

Drone Control

ZPRAC-16-17-Lab5

[30 points]

A drone is floating in space. Its initial coordinates are (X,Y,Z) . You send a series of C movement commands to the drone. There are 6 movement commands 1, 2, 3, 4, 5 and 6.

1--UP

For Example, if the drone is at $(0,0,0)$, then after the command it will be at $(0,0,1)$

2--Down

For Example, if the drone is at $(0,0,0)$, then after the command it will be at $(0,0,-1)$

3--North

For Example, if the drone is at $(0,0,0)$, then after the command it will be at $(1,0,0)$

4--South

For Example, if the drone is at $(0,0,0)$, then after the command it will be at $(-1,0,0)$

5--East

For Example, if the drone is at $(0,0,0)$, then after the command it will be at $(0,1,0)$

6--West

For Example, if the drone is at $(0,0,0)$, then after the command it will be at $(0,-1,0)$

Time Elapsed=0, just before the first command is issued. And consider that each command takes 1 time unit to execute. For Example, At Timestamp $T=5$ if the drone is at $(1,5,3)$ and we issue the command 1(UP), then at Timestamp $T=6$ it will be at $(1,5,4)$.

Given Q queries where each query is a timestamp t , you will have to output the coordinate of the drone at each of the timestamps.

To sum up:

(X,Y,Z) is the initial position of the drone.

C is the number of commands issued

Q is the number of queries

Input Format:

The first line contains 5 space separated integers X, Y, Z, C, Q.

The second line contains C space separated integers describing the commands. Each of these C commands can be 1, 2, 3, 4, 5 or 6.

The third line contains Q space separated integers specifying the queries. Each of these Q queries specifies a timestamp t at which the coordinate of the drone is required. $0 \leq t \leq C$.

Output:

Print Q lines corresponding to each of the Q queries

In each line print 3 space separated integers a,b,c . Where (a,b,c) is the coordinate of the drone at the given timestamp.

Constraints:

$1 \leq N \leq 200$

$1 \leq Q \leq 200$

Example Input:

```
0 0 0 3 3
```

```
1 1 4
```

```
0 3 2
```

Example Output:

```
0 0 0
```

```
-1 0 2
```

```
0 0 2
```

Explanation:

At Timestamp T=0, position of Drone: (0,0,0)

At Timestamp T=1, position of Drone: (0,0,1)

At Timestamp T=2, position of Drone: (0,0,2)

At Timestamp T=3, position of Drone: (-1,0,2)