Exercises

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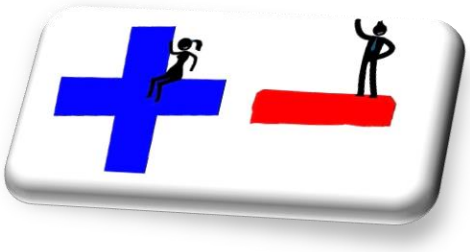
OjjOj

Level 1:

Challenge 1:

Is the number negative or positive?

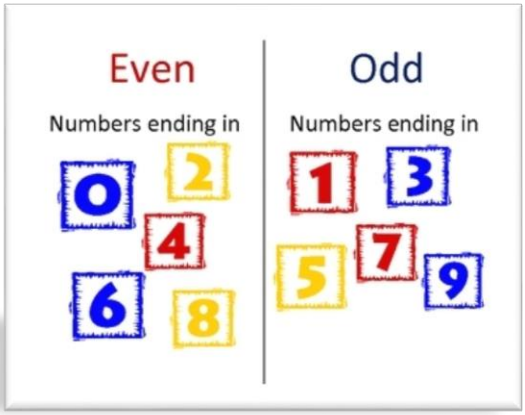
Make a program that gets a number from user and prints if it is positive or negative



Challenge 2:

Is the number even or odd?

Make a program that gets a number from user and prints if it is even or odd



Challenge 3:

Determine the letter number in the alphabet

Make a program that gets a letter from user and prints the letter number in the alphabet

Exp:

Enter a letter: d

Its number is 4

Challenge 4:

How old are you?

Make a program that calculates user's year of birth

Exp:

Enter your year of birth: 2001

You are 19 years old!

Challenge 5:

Reverse words!

Make a program that reverse a given word (or sentence)

Exp:

input: python

>>> nohtyp

Challenge 6:

Simple calculator!

Make a simple calculator than can do basic operations (+, -, *, /) for two numbers

Exp:

Enter first number: 3

Enter second number: 2

Enter operator: *

>>> 6

Challenge 7:

Calculate the sum of digits of a random number

Make a program that calculates sum of digits of a random 3-digit (or longer) number. (use **random** module)

Exp:

Random number: 274

>>> 13

Challenge 8:

Convert uppercase to lowercase and vice versa

Make a program that flips uppercase letters to lowercase and vice versa.

Exp:

Input: OjjOj

>>>oJJoJ

Challenge 9:

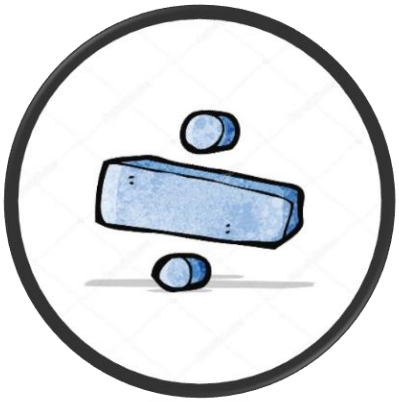
Is the given number divisible by 5 ?

Make a program that gets a number from user and prints if it is divisible by 5

Exp:

Input: 25

>>> Yes



Challenge 10:

Count how many “o” in a given text

Make a program that counts how many times letter “o” is repeated and prints that value

Exp:

Input: hello ojjoj

>>> 3

Level 2:

Challenge 1:

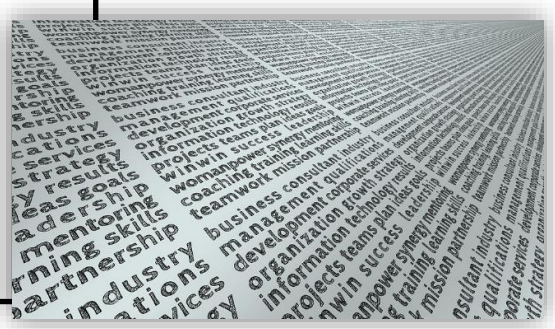
Find the longest word in a string

Make a program that finds the longest word in a string than print it

Exp:

Input: hello OjjOj how are you

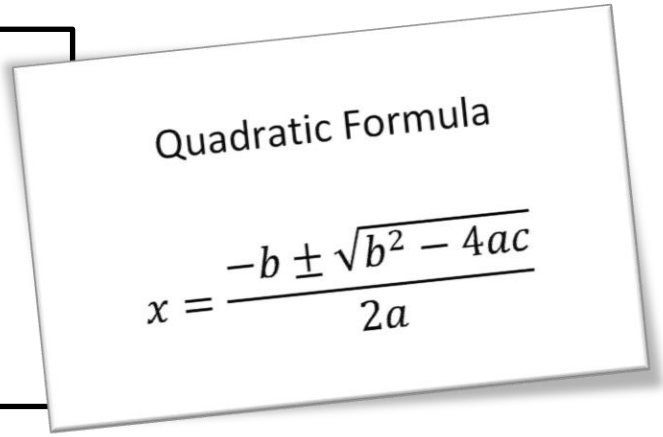
>>> OjjOj



Challenge 2:

Solve the quadratic equation

Make a program that solves the quadratic equation and prints the solution(s)



Challenge 3:

How many second have you been alive?

Make a program that gets age from user then prints the age in seconds

Exp:

Year: 2002

Month: 5

Day: 11

>>> 62284118400 sec

Challenge 4:

Draw triangle with " * "

Make a program that draws a triangle with " * "

Exp:

```
*
**
***
...
```

```
*
***
*****
*******
*********
***********
```

Challenge 5:

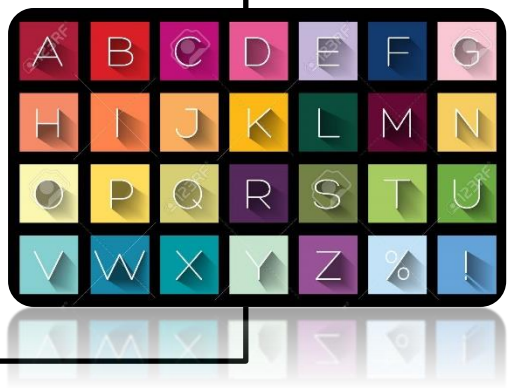
Random letter!

Make a program that generates n random letters and print it.

Exp:

n= 14

>>> oiuyfbqocunzkc



Challenge 6:

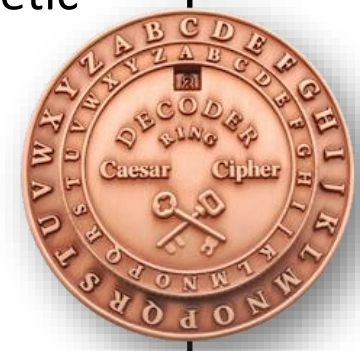
Encryption machine!

Make a program that gets a message from the user and shift the alphabetic order of each letter up to 2 spots

Exp:

Message: Caesar cipher

>>> Ecguct ekrjgt



Challenge 7:

Write in a text file

Make a program that writes “OjjOj” 10 times in a new text file called “ojjoj.text”

Challenge 8:

Multiplication table!

Print the multiplication table!

Exp:

1 * 1 = 1

1 * 2 = 2

1 * 3 = 3

1 * 4 = 4 …

Challenge 9:

Funny Translator!

Make a program that gets a message from the user and change every vowel letter in it to “oo”

Exp:

Message: hello guys

>>> hoolo gooys

Challenge 10:

Arrange the numbers

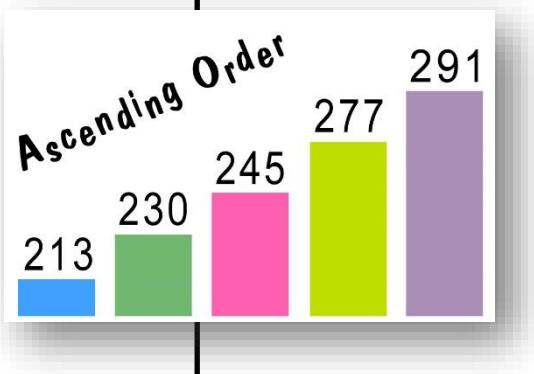
Make a program that gets a list of numbers from the user, then arrange them from big to small.

(Use **sorted()** method)

Exp:

List: [3,2,4,1]

>>> [1,2,3,4]



Level 3:

Challenge 1:

Guess the number game

Make a program that generates a random number between 1 and 100.

The user keeps guessing which number the computer has chosen until they get it right.

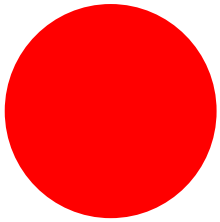
The computer responds ‘You won’ or ‘Higher’ or ‘Lower’ after each guess.

When user wins the computer tells him how many attempts they have made

Challenge 2:

Red Circle!

Make a program that draws a red circle in a graphical user interphase



Challenge 3:

Rock, Paper, Scissors

Make a rock, paper, scissors game against the computer.

Tell the user to enter “r”, “p” or “c”, then get a random answer from computer.

Compare user selection and computer selection (don’t forget draw situation).

After 5 games, display who wins.

Exp:

Rock, paper, scissors: r

Computer: p

Computer: 1 _____ You: 0

.

.

Computer: 2 _____ You: 3

You won!!!

Challenge 4:

Higher or Lower?

Make a program that generates a random number between 1 and 15.

Each time, after seeing the random number, the player decides if the next number is HIGHER "'h" or LOWER "l"

The player has only 3 lives and wins after 10 right guesses ("You won!") or loses if he has no lives left ("You lose!")

Exp:

...

Number: 10

H or L: l

Number: 4

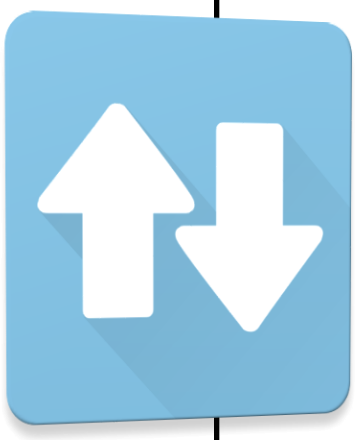
H or L: H

Number: 9

H or L: l

You lose!

You got 2 right guesses



Challenge 5:

0 Lose!

Make a program that generates a random number between 20 and 30.

The player and the computer can remove 1,2 or 3 from the number in turns.

The player who removes the last value to bring the number down to 0 is the loser

Exp:

Number: 26

Remove? 3

23 left

Computer removes 2

21 left

Remove? 2

...

0 left

You won!

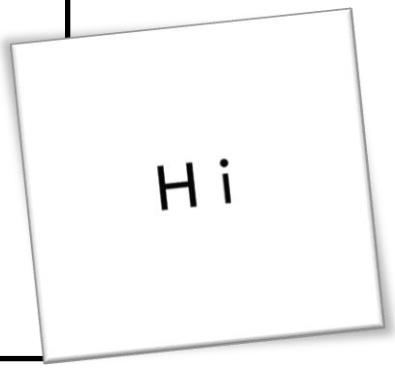
Challenge 6:

Draw Hi!

Make an automation program that can draws “Hi!” on paint app

(Use **pyautogui()** module for moving, dragging, pressing... mouse)

(pyautogui is not built-in module!)



Challenge 7:

BBBsBBB !

Make a program that prints any lowercase letter surrounded by exactly 3 uppercase letters from both sides. (BBBsBBB)

(Use the built-in module **re**)

Exp: helloHOWrUYOmDSQpoGOPMoTYH

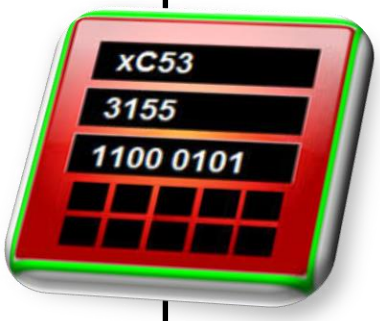
>>> rm

Challenge 8:

Binary/Hex/Decimal Convertor!

Make a program that gets a number from the user than convert it to the 2 remaining forms (binary and hex if number entered is decimal)

(use **int()**, **bin()** and **hex()** functions)



Exp:

Number form: decimal

Number: 10

>>> binary: 1010 , hex : a (Without 0b,0x)

Challenge 9:

Typing speed tester!

Make a program that test how quick people are at typing the alphabet!

1-Tell user to hit “enter” key when ready

2-Get the first time in seconds

3-User types the alphabet and hit “enter”

4-Get the second time in seconds

5-Check if user has entered the alphabet correctly

6-Subtract second time from first time

7-Tell the user how many second they took

(Use **time** module (built-in); Enter key is: “”)

Challenge 10:

Find The Treasure!

1-Create a two-dimensional array of integers (10 by 10).

2-In a random position in the array store the number 1.

3-Get the player to enter coordinates where they think the treasure (number 1) is.

4-The program says ‘hot’, ’cold’ or ‘warm’ depending on how close the player’s guess was to the actual hidden location.

If they guess it right, print “You did it!”.

The player has 15 lives. If he runs out of lives, he loses and the message: “You lost the treasure” will be displayed.

Level 4:

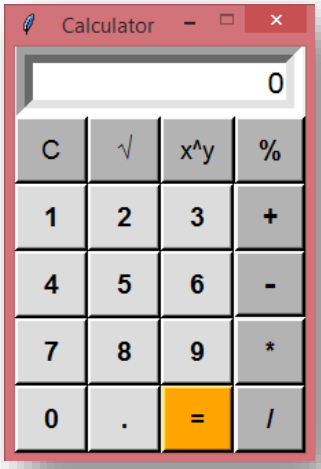
Challenge 1:

Calculator!

Build a full working calculator with GUI

The calculator can do (+ , - , *, / , power , sqrt , (accept parenthesis))

(You can use **Tkinter** built-in module)



Challenge 2:

X / O

Make a X / O game for 2 players with GUI

The player who wins 3 rounds wins the game

The game should show results too

Challenge 3:

Translator!

Make a program that translates a word or a sentence from a chosen language to another (Like google translate)

(No GUI needed)

(you can use **googletrans** module)

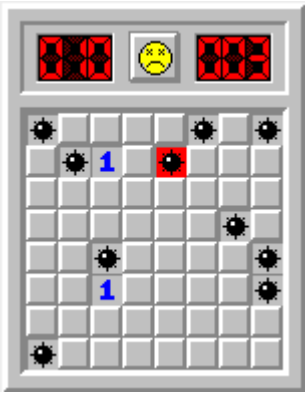
Challenge 4:

Minesweeper!

Make a minesweeper game!

6*6 or 8*8 dimensions are enough

No need to use sound effects.



Challenge 5:

Email sender!

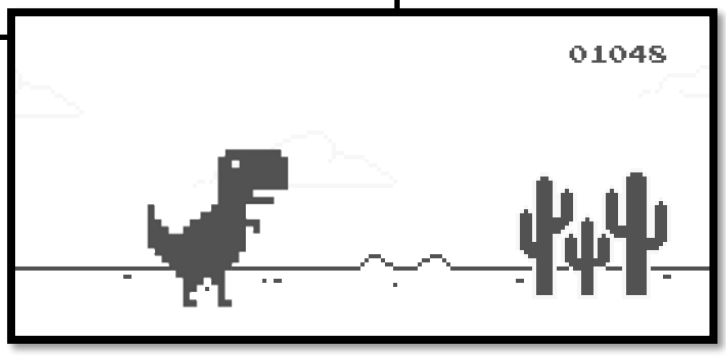
Make a program that gets your account information (email, pass), the target's email address and the message content, then send the email.

(use **smtplib** external module)

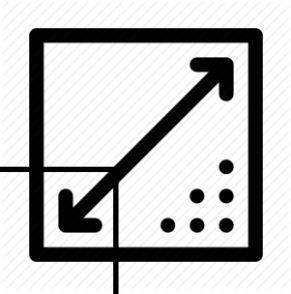
Challenge 6:

Dinosaur Game!

Make a dino game (The NO-INTERNET google chrome game)



Challenge 7:



Resize photos!

Make a program that resizes (.jpg extension) photo(s) to (300 * 300) size

(use **os** (built-in) and **pillow** (external) modules)

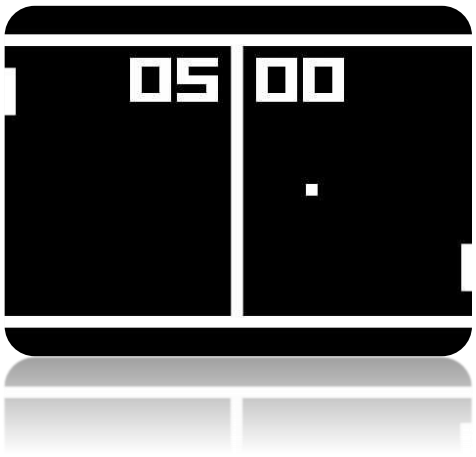
Challenge 8:

Pong Classic Game!

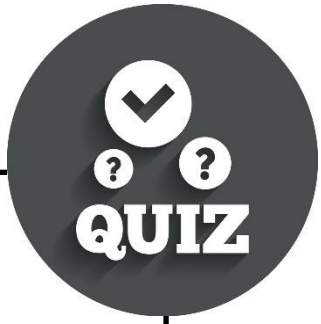
Make a 2 players pong classic game with GUI (black background and white objects)

The score should be displayed on the top of the screen.

The first player scoring 5 points wins!



Challenge 9:



Quiz game!

Make a quiz game (with GUI) that displays 5 questions (one at a time) with 4 answers for each.

If the player answers correctly 3 or more questions, he wins. Otherwise, he loses.

Challenge 10:

Keylogger!

Make a keylogger tool that records everything that is typed on the keyboard in a text file called “keylogger.txt” and store it in a directory called “Secret” on the desktop.

(Use **pynput** external module)

Some challenges are taken from:

- **Computing at school community:**

https://community.computingatschool.org.uk/files/130/original.pdf

(Go check there great programming book of challenges)

- **Python WhatsApp group:**

https://chat.whatsapp.com/BoLzwzSJdep4JBSqxuWvZn

(Join us in this python group chat!)

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