Our in-class activity #2 is worth 1%.

This time around, you get …

- 0.5% if you wrote a solution (partial or complete) to **Q. 10**
- 0.5% if your (partial or complete) solution does not repeat code

# CMPT 120

Lecture 10 – Practice Exam 2 - SOLUTION

# In-Class Activity

Course grading scheme on our course website: ***Best 7 in-class exercises out of 10: 1% each, for a total of 7%***

- Our in-class activity #2 -> 1%
  - Write your answer to **Q.** ___ on the provided sheet of paper
  - Write your **lastname**, **firstname** and **student number** on the provided sheet of paper
  - At the end of today's class, hand in your sheet of paper in the appropriate pile:
    - **Pile 1** -> if your lastname start with a letter that is between '**A**' and '**L**'
      - **Pile 1** is on your **left-hand side** of the classroom
    - **Pile 2** -> if your lastname start with a letter that is between '**M**' to letter '**Z**'
      - **Pile 2** is on your **right-hand side** of the classroom
- **IMPORTANT:** For in-class activity #2, you must write at least a partial solution to get some marks. A header common block with some comments will not be sufficient!

Try to answer the questions **1st without using your computer**, then confirm your answer using **Python IDLE shell**!

# Part 1 - Theory and Understanding

# Part 1 - Theory and Understanding

1. a) What does **`range(6)`** produce?

```
[0, 1, 2, 3, 4, 5]
```

b) What does **`range(3,8)`** produce?

```
[3, 4, 5, 6, 7]
```

c) What does **`range(-4,9,3)`** produce?

```
[-4, -1, 2, 5, 8]
```

d) What does **`range(,7,2)`** produce?

```
SyntaxError: invalid syntax
```

# Part 1 - Theory and Understanding

2. a) Write a Python statement which would produce the sequence **0,2,4,6**

```
range(0,7,2)
```

b) Write a Python statement which would produce the sequence **9,6,3,0,-3**

```
range(9,-4,-3)
```

# Part 1 - Theory and Understanding

3. What is wrong with this Python code fragment?

```
# Chatbot asks How old are you?
age = input("How old are you? ")
   int(                              )
# If the user is old enough to drink ...
if age >= 19 :
# Chatbot suggest an alcoholic drink.
  print("How about a beer?")
else :
# Otherwise, a non-alcoholic drink.
  print("How about a Shirley Temple?")
```

**Note the usefulness of the comments!**

# Part 1 - Theory and Understanding

4. a) What does the following code fragment print?

```
for item in ["0", "1", "2"]:
    print(item)
```

```
0
1
2
```

b) What does the following code fragment print?

```
name = "Ted Lasso"
for letter in name:
    print(letter.upper())
```

```
T
E
D

L
A
S
S
O
```

# Part 1 - Theory and Understanding

Consider the following Python code fragment and answer the following 2 questions:

```
mystery = 0
someNumbers = [9,8,7,6,5,4,3,2,1]
for digit in someNumbers:
    if digit % 2 == 0:
        mystery += digit
    print(f"digit is {digit}.")
    print(f"And so far, mystery is {mystery}.")
print(f"Final mystery is {mystery}.")
```

**5.** Once the Python code fragment above has executed, what is the content of the variable `mystery`?

**A.** `0` (zero)
**B.** `[2,4,6,8]`
**C.** `5`
**D.** `20`
**E.** None of the above

**6.** What is the content of the variable `digit` **during** the 4th iteration of the `for` loop?

**A.** `0` (zero)
**B.** `[2,4,6,8]`
**C.** `5`
**D.** `20`
**E.** None of the above => 6

# Part 1 - Theory and Understanding

Consider the following Python code fragment and answer the following 2 questions located on the next slide:

```
aNumber = 9
if condition_1 :
  print("A", (aNumber % 4) )
else :
    print("B")
    if condition_2 :
        print("D")
        if condition_3 and not condition_4 :
            aNumber = 2
        else:
            aNumber = 3
        print("E")
    elif condition_5 :
        print("F")
    else :
        aNumber = 4
    print("G")
print(aNumber)
```

# Part 1 - Theory and Understanding

**7.** What does the Python code fragment produce when all conditions are `True`?

**A.**
```
B
G
4
```

**B.**
```
B
D
E
G
3
```

**C.**
```
A 1
9
```

**D.**
```
B
F
G
9
```

**E.** None of the above

**8.** What does the Python code fragment produce when all conditions are `False`?

**A.**
```
B
G
4
```

**B.**
```
B
D
E
G
3
```

**C.**
```
A 1
9
```

**D.**
```
B
F
G
9
```

**E.** None of the above

# Part 2 - Coding

Solve the following problems by writing a Python program **on a piece of paper without using your computer**!

# Question 9

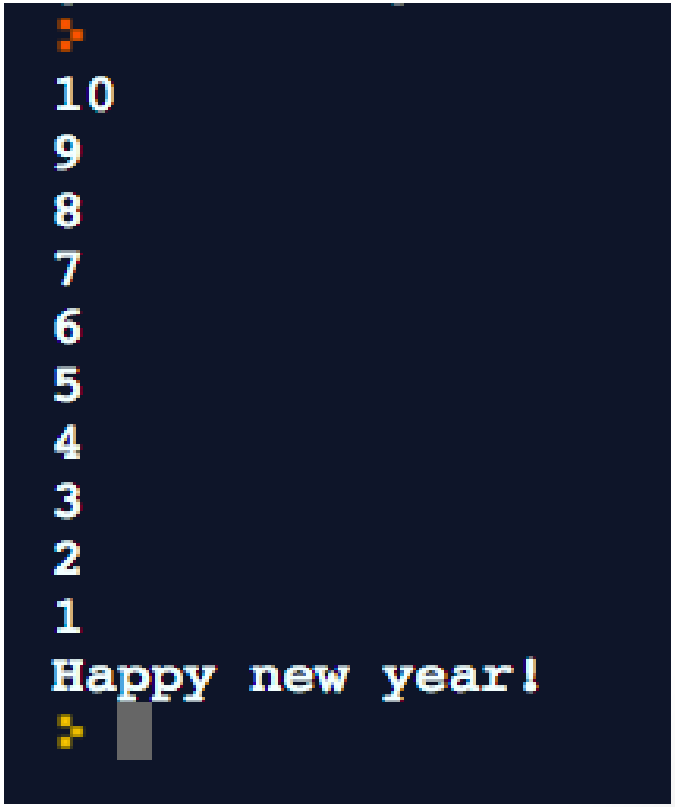
**Problem Statement:**

Write a **New Years Bot** that counts down from 10 to 1.

**Requirements:**

- It must use a `for` loop and each number should be on a new line.
- At the end of the countdown, it must output **Happy new year!**

Here is a sample output (or sample run):



# Possible Answer to Q.9

```
1  # New_Years_Bot.py
2  #
3  # Description: Write a New Years Bot that counts down from 10 to 1.
4  # Requirements: It must use a for loop and each number should be on a new line.
5  #               At the end of the countdown, it must output Happy new year!
6  #
7  # Anne Lavergne
8  # Date: Jan. 2024
9
10 # Needs module time for the sleep function
11 import time
12
13 # Start the countdown from 10 seconds down to 1 second
14 for count in range(10,0,-1):
15     # Print a countdown from 10 seconds down to 1 second
16     print(count)
17     # Wait a second!
18     time.sleep(1)
19
20 # Print Happy new year!
21 print("Happy new year!")
```

# Question 10

**Problem Statement:**

Write a **Milk Survey Bot** that asks the user whether s/he has tried almond, coconut, cow, goat, hemp, oat, rice, and/or soy milk.

**Requirement:**

- Do not repeat the same code over and over!

**Here is a sample run:**

```
How many different types of milk have you tried?
For example, have you tried ...
... almond milk? (y/n): n
... coconut milk? (y/n): y
... cow milk? (y/n): n
... goat milk? (y/n): y
... hemp milk? (y/n): y
... oat milk? (y/n): y
... rice milk? (y/n): n
... soy milk? (y/n): y
```

# Possible Answer to Q.10

```
1  # MilkSurveyBot.py
2  #
3  # Description: Milk Survey Bot that asks the user whether s/he has tried almond,
4  #              coconut, cow, goat, hemp, oat, rice, and/or soy milk.
5  #
6  # Author: AL
7  # Date: Jan. 2024
8
9  # Create a list of all types of milk
10 milks = ["almond", "coconut", "cow", "goat", "hemp", "oat", "rice", "soy"]
11
12 # Print the question to the user
13 print("How many different types of milk have you tried?")
14 print("For example, have you tried ...")
15
16 # Display one type of milk at a time ...
17 for eachMilkType in milks:
18     # ... and read the user's answer
19     answer = input("... " + eachMilkType + " milk? (y/n): ")
```