

Tutorial 7

CSE101 : Introduction to Programming

Question 1

Take an input string S consisting of lower case English alphabets. Find the number of occurrences of each vowel (a, e, i, o, u) in the string S and store the values in an array. You can name the array “Vowel”. The frequencies should be stored in the following manner.

Vowel[0] = frequency of ‘a’ in S

Vowel[1] = frequency of ‘e’ in S

Vowel[2] = frequency of ‘i’ in S

Vowel[3] = frequency of ‘o’ in S

Vowel[4] = frequency of ‘u’ in S

Question 2

You are given an array A of length N consisting of integer numbers (you **DON’T** have to take the array as input). Write a function to return the difference between the sum of numbers at even indices and sum of numbers at odd indices.

Answer = (A[0] + A[2] + ...) - (A[1] + A[3] + ...)

Question 3:

Print the following patterns using loops by taking input ‘n’ from the user:

a) 1
2
3
4
5
.
.
.
n

b) *

**

....n rows

c) 1

23

456

78910

11121314

....n rows

d) *

* * *

* * * * *

* * * * * *

* * * * * *

* * * * * *

...n rows

Additional patterns for practice at home:

a) *

* *

* * *

* * * *

* * * * *

b) *

* * *

* * * * *

* * * * * *

* * * * * *

* * * * * *

* * * *

* * *

*

c)

```

      *
    * *
  * * *
* * * *
* * * *
  * * *
    * *
      *

```

d)

```

*       *
 *     *
  *   *
   * 
  *   *
 *     *
*       *
 *     *

```

e) Print till the th row of Pascal's Triangle:

```

          1
        1 1
      1 2 1
    1 3 3 1
  1 4 6 4 1
1 5 10 10 5 1
  1 6 15 20 15 6 1
    1 7 21 35 35 21 7 1
      1 8 28 56 70 56 28 8 1
        1 9 36 84 126 126 84 36 9 1

```