

Midterm 2 Review Document

Can you please make up a few coding exam style questions that we can try?

You're doing souvenir shopping in Paris and need to figure out how much all your purchases cost in Canadian dollars. Each item is in euros, and has a 50% sale.

1. Write a function **discount(price)** that takes the euro price as its parameter and returns the discounted cost (with 50% off), in Canadian dollars. Assume the conversion rate is 1 EUR to 1.50 CAD.
2. Write a **Souvenir Shopping Bot** that uses the discount function above.
 - a. Your program should ask the user for prices until they type done (see example), reading and storing each of these values into a list.
 - b. Your program must then output the price of each item in this list in Canadian, with the 50% discount applied (see example). Each converted sale price should be output on a separate line.
 - c. Finally, the program should output a total cost at the end.

Here are 2 sample runs:

```
How many euros is souvenir 1? 3
How many euros is souvenir 2? 5
How many euros is souvenir 3? 10
How many euros is souvenir 4? done
Souvenir 1 costs: $2.25 CAD.
Souvenir 2 costs: $3.75 CAD.
Souvenir 3 costs: $7.5 CAD.
Total: $13.5 CAD
```

```
How many euros is souvenir 1? 1
How many euros is souvenir 2? 1
How many euros is souvenir 3? 2
How many euros is souvenir 4? 5
How many euros is souvenir 5? 4
How many euros is souvenir 6? done
Souvenir 1 costs: $0.75 CAD.
Souvenir 2 costs: $0.75 CAD.
Souvenir 3 costs: $1.5 CAD.
Souvenir 4 costs: $3.75 CAD.
Souvenir 5 costs: $3.0 CAD.
Total: $9.75 CAD
```

Will turtle be asked on the coding exam? (I remember that you mentioned that once in the lecture, but i forgot it. sorry)

No. If I did, I would provide reference material so that you didn't have to remember the turtle-specific syntax.

Recursion and fruitful functions

Fruitful functions

Also in terms of studying for recursion and fruitful functions how do you recommend studying for this. I know what it is by definition but based on previous exams I know that wont be enough.

Let's review the recursive function without turtle.

```
# Recursive Example
def print_special_new(mystring):

    # 1) Base case
    if len(mystring) == 0:
        print(mystring) #7("")

    # 2) Call to itself, 3) moving towards base case
    else:
        print_special_new(mystring[1:]) #2(ello),#3(llo),#4(lo),#5(o),#6()
        print(mystring) #8(o),#9(lo),#10(llo),#11(ello),#12(hello)

print_special_new("hello") #1
```

<https://repl.it/repls/UnitedKnobbySystemresource>

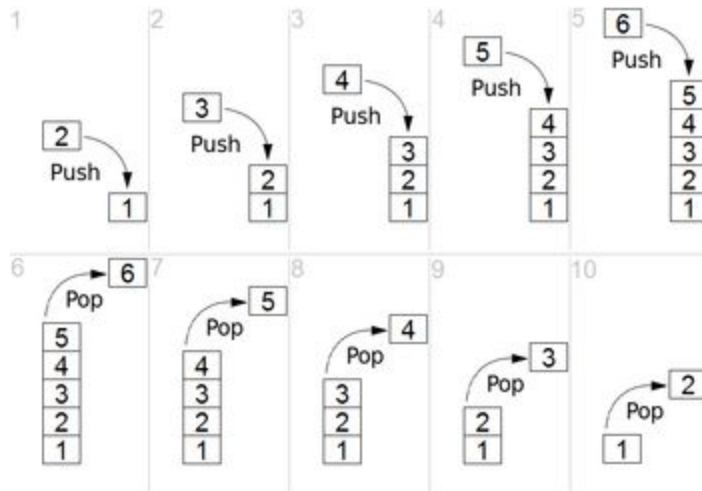
Let's try to write some fruitful functions that return different kinds of types (Boolean, String, Tuple).

<https://repl.it/repls/LightsalmonYearlySubweb>

Can we please clarify the concept of operations being stacked as a "pile", whereas the most recent pile would (for example) be printed out first?

In computer science, this is called a stack, which is where Stack Overflow gets its name.

[https://en.wikipedia.org/wiki/Stack_\(abstract_data_type\)](https://en.wikipedia.org/wiki/Stack_(abstract_data_type))



You can pile things onto the stack for later use, and pop them off when you're ready to access them again.

One use of the stack is to put functions on hold while you're busy finishing another task. This especially is needed in recursion, for example, but actually the stack is used whenever any function is being called.

Why do some questions in the question bank have two quotation marks in their code without an error as an answer? For example. #3,14,20,22,32,34,35,39, and many more. Genuinely curious if this is proper syntax or not because I get an error when I put it into any source code editor. Thank you in advance

Formatting issue -- this happens often with keyboards that use international layouts for input. Mostly fixed now!

difference between while, while not and while true

- while True will require a break on a condition
- A typical use of while automatically incorporates the break into the condition
- **while not** is just another way of thinking of the while loop (e.g. **while not valid** when asking for a particular type of input, such as "Enter a number between 1 and 10")

please review string indexing using negative signs. e.g. mystring[3 : -5]

<http://interactivepython.org/courselib/static/thinkcspy/Strings/IndexOperatorWorkingwiththeCharactersofaString.html>

So using the example in the link above, the indices from 3:-5 would yield: **her Co**

To what extent should we know the turtle module?

Enough to be able to read a program and be able to identify what is being drawn.

**Can you go over the recursive tree example again?
Recursion Tree - what exactly is each step doing?**

Check out the sequencing here:

<https://repl.it/repls/LightUnwillingExams>

But note that the general form of the recursive tree shows the point of recursion: it contains smaller sub-problems/versions of itself.

In the example, draw_tree(3) contains two draw_tree(2), where the smaller trees strongly resemble the bigger one, just with depth of 2.

How to do palindromes and basically everything between before reading break and march 8

Here is another example that could help with palindromes:

```
mystring = "Luthor College"

length = len(mystring)
for i in range(length):
    letter = mystring[length - 1 - i]
    print(letter)
```

<https://repl.it/repls/LimePoliticalSphere>

How do you choose the numbers for RGB?

Upload the image to an online service such as <https://imagecolorpicker.com/> and click pixels to find out RGB values. Microsoft Paint would also have similar functions.

There isn't really any way to know exact RGB values by looking at a color by eye (unless maybe your occupation is paint colour mixer or something similar :))

the red ball questions on friday

This won't be on the midterm, so I'll omit this from the midterm review.