Planes, Trains, No Automobiles

Purpose: STL, Stacks, Queues, Teamwork

Due: Dec 13^{th}

Figure 1: Containers On the Dock.

Description

Unloading Merchandise and Delivery (UMD) is in charge of loading air planes and trains from containers that have been unloaded from ships. The material from the dock is stacked (up to 5 containers high) if it to be sent by train. The materials destined to be sent by planes are are unpacked and placed on an assembly line. Each item is labeled either a train number or plane number (which is its destination). Items destined for trains are placed in a stack until it reaches 5 items high, then a new stack is begun behind the original. Items are planes are placed on a long assembly line (there is only 1 assembly line). You can assume 1 worker is loading trains and 1 worker is loading the planes at the same time. The trains (planes) closer to the dock have the smaller train (plane) numbers Each worker requires 2 minutes x train number to move an item from the dock to a train and return. Each worker required 10 minutes x the plane number to move an item from the dock to a plane and return. Given the order that items are unloaded from the ship, your job is write a program to determine the total time it will take to load all the materials.

Input

All input will be from the keyboard. The first line of input will be 4 integers (t, p and $n_t and n_p$) ($0 <= t < 100$, $0 <= p < 10, 0 <= n_t, 0 <= n_p$) (each separated by a single space), which represent the total number of trains , the total number of planes and the total number of to be loaded into trains and the total number of items to be loaded into planes.
The second line will contain t integers (again separated by a single space) representing the number of items to be loaded to each train.
The third line will contain p integers (again separated by a single space) representing the number of items to be loaded to each plane.
The fourth line will contain n_t representing the destination of each item being sent by a train.
The last line will contain n_p representing the destination of each item being sent by a plane.

Output

Output will be on the screen in 2 lines. The first line contains n_t integers each separated by 1 space. The i^{th} integer represents the time the i^{th} train finished loading. The second line contains n_p integers each separated by 1 space. The i^{th} integer represents the time the i^{th} plane finished loading.

sample Input

```
3 2 10 5
2 7 1
3 2
2 2 2 1 3 2 2 2 1 2
2 1 1 2 1
```

corresponding Output

```
25 36 3
65 50
```

Memo uploaded to canvas 1 per team member

What	pts
Name	1
What you did	5
What your teammates did	10

Source Code Document (uploaded to Github) 1 per team

What	pts
Style	15
Functionality	90

Teams

- **team 1**
  - Aziz Alshohati
  - Dwight Herman
  - Marshall Riddle
- **team 2**
  - Joel Fernandes
  - Asseel Hubaishi
  - Eranus Thompson
- **team 3**
  - Hadi Al-Hourani
  - Sean Downham
  - Nitin Gutta
- **team 4**
  - Michael Allen
  - Andrew Knieriem
  - Noor Mahmoud
- **team 5**
  - Ayah Hamad
  - Justin Hogue
  - Cameron Labut
- **team 6**
  - Hassan Mehdi
  - John Rubin
  - Rabih Salamey
- **team 7**
  - Ryan Dupke
  - Steven Lee
  - Emmanuel Obi
- **team 8**
  - Ashley Baker
  - Omari Chatman
  - Egil Shijaku
- **team 9**
  - Mazen Abuelenain
  - Nathan Baines
  - Frank Schmidt
- **team 10**
  - Evan Joesph
  - Robert Madary III
  - Mukilan Narayanan

Division Of Labor

Students will not get full credit if they do not do work on both documentation and programming . A suggested division is one person to be in charge of loading planes, loading trains and setting up the dock.