

ISC Computer Science Practical
Paper 2
2015

Question 1.

Given two positive numbers M and N, such that M is between 100 and 10000 and N is less than 100. Find the smallest integer that is greater than M and whose digits add up to N. For example, if M=100 and N=11, then the smallest integer greater than 100 whose digits add up to 11 is 119.

Write a program to accept the numbers M and N from the user and print the smallest required number whose sum of all its digits is equal to N. Also, print the total number of digits present in the required number. The program should check for the validity of the inputs and display an appropriate message for an invalid input.

Test your program with some sample data and some random data:

Example 1:

INPUT : M= 100
 N=11

OUTPUT:
 The required number is= 119
 Total number of digits=3

Example 2

INPUT: M= 1500
 N=25

OUTPUT:
 The required number is =1699
 Total number of digits=4

Example 3

INPUT: M= 99
 N=11

OUTPUT:
 INVALID INPUT

Example 4

INPUT: M= 112

N=130

OUTPUT:

INVALID INPUT

Question 2.

Write a program to declare a square matrix A[][] of order M x M where 'M' is the number of rows and the number of columns, such that M must be greater than 2 and less than 10. Accept the value of M as user input. Display an appropriate message for an invalid input. Allow the user to input integers into the matrix. Perform the following tasks:

- Display the original matrix.
- Rotate the matrix 90° clockwise as shown below:

Original matrix	Rotated matrix
1 2 3	7 4 1
4 5 6	8 5 2
7 8 9	9 6 3

- Find the sum of the elements of the four corners of the matrix. Test your program for the following data and some random data:

Example 1:

INPUT : M=3

3	4	9
2	5	8
1	6	7

OUTPUT:

ORIGINAL MATRIX

3	4	9
2	5	8
1	6	7

MATRIX AFTER ROTATION

1	2	3
6	5	4
7	8	9

Sum of the corner elements= 20

Example 2:

INPUT :

M=4

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

OUTPUT:

ORIGINAL MATRIX

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

MATRIX AFTER ROTATION

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

Sum of the corner elements= 18

EXAMPLE 3.

INPUT :

M = 14

OUTPUT:

SIZE OUT OF RANGE

Question 3.

Write a program to accept a sentence which may be terminated by either '.' Or '?' only. The words are to be separated by a single blank space. Print an error message if the input does not terminate with '.' Or '?'. You can assume that no word in the sentence exceeds 15 characters, so that you get a proper formatted output. Perform the following tasks:

- Convert the first letter of each word to uppercase.
- Find the number of vowels and consonants in each word and display them with proper heading along with the words.

Test your program with the following inputs:

Example 1

INPUT: Intelligence plus character is education.

OUTPUT:

Intelligence plus character is education.

Word	Vowels	Consonants
Intelligence	5	7
Plus	1	3
Character	3	6
Is	1	1
Education	5	4

Example 2

INPUT: God is great.

OUTPUT:

God is great

Word	Vowels	Consonants
God	1	2
Is	1	1
Great	2	3