CSC 10A

Accelerated Introduction to Programming Logic

Homework

50Points

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Name:_____

Looping and Iteration

The purpose of this assignment is to give you practice in writing loops as well as tracking the value of data during the looping process. This lab will explore both ***while*** loops and ***for*** loops.

Requirements

Answer the questions below for credit. (Show your work)

Question #1 (2 points): Give the value of the variable "x" at the end of the loop:

```
int x = 0
int i = 0
for (i = 0 to 4 STEP + 1){
    x = x + i
}
```

What is x at the end?

x=10

Question #2 (2 points): Give the value of the variable "y" at the end of the loop:

```
int x = 5
int y = 2
int i = 0
for (i = 0 to 5 STEP + 1){
    y = y + i
    x = x + (y + i)
}
```

What is y at the end?

y=17

Question #3 (2 points): Give the value of the variable "z" at the end of the loop:

```
int x = 2
int y = 5
int z = y – x

int i = 0
for (i = 5 to 0 STEP – 1){
    int temp = y - i
    temp = temp + x
    z = z + temp
}
```

What is z at the end?

z=45

Question #4 (2 points): Write a ***for*** loop that will print the values 1 to 10:

for(int i=1 to 10 STEP+1){

i=i+1

}

Print i

Question #5 (2 points): Write a ***for*** loop that will print the values 1 to 20 while skipping the odd numbers (2,4,6,8,10,12,14,16,18,20):

for(int i=2 to 20 STEP+2) {

i=i+2

}

Print i

Question #6 (2 points): Give the value of the variable "a" at the end of the loop:

int a = 8

```
int i = 0
while (i < 5){
    a = a + (i << 1)
    i = i + 1
}
```

What is a at the end?

a=40

Question #7 (2 points): Give the value of the variable "b" at the end of the loop:

```
int a = 3
int b = a << 2
int i = 0
while (i < 6){
    a = a + i
    b = b + a
    i = i + 1
}
```

What is b at the end?

b=62

Question #8 (6 points): Write a ***while*** loop that will figure out the factorial of 5 (5!) and print this. It should use two integer variables (i and f) and print f at the end:

```
for(int i=h to 1 STEP -1) {
total=total* i
}
Print total
```

Submission

Submit this assignment on Canvas by the due date for credit.

If you have any questions, let me know.

Question #5 (4 points): Choose what string will print based on the flow of the program:

int a = 11001_2 OR 12_{16}

int b = a – 12

int c = b >> 2

IF (a < (b + c)) THEN print “Choice #1”

ELSE IF (a IS EQUAL TO (b + c)) THEN print “Choice #2”

ELSE THEN print “Choice #3”

Choice #2

Circle the string that is printed based on the above pseudo-code: (Choice #1 / Choice #2 / Choice #3)

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