Assignment 3 | Due 09/06/2017

#35 |

/// C++ program to test ///

#include <iostream>

#include <cmath>

using namespace std;

int main(int argc, const char \* argv[] ) {

// Pseudocode //

/\*

repeat

i =1

read a value for x

if((x<5.0) and (2x<10.7))or(sqrt(5x)>5.1) then

write the value of x

end if

increase by 1

until i > 5

inputs for x are 1.0, 5.1, 2.4, 7.2 and 5.3

what are the output values?

\*/

// Variables //

double userInput = 0.0;

for ( int i=1; i <= 5; i++ ) {

// ask user for x

cout<<“Entry: “ << endl;

cin >> userInput;

if (((userInput < 5.0)

&& ((2\*userInput) < 10.7))

|| (sqrt(5\*userInput)>5.1)) {

cout << “User Entry: “ << userInput << endl;

} // end if

} // end for loop

return 0; // Exit stage left

} // end main

/// Console output ///

Entry?

1.0

User Entry: 1.0

Entry?

5.1

Entry?

2.4

User Entry: 2.4

Entry?

7.2

Entry?

5.3

User Entry: 5.3

{1.0, 2.4, 7.2, 5.3}

#37 - 38 |

37)

if not (value1<value2) then

statement1

else

statement2

end if

38)

Yes,

A(False);B(False);C(True)

((A^B)’^C) —> statement1 if true

statement2 if false

(A^B)’ returns true; C(True) —> statement1

#61 - 64 |

61) “At least one of us is a liar.”

- If Percival is telling the truth, then Llewellyn is a liar which does satisfy the statement of one of the two being a liar as well as the orator telling the truth. If Percival is lying, then his statement becomes false because that would require both to be truth tellers but it has been stated that Percival is lying. Therefore, Percival is a truth teller and Llewellyn is a liar.

62) “If I am a truth teller, then Meredith is a truth teller”

- If Merlin is lying, his statement negated is

“I am a truth teller and Meredith is a liar” but since Merlin is lying this is an impossible outcome. Therefore Merlin is a truth teller. Since Merlin is a truth teller, then Meredith must also be a truth teller.

63) “Either I am a liar or Grymlin is a truth teller”

- Rothwold’s statement is of the form (A v B)

where,

A = “I am a liar” and

B = “Grymlin is a truth-teller.”

If Rothwold is a liar, then his statement (A v B) = false, and the statement (A v B)′ must be true.

De Morgan's laws,

A′ and B′ must both be true.

But A′ is the statement that Rothwold is a truth-teller, which is not true. Therefore Rothwold must be a truth-teller, and his statement (A v B) = true. Statement A = false because it says that Rothwold is a liar. Therefore, statement B must be true which makes both of them truth-tellers.

64) “I am a liar but Merrilaine is not.”

- If Gwendolyn is telling the truth, then she is a liar and Merrilaine is not. However, this is an impossible outcome with Gwendolyn being a truth teller and yet stating that she is a liar. Therefore her statement is false and by stating that Merrilaine is not a liar but negated she is saying that Merrilaine is a liar. Gwendolyn and Merrilaine are both liars.