Q1

Your program allows users to enter a side length of a square ‘x’ using the keyboard (STDIN). Please print out the perimeter of the square with 3 decimal places. Where, perimeter = 4 * length

Below is an example how the program will run:

Enter the value 2.5 for ‘x’:

2.5 OUTPUT: 10.000

Q2

Z number is a positive integer and sum of its digits is equal to multiply of its digits. For example,

123, 132, 213, 231, 312 and 321 are Z numbers because 1+2+3=1*2* 3.

But 52 is not a Z number because 5+2 = 7 and 5*2= 10.

Your program should allow users to enter a positive integer N ($0<=N<=10^9$) using the keyboard (STDIN), then print out "Yes” even if N is a Z number. Otherwise, prints out “No” even if N is not a Z number.

Below is an example how the program will run:

231 OUTPUT: Yes	423 OUTPUT: No

Q3

Your program allows the user to enter an integer array of ‘n’ elements from the keyboard. The program swaps the places of the first largest and smallest even numbers with each other.

Below is an example how the program will run:

when ‘n’ = 6; array = {3, 7, 4, -5, 6, 4}

3 7 4 -5 6 4 OUTPUT:

```
3 7 6 -5 4 4
```

Q4

The program allows the user to input an Integer array of ‘n’ elements. With ‘n’ and the value of the elements entered from the keyboard. The program prints to the screen the elements are arranged in ascending order in the order of odd numbers first, even numbers later.
Below is an example how the program will run:
when ‘n’ = 6; array = {3, 7, 4, 5, 6, 4}

```
3 7 4 5 6 4

OUTPUT:
3 5 7 4 4 6
```

Q5

Your program allows users to enter an integer number n.
The system displays an inverted right triangle with the height = n.
Below is an example how the program will run:
Enter 5 for ‘n.’

```
5

OUTPUT:
1 2 3 4 5
  1 2 3 4
    1 2 3
      1 2
        1
```

Q6

Your program allows the user to enter a string of characters from the keyboard.
The program to toggle case of each character (a-z A-Z) in this string.
The program prints out result on the screen.
Below is an example how the program will run:
s=i lIKE sTUDYING prf192

```
i lIKE sTUDYING prf192

OUTPUT:
I Like Studying PRF192
```

Q7

The program allows the user to enter a list of ‘n’ student names from the keyboard, each student name separated by a space.
Continue, enter a search string,
The system finds and prints the names of students contains search string.
Below is an example how the program will run:
Enter: n = 5, names = {"Trung", “Thao”, “Binh", “thang", “Toan"}, search Key = ‘th’

```
5
Trung
Thao
Binh
thang
Toan
Th

OUTPUT:
thang
```

Q8

Your program allows the user to enter an integer array of ‘n’ elements from the keyboard.
The program prints the elements with unique values in ascending order, between the elements separated by a space.
Below is an example how the program will run:
Enter: n = 6, array = {8 1 5 5 2 2}

```
6
8 1 5 5 2 2

OUTPUT:
1 8
```

Q9

Write a program to add 2 matrices A and B. Two matrices A and B have N rows and M columns.

Input:

The first line contains N and M (1<=N, M<=100).

The next N lines are the first matrix A with size N x M (0<=i<=N-1; 0<=j<=M-1, -109<=aij<=109).

The last N lines are the second matrix B with size NxM (0<=i <=N-1; 0<=j<=M-1; -109<=bij<=109).

Please print out the additional result

Below is an example how the program will run:

n=2; m=2

A =

{ 1 2

3 4}

B =

{ 5 -6

-9 8}

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

OUTPUT:
6       -4
-6      12
```

Q10

Your program should allow users to enter an integer number ‘n’, then it should display as follows.

If ‘n’ is prime number, displays: Not Prime

If ‘n’ is not prime number, displays: Prime

Below is an example how the program will run:

enter n=7 or n = 15

7 OUTPUT: Prime	15 OUTPUT: Not Prime