How do trees get on a computer?

They just log in.

Source: https://heresajoke.com/computer-jokes/

Thank you, Jack

CMPT 120

Lecture 19 – Practice Exam 5

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 #5 -> 1%
  - Write your answer to question **10** on a sheet of paper
  - Write your **lastname**, **firstname** and **student number**
  - 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

Theory and Understanding

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

Operations and Precedence

What does `print(1+2+3+4)` print on the computer monitor screen? `10`

1. What does `print(1-2*3+4)` print on the computer monitor screen? `-1`

2. What does `print(25 - 16 * 8 + 6 // 3)` print on the computer monitor screen? `-101`

3. What does `print((8 // 3 + 6 * 5) % 11)` print on the computer monitor screen? `10`

Function Header

5. Write the header of a Python function which, given a list of numbers, figures out which of the numbers in the list is the smallest.

```
def findSmallest(aListOfNumbers):
```

6. Write the header of a Python function that prints a circle of a given radius and of a given colour using a given turtle.

```
def circle(aTurtle, aRadius, aColour):
```

Warning for the above two questions: Do not write more than what the question is asking for.

Tuples

Consider the following tuple:

```
allSorts = ('Paris', 3.1416, [1,2,3], True, 58)
```

7. What does **`allSorts[1:3]`** print on the computer monitor screen? **`(3.1416, [1, 2, 3]) <- note this is a tuple – here, slicing produces a tuple`**

8. What does **`allSorts[0]`** print on the computer monitor screen? **`'Paris' <- note this is not a tuple but the element at index 0 of the tuple`**

9. What does **`allSorts[::2]`** print on the computer monitor screen? **`('Paris', [1, 2, 3], 58) <- note this is a tuple – here, slicing produces a tuple`**

Question 10

Consider the program

Right now, we are using the following test case:

Test Case:

- Test Data: **78**
- Expected result: **C**

to test it. But we need more!

Write all the test cases (there are 5 in total – including the test case above) we would need in order to test this program completely, i.e., to have all the statements in the program executed at least once.

```
grade = 78

if grade < 60 :
  print("F")
elif grade < 70 :
  print("D")
elif grade < 80 :
  print("C")
elif grade < 90 :
  print("B")
else :
  print("A")
```

Question 10 - Solution

Test Case 1:
- Test Data: **55**
- Expected result: **F**

Test Case 2:
- Test Data: **62**
- Expected result: **D**

Test Case 3:
- Test Data: **78**
- Expected result: **C**

Test Case 4:
- Test Data: **87**
- Expected result: **B**

Test Case 5:
- Test Data: **93**
- Expected result: **A**

Since the code we are testing does not have any user-input validation code, we shall assume that the user is well-behaved, i.e., the user will only enter a grade (an "int"), no string, not "banana"! ☺

Coding

Try to solve the problem (i.e., write your Python program) **1st on a piece of paper without using your computer**!

Question 11 – Palindrome program

- **Problem Statement:**
  - Write a **program** that calls your Palindrome function (from Practice Exam #4 Question 9) and prints

    `That's a palindrome!`

    when the function returns True and

    `That's no palindrome!`

    when then function returns False.
  - Here are **3 sample runs**:

```
Enter a word to check:  a1f33f1a
That's a palindrome!
```

```
Enter a word to check:  PEPPER
That's no palindrome!
```

```
Enter a word to check:  pop
That's a palindrome!
```

  - The program terminates when the user enters an empty string.

Question 12 - Strange Calculator

- **Problem Statement:**
  - Write a program that takes a string as an input, such as "24 + 16", "30 – 5", "10 * 4", 36 // 2", computes the equation found in the string and outputs the equation and its result such as

```
24 + 16 = 40
```

  - **Requirements:**
    - Note that the numbers (**`24`**, **`16`** and **`40`**) in the output above (**`24 + 16 = 40`**) are no longer strings, but integers.
    - Your program cannot use the function **`eval( )`**, but it can use the function **`split()`**.
  - **Hint:**
    - You may find **`OperationsOnList.py`** inspiring. This program is posted under Lecture 18 on our course website.