Joy of Computing Using Python July 2022

Week 2: Programming Assignment 1

Due on 2022-08-11, 23:59 IST

Write a program to take an input from the user and print that input.

Sample Test Cases

	Input	Output
Test Case 1	kswkWSQWS sq5684	kswkWSQWS sq5684
Test Case 2	AAAAAAaaa	AAAAAAaaa
Test Case 3	123456789	123456789
Test Case 4	1a1A 1a1A	1a1A 1a1A
Test Case 5	Python	Python
Test Case 6	JOC	JOC
Test Case 7	Programming assignment	Programming assignment
Test Case 8	swayam NPTEL	swayam NPTEL

Week 2: Programming Assignment 2

Due on 2022-08-11, 23:59 IST

Write a program to take an input of two numbers A, and B and print the difference A-B

Sample Test Cases

	Input	Output
Test Case 1	57 56	1
Test Case 2	120 20	100
Test Case 3	80 81	-1
Test Case 4	68 120	-52
Test Case 5	9 5	4
Test Case 6	50 100	-50
Test Case 7	100 100	0
Test Case 8	25 75	-50

Week 2: Programming Assignment 3

Due on 2022-08-11, 23:59 IST

Take a string S and an integer A as an input from a user. Write a program to print string S, A number of times.

Input
S: A string
A: An integer

Output
S
S
S
.
.

A times

Example

Input
Python
5
output
python
python
python
python
python

Sample Test Cases

	Input	Output
Test Case 1	askl123 10	askl123 askl123 askl123 askl123 askl123 askl123

Sample Test Cases

	Input	Output
Test Case 1	askl123 10	askl123 askl123 askl123 askl123 askl123 askl123 askl123 askl123 askl123 askl123
Test Case 2	Private test Case: 2 9	Private test Case: 2 Private test Case: 2 Private test Case: 2 Private test Case: 2 Private test Case: 2 Private test Case: 2 Private test Case: 2 Private test Case: 2 Private test Case: 2
Test Case 3	jungle 0	
Test Case 4	jungle 7	jungle jungle jungle jungle jungle jungle jungle
Test Case 5	python 5	python python python python

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Week 3: Programming Assignment 1

Due on 2022-08-18, 23:59 IST

There is list L containing some numbers. Write a program to create a new list which contains the numbers which are either divisible by 5 or 7 or both. Print that new list in ascending order.

Input is already managed for you.

Input:
A list L
Output: A new list P

Example
Input:
L = [7, 8, 9, 10, 11]

Output:
[7, 10]

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	`58 28 61 58 56 16 68 66 27 97`	`[28, 56]`	`[28, 56]`	Passed
Test Case 2	`16 65 6 33 64 50 8 86 11 33`	`[50, 65]`	`[50, 65]`	Passed
Test Case 3	`46 90 72 22 50 13 16 57 32 31`	`[50, 90]`	`[50, 90]`	Passed
Test Case 4	`99 57 23 34 23 23 79 26 73 27`	`[]`	`[]`	Passed

Week 3: Programming Assignment 2

Due on 2022-08-18, 23:59 IST

Write a function **rev** which takes a list L and integer n and print the first n largest numbers of the list.

Input is managed for you, please write the required function only.

Input:
A list L and an integer n.

Output:
First n largest numbers

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	`1` `80 19 25 55 65 27 6 47 24 50 93 37 93 91 5`	`[93]`	`[93]`	Passed
Test Case 2	`4` `43 34 85 39 59 68 57 80 82 98 67 30 63 41 74`	`[98, 85, 82, 80]`	`[98, 85, 82, 80]`	Passed
Test Case 3	`5` `48 69 99 75 16 17 9 88 69 70 90 13 22 76 32`	`[99, 90, 88, 76, 75]`	`[99, 90, 88, 76, 75]`	Passed
Test Case 4	`4` `70 51 2 97 46 35 94 52 76 72 92 32 14 6 98`	`[98, 97, 94, 92]`	`[98, 97, 94, 92]`	Passed

Week 3: Programming Assignment 3

Due on 2022-08-18, 23:59 IST

Write a program to count and print the number of odd numbers in a list L.

Input is managed for you.

Input:
A list L

Output:
Total number of odd numbers.

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	1 54 56 44 39 86 97 1 13 73 31 5 95 74 88	9	9	Passed
Test Case 2	56 58 97 53 92 75 66 42 46 82 13 45 45 15 72 70 12 94 86 87	8	8	Passed
Test Case 3	75 11 99 11 66 82 57 79 5 9 84 48 29 21 5 91 51 37 81 69	16	16	Passed
Test Case 4	87 41 94 47 63 86 5 78 75 97 36 50 73 97 100 23 72 71 54 91	12	12	Passed

Week 4: Programming Assignment 1

Due on 2022-08-25, 23:59 IST

Take two numbers N and K as an input. Create a list L of length N and initialize it with zeros. Change the value to 1 of even indexes if k is even, otherwise change the value of odd indexes. Print list L in the end.(Consider 0 as even)

Input
N
K

Output
A list L

Example

Input
5
2

Output
[1, 0, 1, 0, 1]

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	22 38	[1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0]	[1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0]	Passed
Test Case 2	22 192	[1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0]	[1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0]	Passed
Test Case 3	10 36	[1, 0, 1, 0, 1, 0, 1, 0, 1, 0]	[1, 0, 1, 0, 1, 0, 1, 0, 1, 0]	Passed
Test Case 4	41 472	[1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1]	[1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1]	Passed

Week 4: Programming Assignment 2

Due on 2022-08-25, 23:59 IST

Write a program to take string S as an input and replace all vowels by *. Also print the modified string.

Input
A string S

Output
Modified string

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	vJmOagfoks	vJm**gf*ks	vJm**gf*ks	Passed
Test Case 2	AEIOUaeiou	**********	**********	Passed
Test Case 3	A E I O U	* * * * *	* * * * *	Passed
Test Case 4	PeSwXVBjWb	P*SwXVBjWb	P*SwXVBjWb	Passed

Week 4: Programming Assignment 3

Due on 2022-08-25, 23:59 IST

Write a program to take an integer N as an input and display the pattern.

Input
5

Output

```
*
* *
* * *
* * * *
* * * * *
* * * *
* * *
* *
*
```

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	9	* \n * * \n * * * \n * * * * \n * * * * * \n * * * * * * \n * * * * * * * \n * * * * * * * * \n * * * * * * * \n * * * * * * \n * * * * * \n * * * * \n * * * \n * * \n *	* \n * * \n * * * \n * * * * \n * * * * * \n * * * * * * \n * * * * * * * \n * * * * * * * * \n * * * * * * * \n * * * * * * \n * * * * * \n * * * * \n * * * \n * * \n *	Passed

Week 5: Programming Assignment 1

Due on 2022-09-01, 23:59 IST

You are given a string S. Write a function count_letters which accepts the string S and returns a dictionary containing letters (including special character) in string S as keys and their count in string S as values.

(input and output is handled by us, you just need to write the function and return the dictionary)

Input
The Joy of computing

Output
{'T': 1, 'h': 1, 'e': 1, ' ': 3, 'j': 1, 'o': 3, 'y': 1, 'f': 1, 'c': 1, 'm': 1, 'p': 1, 'u': 1, 't': 1, 'i': 1, 'n': 1, 'g': 1}

Explanation: T is appeared once in the string, similarly o is appeared 3 times in the string and so on. (You do not have to worry about the order of arrangement in your dictionary)

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	here is some very2e781ybvsiuhf aio;';';'[][][	{'h': 2, 'e': 5, 'r': 2, ' ': 4, 'i': 3, 's': 3, 'o': 2, 'm': 1, 'v': 2, 'y': 2, '2': 1, '7': 1, '8': 1, '1': 1, 'b': 1, 'u': 1, 'f': 1, 'a': 1, ';': 3, "'": 3, '[': 3, ']': 2}	{'h': 2, 'e': 5, 'r': 2, ' ': 4, 'i': 3, 's': 3, 'o': 2, 'm': 1, 'v': 2, 'y': 2, '2': 1, '7': 1, '8': 1, '1': 1, 'b': 1, 'u': 1, 'f': 1, 'a': 1, ';': 3, "'": 3, '[': 3, ']': 2}\n	Passed
Test Case 2	some randome no! some very ranomsd1! text here	{'s': 3, 'o': 5, 'm': 4, 'e': 7, ' ': 7, 'r': 4, 'a': 2, 'n': 3, 'd': 2, '!': 2, 'v': 1, 'y': 1, '1': 1, 't': 2, 'x': 1, 'h': 1}	{'s': 3, 'o': 5, 'm': 4, 'e': 7, ' ': 7, 'r': 4, 'a': 2, 'n': 3, 'd': 2, '!': 2, 'v': 1, 'y': 1, '1': 1, 't': 2, 'x': 1, 'h': 1}\n	Passed
Test Case 3	zbuifqb12233 fbfeheufahndfqio849*()	{'z': 1, 'b': 3, 'u': 2, 'i': 2, 'f': 5, 'q': 2, '1': 1, '2': 2, '3': 2, ' ': 1, 'e': 2, 'h': 2, 'a': 1, 'n': 1, 'd': 1, 'o': 1, '8': 1, '4': 1, '9': 1, '*': 1, '(': 1, ')': 1}	{'z': 1, 'b': 3, 'u': 2, 'i': 2, 'f': 5, 'q': 2, '1': 1, '2': 2, '3': 2, ' ': 1, 'e': 2, 'h': 2, 'a': 1, 'n': 1, 'd': 1, 'o': 1, '8': 1, '4': 1, '9': 1, '*': 1, '(': 1, ')': 1}\n	Passed

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Week 5: Programming Assignment 2

Due on 2022-09-01, 23:59 IST

You are given a list L. Write a function uniqueE which will return a list of unique elements is the list L in sorted order. (Unique element means it should appear in list L only once.)

Input is handled by us.

Input
[1,2,3,3,4,4,2,5,6,7]

Output
[1,5,6,7]

Explanation

Elements 1,5,6,7 appears in the input list only once.

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	9 2 7 7 2 2 7 14 1 4 1 9 6 7 4 4 11 5 13 2	[5, 6, 11, 13, 14]	[5, 6, 11, 13, 14]\n	Passed
Test Case 2	163 794 615 789 497 637 754 543 717 751 482 989 675 172 387 925 533 272 397 814	[163, 172, 272, 387, 397, 482, 497, 533, 543, 615, 637, 675, 717, 751, 754, 789, 794, 814, 925, 989]	[163, 172, 272, 387, 397, 482, 497, 533, 543, 615, 637, 675, 717, 751, 754, 789, 794, 814, 925, 989]\n	Passed
Test Case 3	3 3 1 3 3 2 1 3 1 2 2 1 1 4 1 1 3 2 1 2	[4]	[4]\n	Passed
Test Case 4	2 4 2 2 3 2 1 1 4 2 1 1 1 4 1 2 3 1 1 2	[]	[]\n	Passed

Week 5: Programming Assignment 3

Due on 2022-09-01, 23:59 IST

You are given a list L. Write a program to print first prime number encountered in the list L.(Treat numbers below and equal to 1 as non prime)

Input is handled by us.

Input
[1,2,3,4,5,6,7,8,9]

output
2

Explanation
Since 2 is the first prime number is list L, therefor it is printed.

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	35 48 23 49 42 23 25 44 46 30	23	23	Passed
Test Case 2	138 146 143 51 117 83 106 52 144 74 52 124 71 145 59 138 123 84 112 138	83	83	Passed
Test Case 3	-243 269 158 282 278 182 156 282 237 251 262 285 233 203 188 216 163 246 195 215 236 266 183 174 241 251 212 218 167 286	269	269	Passed
Test Case 4	70 -3 182 47 180 266 -91 -101 -75 280 -67 42 -142 -141 -82 296 -69 144 -80 116 -97 140 38 81 -40 37 251 -120 54 90	47	47	Passed

Week 6: Programming Assignment 1

Due on 2022-09-08, 23:59 IST

Given a list L containing integers, write a program that creates and prints a dictionary 'd' containing all the the numbers that occur twice or more in the list as keys and their indexes as values. Both the keys are and their values should be in the same order as given the list.

You have to take the input.

Input
List

Output
Dictionary D

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	6 2 11 5 8 13 7 9 13 3 8 13 3 12 9 0 1 12 12 10	{8: [4, 10], 13: [5, 8, 11], 9: [7, 14], 3: [9, 12], 12: [13, 17, 18]}	{8: [4, 10], 13: [5, 8, 11], 9: [7, 14], 3: [9, 12], 12: [13, 17, 18]}	Passed
Test Case 2		{}	{}	Passed
Test Case 3	72 71 75 42 0 60 2 9 7 87	{}	{}	Passed
Test Case 4	0 2 8 4 9 9 4 0 10 7	{0: [0, 7], 4: [3, 6], 9: [4, 5]}	{0: [0, 7], 4: [3, 6], 9: [4, 5]}	Passed

Week 6: Programming Assignment 1

Due on 2022-09-08, 23:59 IST

Given a list L containing integers, write a program that creates and prints a dictionary 'd' containing all the the numbers that occur twice or more in the list as keys and their indexes as values. Both the keys are and their values should be in the same order as given the list.

You have to take the input.

Input
List

Output
Dictionary D

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	6 2 11 5 8 13 7 9 13 3 8 13 3 12 9 0 1 12 12 10	{8: [4, 10], 13: [5, 8, 11], 9: [7, 14], 3: [9, 12], 12: [13, 17, 18]}	{8: [4, 10], 13: [5, 8, 11], 9: [7, 14], 3: [9, 12], 12: [13, 17, 18]}	Passed
Test Case 2		{}	{}	Passed
Test Case 3	72 71 75 42 0 60 2 9 7 87	{}	{}	Passed
Test Case 4	0 2 8 4 9 9 4 0 10 7	{0: [0, 7], 4: [3, 6], 9: [4, 5]}	{0: [0, 7], 4: [3, 6], 9: [4, 5]}	Passed

Week 6: Programming Assignment 2

Due on 2022-09-08, 23:59 IST

Romeo and Juliet love each other. Romeo wants to send a message to Juliet and also don't want anyone to read it without his permission. So he shifted every small letter in the sentence by -2 position and every capital letter by -3 position. (If the letter is c, after shifting to by -2 position it changes to a, and for D new letter will be A).
But the letter is too long and Romeo does not have enough time to encrypt his whole letter. Write a program to help Romeo which prints the encrypted message. You can assume there are no special characters except spaces and numeric value.

Input
A string S

Output
Encrypted string

Example

Input
Hello Juliet

Output
Ecjjm Gsjgcr

Explanation
H is shifted by -3 position and changed to E. 'e' is shifted by -2 position and changed to c and so on.

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	dbawoidbqwdhuiwahd uwadhfwaiudhwhd	bzyumgbzoubfsguyfb suybfduygsbfufb	bzyumgbzoubfsguyfb suybfduygsbfufb	Passed
Test Case 2	foiqhfwuefhuewh gfuiwegr QZHQE3AN ihidhqwiuUFGQU	dmgofduscdfscuf edsgucep NWENB3XK gfgbfougsRCDNR	dmgofduscdfscuf edsgucep NWENB3XK gfgbfougsRCDNR	Passed
Test Case 3	fiewuhfiwsb HBFIOSEGHFWOSIbfvwui BIOEWHBF ZBCDNPQOE VHUFAPQUIEb	dgcusfdguqz EYCFLPBDECTLPFzdtusg YFLBTEYC WYZAKMNLB SERCXMNRFBz	dgcusfdguqz EYCFLPBDECTLPFzdtusg YFLBTEYC WYZAKMNLB SERCXMNRFBz	Passed

Week 6: Programming Assignment 3

Due on 2022-09-08, 23:59 IST

Take a string S as an input and print 'palindrome' if string S is a palindrome or 'not palindrome' if string S is not a palindrome.
A palindrome is a word which spells same from forward and backward. Example DAD.

Input
A string S

Output:
palindrome or not palindrome

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	Rotator	palindrome	palindrome	Passed
Test Case 2	potoP	palindrome	palindrome	Passed
Test Case 3	kay ak	not palindrome	not palindrome	Passed
Test Case 4	motoR	not palindrome	not palindrome	Passed

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Week 7: Programming Assignment 1

Due on 2022-09-15, 23:59 IST

Given a sqaure matrix M, write a function DiagCalc which calculate the sum of left and right diagonals and print it respectively. (input will be handled by us)

Input:

A matrix M
[[1,2,3],[3,4,5],[6,7,8]]

Output
13
13

Explanation:
Sum of left diagonal is 1+4+8 = 13
Sum of right diagonal is 3+4+6 = 13

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	1 73	73\n	73\n 73	Passed
Test Case 2	2 61 40 6 79	140\n 46	140\n 46	Passed
Test Case 3	10 80 77 35 21 30 41 39 38 17 7 77 95 28 81 82 38 47 4 29 6 25 33 25 97 60 30 37 9 67 6 41 85 48 27 10 5 19 29 85 12 58 81 25 54 64 27 23 61 72 37 72 42 86 33 5 45 69 66 8 95 12 47 25 1 38 83 5 33 14 26 19 8 95 29 74 100 98 90 93 56 53 32 19 70 100 94 81 33 89 22 57 39 70 62 84 12 80 65 70 39	559\n 281	559\n 281	Passed

Week 7: Programming Assignment 2

Due on 2022-09-15, 23:59 IST

Given a matrix M of MxN write a function Transpose which accepts a matrix M and return the transpose of M.
Transpose of a matrix is a matrix in which each row is changed to a column or vice versa.

Input
A matrix M
[[1,2,3],[4,5,6],[7,8,9]]

Output
Transpose of M
[[1,4,7],[2,5,8],[3,6,9]]

Explanation:

Matrix M was

```
1 2 3
4 5 6
7 8 9
```

After changing all rows into columns or vice versa M will become

```
1 4 7
2 5 8
3 6 9
```

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
	5 73 16 82 53 72			

Week 7: Programming Assignment 3

Due on 2022-09-15, 23:59 IST

Given a matrix M of MxN write a function snake that accepts a matrix M and returns a list which contain elements in snake pattern of matrix M. (See explanation to know what is snake pattern)

Input
A matrix M

```
91 59 21 63
81 39 56 8
28 43 61 58
51 82 45 57
```

Output
[91, 59, 21, 63, 8, 56, 39, 81, 28, 43, 61, 58, 51, 82, 45, 57]

Explanation:

For row 1 elements are inserted from left to right
For row 2 elements are inserted from right to left
For row 3 elements are inserted form left to right
and so on

Private Test cases used for evaluation

	Input	Expected Output	Actual Output	Status
Test Case 2	5 64 47 51 31 88 77 1 85 88 55 91 81 87 34 99 85 84 46 18 89 51 62 42 17 86 70 96 55 65 90 74 61 38 42 41 42 94 39 59 27 21 26 49 89 49 62 63 42 56 3	[64, 47, 51, 31, 88, 77, 1, 85, 88, 55, 89, 18, 46, 84, 85, 99, 34, 87, 81, 91, 51, 62, 42, 17, 86, 70, 96, 55, 65, 90, 27, 59, 39, 94, 42, 41, 42, 38, 61, 74, 21, 26, 49, 89, 49, 62, 63, 42, 56, 3]	[64, 47, 51, 31, 88, 77, 1, 85, 88, 55, 89, 18, 46, 84, 85, 99, 34, 87, 81, 91, 51, 62, 42, 17, 86, 70, 96, 55, 65, 90, 27, 59, 39, 94, 42, 41, 42, 38, 61, 74, 21, 26, 49, 89, 49, 62, 63, 42, 56, 3]\n	Passed

```
9
72 6
38 84
42 91
47 44
44
36 8
90 51
32 10
76 39
24
70 38
37 16
```

Week 8: Programming Assignment 1

Due on 2022-09-22, 23:59 IST

Write a function cubeT that accepts a list L and returns a tuple containing cubes of elements of L.

Input
A tuple T

Output
Cube of T

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	497 238 372 322 175 43 99 298 189 432 358 69 345 450 240 379 450 362 400 46 87 376 182 41 301	(122763473, 13481272, 51478848, 33386248, 5359375, 79507, 970299, 26463592, 6751269, 80621568, 45882712, 328509, 41063625, 91125000, 13824000, 54439939, 91125000, 47437928, 64000000, 97336, 658503, 53157376, 6028568, 68921, 27270901)	(122763473, 13481272, 51478848, 33386248, 5359375, 79507, 970299, 26463592, 6751269, 80621568, 45882712, 328509, 41063625, 91125000, 13824000, 54439939, 91125000, 47437928, 64000000, 97336, 658503, 53157376, 6028568, 68921, 27270901)\n	Passed
Test Case 2	467 426 21 59 271 76 52 368 397 495 229 339 216 226 364 496 140 62 211 106 402 285 153 474 478	(101847563, 77308776, 9261, 205379, 19902511, 438976, 140608, 49836032, 62570773, 121287375, 12008989, 38958219, 10077696, 11543176, 48228544, 122023936, 2744000, 238328, 9393931, 1191016, 64964808, 23149125, 3581577, 106496424, 109215352)	(101847563, 77308776, 9261, 205379, 19902511, 438976, 140608, 49836032, 62570773, 121287375, 12008989, 38958219, 10077696, 11543176, 48228544, 122023936, 2744000, 238328, 9393931, 1191016, 64964808, 23149125, 3581577, 106496424, 109215352)\n	Passed
Test Case 3	115 333 10 125 431 179 132 270 177 374 160 253 322 154 234 436 29 335 486 251 487 295 376 496 271	(1520875, 36926037, 1000, 1953125, 80062991, 5735339, 2299968, 19683000, 5545233, 52313624, 4096000, 16194277, 33386248, 3652264, 12812904, 82881856, 24389, 37595375, 114791256, 15813251, 115501303, 25672375, 53157376, 122023936, 19902511)	(1520875, 36926037, 1000, 1953125, 80062991, 5735339, 2299968, 19683000, 5545233, 52313624, 4096000, 16194277, 33386248, 3652264, 12812904, 82881856, 24389, 37595375, 114791256, 15813251, 115501303, 25672375, 53157376, 122023936, 19902511)\n	Passed

Week 8: Programming Assignment 2

Due on 2022-09-22, 23:59 IST

Given a string S, write a function replaceV that accepts a string and replace the occurrences of 3 consecutive vowels with _ in that string. Make sure to return the answer string.

Input:

aaahellooo

Output:

hell

Explanation:

Since aaa and ooo are consecutive 3 vowels therefor replaced by _ .

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	aaaeeeiiiooouuu	_____	_____\n	Passed
Test Case 2	ariiighattttooooooooo	ar_ghatttt___o	ar_ghatttt___o\n	Passed
Test Case 3	aaaajaaayeAAAEEEIIIOOOUUU___	_aj_y_____U___	_aj_y_____U___\n	Passed
Test Case 4	AAA EEE III OOO UUU	_ _ _ _ _	_ _ _ _ _\n	Passed

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Week 8: Programming Assignment 3

Due on 2022-09-22, 23:59 IST

Given a list L, write a program to shift all zeroes in list L towards the right by maintaining the order of the list. Also print the new list.

Input:

[0,1,0,3,12]

Output:

[1,3,12,0,0]

Explanation:

There are two zeroes in the list which are shifted to the right and the order of the list is also maintained. (1,3,12 are in order as in the old list.)

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	`0 0 0 0`	`[0, 0, 0, 0]`	`[0, 0, 0, 0]`	`Passed`
Test Case 2	`2 3 0 0 0`	`[2, 3, 0, 0, 0]`	`[2, 3, 0, 0, 0]`	`Passed`
Test Case 3	`1 3 0 2 2`	`[1, 3, 2, 2, 0]`	`[1, 3, 2, 2, 0]`	`Passed`
Test Case 4	`3 0 1 1 2`	`[3, 1, 1, 2, 0]`	`[3, 1, 1, 2, 0]`	`Passed`

Week 9: Programming Assignment 1

Due on 2022-09-29, 23:59 IST

Given two strings s1 and s2, write a function subStr that accepts two strings s1 and s2 and will return True if a s2 is a substring of s1 otherwise return False. A substring is a is a contiguous sequence of characters within a string.

Input:

bananamania
nana

Output:
True

Explanation:

S2 which is nana is in bananamania hence it is a substring of s1.

Example 2:

Input:

aabbcc
abc

output:
False

Explanation:

String s1 does not contain string s2 hence the answer is false.

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	`idsubstring?` `is`	`False`	`False\n`	`Passed`
Test Case 2	`define` `define`	`True`	`True\n`	`Passed`

Week 9: Programming Assignment 2

Due on 2022-09-29, 23:59 IST

Given two dictionaries d1 and d2, write a function mergeDic that accepts two dictionaries d1 and d2 and return a new dictionary by merging d1 and d2.
Note: Contents of d1 should be appear before contents of d2 in the new dictionary and in same order. In case of duplicate value retain the value present in d1.

Input:
{1: 1, 2: 2}
{3: 3, 4: 4}

output:
{1: 1, 2: 2, 3: 3, 4: 4}

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	0 9 10 39 95 67 13 6 20 7 11 34 49 19 44 47	{0: 39, 9: 95, 10: 67, 13: 34, 6: 49, 20: 19, 7: 44, 11: 47}	{0: 39, 9: 95, 10: 67, 13: 34, 6: 49, 20: 19, 7: 44, 11: 47}\n	Passed
Test Case 2	2 3 4 5 8 50 57 93 20 58 20 7 9 18 4 6 12 13 3 81 75 68 40 13 96 52 89 78	{2: 50, 3: 57, 4: 93, 5: 20, 8: 58, 20: 81, 7: 75, 9: 68, 18: 40, 6: 96, 12: 52, 13: 89}	{2: 50, 3: 57, 4: 93, 5: 20, 8: 58, 20: 81, 7: 75, 9: 68, 18: 40, 6: 96, 12: 52, 13: 89}\n	Passed
	1 8 0 2 9 5 48 31 13 70 56 34			

Week 9: Programming Assignment 3

Due on 2022-09-29, 23:59 IST

Given an integer n, print all the indexes of numbers in that integer from left to right.

Input:
122345

Output:
1 0
2 1 2
3 3
4 4
5 5

Explanation:

Given integer 122345. Now printing indexes of numbers from left to right.
The First number is 1 and its index is 0 therefore
1 0

The second and the third number is 2 and its index is 1,2 therefore
2 1 2

and so on...

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	0	0 0	0 0 \n	Passed
Test Case 2	71157985453	7 0 4 \n 1 1 2 \n 5 3 7 9 \n 9 5 \n 8 6 \n 4 8 \n 3 10	7 0 4 \n 1 1 2 \n 5 3 7 9 \n 9 5 \n 8 6 \n 4 8 \n 3 10 \n	Passed
		7 0 9 \n	7 0 9 \n	

Week 10: Programming Assignment 1

Due on 2022-10-06, 23:59 IST

Given a list L, write a program to make a new list to fix the indexes of numbers in the list L to its same value in the new list. Put 0 at remaining indexes. Also print the elements of the new list in the single line. (See explanation for more clarity.)

Input:
[1,5,6]

Output:
0 1 0 0 0 5 6

Explanation:

List L contains 1,5,9 so at 1,5,9, index of new list the respective values are put and rest are initialized as zero.

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	10 9 9 0 10	0 0 0 0 0 0 0 0 0 9 10	0 0 0 0 0 0 0 0 0 9 10	Passed
Test Case 2	5 0 16 7 5 14 11 12 16 14	0 0 0 0 0 5 0 7 0 0 0 11 12 0 14 0 16	0 0 0 0 0 5 0 7 0 0 0 11 12 0 14 0 16	Passed
Test Case 3	0	0	0	Passed
Test Case 4	18 3 2 12 17 3 7 17 18 5	0 0 2 3 0 5 0 7 0 0 0 0 12 0 0 0 0 17 18	0 0 2 3 0 5 0 7 0 0 0 0 12 0 0 0 0 17 18	Passed

Week 10: Programming Assignment 2

Due on 2022-10-06, 23:59 IST

Ram shifted to a new place recently. There are multiple schools near his locality. Given the co-ordinates of Ram P(X,Y) and schools near his locality are given in a nested list, find the closest school. Print multiple coordinates in respective order if there exist multiple schools closest to him. Write a function closestSchool that accepts (X ,Y , L) where X and Y are co-ordinates of Ram's house and L contains co-ordinates of different school.

Distance Formula(To calculate distance between two co-ordinates): $\sqrt{((X2 - X1)^2 + (Y2 - Y1)^2)}$

where (x1,y1) is the co-ordinate of point 1 and (x2, y2) is the co-ordinate of point 2.

Input:
X, Y (Ram's house co-ordinates)
N (No of schools)
X1 Y1
X2 Y2
.
.
.

X6 Y6

Output:
Closest point/points to X, Y

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	0 0 3 7 -6 3 -6 1 -6	[1, -6]	[1, -6]\n	Passed
	0 -1 10 -1 -3 2 5			

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Week 10: Programming Assignment 3

Due on 2022-10-06, 23:59 IST

Given a string s write a program to convert uppercase letters into lowercase and lowercase letters into uppercase. Also print the resultant string.

Note: You need to take the input and do not print anything while taking input

Input:
The Joy Of Computing

Output
tHE jOY oF cOMPUTING

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	dgqwuidg7e623 /s/[q	DGQWUIDG7E623 /S/[Q	DGQWUIDG7E623 /S/[Q	Passed
Test Case 2	fguqaBUFIAWFG DBUIqdgBUAIFGAbubuD [];',./	FGUQAbufiawfg dbuiQDGbuaifgaBUBUd [];',./	FGUQAbufiawfg dbuiQDGbuaifgaBUBUd [];',./	Passed
Test Case 3	1234567890	1234567890	1234567890	Passed
Test Case 4	ABCDEFHIKLMNOP	abcdefhiklmnop	abcdefhiklmnop	Passed

Week 11: Programming Assignment 1

Due on 2022-10-13, 23:59 IST

Take 3 sides of a triangle as an input and find whether that triangle is a right angled triangle or not. Print 'YES' if a triangle is right angled triangle or 'NO' if it's not.

Input:
3
4
5

Output
YES

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	5 13 12	YES	YES	Passed
Test Case 2	15 8 17	YES	YES	Passed
Test Case 3	33 56 65	YES\n	YES	Passed
Test Case 4	9 10 11	NO	NO	Passed

Week 11: Programming Assignment 2

Due on 2022-10-13, 23:59 IST

Write a program that accepts a hash-separated sequence of words as input and prints the words in a hash-separated sequence after sorting them alphabetically in reverse order.

Input:
hey#input#bye

Output:
input#hey#bye

Private Test cases used for evaluation	Input	Expected Output
Test Case 1	`Maecenas#eu#nisi#nulla.#Nam#lobortis#erat#ut#sagittis#sagittis`	`ut#sagittis#sagittis#nulla.#nisi#lobortis#eu#erat#Nam#Maecenas`
Test Case 2	`Maecenas#eu#nisi#nulla#Nam#lobortis#erat#ut#sagittis#sagittis`	`ut#sagittis#sagittis#nulla#nisi#lobortis#eu#erat#Nam#Maecenas`
Test Case 3	`If#you#are#going#to#use#a#passage#of#Lorem#Ipsum`	`you#use#to#passage#of#going#are#a#Lorem#Ipsum#If`
Test Case 4	`business#it#will#frequently#occur#that#pleasures#have#to#be#repudiated`	`will#to#that#repudiated#pleasures#occur#it#have#frequently#business#`

Week 11: Programming Assignment 3

Due on 2022-10-13, 23:59 IST

Write a program which takes two integer a and b and prints all composite numbers between a and b. (both numbers are inclusive)

Input:
10
20

Output:
10
12
14
15
16
18
20

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	29 69	30\n 32\n 33\n 34\n 35\n 36\n 38\n 39\n 40\n 42\n 44\n 45\n 46\n 48\n 49\n 50\n 51\n 52\n 54\n	30\n 32\n 33\n 34\n 35\n 36\n 38\n 39\n 40\n 42\n 44\n 45\n 46\n 48\n 49\n 50\n 51\n 52\n 54\n	Passed

Week 12: Programming Assignment 1

Due on 2022-10-20, 23:59 IST

Write a program to take an integer as the input and reverse that integer.

Input:
A single integer.

Output:
Reverse number of that integer.

Example:

Input:
54321

Output:
12345

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	0000	0	0	Passed
Test Case 2	3256	6523	6523	Passed
Test Case 3	1	1	1	Passed
Test Case 4	852963	369258	369258	Passed

Week 12: Programming Assignment 2

Due on 2022-10-20, 23:59 IST

Take a list of strings as an input and write a program to write sort the list of strings on the basis of last character of each string. If last character is same, consider the second last character and so on.

Input:
L = ['ram', 'shyam', 'lakshami']

Output:
['lakshami', 'ram', 'shyam']

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	a b c	['a', 'b', 'c']	['a', 'b', 'c']	Passed
Test Case 2	z z z	['z', 'z', 'z']	['z', 'z', 'z']	Passed
Test Case 3	bz az cz	['az', 'bz', 'cz']	['az', 'bz', 'cz']	Passed
Test Case 4	lol my jjj	['jjj', 'lol', 'my']	['jjj', 'lol', 'my']	Passed

Week 12: Programming Assignment 3

Due on 2022-10-20, 23:59 IST

Take a student's email id as an input in the format rollNumber@institute.edu.in and write a program to find the roll number and institute name of the student.

Input:
roll@institute.edu.in

Output:
roll institute

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	@inst.edu.in	inst	inst	Passed
Test Case 2	0@.edi.in	0	0	Passed
Test Case 3	023@edu.in	023 edu	023 edu	Passed
Test Case 4	56@imim.edu.in	56 imim	56 imim	Passed

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Set 1 Question 1

Due on 2022-10-16, 13:00 IST

Ramesh is the principal of a school. Every year, he appoints some teachers to calculate the grades of students from the marks scored by them. Since technology is evolving Ramesh wants to digitize this process. So, he decided to hire a programmer for this task.

You are given a dictionary where the keys are the name, and the values are another dictionary that contains subjects as keys and marks as values. Write a function **convertMarks** that takes a dictionary as an argument and returns a dictionary with marks replaced with grades.

The principal has also provided the grades associated with the range of marks.
(Note: Both endpoints are included)

```
Grade - Marks

A    -  91-100
B    -  81 - 90
C    -  71 - 80
D    -  61 - 70
E+   -  51 - 60
E    -  41 - 50
F    -  0 - 40

```

Example input
{'Lakshman': {'Maths': 90, 'English': 75, 'Social Science': 10}

Example output
{'Lakshman': {'Maths': B, 'English': C, 'Social Science': F}

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
	lakshman aditi prithvi lakshmi manoj			

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	lakshman aditi prithvi lakshmi manoj elective hindi python social_science 92 71 31 30 python discrete_maths hindi maths science 23 35 94 67 52 science python english social_science 29 46 68 43 science deep_learning hindi elective python 64 32 42 72 24 discrete_maths hindi english elective maths 48 45 63 74 95	{'lakshman': {'elective': 'A', 'hindi': 'C', 'python': 'F', 'social_science': 'F'}, 'aditi': {'python': 'F', 'discrete_maths': 'F', 'hindi': 'A', 'maths': 'D', 'science': 'E+'}, 'prithvi': {'science': 'F', 'python': 'E', 'english': 'D', 'social_science': 'E'}, 'lakshmi': {'science': 'D', 'deep_learning': 'F', 'hindi': 'E', 'elective': 'C', 'python': 'F'}, 'manoj': {'discrete_maths': 'E', 'hindi': 'E', 'english': 'D', 'elective': 'C', 'maths': 'A'}}	{'lakshman': {'elective': 'A', 'hindi': 'C', 'python': 'F', 'social_science': 'F'}, 'aditi': {'python': 'F', 'discrete_maths': 'F', 'hindi': 'A', 'maths': 'D', 'science': 'E+'}, 'prithvi': {'science': 'F', 'python': 'E', 'english': 'D', 'social_science': 'E'}, 'lakshmi': {'science': 'D', 'deep_learning': 'F', 'hindi': 'E', 'elective': 'C', 'python': 'F'}, 'manoj': {'discrete_maths': 'E', 'hindi': 'E', 'english': 'D', 'elective': 'C', 'maths': 'A'}}\n	Passed
Test Case 2	prithvi naman social_networks hindi python elective 42 8 72 81 elective deep_learning science java 21 95 10 72	{'prithvi': {'social_networks': 'E', 'hindi': 'F', 'python': 'C', 'elective': 'B'}, 'naman': {'elective': 'F', 'deep_learning': 'A', 'science': 'F', 'java': 'C'}}	{'prithvi': {'social_networks': 'E', 'hindi': 'F', 'python': 'C', 'elective': 'B'}, 'naman': {'elective': 'F', 'deep_learning': 'A', 'science': 'F', 'java': 'C'}}\n	Passed

Set 1 Question 2

Due on 2022-10-16, 13:00 IST

Shyam has N Jars of Ladoos and he wants to distribute the Ladoos amongst M Villagers. The i-th jar contains Li pieces of Ladoos. He wants to make sure that every villager gets the same amount of ladoos and that the number of ladoos they receive is the greatest possible. He can open each jar and mix all the ladoos before distributing them to the villagers. How many pieces of ladoos will remain after he shares them amongst villagers, based on the rules described above?

Input:
The first line of input contains two integers: integer **N,** the number of ladoos, and **M**, number of villagers.
The next line contains **N** non-negative integers.

Output:
The remaining number of ladoos according to rule described above.

Input:
7 3
1 2 3 4 5 6 7

Output:
1

Explanation:
we have N=7 Jars of Ladoos. In total, we have 1+2+3+4+5+6+7=28 ladoos that we want to divide between M=3 villagers. Every villager can get 9 pieces of ladoos, so 28−3×9=1 pieces of ladoos will remain.

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	10 2 11 6 14 15 19 12 10 17 8 1	1	1	Passed
Test Case 2	5 12 17 15 12 15 7	6	6	Passed
Test Case 3	7 1 1 2 10 18 12 11 6	0	0	Passed
	8 14			

Set 2 Question 1

Due on 2022-10-16, 23:00 IST

You are in charge of making blueprints of a high-security prison for superhumans. Your task is to take the number of rows and number of columns as input and design the blueprint for the construction.

Input:

The first line contains the number of rows **N** and number of columns **M** of the prison.

Output:

Blueprint of prison according to sample output.

Example:
Input:
3 4

Output:

```
+-+-+-+-+
|.|.|.|.|
+-+-+-+-+
|.|.|.|.|
+-+-+-+-+
|.|.|.|.|
+-+-+-+-+
```

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	9 1	+-+\n |.|\n +-+\n |.|\n +-+\n |.|\n +-+\n |.|\n +-+\n |.|\n	+-+\n |.|\n +-+\n |.|\n +-+\n |.|\n +-+\n |.|\n +-+\n |.|\n	Passed

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Test Case 1	9 1	+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+	+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+\n|.|\n+-+	Passed
Test Case 2	7 5	+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+	+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+	Passed
		+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+\n	+-+-+-+-+-+\n|.|.|.|.|.|\n+-+-+-+-+-+\n	

Set 2 Question 2

Due on 2022-10-16, 23:00 IST

Given a list in which each element is a tuple containing (country, country_code). Write a function **convertL** that takes the list as an argument and returns a dictionary containing keys as country and values as country_code, arranged in ascending order with respect to country code.

Sample Input:

L = [(Sri Lanka, +94), (India, +91)]

Sample output:

{ 'India': '+91', 'Sri Lanka': '+94'}

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	6 Belgium +56 Thailand +764 India +91 Afghanistan +4 Sri_Lanka +144 Taiwan +158	{'Afghanistan': '+4', 'Belgium': '+56', 'India': '+91', 'Sri_Lanka': '+144', 'Taiwan': '+158', 'Thailand': '+764'}	{'Afghanistan': '+4', 'Belgium': '+56', 'India': '+91', 'Sri_Lanka': '+144', 'Taiwan': '+158', 'Thailand': '+764'}\n	Passed
Test Case 2	6 Albania +8 Belgium +56 Sri_Lanka +144 Canada +124 Ukraine +804	{'Albania': '+8', 'Belgium': '+56', 'Canada': '+124', 'Sri_Lanka': '+144', 'Thailand': '+764', 'Ukraine': '+804'}	{'Albania': '+8', 'Belgium': '+56', 'Canada': '+124', 'Sri_Lanka': '+144', 'Thailand': '+764', 'Ukraine': '+804'}\n	Passed