

OVERVIEW OF WHAT WE HAVE SEEN SO FAR

1 Level 0: Basic applications

1.1 Variable handling (condition)

Here is the array that follows the variables across the program:

| | <i>a</i> | <i>b</i> |
|---------|----------------------------|----------|
| Line 1 | 22 | - |
| Line 2 | 22 | 5 |
| Line 3 | Test true → go to line 4 | |
| Line 4 | 22 | 32 |
| Line 5 | 42 | 32 |
| Line 6 | Test false → go to line 8 | |
| Line 8 | Test false → go to line 10 | |
| Line 10 | Go to line 11 | |
| Line 11 | 42 | 42 |
| END | | |

1.2 Bug handling (syntax)

First, the loop body is not indented: we indent line 2. Then, the string that has to be printed has no end! The closing quote is absent (the syntactic coloration help us to see that, as is the case in the GUI). Finally, there is always a colon at the end of a condition, a loop, etc.

```

1 for loop in range(13):
2     print("9 * 8 = 72")

```

Listing 1: Syntax error corrected.

1.3 Bug handling (loop iterations)

`range(10, 15)` will go from 10 (included) to 15 (excluded). To include 15, we write `range(10, 16)`.

1.4 Absolute value (condition)

```

1 def abso(x):
2     if (x < 0):
3         return -x
4     else:
5         return x

```

Listing 2: Absolute value.

1.5 Insurance deductible (condition)

```

1 total_damage = float(input("What is the total amount of the damage ? "))
2 deductible = 0.1 * total_damage
3 if (deductible < 15):
4     deductible = 15
5 elif (deductible > 500):
6     deductible = 500
7 reimbursement = total_damage - deductible
8 print("The insurance will reimburse " + str(reimbursement) + " ; the
    deductible is " + str(deductible))

```

Listing 3: Insurance deductible.

Remark: in the case where the total amount of damage is $< 15\text{€}$, the insurance will thus reimburse “a negative amount” of money. This means that if you use this insurance to reimburse a 10€ broken watch, they will reimburse your watch, but will ask you for 15€ of deductible, which means that you’ll have to pay them 5€ . Don’t do that !

1.6 Exponentiation (loop)

```
1 def expo(x, n):
2     a = 1
3     for i in range(n):
4         a = a * x
5     return a
```

Listing 4: Exponentiation.

2 Level 1

2.1 Administration opening hours (conditions)

```
1 day = input("What is the day ? ").lower()
2 hour = float(input("What is the hour ? "))
3 if (day == "monday" or day == "tuesday" or day == "wednesday" or day == "
4     thursday" or day == "friday"):
5     if ((hour >= 8 and hour <= 13) or (hour >= 14 and hour <= 17)):
6         print("The administration is open.")
7     else:
8         print("The administration is closed.")
9 elif (day == "saturday"):
10    if (hour >= 8 and hour <= 13):
11        print("The administration is open.")
12    else:
13        print("The administration is closed.")
14 else:
15    print("The administration is closed.")
```

Listing 5: Opening hours.

2.2 Factorial (loop)

```
1 def fact(n):
2     a = 1
3     for i in range(1, n+1):
4         a = a * i
5     return a
```

Listing 6: Factorial.