

Tishk International University  
Department of Computer Engineering  
Computing Algorithms Fundamentals  
Week 5  
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# Functions

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# Outline



- Functions
  - In-built functions
  - User-defined functions

# Functions



- In programming, **functions** are blocks of code that perform a specific task.
- They are independent piece of flowchart statements that perform specific tasks when called (invoked).
- They are used to organize code and make it reusable.
- Calling (invoking) a given function by name means executing the steps associated with that function name.

# Functions



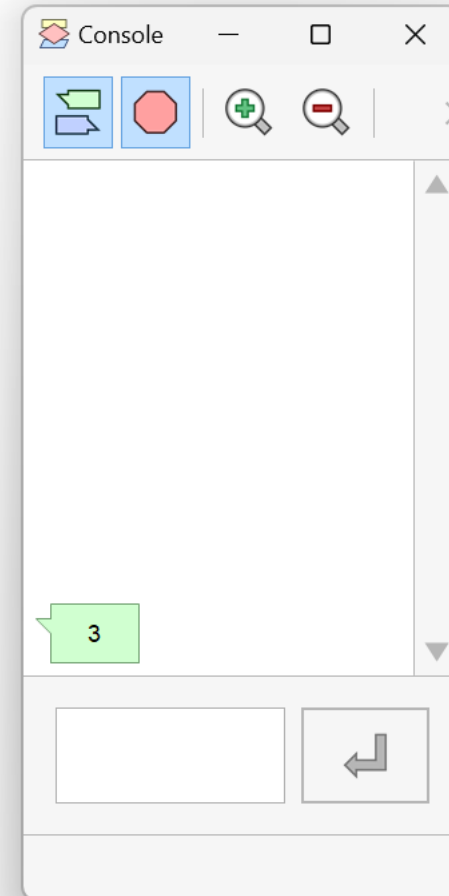
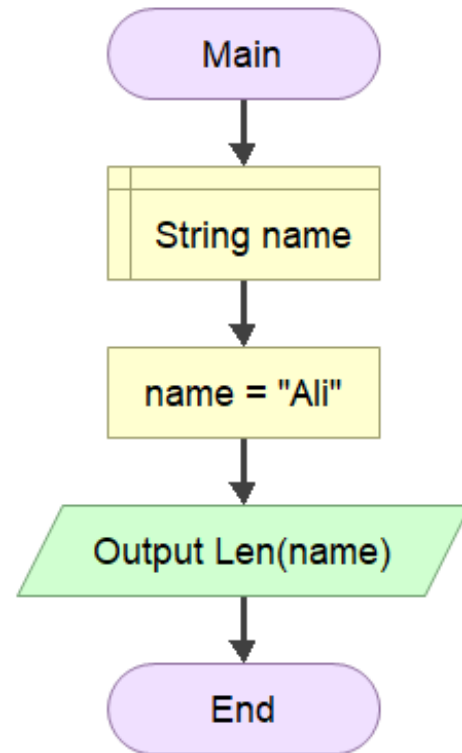
- In Flowgorithm there have 2 types of functions, which are:
  1. **In-built functions (Intrinsic functions or Pre-defined functions):** are functions that are predefined and ready to use.
  2. **User-defined functions:** we need to provide an implementation for the user-defined functions.

# In-Built (Intrinsic) Functions

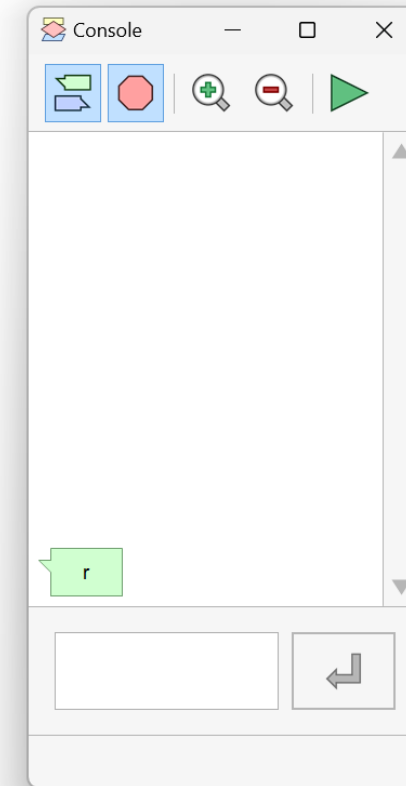
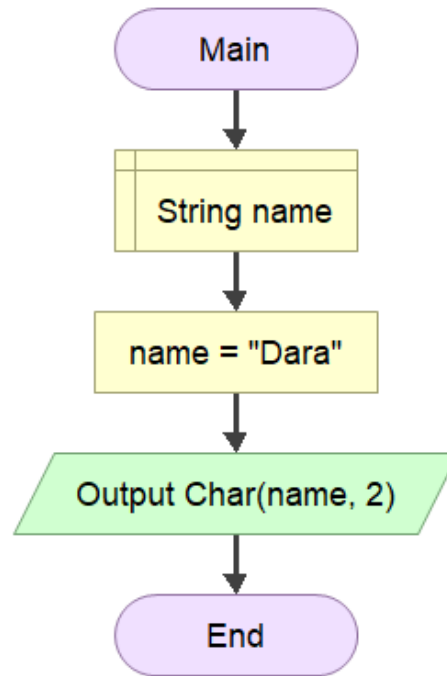


- **Len(str):** The *Len(str)* function returns the length of the string.
- **Char(str, index):** The *Char(str, index)* function returns the character of the string at the *index*. Characters in the string are indexed starting from 0.
- **Size(arr):** The *Size(arr)* function returns the number of elements in the array *arr*.
- **ToInteger(str):** This function converts the string to an integer

# In-Built (Intrinsic) Functions



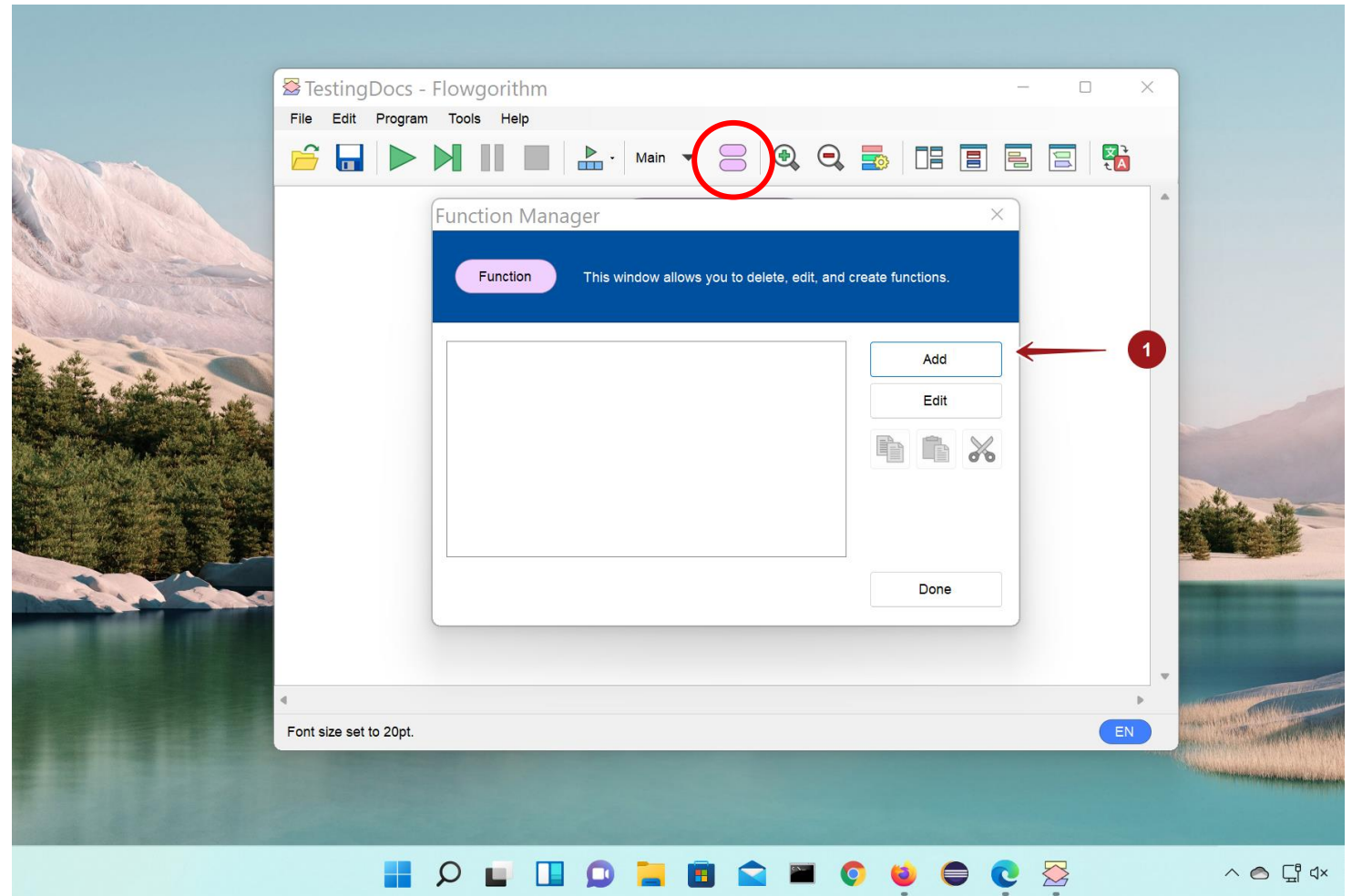
# In-Built (Intrinsic) Functions



# User-defined Functions



- Function manager allows us to create, edit and delete functions in Flowgorithm flowchart.
- To launch the Function Manager, Choose from the Menu.
- Click on the Add button to add a new Function.

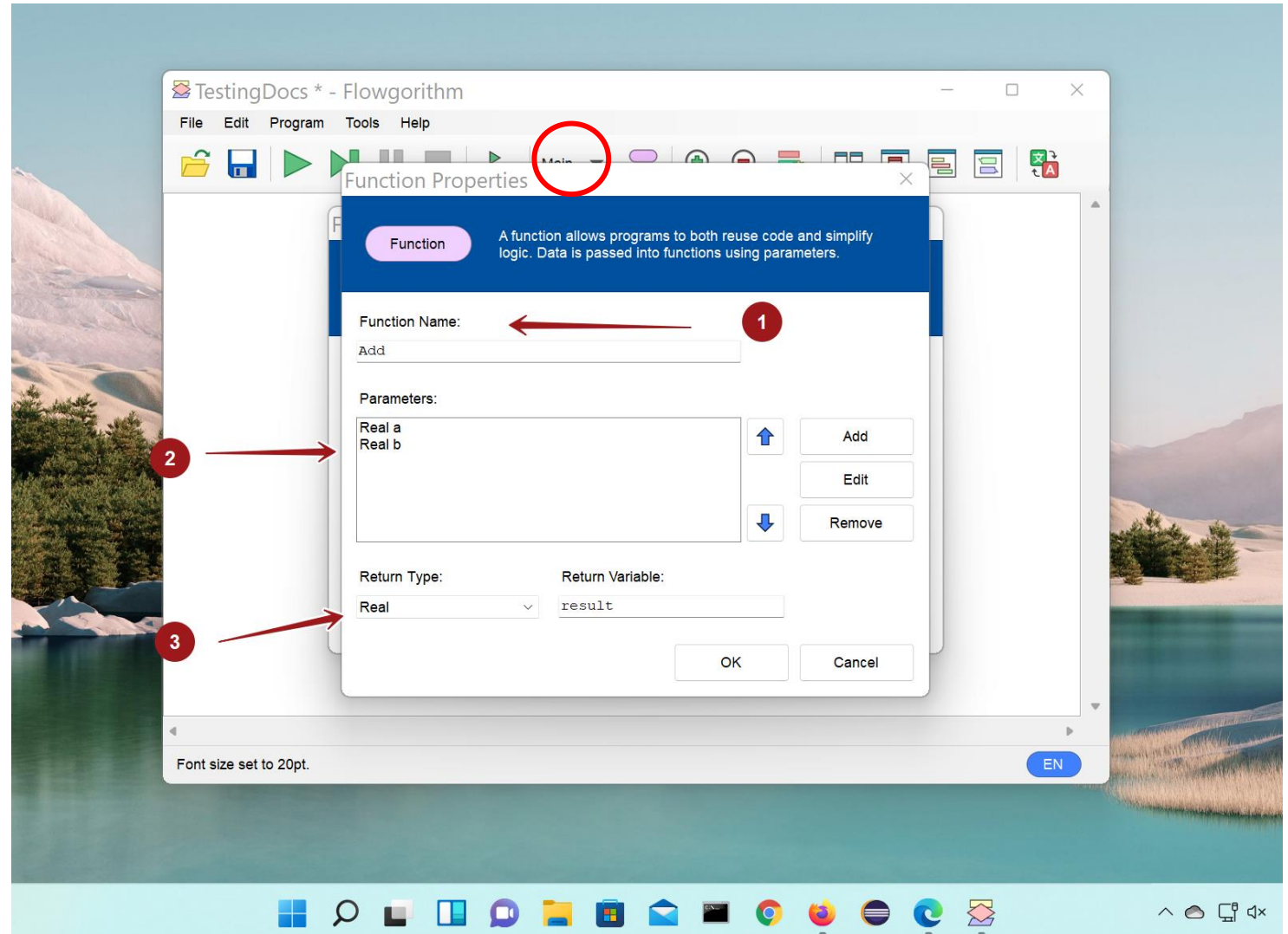




# User-defined Functions



- **Program >> Add Function...** menu option will directly open the Function properties window.
- Specify the function details and click on the **OK** button to add the function.



# User-defined Functions

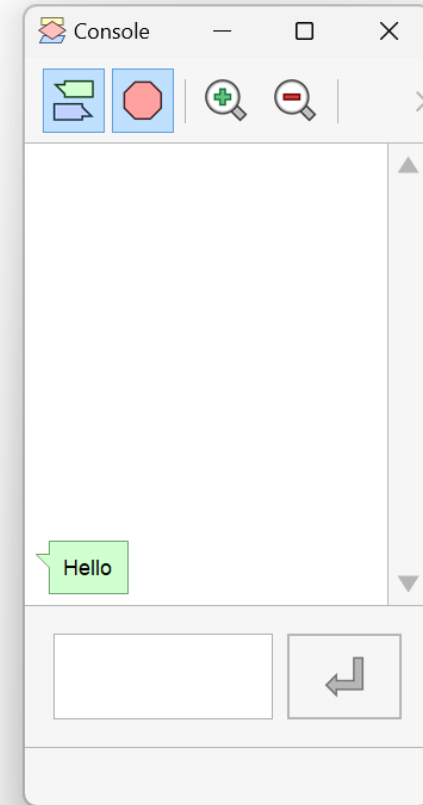
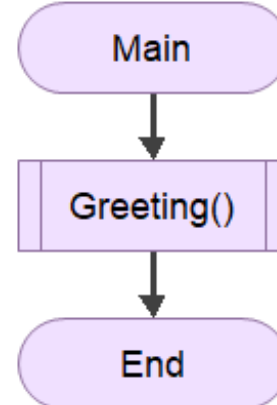
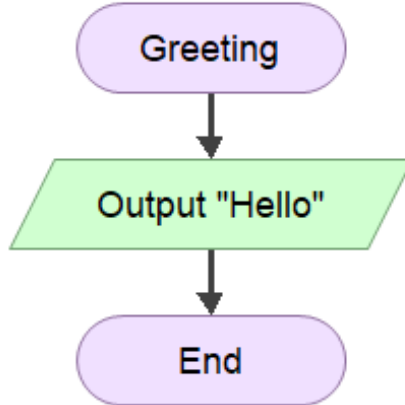


- To invoke a function use the **Call** statement.
- The **Call** statement transfers the control from the caller to the function.
- We can even invoke the function in the **Assignment** statement.

# User-defined Functions



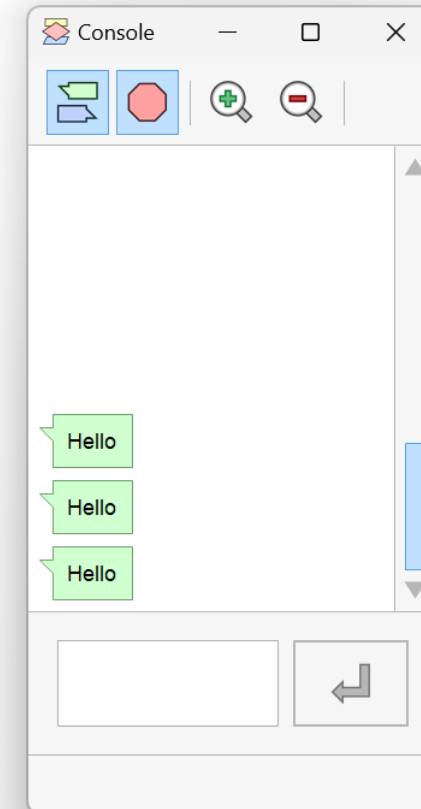
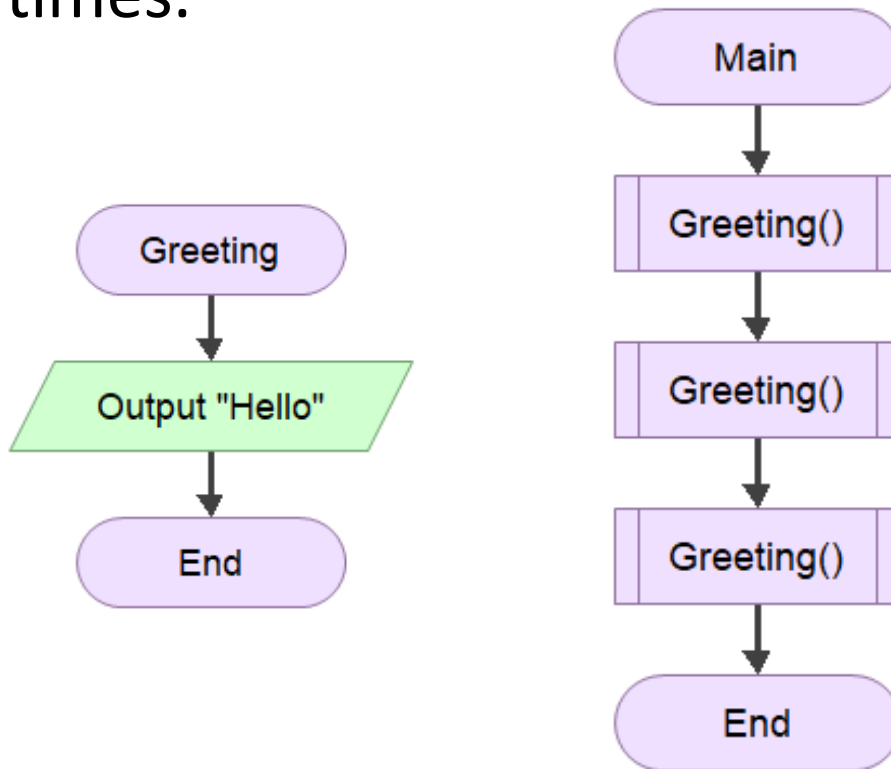
- Q: Create a function to output “Hello”. And then call it to see the output.



# User-defined Functions



- Functions can be called multiple of times.



# User-defined Functions



- Q: create a function to take 2 numeric value from users and return the addition result of them.

Function Properties

Function

A function allows programs to both reuse code and simplify logic. Data is passed into functions using parameters.

Function Name:

calculator

Parameters:

Real num1

Real num2

↑

Add

Edit

↓

Remove

Return Type:

☐ Boolean

☒ None

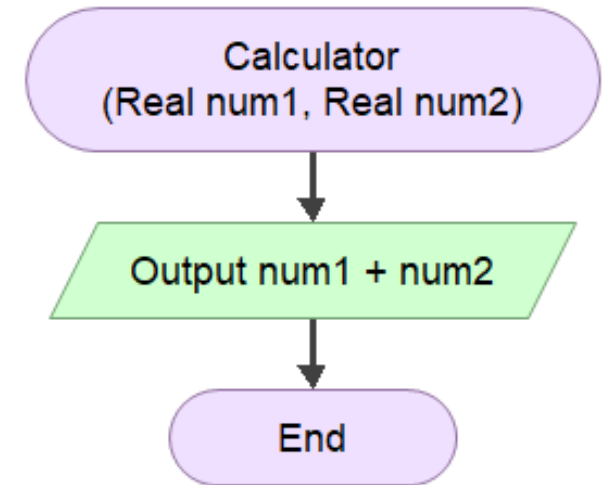
☐ Integer

☐ Real

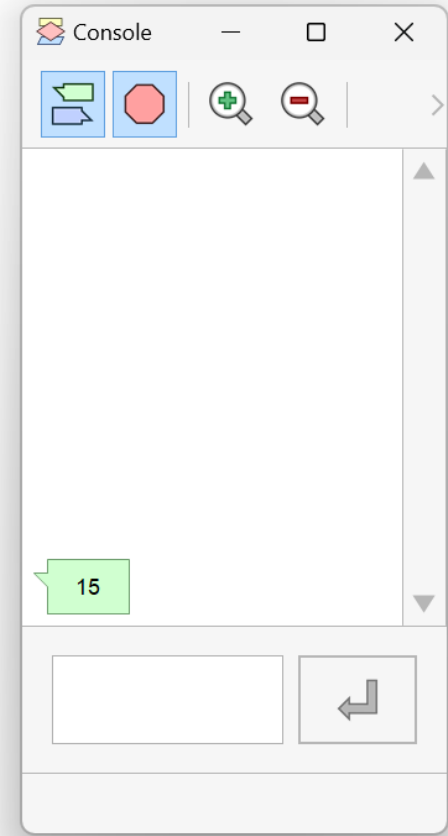
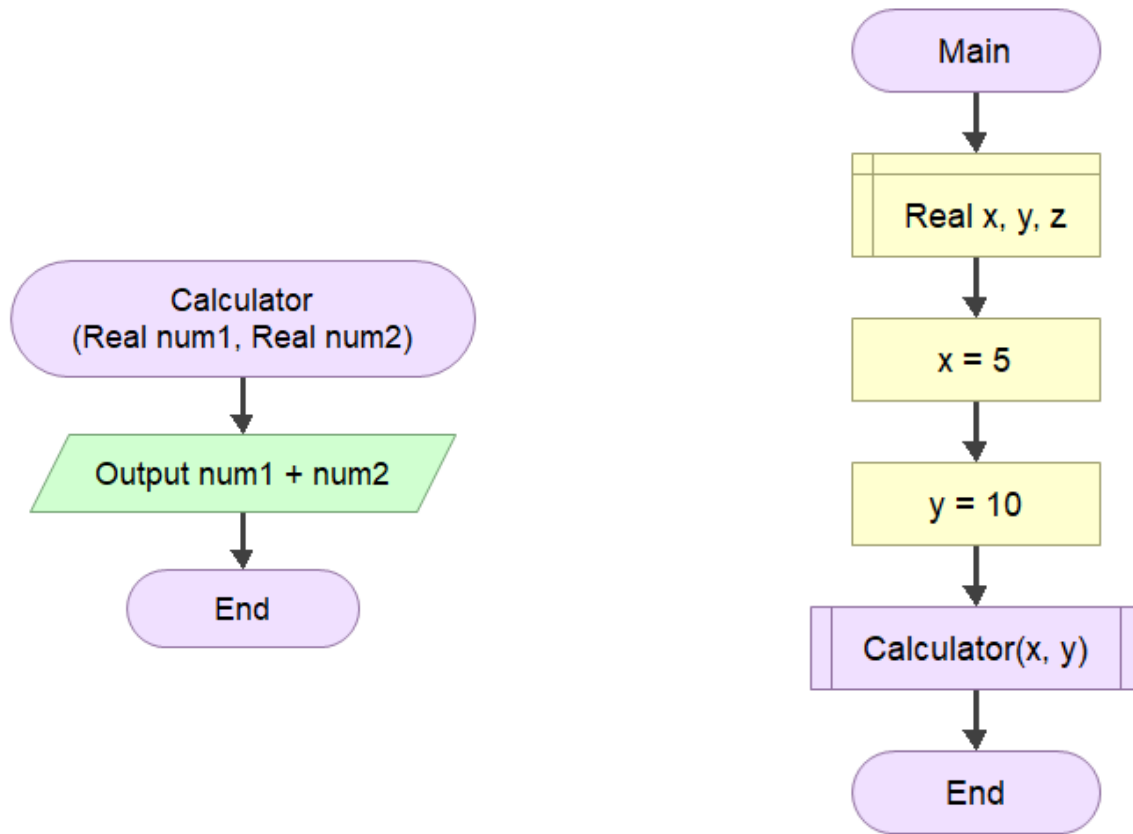
☐ String

OK

Cancel



# User-defined Functions



# User-defined Functions



- Q: create a function to take 2 numeric value from users and output the addition result of them.

Function Properties

**Function** A function allows programs to both reuse code and simplify logic. Data is passed into functions using parameters.

Function Name:

Parameters:

- ☐ Real num1
- ☐ Real num2

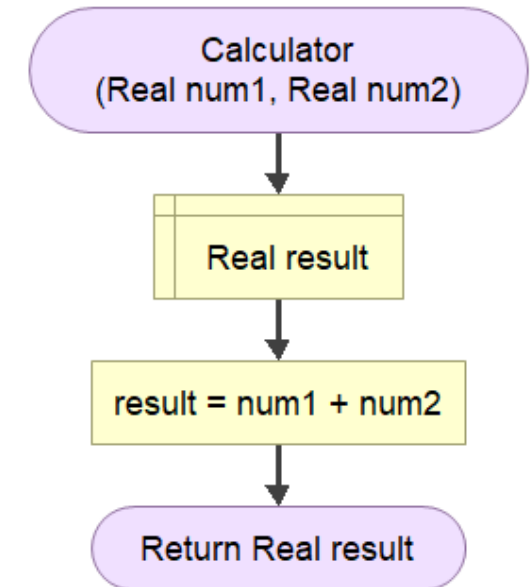
↑ Add  
↓ Edit Remove

Return Type:

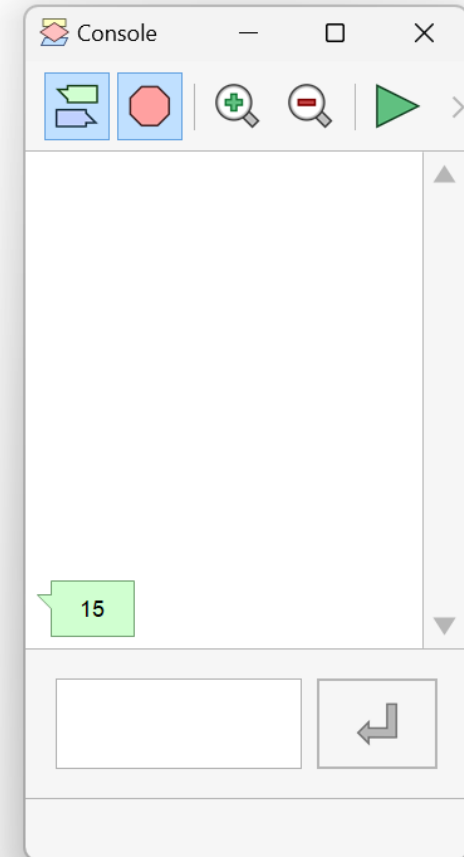
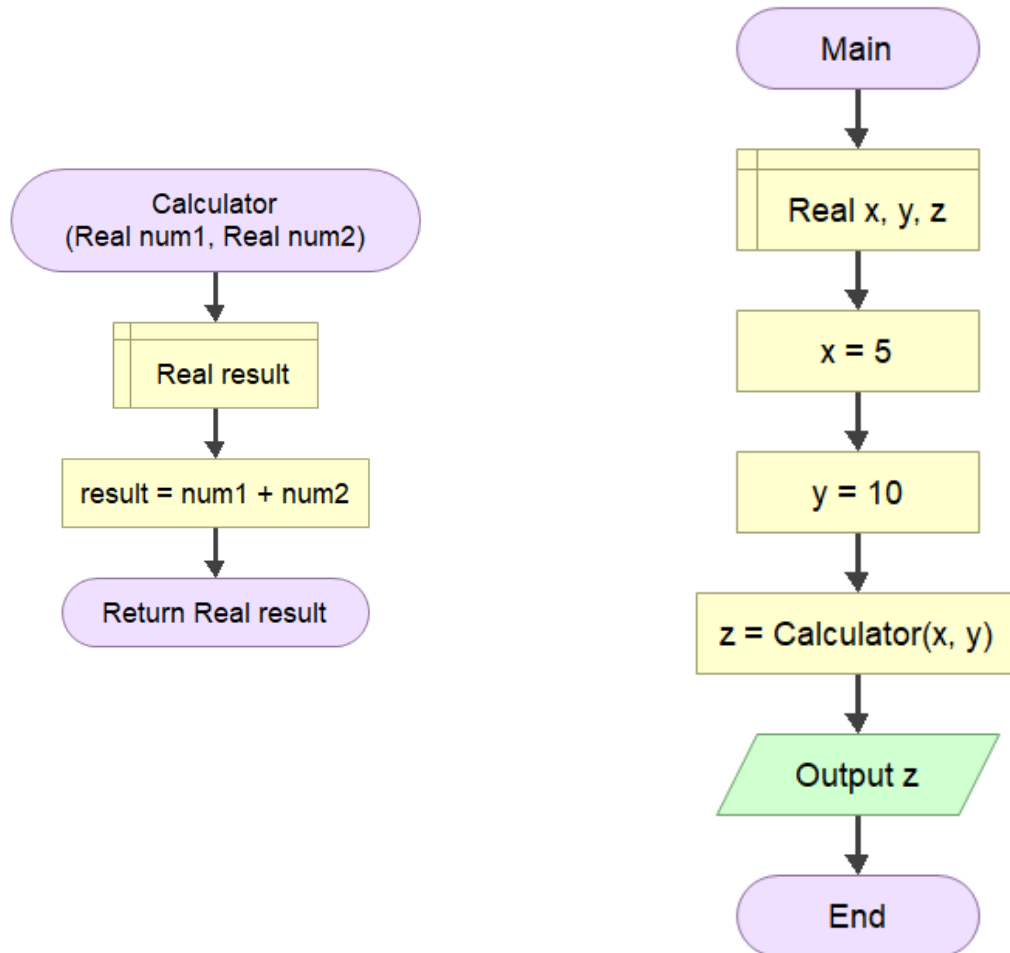
- ☐ Boolean
- ☐ Integer
- ☒ Real
- ☐ String
- ☐ None

Return Variable:

OK Cancel

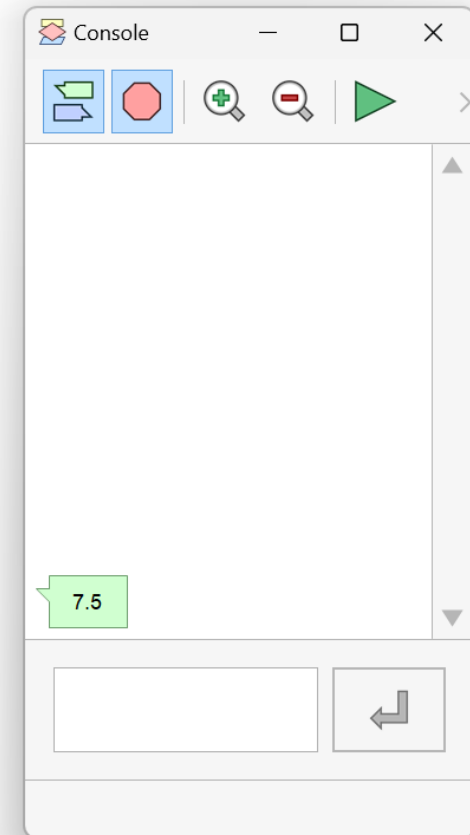
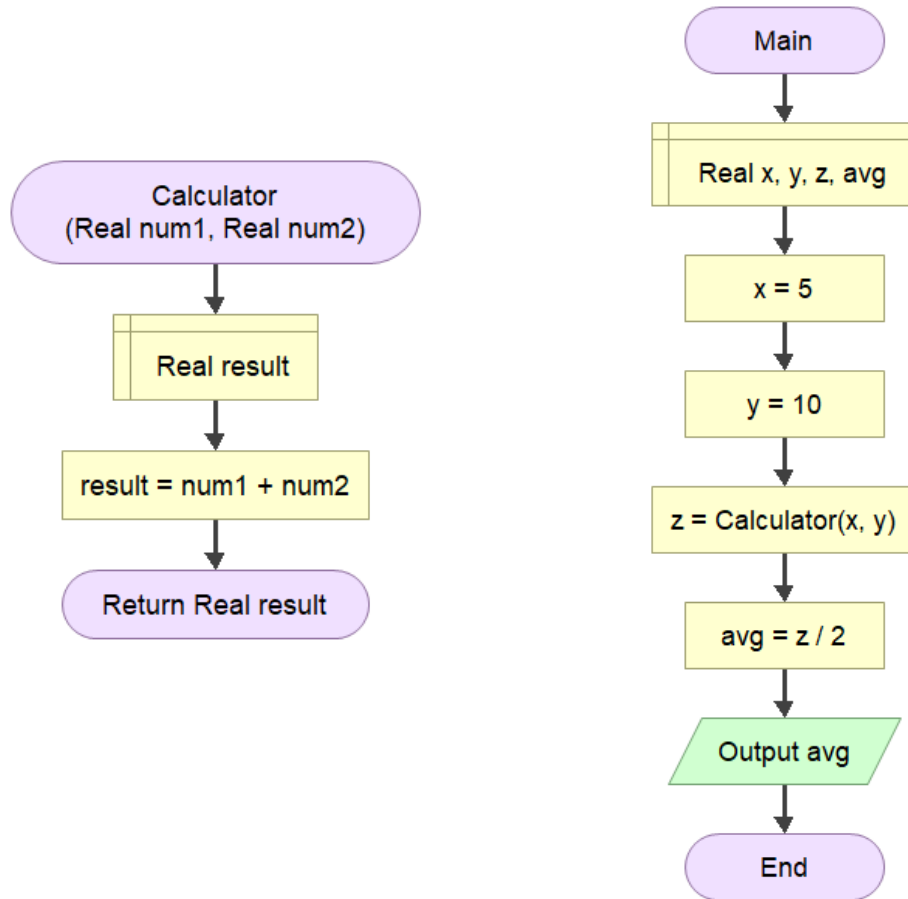


# User-defined Functions





# User-defined Functions



# User-defined Functions



- Q: Write a program to ask users to guess and enter a value, if that value equals to 47 output “Congratulations”, if not let them know if they have to enter a greater value or smaller value.

Function Properties

**Function** A function allows programs to both reuse code and simplify logic. Data is passed into functions using parameters.

Function Name:

Parameters:

- Integer num

Return Type:

☐ Boolean ☐ None

☐ Integer

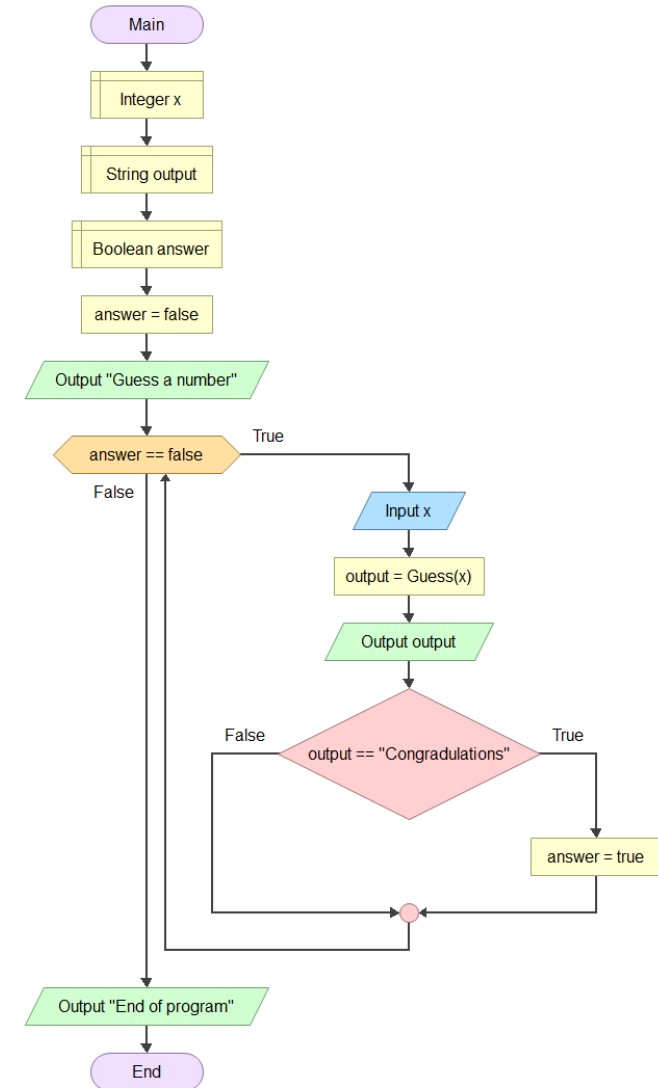
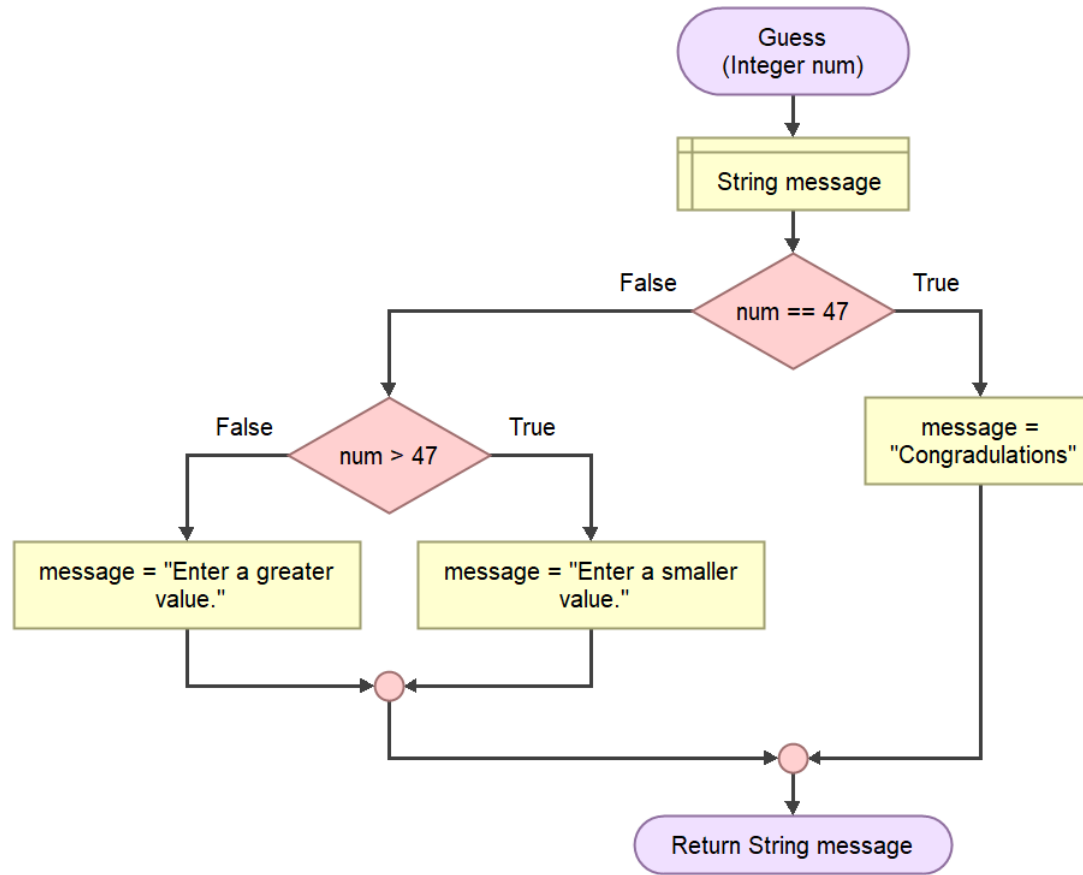
☐ Real

☒ String

Return Variable:

OK Cancel

# User-defined Functions





Thank You