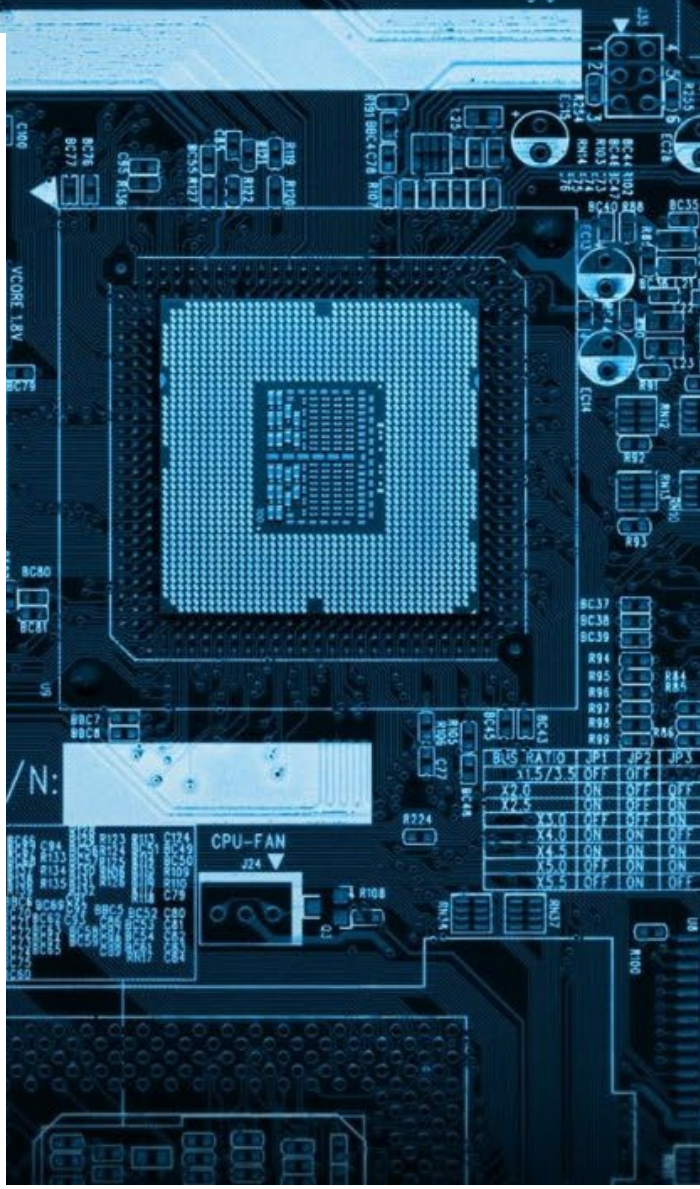
SCMA 249

Computer Programming in Actuarial Science

1/2022

LAB 7
Case Studies



LAB 7
Case Studies

Some Function/Method

No	Function/Method	Description
1.	`input`	Read a string from standard input.
2.	`eval`	Evaluate the given source in the context of globals and locals.
3.	`print`	Prints the values to a stream, or to sys.stdout by default.
4.	`range`	Return an object that produces a sequence of integers from start to stop by step.
5.	`float`	Convert a string or number to a floating point number, if possible.
6.	`randint`	Inbuilt function of the random module. Require `from random import randint`.
7.	`len`	Return the number of items in a container.
8.	`str`	Create a new string object from the given object.
9.	`lower`	Return a string with every letter of the original in lowercase.
10.	`upper`	Return a string with every letter of the original in uppercase.
11.	`strip`	Return a copy of the string in which all chars have been stripped from the beginning and the end of the string (default whitespace characters).
12.	`split`	Automatically cuts out leading and trailing whitespace, and consecutive whitespace.
13.	`count(x)`	Count the number of occurrences of `x` in a string.
14.	`index(x)`	Return the location of the first occurrence of `x` in the string.
15.	`isalpha`	Return True if every character of the string is a letter.
16.	`sum`	Return the sum of all items in the list.
17.	`min`	Return the minimum of the items in the list.
18.	`max`	Return the maximum of the items in the list.
19.	`append(x)`	Add `x` to the end of the list.
20.	`sorted(x)`	Sorts the list.
23.	`insert(ind,x)`	Insert `x` at `ind` of the list.
24.	`del`	Delete variable.
25.	`clear`	Remove all items from the dictionary.

Example 7.1

Given a list **`ex1 = [12,41,63,80,101]`**. Write a Python code to do the followings.

(a) Print the list.

(b) Print the average of the elements in the list.

(c) Print the largest and smallest values in the list.

Example 7.2

Gets 5 numbers from the user and counts how many of those numbers are greater than 10.

Example 7.3

Write a program which will find all such numbers which are divisible by 11 but are not a multiple of 5, between 200 and 500 (both included). The numbers obtained should be printed in a comma-separated sequence on a single line.

Example 7.4

Write a program to compute the sum 1 – 2 + 3 – 4 +…+ 1999 - 2000.

Example 7.5

Write a program that accepts a sentence and calculate the number of upper case letters and lower case letters.

Suppose the following input is supplied to the program:

Hello world!

Then, the output should be:

UPPER CASE 1

LOWER CASE 9

Example 7.6

เปลี่ยนตัวเลขให้เป็นคำ

Write a Python program to convert a number from 1 – 99 to words.

1 → one
17 → seventeen

Example 7.7

With a given integral number `n`, write a program to generate a dictionary that contains `(i, i*i)` such that is an integral number between `1` and `n` (both included) and then the program should print the dictionary.

Suppose the following input is supplied to the program: `4`

Then, the output should be:

```
Please enter an integral number:4
--------------------------------
1         1
2         4
3         9
4         16
--------------------------------
```

Example 7.8

Write a Python program to find one missing numbers from a list. Then put the missing numbers to the list to complete the list.

```
Input : [1,2,3,4,6,7,8]
Output :
      Missing number : 5
      List: [1,2,3,4,5,6,7,8]
```

Example 7.9

Write a Python program to find sum of all digits of a positive integer.

Example 7.10

Write a Python program to reverse the digits of an integer.

```
Input : 234
Output: 432
```

Midterm python 2 hr 30%

① 18% Multiple choice → Lab 1 - now
↳ 18 problems
↳ Flow chart,
Basic python programming,
order of operator,
create comment,
reading syntax & compute result,
create tuple/list,
↳ the symbol
data type & data structure in py

② 12% Written → 4 problems
↳ ① Write flowchart of a syntax
↳ ② Solve about % operator, division
↳ ③ visual design (easy)
↳ the star assignment
↳ ④ Financial problem in AS
↳ equation