ITC162: For Loops Homework

Amrit Dahal

Seattle Central College Sp2019

1.) Write a for loop to sum all the integers between 1 and 100.

int n = 0, sum = 0;

for(n = 0; n <= 100; n++)

{

sum += n;

System.out.print(sum);

}

2.) In 1784, Carl Gauss solved problem #1 in seconds by noticing that:

1 + 99 = 100, 2 + 98 = 100, 3 + 97 = 100… (he was 7 years old at the time.)

Write a for loop to compute the sum in #1 using approximately half the number of executions of the for loop in #1.

int n = 0, sum = 0;

for(n = 0; n <= 100; n++)

{

System.out.print( n\*(n+1)/2 );

}

3.) Write a program that outputs the sequence of numbers: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121

int x ;

For (x = 1; x <12; x++)

{

System.out.print(x\*x);

}

4.) Write a program for problem #3 that does not use the multiplication operator (\*).

(Hint: look at the difference between each number in the sequence of squares…)

int x = 0, prev = 0,;

for(int n = 1; n<12; n++)

{

x = x + n + prev;

System.out.println(x+n+prev);

prev = x;

}

5.) Write nested for loops to produce this output:

1

2

3

4

5

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

{

// here 21 is used as 17 spaces were counted before 1 above

for( int j = 21; j <= (-4\*i + 21); j++)

{

System.out.print(“ “);

}

System.out.println(i);

}

6.) The first 12 Fibonacci numbers are: 1 1 2 3 5 8 13 21 34 55 89 144

What is the pattern here?

Write a program to compute the first 12 Fibonacci numbers.

The sum of a number in a sequence is the sum of the previous two numbers.

Int x1 = 1, x2= 0, x= 0;

for (i = 0; i <=12; i++)

{

x = x1 + x2;

System.out.print(x);

x2 = x1;

x1 = x;

}

7.) Write nested for loops to produce the following output:

000111222333444555666777888999

000111222333444555666777888999

000111222333444555666777888999

for(int x = 0; x <3; x++)

{

for(int y = 0; y <9; y++)

{

for(int z = 0; z <3; z++)

{

System.out.print(y);

}

}

System.out.println();

}

8.) Write nested for loops to produce the following output:

1111111111

22222222

333333

4444

55

for (x = 1; x <=5; x++)

{

for (y = 1; y <=(12-x\*2); y++)

{

System.out.print(x);

}

System.out.println();

}

9.) Write nested for loops to produce the following output:

$

$$$

$$$$$

$$$$$$$

$$$$$$$$$

int i = 0, j = 0, k = 0;

for (i = 0; i< 5; i++)

{

for( j = 5-i; j>1; j--)

{

System.out.print(“ “);

}

for(k = 0; k<=i; k++)

{

System.out.print(“\*“);

}

System.out.println();

}