

SCHOOL OF COMPUTING

ST0523 Fundamentals of Programming

Practical 3b: Repetitions (*for* Loop)

What you will learn / do in this lab

- Trace Javascript codes using *for* loop
- Write JS using *for* loop

1) Determine the output and/or identify the error in each of the following code segments:

a)

```
for (var k = 1; k <= 10; k += 3)
    console.log(k);
```

Output/ Error:

b)

```
for (var m = 20, m > 5, m -= 4) {
    console.log(m);
}
```

Output/ Error:

c)

```
for (var n = 0; n < 8; n++);
    console.log(n);
```

Output/ Error:

d)

```
for (var p = 16; p > 2; p /= 2) {
    console.log(p);
}
```

Output/ Error:

2) Using the for loop, write the program to generate each of the following output:

a)

Output: 3 6 9 12 15 18

b)

Output: 25-20-15-10-5-0

c)

Output: 1 8 27 64 125

d)

Output: * ** *** ****

You may open up your Visual Studio Code (VSC) and work from there for the remaining questions.

[**Optional** : After you have completed each question, try challenging yourself to include some data validation in your program. Do remember to prepare test cases to ensure your validation works for all possible cases.]

- 3) Write a program to display a “5 times” multiplication table. You are required to use the **for** loop. The output should be as follows:

```
1 x 5 = 5
2 x 5 = 10
3 x 5 = 15
4 x 5 = 20
5 x 5 = 25
6 x 5 = 30
7 x 5 = 35
8 x 5 = 40
9 x 5 = 45
10 x 5 = 50
11 x 5 = 55
12 x 5 = 60
```

- 4) Write a program with the following requirements :

- Prompts user to enter 5 integer numbers
- Displays the numbers entered and
- Calculate the sum of the numbers entered.

You can assume that the user will always key in numbers and not texts. You are required to use the **for** loop.

```
number1: 2
number2: 6
number3: 1
number4: 3
number5: 2
Sum of numbers: 14
```

5) Write a program with the following requirements :

- Prompt user for 2 **integer** values and store in variables ***num1*** and ***num2***
- Prints out all odd numbers between them (**excluding *num1*** and ***num2***)
- You may assume that the 1st number, ***num1*** is smaller than or equal to the 2nd number, ***num2***
- Implement the logic using **for** loop
- Prepare a Test case table to ensure thorough testing is done

[Hint : Research to find out more about `Math.abs()` function which can be used to solve this problem]

Sample output:

```
Enter 1st number: 2
Enter 2nd number: 11

Odd numbers between 2 & 11:
3 5 7 9
```

```
Enter 1st number: 3
Enter 2nd number: 11

Odd numbers between 3 & 11:
5 7 9
```

[Optional Questions]

- 6) Write a program to print an isosceles triangle with the following requirements:
- Prompt the user to input the size of the peak for the printing of an isosceles triangle.
 - The size of the triangle should not be larger than 10.
 - If an invalid entry is entered for size or if the value entered for size is larger than 10, use 3 as the default value.
 - Use a # character as the default character to form the triangle.

Use `process.stdout.write('#')` to display a single character without going to the next line. For example, if the user inputs 6 for the peak, you should produce the following display.

[\[Hint : Refer to Q2d as a reference\]](#)

Sample output:

```
Enter the peak : 6
```

```
#
##
###
####
#####
#####
#####
####
###
##
#
```

```
Enter the peak : 4
```

```
#
##
###
####
###
##
#
```

- END -