Problem 3 – Endurance Rally

The goal of the Endurance Rally is, simply, to finish the race.

You are given **the names of the participants**, **the track layout** and **the checkpoint** indexes.

The starting fuel of each participant is **equal to the ASCII code** of the **first character** of his name.

Track layout consists of zones represented by numbers, given on a single line separated by a single space. Every number **represents** the **fuel given** or the **fuel taken** by the current zone of the track:

- If the current zone **is a checkpoint**, the value of the zone is **added** to the driver's **fuel**.
- If the current zone **is not a checkpoint**, the value of the zone is **subtracted** from the driver's fuel.

Zones are **indexed**. Indexes are sequential and always **start from zero** (like an array).

The **checkpoints** are numbers, representing indexes that show if **a zone of the track is a checkpoint**. For example, you are given checkpoints 0, 3 and 5, that means that zones at index 0, 3 and 5 of the track are checkpoints and therefore provide fuel for the driver.

Given this information, you need to **check if a driver can finish** and **print the fuel that he is left with**. If a driver **can't finish** you need to **print the zone he managed to reach**.

Input

The input will be read from the console. The input consists of **exactly three lines**:

- The first line holds the drivers' names separated by a space: **"{driver 1} {driver 2} … {driver N}"**
- On the second line is the track layout (zones) in the form of numbers separated by a space: **"{zone 0} {zone 1} … {zone N}"**
- On the third line are the checkpoint indexes also separated by a space: **"{index 0} {index 1} … {index N}"**

Output

Print all drivers **in the order of their appearance**, each on a separate line:

- If the driver finished, print his name and fuel left to the second digit after the decimal point in the format: **"{driver name} - fuel left {fuel points}"**
- If the driver could not finish, print: **"{driver name} - reached {zone index}"**

Constrains

- Drivers count will be in the range [0 … 200]
- Zone fuel will be a floating-point number
- Checkpoints will be integers in the range [-2^{31} … 2^{31} - 1]

Examples

Input	Output	Comments
Garry Clark 69 1 15 5 1 2	Garry - fuel left 13.00 Clark - reached 0	Zones 1 and 2 -> checkpoints. Garry ('G' = 71) -> 71 - 69 + 1 + 15 - 5 = 13.00 Garry finished with 13 fuel Clark ('C' = 67) -> 67 - 69 = -2

		Clark reached 0
Garry Clark Larry 4 5 12 0 8 7 13 22 5.5 26 0 3 5 8	Garry - fuel left 1.50 Clark - reached 9 Larry - fuel left 6.50	
Garry -29 -5.0 -5.0 1 2	Garry - fuel left 90.00	