**CTA 3 Integers and Dynamic Pointers of C++**

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CSC 450: Computer Programming II

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October 1, 2023

# **Pseudocode:**

Function acceptableInteger():

Declare userInput as char

Declare numString as string

Declare finalInput as int

Declare cin width limit

Infinite loop:

Read userInput from user input

If userInput is a digit:

Append userInput to numString

Else:

Display "Invalid input. Please enter an integer value."

Display "Integer: "

Clear numString

Clear the input stream

Ignore the next 10000 characters or until a newline

Check if there is a newline character in the input stream (using peek):

If yes, exit the loop

Convert numString to an integer using stoi() and store it in finalInput

Return finalInput

Function main():

Declare one, two, three as int

Declare ptrOne, ptrTwo, ptrThree as new int pointers

Display "Enter three integer values:"

Display "Integer one: "

Call acceptableInteger() and store the result in one

Display "Integer two: "

Call acceptableInteger() and store the result in two

Display "Integer three: "

Call acceptableInteger() and store the result in three

Allocate dynamic memory for ptrOne, ptrTwo, and ptrThree

Assign values to the dynamically allocated memory:

Set the value pointed by ptrOne to one

Set the value pointed by ptrTwo to two

Set the value pointed by ptrThree to three

Display the contents of variables:

Display "Contents of variables:"

Display "Integer one: " followed by the value of one

Display "Integer two: " followed by the value of two

Display "Integer three: " followed by the value of three

Display variable addresses:

Display "Addresses of variables:"

Display "Integer one: " followed by the address of one

Display "Integer two: " followed by the address of two

Display "Integer three: " followed by the address of three

Display the contents of pointers:

Display "Contents of pointers:"

Display "ptrOne: " followed by the value pointed by ptrOne

Display "ptrTwo: " followed by the value pointed by ptrTwo

Display "ptrThree: " followed by the value pointed by ptrThree

Display pointer addresses:

Display "Addresses of pointers:"

Display "ptrOne: " followed by the address of ptrOne

Display "ptrTwo: " followed by the address of ptrTwo

Display "ptrThree: " followed by the address of ptrThree

Deallocate the dynamically allocated memory using delete

Return 0

# **Figures Section**

## **Figure 1.**

Execution of Integers and pointers with verifying integer-only input.

A screenshot of a computer program

Description automatically generated

## **Figure 2**

GitHub Repo

A screenshot of a computer program

Description automatically generated