Assignment – III

Problem Solving with Python

1. Generate and print transpose of a given matrix. The first line of input will have space separated values for n and m and n subsequent lines will have space separated m values.

2. Given a matrix (n x m) of positive integers. Print the sum of all the elements in the neighbourhood of a given cell. First line of input will have the values of n and m. The n subsequent lines will have space separated m values. The next line will have 2 space separated integers denoting the row and column numbers of the given cell.

Sample input	Expected output
3 4 1 2 3 4 5 6 7 8 9 10 11 12 0 2	27

3. We define an hourglass in A (6x6) to be a subset of values with indices falling in this pattern in arr 's graphical representation:

a b c
d
e f g

There are 16 hourglasses in arr, and an hourglass sum is the sum of an hourglass' values. Calculate the hourglass sum for every hourglass in arr , then print the maximum hourglass sum.

4. Split a given array of integers from a specified index, and move the first part of the array to the end.

5. Write a program to remove and print every third number from a given list of numbers (having at-least 100 elements) until the list becomes empty or is left with only two elements.

6. Write a program to combine two dictionaries. For the common keys the values should added. Use loops and conditional statements. Also try using dictionary comprehension.