Why did the computer keep sneezing?

It had a virus!

Source: unknown!

Thank you, Lana
In-Class Activity

• Our in-class activity #4 -> 1%
  • Write your answer to the 6 instructions of Q. 10 on Slide 13 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!
Question 1 - Which of the following is true about the `import` statement?
   a. It makes random variables.
   b. You may need to import the same module multiple times in a file.
   c. It loads a module to add functionality to the program.
   d. It creates a module with several functions.
   e. None of the above.

Question 2 - Which of the following statements is true about Boolean values and Boolean expressions?
   a. Boolean expressions can be combined with `or` and `and`.
   b. Boolean expressions are used in conditional statements.
   c. Boolean values can be True or False.
   d. All of the above.
   e. None of the above.

Question 3 - What does it mean to initialize a variable?
   a. Set the variable to 0.
   b. Set the variable to 1.
   c. Set the variable to a number.
   d. Set the variable to a string.
   e. None of the above.

Question 4 - What is an algorithm? Select the most specific answer.
   a. Comments in a Python program.
   b. A sequence of steps to solve a problem.
   c. The input and output of a Python program.
   d. A programming language.
   e. None of the above.
Question 5

What does this syntactically correct code fragment output?

```python
num_pizzas = 2
num_pop = 0
for i in range(num_pizzas):
    num_pop += 10
if num_pop > num_pizzas:
    num_pizzas += 1
print(F"Your order: {num_pizzas} pizza(s), {num_pop} pop.")
```

a. Your order: 20 pizza(s), 2 pop.
b. Your order: 2 pizza(s), 20 pop.
c. Your order: 3 pizza(s), 20 pop.
d. Your order: 3 pizza(s), 10 pop.
e. None of the above.
Question 6

What does this syntactically correct code fragment output?

```python
ratings = [10, 10, 8, 4, 7]
best = 0
for rating in ratings:
    if rating > best:
        best = rating

if best > 10:
    print("Error!")
else:
    print(best)
```

a. 10  
b. 8  
c. Error!  
d. best  
e. None of the above.
Question 7

Do these two syntactically correct Python code fragments produce the same result?

Answer: Yes, and they both print C

```
grade = 78
if grade < 60 :
    print("F")
else :
    if grade < 70 :
        print("D")
    else :
        if grade < 80 :
            print("C")
        else :
            if grade < 90 :
                print("B")
            else :
                print("A")
```

```
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 8

Do these two syntactically correct Python code fragments produce the same result?
Answer: No, the one on the right prints C

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")

grade = 78
if grade < 60 :
    print("F")
if grade < 70 :
    print("D")
if grade < 80 :
    print("C")
if grade < 90 :
    print("B")
else :
    print("A")
Coding

Try to solve the problem (i.e., write your Python program) 1st on a piece of paper without using your computer!
Question 9

• **Problem Statement:**
  • Write a **Palindrome** function that returns True if the given word is a palindrome and False if the given word is not a palindrome.

• **Requirements:**
  • You cannot use any of the string methods that would reverse a string in one function call.
  • But you can index and slice your strings and you can use `len(...)`. 
def palindrome(aWord):
    '''Returns True if 'aWord' is a palindrome and False it is not.'''

    # The idea of this algorithm is:
    # Imagine we are folding aWord in half and checking
    # whether each pair of matching letters are identical
    # If so, we have a palindrome

    # Get the positive index of the last (rightmost) letter of aWord
    reverseIndex = len(aWord) - 1

    # Let's compare each letter of the leftmost half of aWord with
    # its matching counterpart letter in the rightmost half of aWord
    for anIndex in range(0, len(aWord) // 2):

        # If the letters in the current pair are not identical
        # then aWord is not a palindrome
        if aWord[anIndex] != aWord[reverseIndex]:
            return False

        # Go to the next pair of letters
        reverseIndex -= 1

    # If we reach this point, aWord is a palindrome
    return True
Question 10 – Tic Tac Toe

• **Problem Statement:**
  • Write a Turtle program that draws a Tic Tac Toe board on the Turtle canvas.

• **Requirements:**
  • Your program must do this by calling our `drawSquare` function:

• **Solution:** TicTacToe.py
Question 10 – cont’d

• **Instructions:**
  1. Have a look at Slide 9 of Lecture 15 on our course web site. You will find a drawing of the Python canvas and its underlying cartesian coordinate system (top right of slide).
     • I find this type of drawing very useful when I need to move the turtle around the canvas. It helped me fix the bug I originally had in this program 😊.
  2. Draw a similar drawing, i.e., draw the Python canvas and its underlying cartesian coordinate system on a piece of paper.
  3. Draw your turtle at the centre of your Python canvas, i.e., at (0,0) (facing east). This is the default starting position of a turtle.
  4. Draw the **Tic Tac Toe board** you want to produce on the Turtle canvas. You can draw the board such that your turtle is at its center or at another location.
     • In order to draw your **Tic Tac Toe board**, you will need to decide the size of your squares.
  5. Then figure out the coordinates at which you need to move your turtle (using `goto()` ) so it can start drawing one of the squares of the **Tic Tac Toe board** then call the `drawSquare(...)` function.
  6. Repeat the above step (Step 5.) for all the other 8 squares of your **Tic Tac Toe board**.
Q. 10 - Tic Tac Toe board

(0,0)