Week37

January 11, 2021

1 Exercise 1

Write a program that converts temperature between Fahrenheit and Celsius. Ask the user to enter the temperature in a format like ”-2C” or ”75F”. De-pending on the given unit of measurement, use one of the formulas below for conversion and print the result on the screen!

$c = \frac{(f-32)}{1.8}$
$f = c * 1.8 + 32$

[18]:
```
temp = input("Please enter a temperature.")

if temp[-1] == "C":
    temp = int(temp[0:-1])
    fahrenheit = (temp * 1.8) + 32
    print(str(fahrenheit) + "F")
elif temp[-1] == "F":
    temp = int(temp[0:-1])
    celsius = (temp - 32)/1.8
    print(str(celsius) + "C")
```

```
Please enter a temperature.12C
53.6F
```

2 Exercise 2

Write a program that asks a user to play a game. If the user enters y or yes, indicate that the user needs to find out a secret number between 1 and 1000. The user enters a guess and the program should inform if the guessed number is correct, larger or smaller than the secret number. Your program should continue asking the user to guess the number until the guess is correct. In that case, print a congratulatory message!

[ ]:
```
import random

game = input("Do you want to play a game? ")
secret_number = random.randint(1, 1000)

# Flag to toggle while loop
# Boolean value
```

```
correct_guess = False
if game == "y" or game == "yes":
    while(not correct_guess):
        print("Guess a number between 1 and 1000")
        answer = int(input("What is your guess?"))
        if answer == secret_number:
            print("Correct you won!")
            # Toggles thew boolean value so the while loop stops
            correct_guess = True
        elif secret_number > answer:
            print("The number is higher.")
        elif secret_number < answer:
            print("The number is lower.")
else:
    print("Bye bye.")
```

3 Exercise 3

Write a program that reads in two numbers from the user. The program should print the relation between the two numbers, which will be one of the following: numbers are equal, first number is less than the second number, first number is greater than the second number.

[1]:
```
first = float(input("Input a number: "))
second = float(input("Input another number: "))

if first == second:
    print("Numbers are equal")
elif first < second:
    print("The first number is smaller than the second number.")
elif first > second:
    print("The first number is larger than the second number.")
```

```
Input a number12
Input another number8
The first number is larger than the second number.
```

4 Exercise 4

Write a program that reads in a string from the user. If the string contains at least one of every vowel (a, e, i, o, u), print "You have all the vowels!" Also, print the number of vowels contained in the string. Finally, if the string starts with the letter a and ends with the letter z, print "And its sort of alphabetical!"

[ ]:
```
vowels = ["a", "e", "i", "o", "u"]
counter = 0

sentence = input("Please input a sentence: ")
```

```
# [val in string for val in list] - List comprehension
if all([v in sentence for v in vowels]):
    print("You have all the vowels!")

for v in vowels:
    if v in sentence:
        counter += 1

print("There are " + str(counter) + " vowels in the sentence.")

if sentence[0] == "a" and sentence[-1] == "z":
    print("And its sort of alphabetical!")
```

5 Exercise 5

Write a program that iterates over all even numbers between 1 and 100. If the number is also divisible by 6, increment a counter. At the end of your program, print how many numbers are even and also divisible by 6.

[7]:
```
counter = 0

for number in range(2, 100, 2):
    if number % 6 == 0:
        counter += 1

print(counter)
```

```
16
```

6 Exercise 6

Write a program that asks the user for a number, n. Then use loops to repeat-edly print a message. For example, if the user inputs 99, your program should print this:99 books on Python on the shelf. Take one down, pass it around, 98 books left. 98 books on Python on the shelf. Take one down, pass it around, 97 books left….1 book on Python on the shelf. Take one down, pass it around, no more books!

[11]:
```
number = int(input("How many books on the shelf? "))

while number > 0:
    print(str(number) + " books of Python on the shelf. Take one down, pass it␣
 ↪around, " + str(number - 1) + " books left")
    number -= 1
```

```
How many books on the shelf? 99
99 books of Python on the shelf. Take one down, pass it around, 98 books left
```

98 books of Python on the shelf. Take one down, pass it around, 97 books left
97 books of Python on the shelf. Take one down, pass it around, 96 books left
96 books of Python on the shelf. Take one down, pass it around, 95 books left
95 books of Python on the shelf. Take one down, pass it around, 94 books left
94 books of Python on the shelf. Take one down, pass it around, 93 books left
93 books of Python on the shelf. Take one down, pass it around, 92 books left
92 books of Python on the shelf. Take one down, pass it around, 91 books left
91 books of Python on the shelf. Take one down, pass it around, 90 books left
90 books of Python on the shelf. Take one down, pass it around, 89 books left
89 books of Python on the shelf. Take one down, pass it around, 88 books left
88 books of Python on the shelf. Take one down, pass it around, 87 books left
87 books of Python on the shelf. Take one down, pass it around, 86 books left
86 books of Python on the shelf. Take one down, pass it around, 85 books left
85 books of Python on the shelf. Take one down, pass it around, 84 books left
84 books of Python on the shelf. Take one down, pass it around, 83 books left
83 books of Python on the shelf. Take one down, pass it around, 82 books left
82 books of Python on the shelf. Take one down, pass it around, 81 books left
81 books of Python on the shelf. Take one down, pass it around, 80 books left
80 books of Python on the shelf. Take one down, pass it around, 79 books left
79 books of Python on the shelf. Take one down, pass it around, 78 books left
78 books of Python on the shelf. Take one down, pass it around, 77 books left
77 books of Python on the shelf. Take one down, pass it around, 76 books left
76 books of Python on the shelf. Take one down, pass it around, 75 books left
75 books of Python on the shelf. Take one down, pass it around, 74 books left
74 books of Python on the shelf. Take one down, pass it around, 73 books left
73 books of Python on the shelf. Take one down, pass it around, 72 books left
72 books of Python on the shelf. Take one down, pass it around, 71 books left
71 books of Python on the shelf. Take one down, pass it around, 70 books left
70 books of Python on the shelf. Take one down, pass it around, 69 books left
69 books of Python on the shelf. Take one down, pass it around, 68 books left
68 books of Python on the shelf. Take one down, pass it around, 67 books left
67 books of Python on the shelf. Take one down, pass it around, 66 books left
66 books of Python on the shelf. Take one down, pass it around, 65 books left
65 books of Python on the shelf. Take one down, pass it around, 64 books left
64 books of Python on the shelf. Take one down, pass it around, 63 books left
63 books of Python on the shelf. Take one down, pass it around, 62 books left
62 books of Python on the shelf. Take one down, pass it around, 61 books left
61 books of Python on the shelf. Take one down, pass it around, 60 books left
60 books of Python on the shelf. Take one down, pass it around, 59 books left
59 books of Python on the shelf. Take one down, pass it around, 58 books left
58 books of Python on the shelf. Take one down, pass it around, 57 books left
57 books of Python on the shelf. Take one down, pass it around, 56 books left
56 books of Python on the shelf. Take one down, pass it around, 55 books left
55 books of Python on the shelf. Take one down, pass it around, 54 books left
54 books of Python on the shelf. Take one down, pass it around, 53 books left
53 books of Python on the shelf. Take one down, pass it around, 52 books left
52 books of Python on the shelf. Take one down, pass it around, 51 books left
51 books of Python on the shelf. Take one down, pass it around, 50 books left

```
50 books of Python on the shelf. Take one down, pass it around, 49 books left
49 books of Python on the shelf. Take one down, pass it around, 48 books left
48 books of Python on the shelf. Take one down, pass it around, 47 books left
47 books of Python on the shelf. Take one down, pass it around, 46 books left
46 books of Python on the shelf. Take one down, pass it around, 45 books left
45 books of Python on the shelf. Take one down, pass it around, 44 books left
44 books of Python on the shelf. Take one down, pass it around, 43 books left
43 books of Python on the shelf. Take one down, pass it around, 42 books left
42 books of Python on the shelf. Take one down, pass it around, 41 books left
41 books of Python on the shelf. Take one down, pass it around, 40 books left
40 books of Python on the shelf. Take one down, pass it around, 39 books left
39 books of Python on the shelf. Take one down, pass it around, 38 books left
38 books of Python on the shelf. Take one down, pass it around, 37 books left
37 books of Python on the shelf. Take one down, pass it around, 36 books left
36 books of Python on the shelf. Take one down, pass it around, 35 books left
35 books of Python on the shelf. Take one down, pass it around, 34 books left
34 books of Python on the shelf. Take one down, pass it around, 33 books left
33 books of Python on the shelf. Take one down, pass it around, 32 books left
32 books of Python on the shelf. Take one down, pass it around, 31 books left
31 books of Python on the shelf. Take one down, pass it around, 30 books left
30 books of Python on the shelf. Take one down, pass it around, 29 books left
29 books of Python on the shelf. Take one down, pass it around, 28 books left
28 books of Python on the shelf. Take one down, pass it around, 27 books left
27 books of Python on the shelf. Take one down, pass it around, 26 books left
26 books of Python on the shelf. Take one down, pass it around, 25 books left
25 books of Python on the shelf. Take one down, pass it around, 24 books left
24 books of Python on the shelf. Take one down, pass it around, 23 books left
23 books of Python on the shelf. Take one down, pass it around, 22 books left
22 books of Python on the shelf. Take one down, pass it around, 21 books left
21 books of Python on the shelf. Take one down, pass it around, 20 books left
20 books of Python on the shelf. Take one down, pass it around, 19 books left
19 books of Python on the shelf. Take one down, pass it around, 18 books left
18 books of Python on the shelf. Take one down, pass it around, 17 books left
17 books of Python on the shelf. Take one down, pass it around, 16 books left
16 books of Python on the shelf. Take one down, pass it around, 15 books left
15 books of Python on the shelf. Take one down, pass it around, 14 books left
14 books of Python on the shelf. Take one down, pass it around, 13 books left
13 books of Python on the shelf. Take one down, pass it around, 12 books left
12 books of Python on the shelf. Take one down, pass it around, 11 books left
11 books of Python on the shelf. Take one down, pass it around, 10 books left
10 books of Python on the shelf. Take one down, pass it around, 9 books left
9 books of Python on the shelf. Take one down, pass it around, 8 books left
8 books of Python on the shelf. Take one down, pass it around, 7 books left
7 books of Python on the shelf. Take one down, pass it around, 6 books left
6 books of Python on the shelf. Take one down, pass it around, 5 books left
5 books of Python on the shelf. Take one down, pass it around, 4 books left
4 books of Python on the shelf. Take one down, pass it around, 3 books left
3 books of Python on the shelf. Take one down, pass it around, 2 books left
```

```
2 books of Python on the shelf. Take one down, pass it around, 1 books left
1 books of Python on the shelf. Take one down, pass it around, 0 books left
```

[ ]: