# Python Training - 1st Evaluation Test

**Dated:** October 14th, 2021 **Time allowed:** 2:30 hours

***Submission Instructions:*** *You are requested to submit your all codes in a single py file. Each question should have a function in that py file. These functions can be import and work independently.*

**Question 1** [difficulty level: low]

Write a function named **count_evens()** which inputs a list of integers and returns the count of even numbers.

**Example 1:**
count_evens([1,4,2,3,13,4,1])
**Out:** 3

**Example 2:**
count_evens([1,1,9])
**Out:** 0

**********

**Question 2** [difficulty level: low]

Write a function named **analyze()** which inputs a string and returns the number of letters and digits (tuple).

**Example 1:**
analyze('hello3wor1ld')
**Out:** (10,2)

**Example 2:**
analyze('2345ab')
**Out:** (4,2)

**********

**Question 3** [difficulty level: low]

A website requires a password to register a user. Write a function **validate_password()** which inputs a password (string) and validate it on following rules.

1. Password should contain at least one letter from [a-z]
2. Password should contain at least one letter from [A-Z]
3. Password should contain at least one character from [@,$,#]
4. Password should contain at least one digit from [0-9]
5. Password should have a minimum length of 6.

The function will return **True** in case of valid password and **False** in case of in-valid password.

**Example 1:**
validate_password('helloworld')
**Out:** False

**Example 2:**
validate_password('Abc$123')
**Out:** True

**Example 3:**
validate_password('12345678')
**Out:** False

**********

**Question 4** [difficulty level: Low]

Write a function named **sort_deck()** which inputs a list containing valid integers (2 to 10) and valid strings ('Jack', 'Queen', 'King' and 'Ace') with exact spellings. This function should return the same list after sorting (2,3,4,5,6,7,8,9,'Jack','Queen','King','Ace')

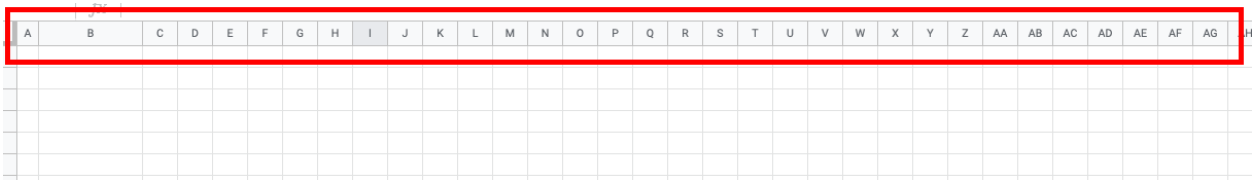
**Example 1:**
sort_deck(['Queen',2,'Jack',9])
**Out:** [2, 9, 'Jack', 'Queen']

**Example 2:**
sort_deck([2,3,5,4,'Queen','King',7,'Ace','Queen', 9,'Jack','King'])
**Out:** [2, 3, 4, 5, 7, 9, 'Jack','Queen', 'Queen', 'King', 'King', 'Ace']

**********

**Question 5** [difficulty level: Medium]

In Excel the column is labeled with alphabets **A**, **B**, **C** and so on. After **Z** the next column is assigned **AA, AB**, **AC**, …., **ZY**, **ZZ**, **AAA**, **AAB** and so on.




Write a function named **int_to_col()** which inputs an integer and returns its corresponding column label.

**Example 1:**
int_to_col(1)
**Out:** 'A'

**Example 2:**
int_to_col(26)
**Out:** 'Z'

**Example 3:**
int_to_col(27)
**Out:** 'AA'

**Example 4:**
int_to_col(50000)
**Out:** 'BUYB'
**Example 5:**
int_to_col(0)
**Out:** Invalid column number

**********

**Question 6** [difficulty level: Medium]

Write a function named **get_depth()** which inputs a dictionary and returns the list of all non-iterable elements in any level/depth of that dictionary.

**Example:**

```
demo_dict = {
   'abcd': {
      'sdfsdf': [
         1,
         2,
         3,
         {
            'c': 34,
            'v': [
               'sadasd',
               {
                  'cccc': 99999,
                  'mbngff': [
                     '234324534534534',
                     {
                        'vxcvxcvbvc': [
                           423443534534,
                           [
                              '000000000000000',
                              [
                                 'Po']]]}]}]}}}
get_depth(demo_dict)
```

**Out:**

```
[1,2,3,34,'sadasd',99999,'234324534534534',423443534534,'000000000000000','Po']
```

**********

**Question 7** [difficulty level: Medium]

Suppose you have a dice and a coin. Now write a program for a game. The game is played twice between 4 players. The third game is the final which is played between the winner of game 1 and game 2

The game starts when players roll a dice and toss a coin.

- If the dice returns an odd number, the score of the user is same as the number returned
- If the dice returns an even number, the score of the user is twice the number returned.

After the dice is rolled, the players then toss the coin.
If the Coin returns Head, then the score is thrice the previous score of the user.
If the Coin returns Tails, then the score is 1 less than the previous score of the user.

Write a program in which Game1 is played between player 1 and player 2. Game 2 is played between player 3 and 4. The final game is played between the winner of game 1 and game 2. Return a winner amongst four players

**********

**Question 8** [difficulty level: Medium]

Make two teams having Six players Both (Team A and Team B).

Randomly select a member from both teams who will play a game.

The game consists of twelve cards. Each card consists of a number and a Character(T or B) i.e (T1 , B1,T2, B2 - - - ,T6, B6).

Both players will fly a coin to decide who will go first (The one with head wins . Head and tail will be assigned randomly)

The one going first will take turns twice and the other once.

A score will be counted at the end of each turn; the score is zero at the start of each match. If the card selected has T then the number with it shall be added in score and if it is B then the number will be subtracted.

At the end of three turns. If the score is positive then Team B wins else Team A wins. If the score is zero then it's a draw.

The game will be repeated with each team member and at the end the team with most Wins is pronounced the winner.

Note:- Add Prints at appropriate locations.

**********

END OF DOCUMENT