Navrachana University, Vadodara

09 June, 2024

Improvement Sessions: 07 June, 2024 to 27 June, 2024

PSPY (Problem Solving using Python) Assignments

1. (a) Accept file name from the user and read text from the given file. Find the frequency of each letter.

(b) Given the above information and a cipher text, which has been encrypted by Caesar Cipher encryption algorithm, decrypt the given cipher text to get back the plain text

2. (a) Accept a Decimal number from the user, the number may be positive or negative and it may have 0 or more decimal digits. Convert the given number into the corresponding Binary number.

(b) Accept a positive Binary number from the user. The number may have integral as well as fractional parts. Convert the given Binary number into the corresponding Octal number.

3. Accept an amount (from the user) having at least one integral digit and zero or two decimal digits. Convert the given amount in words: (a) Each digit is converted to corresponding word, (b) Entire integral part of the number is converted to words and entire decimal part is also converted to words.

4. For a given positive integer, (a) find its divisors, (b) find its prime factors, and (c) find the 5 co-prime numbers of the given integer.

5. (a)In a 3 x 3 matrix arrange numbers 1, 2, 3 such that each row and each column has different numbers.

(b) Make it general for n x n list for the given n unique numbers.

(c) First write a solution for 9 x 9 matrix with above-mentioned conditions. Each set of 3 rows will have three 3 x 3 matrices, resulting in a total of nine 3 x 3 matrices. Check whether each of nine 3 x 3 matrices have different numbers in each row and each column.

6. (a) Convert each word (for a digit) to its corresponding digit and find frequency of each digit.

(b) Draw two histograms using ‘*’ symbols – one horizontal and one vertical.

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