

# Module 4 Assignment Solution

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## Welcome to our last assignment!

This assignment is about testing your understanding of flow control: repetition.

We are going to create some simple programs using these tools. Are you ready? Let's get started!

You will find some small tasks in sections below. You should use `input()` to get the user to enter the information and use `print()` to print the information on the screen. At this moment, we can assume users will follow instructions carefully - they will enter the valid inputs as required.

## Prime Numbers

### Instruction:

Step 1: Ask the user to enter an integer

Step 2: find and print all prime numbers up to the integer.

```
n = int(input('Enter an integer: '))
for i in range(1, n+1):
    prime = True
    for j in range(2, i):
        if i % j == 0:
            prime = False
            break
    if prime:
        print(i)
```

```
Enter an integer: 20
1
2
3
5
7
11
13
17
19
```

## Binary Converter

###Instruction: You are going to program a decimal to binary converter.

step1: Ask the user to enter a positive decimal integer.

step2: Calculate the binary representation of the integer by keep dividing until the remainder is less than 2, keep record of all the reminders.

step3: Print reminders as the binary representation.

```
n = int(input('Enter a positive integer: '))
bin = ''
while n > 0:
    reminder = n % 2
    bin = str(reminder) + bin
    n = n // 2
print(bin)
```

```
Enter a positive integer: 10
1010
```

# A Simple Grade Book

###Instruction: You are going to program a simple grade book.

step1: Ask the user to enter the number of students in a class

step2: Ask the user to enter the grade (in a 0-100 scale) of each student

step3: Calculate and print the average, min, and max grade of the class.

```
n = int(input('Enter the number of students: '))
total = 0
min = 100
max = 0
for i in range(n):
    grade = int(input('Enter the grade of the student: '))
    total += grade
    if grade < min:
        min = grade
    if grade > max:
        max = grade
print('Average:', total/n, '. Min:', min, '. Max:', max)
```

```
Enter the number of students: 3
Enter the grade of the student: 100
Enter the grade of the student: 80
Enter the grade of the student: 90
Average: 90.0 . Min: 80 . Max: 100
```

# Fahrenheit to Celcius Converter

###Instruction: You are going to program a simple converter which converts a Fahrenheit degree to Celcius degree..

step1: Ask the user to enter the number in Fahrenheit, (enter stop to quit the program)

step2: Calculate the celcius based on the formular  $c = (f - 32) * 5 / 9$

step3: print the celcius

```
f = input('Enter the Fahrenheit (enter stop to quit): ')
while f != 'stop':
    f = float(f)
    c = (f - 32) * 5 / 9
    print('Celcius is', c)
    f = input('Enter the Fahrenheit (enter stop to quit): ')
```

```
Enter the Fahrenheit (enter stop to quit): 100
Celcius is 37.77777777777778
Enter the Fahrenheit (enter stop to quit): 50
Celcius is 10.0
Enter the Fahrenheit (enter stop to quit): 30
Celcius is -1.1111111111111112
Enter the Fahrenheit (enter stop to quit): 80
Celcius is 26.666666666666668
Enter the Fahrenheit (enter stop to quit): stop
```

## How many E and e in a sentence?

###Instruction: You are going to program a simple counter which finds how many 'E' and 'e' in a sentence entered by the user.

step1: Ask the user to enter a sentence

step2: Count the number of 'E', and the number of 'e'

step3: print the result

```
sentence = input('Enter a sentence: ')
number_e = 0
number_E = 0
for c in sentence:
    if c == 'e':
        number_e += 1
    elif c == 'E':
        number_E += 1
print('Number of e:', number_e, '. Number of E: ', number_E)
```

```
Enter a sentence: Welcome to my Email! Eeee
Number of e: 5 . Number of E: 2
```

**Congratulations! You finished this Assignment and completed Module 4!**

