

Lab#05
Object oriented programming.
11/15/2022

Task#01

Write a class with a function that finds all roots of a quadratic equation.

- a. There should be a constructor that initializes values of all variables.
- b. Data members and the local variables of the member function must have the same name.
- c. Draw class diagram for above program.

Hint: use this pointer.

If determinant > 0,	$\text{root1} = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$ $\text{root2} = \frac{-b - \sqrt{b^2 - 4ac}}{2a}$
If determinant = 0,	$\text{root1} = \text{root2} = \frac{-b}{2a}$
If determinant < 0,	$\text{root1} = \frac{-b}{2a} + i \frac{\sqrt{-(b^2 - 4ac)}}{2a}$ $\text{root2} = \frac{-b}{2a} - i \frac{\sqrt{-(b^2 - 4ac)}}{2a}$

```
Microsoft Visual Studio Debug Console
Three coefficients are :: 4 5 1
Discriminant is greater then zero
x1 = -0.25
x2 = -1
C:\Users\afsah\source\repos\qaurdatic\Debug\qaurdatic.exe (process 19856) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

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Task#02

There is a software house that is looking for a software that calculates increment on salaries of their employees on the basis of their experience. Chart below is defining increment criteria.

Write a program that takes name, address, phone number, experience and current salary from the user and displays his new salary.

You must call all the functions for the present instance at once by just returning the reference of the current object (make chained function calls).

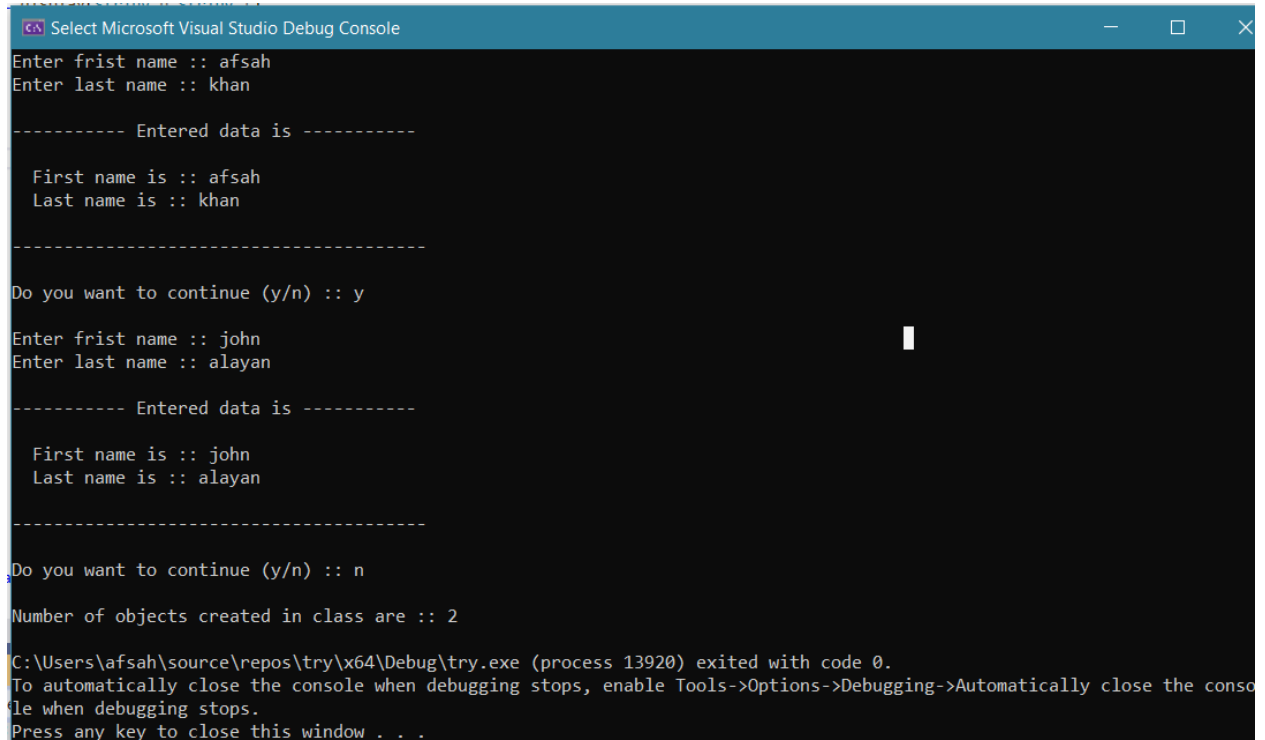
Increment criteria	
Experience	Increment
0	0%
01 - 02	10 %
02 - 06	20%
06 to onwards	40%

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Task#03

Write a class which takes first name and last name from user and display it. After displaying entered values again ask user if he wants to continue if he types "y" then again asks to enter first name and last name. You have to calculate and show number of objects created.

Note: use static data member and function.



```
Select Microsoft Visual Studio Debug Console
Enter frist name :: afsah
Enter last name :: khan

----- Entered data is -----

First name is :: afsah
Last name is :: khan

-----

Do you want to continue (y/n) :: y

Enter frist name :: john
Enter last name :: alayan

----- Entered data is -----

First name is :: john
Last name is :: alayan

-----

Do you want to continue (y/n) :: n

Number of objects created in class are :: 2

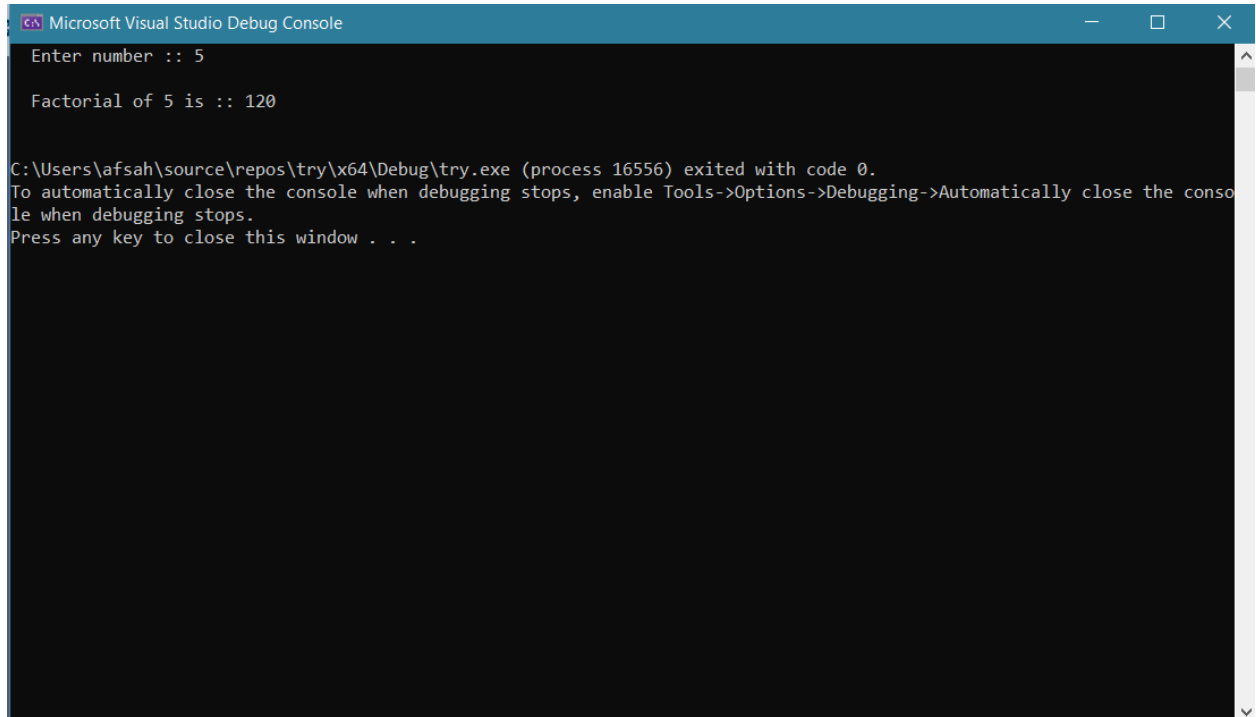
C:\Users\afsah\source\repos\try\x64\Debug\try.exe (process 13920) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```

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Task#04

Write a program with a class having a function fact to calculate the factorial of a number.

- a. Takes number input form user.
- b. Pass object as argument.
- c. Return object as argument.



```
Microsoft Visual Studio Debug Console

Enter number :: 5

Factorial of 5 is :: 120

C:\Users\afsah\source\repos\try\x64\Debug\try.exe (process 16556) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .
```