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ITSE 1302

Learning Outcome 3- Assignment: Data Representations

1. Create a while, do while, and for loop that will count from 1-10.

```
int i = 1; //set LCV
while( i <= 10)
{
        cout << i << endl;
        i++;
}
//do while loop using same LCV (i =1)
do {
        cout << i << endl;
        i++;
    }while ( i <= 10);

for(int i = 1; i <= 10; i++)
        cout << i << endl;
```

2. The loop provided creates an int i = 1, gives the condition while the integer is less than or equal to 20, and increments i at the end of the loop. The statement will output the value of i as long as it is not evenly divisible by both 3 and 5. Therefore the output will be as follows:

   1

   2

   3

   4

   5

   6

7

8

9

10

11

12

13

14

16 //output skips 15 as the only number that is divisible by both 3 and 5 in this condition

17

18

19

20

3. Change the above code to output each number on the same line separated by commas.

```
for(int i = 1; i <= 20; i++)
{
        if ( i % 3 != 0 && i % 5 != 0)
                cout << i << ", ";      //hard to see in google docs, but there is a comma
                                        //followed by a space
}
```

4. Create pseudocode that reads positive integers from user input, then outputs the largest integer in the sequence after each entry. Entering 0 ends program.

1) **Task**: Program prompts for and reads positive integers from user, then displays the largest number entered in the sequence. Entering 0 ends the program.

2) Initialize two integer variables to store the inputs named "largerNumber" and "newNumber". Set largerNumber equal to 0 to start.

3) Display message to user, "Please enter a positive integer. Enter 0 to quit."
The user input should be stored in newNumber variable.

4) Use a while loop to check that the newNumber variable (i.e. user input) is not equal to 0. If it is, the program skips loop and ends.
    a) Inside this loop, use an if/else statement to check if the newNumber is positive. If it is, the program continues, and if it is not (else) then prompt the user to enter a positive number. “You entered a negative number. Please enter a positive integer or 0 to quit.”
        i) Read and store new input in newNum. This is the end of the else statement.
    b) If the number is positive, use a ternary statement inside the first ‘if’ to check if the newNumber is greater than the largerNumber.
        i) Store the larger of the two variables as largerNumber, then display largerNumber
        ii) Prompt user for a new number or 0 to quit.
5) Display “Goodbye.” to user
6) Program ends.