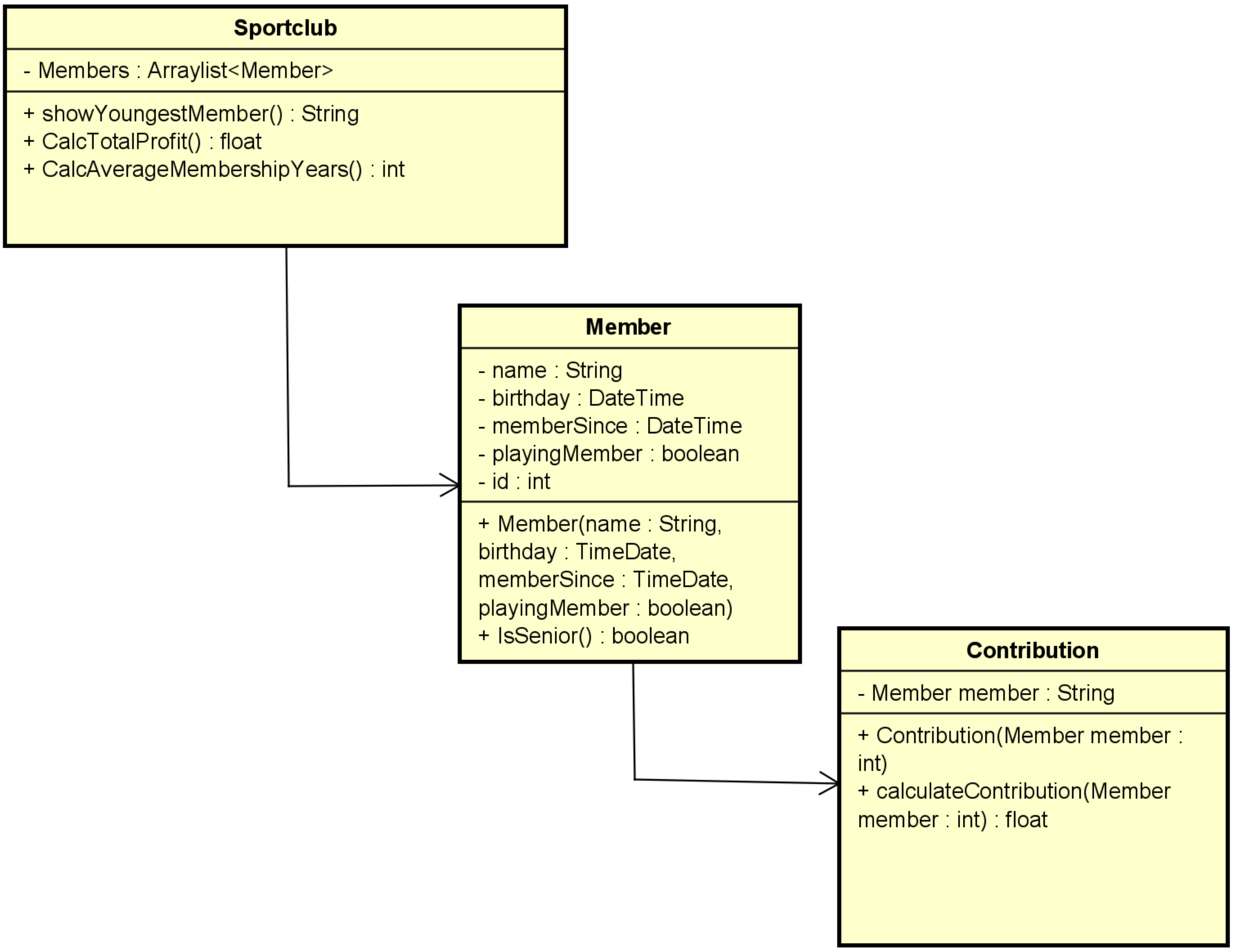
Add member



Settings page



Class Diagram


Sportclub
- Members : Arraylist<Member>
+ showYoungestMember() : String
+ CalcTotalProfit() : float
+ CalcAverageMembershipYears() : int
Member
- name : String
- birthday : DateTime
- memberSince : DateTime
- playingMember : boolean
- id : int
+ Member(name : String, birthday : TimeDate, memberSince : TimeDate, playingMember : boolean)
+ IsSenior() : boolean
Contribution
- Member member : String
+ Contribution(Member member : int)
+ calculateContribution(Member member : int) : float

Testplan

In this section the testcases will be described to test the application.

Test Data

In the following table you'll find all the data that is needed for testing.

Member

ID	Input	Code
`Monique1`	name: Monique1 date of birth: 22-09-2006 member since: 05-11-2020 playing member: TRUE	`new Member("Monique1", "22-09-2006", "05-11-2020", TRUE)`

ID	Input	Code
`Monique2`	name: Monique2 date of birth: 22-10-2006 member since: 05-11-2020 playing member: TRUE	`new Member("Monique2", "22-10-2006", "05-11-2020", FALSE)`
`Monique3`	name: Monique3 date of birth: 22-10-2006 member since: 05-11-2014 playing member: TRUE	`new Member("Monique3", "22-10-2006", "05-11-2014", FALSE)`
`Henry1`	name: Henry1 date of birth: 23-05-2002 member since: 11-06-2020 playing member: TRUE	`new Member("Henry1", "23-05-2002", "11-06-2020", TRUE)`
`Henry2`	name: Henry2 date of birth: 23-05-2002 member since: 11-06-2020 playing member: TRUE	`new Member("Henry2", "23-05-2002", "11-06-2020", FALSE)`
`Henry3`	name: Henry3 date of birth: 23-05-2002 member since: 11-06-2014 playing member: TRUE	`new Member("Henry3", "23-05-2002", "11-06-2014", FALSE)`

Sportclub

ID	Input	Code
`Ice skating club`	name: Ice skating club	`new Sportclub("Ice skating club")`

Test Cases

In this section the testcases will be described. Every test case should be executed with the test data as starting point.

#1 Checking if the member is a senior or not

Testing the method to check if a member is 18 years or older.

Step	Input	Action	Expected output
1	`Monique1`	`isSenior()`	FALSE
2	`Henry1`	`isSenior()`	TRUE

#2 Getting the contribution price for one member

Testing the method to calculate the total contribution price of a member.

Step	Input	Action	Expected output
1	`Monique1`	`calculateContribution(Monique1)`	120
2	`Monique2`	`calculateContribution(Monique2)`)	75
3	`Monique3`	`calculateContribution(Monique3)`	114
4	`Henry1`	`calculateContribution(Henry1)`	195
5	`Henry2`	`calculateContribution(Henry2)`	150
6	`Henry3`	`calculateContribution(Henry3)`	142,50

#3 Getting the total contribution price of a sportclub

Testing the method to calculate the total contribution price of all the members in a club.

Step	Input	Action	Expected output
1	`Ice skating club`	`CalcTotalContribution(Ice skating club)`	753,75

#4 Getting the youngest member of the sportclub

Testing the method to show the youngest member of the sportclub.

Step	Input	Action	Expected output
1	`Members`	`showYoungestMember(Arraylist<Member>)`	Monique1

#5 Getting the average amount of membership years

Testing the method of calculating the average amount of membership years.

Step	Input	Action	Expected output
1	`Members`	`calAverageMembershipYears(ArrayList<Member>)`	6 years

User testplan

input	Expected output

input				**Expected output**	
Step	Birthday	Start membership date	playing member	Contribution price	Youngest member
1	22-09-2006	05-11-2020	FALSE	75	Youngest member
2	22-10-2006	05-11-2020	TRUE	120	-
3	22-10-2006	05-11-2014	TRUE	114	-
4	22-09-2002	05-11-2020	FALSE	150	-
5	22-09-2002	05-11-2020	TRUE	195	-
6	22-09-2002	05-11-2014	FALSE	142,50	-
Expected output		Average membership years is: 6 years		Total Contribution: 753,75	