

Python Warmup exercises

Exercise 1

Program outputs all possible right-triangle measurements with integer values up to size 40

```
for c in range(1, 41):  
    for b in range(1, c):  
        for a in range(1, b):  
            if a * a + b * b == c * c:  
                print('{} {} {}'.format(a,b,c))
```

Modify the program so that the value 40 is given by the user as command line argument.

Exercise 2

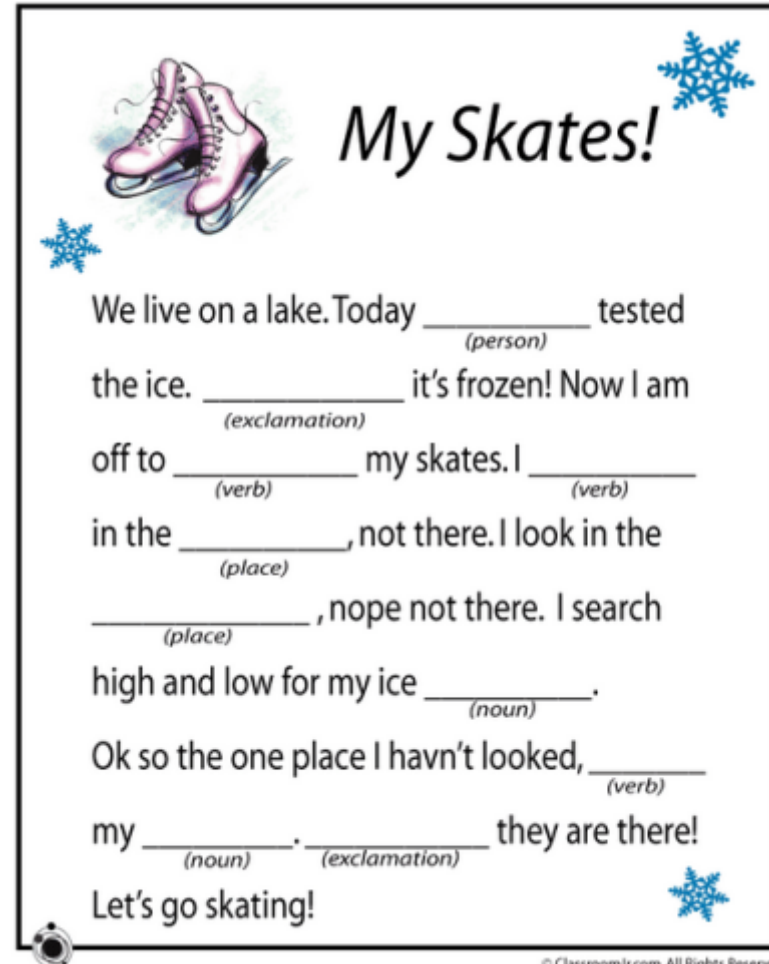
Create a function called **product** with default argument values that takes up to 10 parameters. The function returns the product of its arguments. For example:

- `product(1,2,3)` should return 6
- `product(3,4)` should return 12
- `product(6)` should return 6
- `product(1,2,3,5,10)` should return 300
- `product(1, 2, 3, 4, 5, 6, 7, 8, 9, 10)` should return 3628800

Write a program to test your function with the values above.

Exercise 3

- Write a Python program to play *MadLibs*.
- It can be a short story. The requirement is that it has at least **3 blanks**.
- You can use this story or choose any story of your like. You can found some at:
 - <http://www.classroomjr.com/printable-mad-libs-for-kids/>
 - <http://www.madglibs.com/>



Exercise 4

Exercise 4: Lottery Game

- For this assignment you will write a program that will allow the user to play a game of instant lottery called *PICK5*.

PICK5: Pick five numbers from 1 to 44, guess them all to win.

- Your program should:
 1. Ask the user to enter five numbers (one at a time) and store those numbers in a list called ***usernumbers***
 2. Generate five random numbers which will be the winning numbers and store them in a second list, called ***winningnumbers***
 3. Display the winning numbers from the ***winningnumbers*** list
 4. Display one of the following two messages:
 - CONGRATULATIONS! YOU WON THE LOTTERY!(if all the numbers entered by the user match the winning numbers)

Exercise 4: Lottery Game

Sample Screens

```
**** Welcome to PICK5 lottery game ****
Please pick five numbers between 1 and 44:
3
15
25
32
33
The winning numbers are: 27 32 6 9
15
Sorry, you do not win this time
```

```
**** Welcome to PICK5 lottery game ****
Please pick five numbers between 1 and 44:
13
38
22
26
41
The winning numbers are: 2 38 43 41 3
Sorry, you do not win this time
```

```
**** Welcome to PICK5 lottery game ****
Please pick five numbers between 1 and 44:
12
25
37
41
5
The winning numbers are: 37 12 25 5 41
CONGRATULATIONS! YOU WON THE LOTTERY!
```

```
**** Welcome to PICK5 lottery game ****
Please pick five numbers between 1 and 44:
16
15
14
28
27
The winning numbers are: 34 42 16 22 1
Sorry, you do not win this time
```