

Practice Assignment 1

Instructions

1. (a) Create a folder named <rollno_lab06>, and save all the python programs as per the question numbers in this folder.
For example, 1.py, 2.py , 3.py, etc.
(b) No need of script file.
2. The <rollno_lab06>.tar.gz of the above folder should be uploaded on Moodle.
3. File and folder names should be followed strictly as mentioned in the questions below (including case sensitivity). Marks will not be awarded if any discrepancies occur.
4. There should not be any extra space or line(s) in the output. Otherwise, marks will not be awarded.

Questions

1. Write a python program “1.py” which takes 1 integer as a command line argument and checks whether it is a perfect number or not.
Note : A perfect number is a positive integer that is equal to the sum of its proper divisors.

Example:

```
python 1.py 28  
Yes
```

```
python 1.py 25  
No
```

2. Write a python program “2.py” to print a palindromic triangle of size 'n'. 'n' is obtained as a command line argument.

Example:

```
python 2.py 6  
1  
121  
12321  
1234321  
123454321  
12345654321
```

3. Write a python program “3.py” that takes a string as command line argument and prints
 - its reverse,
 - and whether it is a palindrome or not.

Example:

```
python 3.py malayalam  
malayalam  
Palindrome
```

```
python 3.py malala  
alalam  
Not a Palindrome
```

```
python 3.py mal aya lam
```

```
lam
Not a Palindrome
```

4. Write a python program “4.py” that takes a list with '2n' words as input from the user, and creates a dictionary from this list where all even index elements become the key's and odd indexed elements are their respective values.

Example:

```
python 4.py
Enter list: first 0 second 2 third 6 fourth 12 ninth 72
{'first': 0, 'second': 2, 'third': 6, 'fourth': 12, 'ninth': 72}
```

5. Write a python program “5.py” that takes a list (elements separated by commas) as input and sorts the list (using bubble sort).

Print the list upon each exchange.

Example:

```
python 5.py
Enter list: 6,5,3,1,8,7
Exchange 1: 5,6,3,1,8,7
Exchange 2: 5,3,6,1,8,7
Exchange 3: 5,3,1,6,8,7
- - -
- - -
- - -
Sorted list: 1,3,5,6,7,8
```

6. Write a python program “6.py” that takes a string “s” and a natural number “n” as command line argument. “n” should be smaller than or equal to the length of “s”; if not, then ask the user to enter “n” again (Until “n” < length(s)). This program should find the number of “n” letter words that can be formed from the string. (Repetition of characters is not allowed)

Example:

```
python 6.py Mississippi 4
7920
```

```
python 6.py Missi 10
Length of “Missi” is smaller than 10. Enter n again: 6
Length of “Missi” is smaller than 6. Enter n again: 1
5
```

```
python 6.py “Miss issi ppi” 4
7920
```