

CS 171

Lab Assignment 4

Control Structures and Functions

This lab assignment uses many elements provided in the main bibliographic reference for these lectures:

Programming in Python 3

A Complete Introduction to the Python Language,
2nd Edition,
Mark Summerfield

1 Exercises

Exercise 1 *Implement a function that calculates the remainder of the integer division between two numbers without using the % Python operator.*

Write a program to test the function you wrote.

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Exercise 2 *Write a program that draws a rectangle. The program must call a function which receives three parameters: the character to use, the number of lines and the number of columns.*

An example of the execution of such program is:

```
$ Please enter a character: x
Please enter the number of lines: 4
Please enter the number of columns: 6
xxxxxx
x      x
x      x
xxxxxx
```

□

Exercise 3 Repeat Exercise 1, but in such a way that the program keeps drawing rectangles until the character entered by the user is 'q'.

An example of the execution of such program is:

```
$ Please enter a character ('q' to quit): x
Please enter the number of lines: 4
Please enter the number of columns: 6
xxxxxx
x      x
x      x
xxxxxx
Please enter a character ('q' to quit): a
Please enter the number of lines: 5
Please enter the number of columns: 3
xxx
x x
x x
x x
xxx
Please enter a character ('q' to quit): q
```

□

Exercise 4 Repeat Exercise 2, but raising an exception when character 'q' is entered. The exception must created/customized by you.

□

Exercise 5 Having reached this point, you are strongly encouraged to:

1. Study in detail the example programs that are described in Chapter 4, Section Examples, starting on page 185 of the reference book;
2. Provide solutions to the exercises in the same Chapter, Section Exercises, which start on page 192.

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