BASIC EXERCISES WITH C++

10-15-2013

1. WAP to swap two numbers.

#include <iostream>

using namespace std;

int main()

{

int a,b;

cout<<"Enter a and b:";

cin>>a>>b;

int temp;

temp=a;

a=b;

b=temp;

cout<< "Swapped values of a and b are:"<<a<<" "<<b<<endl;

return 0;

}

**Enter a and b:**1 2

**Swapped values of a and b are:2 1**

**Program ended with exit code: 0**

1. Write a program in C++ to check overflow/underflow during various arithmetical operation.

(reference: https://www.w3resource.com/cpp-exercises/basic/cpp-basic-exercise-8.php)

#include <iostream>

using namespace std;

int main()

{

cout << "\n\n Check overflow/underflow during various arithmetical operation :\n";

cout << " Range of int is [-2147483648, 2147483647]"<< endl;

cout << "---------------------------------------------------------------------\n";

int n1 = 2147483647; // maximum range of integer

cout <<" Overflow the integer range and set in minimum range : " << n1 + 1 << endl;

cout <<" Increasing from its minimum range : " << n1 + 2 << endl;

cout <<" Product is :" << n1 \* n1 << endl;

int n2 = -2147483648; // minimum range of integer

cout <<" Underflow the range and set in maximum range : " << n2 - 1 << endl;

cout <<" Decreasing from its maximum range : " << n2 - 2 << endl;

cout <<" Product is : " << n2 \* n2 << endl;

cout << endl;

return 0;

}

**OUTPUT**

**Check overflow/underflow during various arithmetical operation :**

**Range of int is [-2147483648, 2147483647]**

**---------------------------------------------------------------------**

**Overflow the integer range and set in minimum range : -2147483648**

**Increasing from its minimum range : -2147483647**

**Product is :1**

**Underflow the range and set in maximum range : 2147483647**

**Decreasing from its maximum range : 2147483646**

**Product is : 0**

**Program ended with exit code: 0**

1. WAP to find the upper and lower imits of each data type

(reference: <https://www.w3resource.com/cpp-exercises/basic/cpp-basic-exercise-5.php>)

#include <iostream>

#include <climits> // integer limits in header file

using namespace std;

int main()

{

cout << "\n\n Check the upper and lower limits of integer :\n";

cout << "--------------------------------------------------\n";

cout << " The maximum limit of int data type : " << INT\_MAX << endl;

cout << " The minimum limit of int data type : " << INT\_MIN << endl;

cout << " The maximum limit of unsigned int data type : " << UINT\_MAX << endl;

cout << " The maximum limit of long long data type : " << LLONG\_MAX << endl;

cout << " The minimum limit of long long data type : " << LLONG\_MIN << endl;

cout << " The maximum limit of unsigned long long data type : " << ULLONG\_MAX << endl;

cout << " The Bits contain in char data type : " << CHAR\_BIT << endl;

cout << " The maximum limit of char data type : " << CHAR\_MAX << endl;

cout << " The minimum limit of char data type : " << CHAR\_MIN << endl;

cout << " The maximum limit of signed char data type : " << SCHAR\_MAX << endl;

cout << " The minimum limit of signed char data type : " << SCHAR\_MIN << endl;

cout << " The maximum limit of unsigned char data type : " << UCHAR\_MAX << endl;

cout << " The minimum limit of short data type : " << SHRT\_MIN << endl;

cout << " The maximum limit of short data type : " << SHRT\_MAX << endl;

cout << " The maximum limit of unsigned short data type : " << USHRT\_MAX << endl;

cout << endl;

cout<< “size of int: ”<<sizeof(int);

return 0;

}

**Check the upper and lower limits of integer :**

**--------------------------------------------------**

**The maximum limit of int data type : 2147483647**

**The minimum limit of int data type : -2147483648**

**The maximum limit of unsigned int data type : 4294967295**

**The maximum limit of long long data type : 9223372036854775807**

**The minimum limit of long long data type : -9223372036854775808**

**The maximum limit of unsigned long long data type : 18446744073709551615**

**The Bits contain in char data type : 8**

**The maximum limit of char data type : 127**

**The minimum limit of char data type : -128**

**The maximum limit of signed char data type : 127**

**The minimum limit of signed char data type : -128**

**The maximum limit of unsigned char data type : 255**

**The minimum limit of short data type : -32768**

**The maximum limit of short data type : 32767**

**The maximum limit of unsigned short data type : 65535**

**size of int: 4**

**Program ended with exit code: 0**