# Offroad Challenge



*John is quite an avid off-road fan. He bought a new jeep and made the necessary improvements to it. John is ready for new off-road adventures and can't wait to get started. In this challenge, he must save his fuel very carefully…*

There will be **two sequences of integers**. The first sequence will represent the **initial fuel** and the second - **additional consumption index** due to thin air at high altitudes, hence higher fuel consumption. There will also be a third **sequence of integers**, representing values equal to the necessary **amount of fuel needed** to reach the corresponding altitude in the challenge.

Your task is to take the last **fuel quantity** from the **fuel sequence** and the firstindexfrom **the additional consumption index sequence**. **Subtract the values** and **check the result**.

* The corresponding altitude is reached if the calculated result is bigger or equal to the first element from the **needed amount of fuel** sequence. You need to **remove both the fuel and the consumption** indexfrom their sequences as well as the **needed amount of fuel** index from their sequence.
* If the calculated result **is smaller or not equal** to the first element from **the needed amount of fuel** sequence, the corresponding altitude is not reached, movement cannot continue, and the program should end.

## Input

* The first line will represent the initial **fuel** – **integers**, separated by a **single space.**
* The second line will represent the **consumption indexes** that decrease initial **fuel** – **integers**, separated by a **single space**.
* The third line will represent the **quantities** needed to reach the corresponding altitude – **integers**, separated by a **single space**.

## Output

* On the **first** or the next **n** lines, output the corresponding message on the console from the following options:
* If John **reaches the altitude**, print the message:
* **"John has reached: Altitude 1"**
* **…**
* **"John has reached: Altitude {n}"**
* If John **fails to reach the altitude**, print the message:
* **"John did not reach: Altitude {n}"**
* On the **next** lines, based on whether he reached the top or not, print the following on the console in the specified format:
* If John **doesn't have enough fuel to reach the top** but **has reached some altitude**, display the following messages:
* **"John failed to reach the top.**

**Reached altitudes: Altitude 1, … Altitude {n}"**

* If John **does not have enough fuel to reach the top** and **has not reached any altitude**, print:
  + **"John failed to reach the top.**

**John didn't reach any altitude."**

* If John manages to **reach all the altitudes**, he will reach the top. End the program and **print on the console** the following message:
  + **"John has reached all the altitudes and managed to reach the top!"**

## Constraints

* All the given numbers will be valid **integers** in the range **[1, 200].**
* All sequences always consist of **four** elements.
* There will be **no negative input**.

## Examples

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| --- | --- |
| **Input** | **Output** |
| **200 90 40** 100  20 **40 30 50**  **50 60 80 90** | John has reached: Altitude 1  John did not reach: Altitude 2  John failed to reach the top.  Reached altitudes: Altitude 1 |
| **Comment** | |
| We start by taking the last fuel quantity from the fuel sequence (**100**) and the first **additional consumption index from the consumption index fuel sequence** (**20**). The result from subtraction is **100 - 20 = 80**. After that, we check if the sum equals or exceeds the **first amount of needed fuel**. The **result (80)** is more than the **needed fuel (50)** for this altitude, so the **altitude is reached.** As the altitude is reached, we **remove an element from every sequence**. We continue with the next altitude to do the same and as a result, we have 40 – 40 = 0. The needed fuel is **60**, we do not have enough fuel to reach the current altitude, so the challenge for John ends here. | |
| **Input** | **Output** |
| 40 66 123 100  10 30 70 33  40 55 77 100 | John has reached: Altitude 1  John has reached: Altitude 2  John did not reach: Altitude 3  John failed to reach the top.  Reached altitudes: Altitude 1, Altitude 2 |
| **Comment** | |
| Here we take the last **fuel** quantity and like in the previous case subtract the **consumption index** from the fuel and continue forward until the result is equal to or greater than the required fuel otherwise the program stops. | |

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| **Input** | **Output** |
| 199 190 100 100  20 40 30 50  50 60 70 80 | John has reached: Altitude 1  John has reached: Altitude 2  John has reached: Altitude 3  John has reached: Altitude 4  John has reached all the altitudes and managed to reach the top! |
| **Comment** | |
| Here all altitudes are conquered, and John successfully reaches the top. | |