

CS 115 - Introduction to Programming in Python

Lab 02

Lab Objectives: Loops – for and while

1. Write a Python script, `yourname_Q1.py` that does the following:
 - a. Uses a for loop to calculate and displays the value of $1 + 1/2 + 1/3 + 1/4 + \dots 1/1000$.
 - b. Uses a while loop to calculate and display the value of $1 + 1/2 + 1/3 + 1/4 + \dots 1/1000$.
2. Write a program, `yourname_Q2.py`, that inputs a string from the user, and creates a new string that replaces each non-alphabetic character in the original string with an asterisk (*). You should solve this problem in 2 ways, first use a for loop that iterates through each character in the string, the second should use a for loop that iterates through a range. Hint: You can invoke the `is_alpha()` function on a string, and it will return True if the string is alphabetic, False if not. `'5'.isalpha() -> False`.

Sample Run:

```
Enter a string: abc.def,gh5 ijk
New string: abc*def*gh**ijk
```

3. Write a program, `yourname_Q3.py` that inputs (and validates) a **positive** integer value from the user and displays whether or not the digits (from the leftmost) are in descending order (each digit to the right is less than the previous). Solve without using strings and with using strings.

Sample Runs:

```
Enter integer value: 54321
Digits are in descending order
```

```
Enter integer value: 8521
Digits are in descending order
```

```
Enter integer value: -5432
Value must be positive...
```

```
Enter integer value: 4351
Digits are not in descending order
```

```
Enter integer value: 435
Digits are not in descending order
```

```
Enter integer value: 7
Digits are in descending order
```