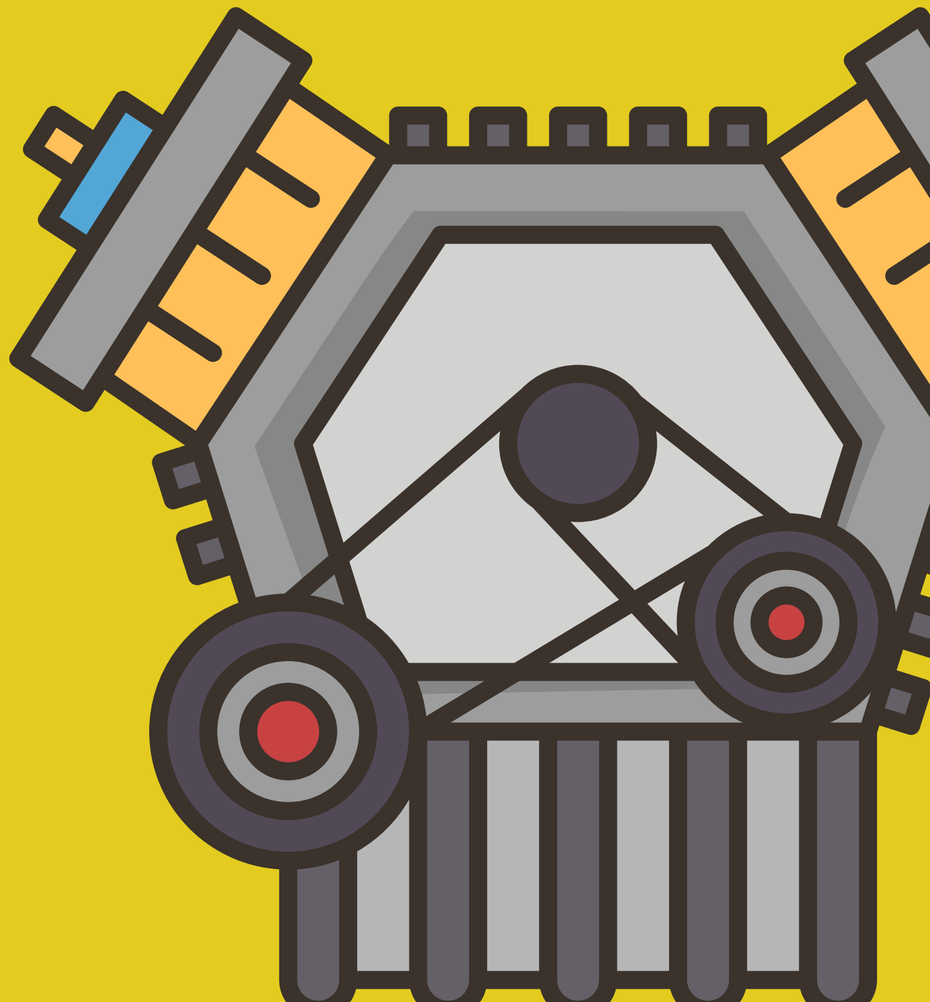
MASTER THE ENGINE OF PYTHON

Loops, Control Statements and Functions



PROBLEM SOLVED BY THE TRIO

1 DECISIONS & ACTIONS

- Boolean nature of variables
- Repetition using the data structures
- Using functions to follow DRY principle
- On the loop decision making

2 WHAT IS THE PROBLEM?

Data stays inside a file, or sensor. Need to make the data flow and ensure goes to correct location every time

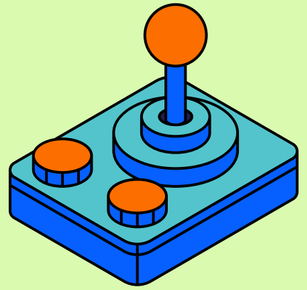
3 HOW IT SOLVES THEM

- Data Movement : For loop
- Correct Destination : If / Else
- Doing multiple times: Functions

SWITCHES/ MOTORS

CONDITION

ACTION



FOR LOOP

FUNCTION

FILE

USE CASE

CONTROL STMT

- Checking the condition
- Checking Existence
- Filtering
- Selectively Modifying

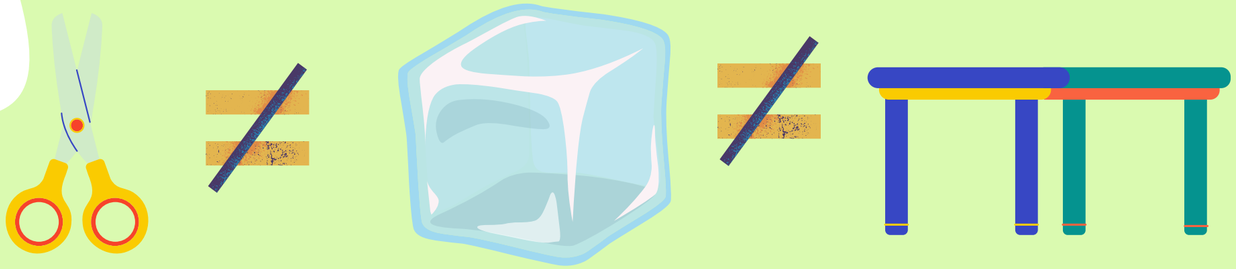
LOOPS

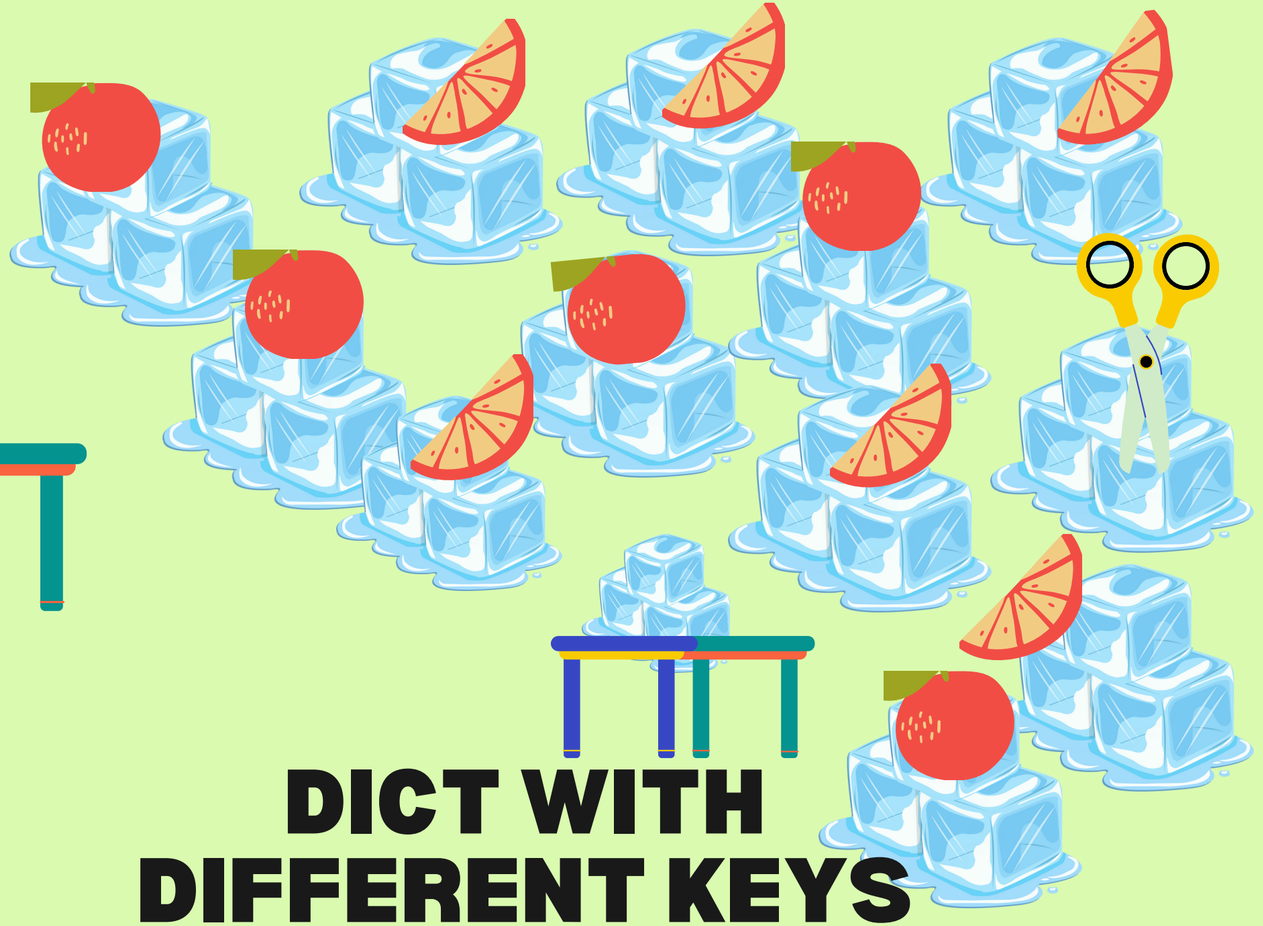
- Reading or Writing Data/ Data structure/ Device
- Repeating a task till data/ data structure is available

FUNCTION

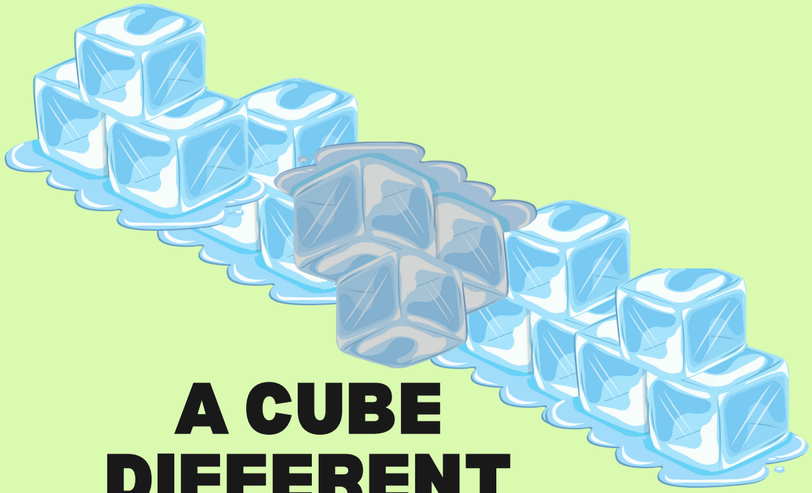
- Grouping a many actions as one action
- Enable single place of change
- Create once use it many time

DATA TYPE





DICT WITH DIFFERENT KEYS



A CUBE DIFFERENT

IF / ELSE/ELIF

Idea : Decide this / that or may be another

```
x = 10
y = 567

if x > y:
   print(x)
```

```
x = 10
y = 567

if x > y:
   print(x)
else:
   print(y)
```

```
x = 10
y = 567
z = 25

if x > y:
   print(x)
elif x > z:
   print(z)
else:
   print(x)
```

PRACTICE CONDITIONS

- Using True / False
- Using None
- Using 0 / 1
- Using 'and' & 'or' adds power
- Using is / in / not

FOR LOOP

Idea : Anything that is a series can be used

- range_data = list(range(0,4))
- list_data = [5,7,9,8,6]
- list_len_range = list(range(len(l_data)))
- string = 'this is awesome'
- list_of_list = [list1, list2,list3]
- dictionary = {52:"E",126:"A",134:"B",}
- for key, value in dictionary.items()

All the above can be looped using for loop

WORKS WONDERS WITH CONDITIONS

- Using True / False
- Using None
- Using 0 / 1
- Using 'and' & 'or' adds power
- Using is / in / not

FUNCTIONS

Idea : Any repetitive tasks with changing inputs, can be made in to functions

- **Returns value:**

```
def calc_area_rec(width,length):
    area = width * length
    if area > 1000:
        print('That's Huge')
    return area


area = calc_area_rec(10,157)
That's Huge
print(area)=> 1570
```

MAY RETURN NONE

- **No Return value:**

```
def who_am_i(name):
    if name == 'human':
        print('You are human')
    else:
        print('May be animal')


you = who_am_i('grrr')
print(you) => None
```

PRACTICE !!!! But How

- **1st Step :** Write 25 functions and some 250 conditions
- **2nd Step:** Reading code written by other programmers
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There **are 3 ways** to Practice:

- Visit codewars.com website and start solving basic problems in python
- Practice the Book 'Learn to Code by Solving Problem' especially the easy problems first.
- Practice the Book 'Learn Python the HardWay' especially the conditionals and function chapters first.

WE HAVE THE ENGINE, LETS MAKE VARIETY OF ROCKETS