How do trees get on a computer?

They just log in.

Source: https://heresajoke.com/computer-jokes/
In-Class Activity

• 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

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

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

What does \texttt{print(1+2+3+4)} print on the computer monitor screen? 10

1. What does \texttt{print(1-2*3+4)} print on the computer monitor screen? \texttt{-1}

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

3. What does \texttt{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:

```python
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.

```python
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")
```
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”! 😊
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: alf33fla
  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.