

DSW03A1

Lab Exercise 1
Weeks 01 2022



Instructions

Work through this Lab Exercise during your **Practical Sessions** for Weeks 01 of 2022. This exercise is a recap of your programming knowledge.

Background (Console Application: Basic Programming Concepts)

You are contracted by a newly formed medical aid scheme to develop an application which calculates monthly premiums for their members. The medical aid scheme is currently using the rates indicated in the **table 1** below.

Monthly Income	Member	Adult	Child *
R 0 - R 7 000	R 582	R 476	R 264
R 7 001 - R 12 000	R 868	R 709	R 470
R 12 001 +	R 1 084	R 887	R 586

Table 1- current rates

** Member pays for the first three children only*

Furthermore, premium penalties will be applied to members over the age of 35 years joining for first time. Increase the monthly premium with following percentages base on the number of years after the age of 35 years:

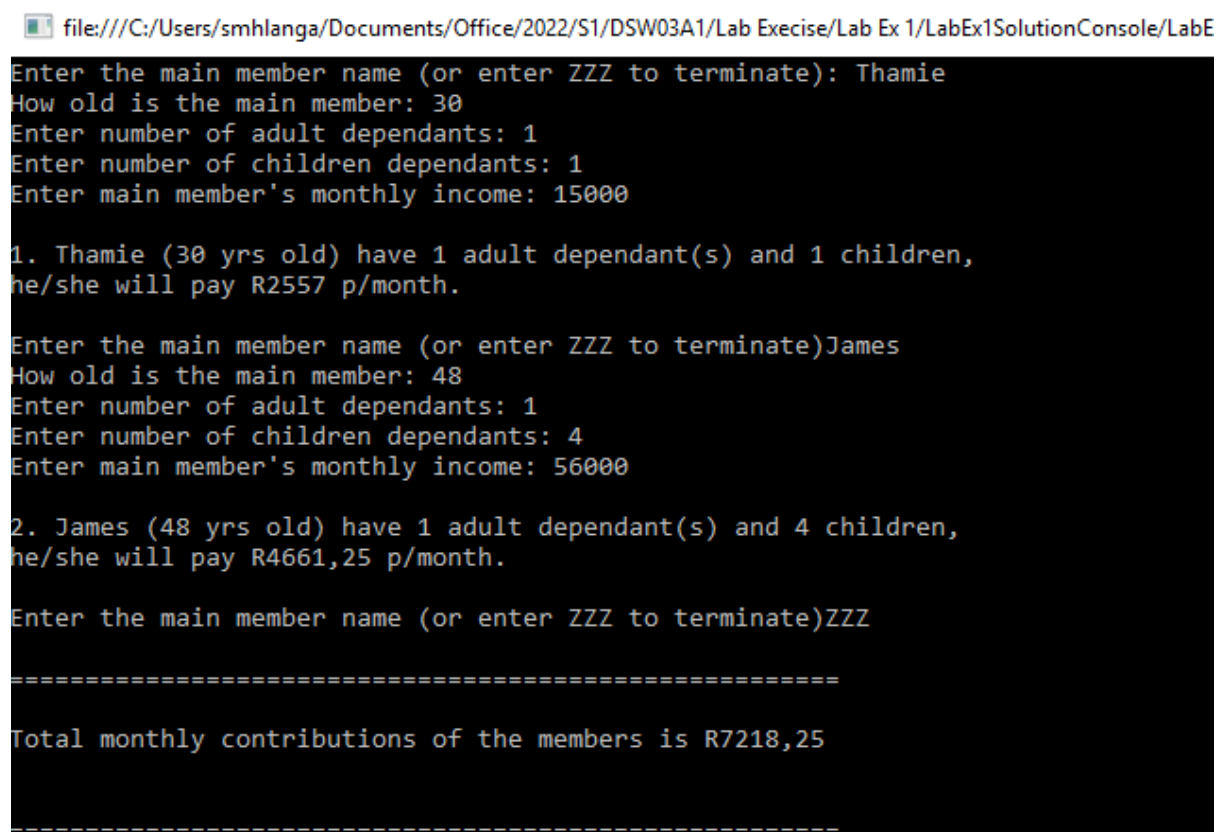
- 1 – 4 years add 5% to the relevant premium
- 5 – 14 years add 25% to the relevant premium
- 15 – 24 years add 50% to the relevant premium
- 25 + years add 75% to the relevant premium

Exercise

Given the following problem statement, write a C# program that includes the following **methods**:

- A function that calculates and return monthly premium. This function must receive the *monthly income*, *number of adult dependants* and *number of child dependants*.
- A function that calculates and return the premium penalties. This function must receive *main member's age* and *monthly premium (without penalties)*.

To test your functions, write the **main function** that will prompt the user to enter, for each member: the *member name*, *age*, the *number of adult dependants*, the *number of child dependants* and *monthly income*. The main function must then use the first function to calculate *monthly premium (excl. penalties)*, and the second function to calculate premium penalties. The returned *monthly premium* and *premium penalties* must be added before calculating the total monthly contributions of all the members. Provide data of different available members until a sentinel is used to stop. Display all output in the main function, see **Figure 1** below for sample output.



```
file:///C:/Users/smhlanga/Documents/Office/2022/S1/DSW03A1/Lab Exercise/Lab Ex 1/LabEx1SolutionConsole/LabE
Enter the main member name (or enter ZZZ to terminate): Thame
How old is the main member: 30
Enter number of adult dependants: 1
Enter number of children dependants: 1
Enter main member's monthly income: 15000

1. Thame (30 yrs old) have 1 adult dependant(s) and 1 children,
he/she will pay R2557 p/month.

Enter the main member name (or enter ZZZ to terminate)James
How old is the main member: 48
Enter number of adult dependants: 1
Enter number of children dependants: 4
Enter main member's monthly income: 56000

2. James (48 yrs old) have 1 adult dependant(s) and 4 children,
he/she will pay R4661,25 p/month.

Enter the main member name (or enter ZZZ to terminate)ZZZ

=====

Total monthly contributions of the members is R7218,25

=====
```

Figure 1

Rubric

Criteria	Max	Mark
The calculate monthly premium method	6	
The calculate monthly premium penalties method	6	
The main() method working	5	
All prompt statements and variable used	4	
Iterators used	4	
TOTAL	25	

== ENDS ==