Supplementary study guide for COMP130

John MacCormick, Dickinson College

This study guide contains brief explanations of content that is not fully explained in the assigned reading from the textbook. Anything that is explained in the assigned textbook reading will not be repeated here. When studying, please use the textbook as the primary reference. Use this study guide only for supplementary information that is not in the textbook.

# input()

The built-in input() function is covered fully in section 5.11 of the textbook, but we won’t cover that until week seven of the semester, so this supplementary study guide gives a brief explanation here.

The input() function is used to receive input from the user of the computer program while it is running, as in the following example

answer = input('What is your favorite day of the week? ')

The parameter is a string known as the *prompt*. In the above example, the prompt is 'What is your favorite day of the week? '.

The prompt will be printed. Then, the program waits to receive input from the user. The user is then expected to type their response using the keyboard, terminating the response using the Enter key. The string typed by the user is returned to the program. In the above example, the variable answer will store whatever text was typed by the user.

Here is a complete program demonstrating the use of input():

name = input('Please enter your name. ')

color = input('What is your favorite color? ')

print('Very interesting,', name, '...')

print('I wonder why', color, 'is your favorite color.')

# random.randint()

The use of random numbers is explained in section 13.2 of the textbook, but we need only a small subset of the information provided there. Facilities for using random numbers in Python are made available by importing the random module:

import random

In the first part of the semester, the only function we need is random.randint(a, b). This function returns a random integer between a and b inclusive. For example, the following program simulates rolling two 6-sided dice.

import random

roll1 = random.randint(1, 6)

roll2 = random.randint(1, 6)

total = roll1 + roll2

print('You rolled a', roll1, 'and a', roll2)

print('That gives a total of', total)

# for loops

Section 4.1 and 4.2 provide a very brief introduction to for loops. Here we provide a little more detail. The variable immediately after the for keyword is called the *loop counter*. By default, the loop counter starts counting from zero and increases by 1 each time. For example, the loop counter my\_num counts from 0 up to 5 in the following code fragment:

for my\_num in range(6):

print('This is the start of the loop body.')

print('The loop counter is currently', my\_num)

print('This is the end of the loop body.')

Because the loop counter starts at zero, it counts up to but not including the range parameter. In the above example, the range parameter is 6. The loop is executed six times. The value of the loop counter ranges from 0 to 5 inclusive, which does include exactly six numbers: 0, 1, 2, 3, 4, 5.

It is often useful to store and update information in variables inside the loop body. For example, the following code calculates the value of :

sum\_of\_squares = 0

for n in range(10):

n\_squared = n\*n

sum\_of\_squares = sum\_of\_squares + n\_squared

print('Sum is', sum\_of\_squares)