

Module 9: Functions in Action

Review of Loops and Functions in Python

September 16, 2019

1. Write a function called `grade` that takes in the score (0-100) and returns the letter grade as per the following scale: > 90 is A, > 80 is B, > 70 is C, > 60 is D, > 40 is E and ≤ 40 is F. If the input parameter is not a number between 0 and 100 (both inclusive), the function should return "X" (indicating invalid score). Call the function with different scores and check that it works.
2. Write a function that asks the user repeatedly for (integer) numbers. If the user enters "done", the program then prints out the total (sum), the count, and the average of the numbers. If the user enters a string that is not a number, then the program prints out a message "Invalid Input!". Hints: You should use a while loop and break out of the loop if the user inputs "done". If the user does not enter a number before entering "done", then the program should say "No numbers were entered". You can check whether an input string can be converted to an integer by using `str.isdigit()` where `str` is the string that you are checking.

Sample run output:

```
Enter a number: 45
Enter a number: 2
Enter a number: 11
Enter a number: number
Invalid input!
Enter a number: 3
Enter a number: 12
Enter a number: done
Count=5, Total=73, Average=14.6
```

3. Write a function that takes an integer n as input and then prints out a multiplication table of size $n \times n$. For example, if the user enters $n = 5$, then the output should be

```
1   2   3   4   5
2   4   6   8  10
3   6   9  12  15
4   8  12  16  20
5  10  15  20  25
```

You need to use two nested loops. In order to format the output, you can use the "end" parameter and set it to a tab, as in `print(i*j, end='\t')`. You also need to have an empty print statement in order to start a new line.