```python
# Functions are often used to validate input. Write a function that
accepts a sing integer as a parameter and returns True if the integer
is in the
# range 0 to 100 (inclusive), or False otherwise. Write a short
program to test the function.

def range(numbers):
    if 0<=numbers<=100:
        return True
    else:
        return False

test_numbers= [-100,0,50,100,200]
for numbers in test_numbers:
  print(f"{numbers} is in range : {range(numbers)}")
```

```
-100 is in range : False
0 is in range : True
50 is in range : True
100 is in range : True
200 is in range : False
```

```python
# Write a function that has a single string as its parameter, and
returns the number of uppercase letters, and the number of lowercase
letters in the
# string. Test the function with a short program.


def string(p):
    upperCase = 0
    lowerCase = 0

    for char in p:
        if char.isupper():
            upperCase += 1
        elif char.islower():
            lowerCase +=1
    return upperCase, lowerCase

string_check = input("Enter the text you want to count the casing for:
")

Upcase, lowcase = string(string_check)
print(f"String: '{string_check}'")
print(f"Uppercase letters: {Upcase}, Lowercase letters: {lowcase}\n")
```

```
Enter the text you want to count the casing for:  TurKey

String: 'TurKey'
Uppercase letters: 2, Lowercase letters: 4
```

```
# Modify your "greetings" program so that the first letter of the name
entered is always in uppercase with the rest in lowercase. This should
happen
# even if the user entered their name differently. So if the user
entered arthur, ARTHUR, or arTHur the name should be displayed as
Arthur.

name=input("Hello,what is your name :")
greetings=name.capitalize()
print(f"Hello,{greetings}")
```

```
Hello,what is your name : SUbi
```

```
Hello,Subi
```

```
# When processing data it is often useful to remove the last character
from so input (it is often a newline). Write and test a function that
takes a
# string parameter and returns it with the last character removed.

def last_character(p):
    if len(p)<=1:          #checks the length of the string
        return p
    else:
        return p[:-1]
remove_last_char= input("Enter any word :")
modified_string= last_character(remove_last_char)
print(f"{remove_last_char} modified : {modified_string}")
```

```
Enter any word : Filling
```

```
Filling modified : Fillin
```

```
# Write and test a function that converts a temperature measured in
degrees centigrade into the equivalent in fahrenheit, and another that
does the
# reverse conversion. Test both functions

def cels_to_fahren(celsius):
    Fahrenheit= celsius*(9/5) +32
    return Fahrenheit

def fahren_to_cels(fahren):
    Celsius= (fahren-32) * 5/9
    return Celsius

temp_in_celsius= float(input("Enter a temperature in celsius :"))
print(f"{temp_in_celsius}C  is equivalent to
{cels_to_fahren(temp_in_celsius)}F")

temp_in_Fahren= float(input("Enter a temperature in Fahrenheit :"))
```

```
print(f"{temp_in_Fahren}F is equivalent to
{fahren_to_cels(temp_in_Fahren)}C")
```

```
Enter a temperature in celsius : 15

15.0C  is equivalent to 59.0F

Enter a temperature in Fahrenheit : 59

59.0F is equivalent to 15.0C
```

```
# Write a program that takes a centigrade temperature and displays the
equivalent in fahrenheit. The input should be a number followed by a
letter C.
# The output should be in the same format

def cels_to_fahren(celsius):
    return celsius * (9/5) + 32

def convert_temp(temp1):
    if temp1[-1].upper() == 'C':
        celsius = float(temp1[:-1])
        fahrenheit = cels_to_fahren(celsius)
        return f"{fahrenheit:.2f}F"
    else:
        return "Please enter the temperature followed by 'C'"

temp1= input("Enter the temperature in Celsius (e.g., 28C): ")
temp2= convert_temp(temp1)
print(temp2)
```

```
Enter the temperature in Celsius (e.g., 28C):  28C

82.40F
```

```
# Write a program that reads 6 temperatures (in the same format as
before), and displays the maximum, minimum, and mean of the values

def cels_to_fahren(celsius):
 return celsius * (9/5) + 32

def convert_temp(temp):
 if temp[-1].upper() == 'C':
     celsius = float(temp[:-1])
     fahrenheit = cels_to_fahren(celsius)
     return f"{fahrenheit:.2f}F"
 else:
     return "Please enter the temperature followed by 'C'"

temperatures= []
for i in range(6):
```

```
    temp = input(f"Enter temperature {i+1} in Celsius (e.g., 28C):")

    if temp[-1].upper() == 'C' and temp[:-1]:
        celsius = float(temp[:-1])

        fahrenheit = cels_to_fahren(celsius)
        temperatures.append(fahrenheit)
    else:
        print("Not a valid input. Please enter the temperature in
C'")

if temperatures:
 max_temp = max(temperatures)
 min_temp = min(temperatures)
 mean_temp= sum(temperatures) / len(temperatures)
 print(f"Maximum temperature: {max_temp:.2f}F")
 print(f"Minimum temperature: {min_temp:.2f}F")
 print(f"Mean temperature: {mean_temp:.2f}F")
else:
 print("Valid temperatures were not entered")
```

```
Enter temperature 1 in Celsius (e.g., 28C): 25C
Enter temperature 2 in Celsius (e.g., 28C): 15C
Enter temperature 3 in Celsius (e.g., 28C): 28C
Enter temperature 4 in Celsius (e.g., 28C): 16.5C
Enter temperature 5 in Celsius (e.g., 28C): 23.2C
Enter temperature 6 in Celsius (e.g., 28C): 13C

Maximum temperature: 82.40F
Minimum temperature: 55.40F
Mean temperature: 68.21F
```

```
# Modify the previous program so that it can process any number of
values. The input terminates when the user just pressed "Enter" at the
prompt rather
# than entering a value.

def cels_to_fahren(celsius):
    return celsius * (9/5) + 32

def degrees():
    temperatures = []

    while True:
        temp = input("Enter temperature in Celsius (e.g., 25C) or
press Enter to stop: ")
        if temp == "":
            break

        if temp[-1].upper() == 'C' and temp[:-1]:
```

```
            # Extract the numeric part and convert to float
            celsius = float(temp[:-1])

            fahrenheit = cels_to_fahren(celsius)
            temperatures.append(fahrenheit)
        else:
            print("Invalid input. Please enter the temperature in the
format 'XXC'.")

    if temperatures:
        max_temp = max(temperatures)
        min_temp = min(temperatures)
        mean_temp = sum(temperatures) / len(temperatures)

        print(f"Maximum Temperature: {max_temp:.2f}F")
        print(f"Minimum Temperature: {min_temp:.2f}F")
        print(f"Mean Temperature: {mean_temp:.2f}F")
    else:
        print("No valid temperatures were entered.")

if __name__ == "__main__":
    degrees()
```

```
Enter temperature in Celsius (e.g., 25C) or press Enter to stop:  15C
Enter temperature in Celsius (e.g., 25C) or press Enter to stop:  25C
Enter temperature in Celsius (e.g., 25C) or press Enter to stop:  35C
Enter temperature in Celsius (e.g., 25C) or press Enter to stop:  10C
Enter temperature in Celsius (e.g., 25C) or press Enter to stop:

Maximum Temperature: 95.00F
Minimum Temperature: 50.00F
Mean Temperature: 70.25F
```