

PCL1 imperative Python Exercise(s) 7

Contents

Imperative programming using Python.....	1
7.1 – Iteration.....	1
7.2 – Imperative Sum	1
7.3 – Check for Even numbers	2
7.4 – Python Lists	2
7.5 – Python Dictionaries	2
7.6 – Extra	2

Imperative programming using Python

In this exercise, we are going to practice some of the imperative programming concepts using the Python programming language.

7.1 – Iteration

Python provides **for** and **while** loop that enable us to repeat blocks of instructions several times. For example to write “Python is easy to learn!” 5 times:

```
print("This program prints a string 5 times")
for count in range(5):
    print("Python is easy to learn!")
```

- Write a program that will print your full name and student number 10 times.
- Write another program that will ask the user for a “wish” (eg. What do you wish for on your birthday) and the number of time they want that wish to be displayed. Then print the wish the number of times specified.

7.2 – Imperative Sum

Given `numLst = [1, 2, 3, 4, 5]` we can compute the **sumImperative** in an imperative way. You need to implement it such that it uses imperative way to compute the sum of the list.

7.3 – Check for Even numbers

Using the imperative way of programming, check for even numbers given a user input:

Write a program, which repeatedly prompts the user for an integer. If the integer is even, print the integer. If the integer is odd, don't print anything. Print "Bye for now!" and Exit the program if the user enters the integer 123.

7.4 – Python Lists

Using the imperative coding style, implement a function `groupList` that given a list (`list`) and a group length (`length`), returns a `list of lists` with length `length`.

Example: `list = [1, 2, 3, 4, 5, 6]`

`groupList(list, 2)` gives `[[1, 2], [3, 4], [5, 6]]` while `groupList(list, 3)` gives `[[1, 2, 3], [4, 5, 6]]`

7.5 – Python Dictionaries

Create a dictionary `specialle` which stores software engineering specializations:

- a. populate it with these key-value pairs:

Name	Specialle
Bob Builder	IoT
Dora Explorer	Interactive Media
Paw Patrol	Data Engineering

- b. Change Bob Builder's `specialle` to Data Engineering
c. Add a new entry for "Farmer Pickles" with specialization "Climate Engineering".
d. Print Dora's specialization.
e. Print all the keys. Don't worry about the format.

7.6 – Extra

Using the imperative coding style implement a program that allow users to enter a number that represents a shape and then calculates the area accordingly. Recall exercises 4 from F#. For instance:

Pick a shape (1-3):

- 1) Square
- 2) Rectangle
- 3) Triangle