Rajalakshmi Engineering College

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NeoColab_REC_CS23221_Python Programming

REC_Python_Week 6_CY

Attempt : 1
Total Mark : 40
Marks Obtained : 36.5

Section 1 : Coding

1. Problem Statement

Implement a program that checks whether a set of three input values can form the sides of a valid triangle. The program defines a function is_valid_triangle that takes three side lengths as arguments and raises a ValueError if any side length is not a positive value. It then checks whether the sum of any two sides is greater than the third side to determine the validity of the triangle.

Input Format

The first line of input consists of an integer A, representing side1.

The second line of input consists of an integer B, representing side2.

The third line of input consists of an integer C, representing side3.

Output Format

The output prints either "It's a valid triangle" if the input side lengths form a valid triangle,

or "It's not a valid triangle" if they do not.

If there is a ValueError, it should print "ValueError: <error_message>".

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: 3
4
5
Output: It's a valid triangle

Answer

```
# You are using Python
def is_valid_triangle(a, b, c):
    if a <= 0 or b <= 0 or c <= 0:
        raise ValueError("Side lengths must be positive")
    if a + b > c and a + c > b and b + c > a:
        return True
    else:
        return False

try:
    a = int(input())
    b = int(input())
    c = int(input())
    if is_valid_triangle(a, b, c):
        print("It's a valid triangle")
    else:
        print("It's not a valid triangle")
except ValueError as e:
    print(f"ValueError: {e}")
```

Status : Correct ***Marks : 10/10***

2. Problem Statement

Alex is creating an account and needs to set up a password. The program prompts Alex to enter their name, mobile number, chosen username, and desired password. Password validation criteria include:

Length between 10 and 20 characters.At least one digit.At least one special character from !@#$%^&* set. Display "Valid Password" if criteria are met; otherwise, raise an exception with an appropriate error message.

Input Format

The first line of the input consists of the name as a string.

The second line of the input consists of the mobile number as a string.

The third line of the input consists of the username as a string.

The fourth line of the input consists of the password as a string.

Output Format

If the password is valid (meets all the criteria), it will print "Valid Password"

If the password is weak (fails any one or more criteria), it will print an error message accordingly.

Refer to the sample outputs for the formatting specifications.

Sample Test Case

Input: John
9874563210
john
john1#nhoj
Output: Valid Password

Answer

```
# You are using Python
def validate_password(password):
```

```
    if not any(char.isdigit() for char in password):
        raise Exception("Should contain at least one digit")
    if not any(char in "!@#$%^&*" for char in password):
        raise Exception("It should contain at least one special character")
    if len(password) < 10 or len(password) > 20:
        raise Exception("Should be a minimum of 10 characters and a maximum of
20 characters")
    return True

name = input()
mobile = input()
username = input()
password = input()

try:
    if validate_password(password):
        print("Valid Password")
except Exception as e:
    print(e)
```

Status : Partially correct **Marks : 6.5/10**

3. Problem Statement

Bob, a data analyst, requires a program to automate the process of analyzing character frequency in a given text. This program should allow the user to input a string, calculate the frequency of each character within the text, save these character frequencies to a file named "char_frequency.txt," and display the results.

Input Format

The input consists of the string.

Output Format

The first line prints "Character Frequencies:".

The following lines print the character frequency in the format: "X: Y" where X is the character and Y is the count.

Refer to the sample output for the formatting specifications.

Sample Test Case

Input: aaabbbccc

Output: Character Frequencies:
a: 3
b: 3
c: 3

Answer

```
# You are using Python
text = input()
frequency = {}

for char in text:
    frequency[char] = frequency.get(char, 0) + 1

with open("char_frequency.txt", "w") as file:
    for char, count in frequency.items():
        file.write(f"{char}: {count}\n")

print("Character Frequencies:")
for char, count in frequency.items():
    print(f"{char}: {count}", end='\n')
```

Status : Correct ***Marks : 10/10***

4. Problem Statement

Write a program to obtain the start time and end time for the stage event show. If the user enters a different format other than specified, an exception occurs and the program is interrupted. To avoid that, handle the exception and prompt the user to enter the right format as specified.

Start time and end time should be in the format 'YYYY-MM-DD HH:MM:SS'If the input is in the above format, print the start time and end time.If the input does not follow the above format, print "Event time is not

in the format "

Input Format

The first line of input consists of the start time of the event.

The second line of the input consists of the end time of the event.

Output Format

If the input is in the given format, print the start time and end time.

If the input does not follow the given format, print "Event time is not in the format".

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 2022-01-12 06:10:00
2022-02-12 10:10:12

Output: 2022-01-12 06:10:00
2022-02-12 10:10:12

Answer

```
# You are using Python
from datetime import datetime

start = input()
end = input()

try:
    start_time = datetime.strptime(start, '%Y-%m-%d %H:%M:%S')
    end_time = datetime.strptime(end, '%Y-%m-%d %H:%M:%S')
    print(start)
    print(end)
except:
    print("Event time is not in the format")
```

Status : Correct ***Marks : 10/10***