Task 10: Create a Python Program to Convert Temperature

DESCRIPTION:

- This is the description of Task-10 of my python internship at Happieloop.
- Here, the task is to convert the given temperature i.e., **Celsius to Fahrenheit & convert Fahrenheit to Celsius.**
- I have created a file named **task10.py** and developed the code according to the requirements of the task.
- I have created a class **Temperature** and defined 2 functions in it.
- One function has been defined to convert Celsius to Fahrenheit (**celsius_fahrenheit()**).
- One function has been defined to convert Fahrenheit to Celsius(**fahrenheit_celsius()**).
- Also I have defined some error and exception handling functions because Celsius temperature has range from 1 to 100 and Fahrenheit temperature has range from 32 to 212.
- The logics for the conversion are as follows:

  $F = 9/5 * C + 32$

  $C = (F – 32)*(5/9)$

- The temperature value should be in the form of integers only or else **ValueError** error will be raised up.

- The units should be either **celsius** or **fahrenheit.** If some other units are given as input then it will also raise an error.
- In this way my code will handle all the exceptions that are required for the conversion of temperature.
- I have also added an **if** function in both the functions according to the range of the Celsius and Fahrenheit.

- Now let's see the code that I have implemented to complete this task.

CODE:

```
class Temperature:
    def celsius_fahrenheit(self, c):
        if 0 <= c <= 100:
            f = ((9 / 5) * c) + 32
            return f
        else:
            raise ValueError("Temperature must be
between 0 and 100 Celsius.")

    def fahrenheit_celsius(self, f):
        if 32 <= f <= 212:
            c = (f - 32) * (5 / 9)
```

```
            return c
        else:
            raise ValueError("Temperature must be
between 32 and 212 Fahrenheit.")


def get_input(prompt):
    while True:
        try:
            return int(input(prompt))
        except ValueError:
            print("Invalid input. Please enter a valid
integer.")


t = Temperature()
x = get_input("Enter the temperature: ")
unit = input("Enter its units (celsius or fahrenheit): ")


if unit == 'celsius':
    try:
        print(f'The temperature {x} {unit} when
converted to fahrenheit: {t.celsius_fahrenheit(x)}')
    except ValueError as e:
```

```
        print(e)
elif unit == 'fahrenheit':
    try:
        print(f'The temperature {x} {unit} when converted to celsius: {t.fahrenheit_celsius(x)}')
    except ValueError as e:
        print(e)
else:
    print("The unit is invalid. Please enter a valid unit (celsius or fahrenheit).")
```

- Now let's see the implementation of the code by giving different sample inputs and obtaining corresponding outputs.

OUTPUT:

```
Enter the temperature: 55
Enter its units (celsius or fahrenheit): celsius
The temperature 55 celsius when converted to fahrenheit: 131.0
```

Enter the temperature: 200

Enter its units (celsius or fahrenheit): fahrenheit

The temperature 200 fahrenheit when converted to celsius: 93.33333333333334

Enter the temperature: 10

Enter its units (celsius or fahrenheit): fahrenheit

Temperature must be between 32 and 212 Fahrenheit.

Enter the temperature: 200

Enter its units (celsius or fahrenheit): celsius

Temperature must be between 0 and 100 Celsius.