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ECE 1310.04

Homework 08

1. 3.17 *(Find the Largest)* Write a C++ program that usus a while statement to determine and print the largest number of 10 numbers input by the user.

A screenshot of a computer program

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/\*Pseudocode

\* declare int variables: num=0, count=1, largest=0;

\*

\* prompt user to enter 10 integers one at at time

\* get first num

\* set largest = first num

\* this is in case all negatives are entered

\*

\* start loop

\* get num

\* after num is entered, test if number >= largest

\* if true, then number = largest

\* increase count by 1

\* loop again if count <= 10

\*

\* output largest num to user

\*

\*/

//System Libraries

#include <iostream>

//Function Prototypes

//Global Constants

//Main Function

using namespace std;

int main(int argc, char\*\* argv)

{

//print the largest of 10 integers

int num = 0, count = 1, largest = 0;

cout << "Please input 10 integers, one at a time: \n";

cout << "Integer " << count << ": ";

cin >> num;

count++;

largest = num;

do {

cout << "Integer " << count << ": ";

cin >> num;

if (num >= largest)

largest = num;

count++;

} while (count <= 10);

cout << "The largest value is: " << largest << endl;

return 0;

}

2. 4.4 Find the error(s), if any, in each of the following:

1. for ( x = 100, x >= 1, x++ )

cout << x << endl;

there should be a semicolon instead of a comma in the red places, and before the x there should be “int” because x is undefined without the int.

1. The following code should print whether integer value is odd or even:

switch ( value % 2 )

{

case 0:

cout << “Even integer” << endl;

case 1:

cout << “Odd integer” << endl;

}

This doesn’t work because when an even number is entered, the output is “Even integer Odd integer” because there is no default case so when the number is even, both cases run. Also, “value” is not declared.

1. The following code should output the odd integers from 19 to 1:

for ( x = 19; x >= 1; x += 2 )

cout << x << endl;

x is not declared, also this is a forever loop because x will always be >= 1, since x stars at 19 and increases by 2 with each loop, so it will never end. That’s bad.

1. The following code should output the even integers from 2 to 100:

counter = 2;

do

{

cout << counter << endl;

counter += 2;

} while ( counter < 100 );

counter is not declared, it should have “int” in front of it. Also, the yellow bit should be changed to <= 100 so that 100 will be included as an even number from 2 to 100.

3. 4.7 What does the following program do?

A page of a computer program

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It outputs “@” in x columns and y rows.

4. 4.19 in Chapter 4 (Use a for loop, please)

*(Calculating π)* Calculate the value of π from the infinite series:

Print a table that shows the approximate value of π after each of the first 1000 terms of this series.

I cant fit all of them into one screen without making them really tiny so I screenshotted the beginnging and the end of the output window.

A screen shot of a computer

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/\* Pseudocode

\*

\* declare double pi and int denom=1, term=1

\*

\* pi=4

\* output first term

\*

\* for loop

\* for (term=2, term <= 1000, term++)

\* denom += 2 to keep denominator odd

\*

\* if term is even

\* pi = pi - (4/denom)

\* else if term is odd

\* pi = pi + (4/denom)

\*

\* output pi

\* end loop

\*

\*/

//System Libraries

#include <iostream>

//Function Prototypes

//Global Constants

//Main Function

using namespace std;

int main(int argc, char\*\* argv)

{

double pi=0;

double denom = 1;

cout << "pi after:\n";

for (int term = 1; term <= 1000; term++)

{

if ((term % 2) == 0) // even

pi = pi - (4 / denom);

if ((term % 2) == 1) // odd

pi = pi + (4 / denom);

cout << term << " terms: " << pi << endl;

denom += 2;

}

return 0;

}