**Module 3 Critical Thinking Assignment**

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CSC450 Programming III

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**Pseudocode**

1. Initialize main method (required in C++)
2. Declare variables to hold user input
3. Get user input
   1. Use `cin` to get user input and assign to variables declared above
4. Dynamically allocate memory for three integer pointers
   1. Declare pointers using `int\* ptr` notation
   2. Use `new int` to allocate memory and store addresses in each pointer
5. Print out stored values, pointers and addresses
   1. Print the original variables
   2. Print the values stored at pointers using `\*ptr`
   3. Print the memory addresses stored in pointers
6. Deallocate memory
   1. Use the `delete` function to free up the memory space
7. Return 0 to end the program

**Source Code**

#include <iostream>

using namespace std;

int main() {

    // Initialize variables

    int user1, user2, user3;

    cout << "Enter three integer values: \n";

    // Get user input

    cout << "1st Integer: ";

    cin >> user1;

    cout << "2nd Integer: ";

    cin >> user2;

    cout << "3rd Integer: ";

    cin >> user3;

    // Dynamically allocate memory for three integer pointers

    int\* ptr = new int(user1);

    int\* ptr1 = new int(user2);

    int\* ptr2 = new int(user3);

    // Display values & pointers

    cout << "\n--- Stored values, pointers, & memory addresses ---\n";

    cout << "Value: " << user1;

    cout << " | Pointer: " << \*ptr;

    cout << " | Address: " << ptr << "\n";

    cout << "Value: " << user2;

    cout << " | Pointer: " << \*ptr1;

    cout << " | Address: " << ptr1 << "\n";

    cout << "Value: " << user3;

    cout << " | Pointer: " << \*ptr2;

    cout << " | Address: " << ptr2 << "\n";

    // Deallocate memory

    delete ptr;

    delete ptr1;

    delete ptr2;

    return 0;

}

**Screenshots (output)**

A screen shot of a computer program

Description automatically generated

**Git Repository**

A screenshot of a computer

Description automatically generated