Optional Exercise - 1.

1. Submission: write down your answers, scan it, and send it to yqtian@ust.hk
   a. The name of the PDF file must be: **COMP1021-EX1_FirstName_LastName.pdf**
   b. Answers will be released at https://github.com/yqtianust/COMP1021_2024F_L13 on 3rd Oct 2024.
2. First 3 students (by the timestamp of your email is received) of which is 100% correct of this exercise will receive a chocolate from Australia!
3. Students, who finished and submitted all optional exercises in one week after each exercise is released, are eligible for a lucky draw at the end of term! (5 gifts in total.)
4. Students whose total scores of all exercises are ranked top 5 in entire class will receive extra gifts.

Name: Student ID:

Email:

Question 0 (6pt):

Use range() command to generate the following numbers. if not possible, please explain the reason.

For example, 1 2 3 4 5: range(1,6)

1 3 5 7 9: **range(1,11,2), or range(1,10,2)**

1 5 9 13: **range(1,17,4), or range(1,14/15/16/17,4)**

9 7 5 3 1: **range(9,-1,-2)**

-1 -3 -5 -7 -9: **range(-1,-11,-2)**

-9 -7 -5 -3 -1: **range(-9,1,2)**

-9 -7 -1 7 9: **not possible**

Question 1 (6pts):

How many numbers will be generated by the following commands? What is the last generated number?

Example: range(1,2) will generate 1 number, and the last number is 1.

range(1, 400, 2): **200, 399**

range(1, 400, 3): **133, 397**

range(1, 400, 4): **100, 397**

Question 2 (3pts):

What will be displayed on the screen after a file consisting of the following commands is executed?

print("COMP1021")

print("COMP1021", end="!")

print("COMP1021",end="?")

COMP1021

COMP1021!COMP1021?

Question 3 (6pt):

What will be generated by the following command? Explain the reason if any error will occur when any command is executed.

list(range(0)): **[]**

list(range(8)): **[1,2,3,4,5,6,7]**

list(range(0,8)): **[1,2,3,4,5,6,7]**

list(range(8,1,1)): **[]**

list(range(8,-1,1)): **[]**

list(range(8,-1,-1)): **[8,7,6,5,4,3,2,1,0]**

Question 4 (5pts):

list_a = ["a","bc", "def"]

What is the output of the following commands:

len(list_a): **3**

len(list_a[0]): **1**

len(list_a[3]): **index error**

print(list_a[0]): **a**

print(list_a[1][1]): **c**

Question 4 (33pts):

Assume: L = ["def"]

Answer the question after each command is executed. Note that the n-th command is executed after all commands before it are executed.

Command	Questions:	Answers:
print(L)	What is the output?	["def"]

L[0] = "abc"	What is L now?	["abc"]
L[2] = "abc"	What is the output?	error
L.append("aaa")	What is L now?	["abc", "aaa"]
L.sort()	What is L now?	["aaa", "abc"]
L.insert(1, "bbb")	What is L now?	["aaa", "bbb", "abc"]
L.insert(1, "AAA")	What is L now?	["aaa", "AAA", "bbb", "abc"]
L.count("bbb")	What is the output?	1
L.index("bbb")	What is the output?	2
L.index("abc")	What is the output?	3
	What is the command to remove "aaa"?	L.remove("aaa")

Assume the now L = ("def"). Explain the reason if any command cannot be executed.

Command	Questions:	Answers:
print(L)	What is the output?	("def")
L[0] = "abc"	What is L now?	("def")
L[2] = "abc"	What is the output?	Error
L.append("aaa")	What is L now?	("def"), the output is "error"
L.sort()	What is L now?	("def"), the output is "error"
L.insert(1, "bbb")	What is L now?	("def"), the output is "error"
L.insert(1, "AAA")	What is L now?	("def"), the output is "error"
L.count("bbb")	What is the output?	0
L.index("bbb")	What is the output?	Error
L.index("abc")	What is the output?	Error
	What is the command to remove "aaa"?	Cannot do this

Assume the now L = "def". Explain the reason if any command cannot be executed.

Command	Questions:	Answers:
print(L)	What is the output?	def
L[0] = "abc"	What is L now?	"def"
L[2] = "abc"	What is the output?	Error
L.append("aaa")	What is L now?	"def"
L.sort()	What is L now?	"def"
L.insert(1, "bbb")	What is L now?	"def"
L.insert(1, "AAA")	What is L now?	"def"
L.count("b")	What is the output?	0
L.index("a")	What is the output?	Error
L.index("b")	What is the output?	Error
	What is the command to remove "aaa"?	Cannot do this