1680. Count All Possible Routes

Difficulty : Hard

You are given an array of **distinct** positive integers locations where `locations[i]` represents the position of city i. You are also given integers `start`, `finish` and `fuel` representing the starting city, ending city, and the initial amount of fuel you have, respectively.

At each step, if you are at city `i`, you can pick any city `j` such that `j != i` and `0 <= j < locations.length` and move to city `j`. Moving from city `i` to city `j` reduces the amount of fuel you have by `|locations[i] - locations[j]|`. Please notice that `|x|` denotes the absolute value of `x`.

Notice that `fuel` **cannot** become negative at any point in time, and that you are **allowed** to visit any city more than once (including `start` and `finish`).

Return *the count of all possible routes from* `start` *to* `finish`. Since the answer may be too large, return it modulo $10^9 + 7$.

Example 1:

```
Input: locations = [2,3,6,8,4], start = 1, finish = 3, fuel = 5
Output: 4
Explanation: The following are all possible routes, each uses 5 units of fuel:
1 -> 3
1 -> 2 -> 3
1 -> 4 -> 3
1 -> 4 -> 2 -> 3
```

Example 2:

```
Input: locations = [4,3,1], start = 1, finish = 0, fuel = 6
Output: 5
Explanation: The following are all possible routes:
1 -> 0, used fuel = 1
1 -> 2 -> 0, used fuel = 5
1 -> 2 -> 1 -> 0, used fuel = 5
1 -> 0 -> 1 -> 0, used fuel = 3
1 -> 0 -> 1 -> 0 -> 1 -> 0, used fuel = 5
```

Example 3:

```
Input: locations = [5,2,1], start = 0, finish = 2, fuel = 3
Output: 0
Explanation: It is impossible to get from 0 to 2 using only 3 units of fuel since the shortest route needs 4 units of fuel.
```

Constraints:

- `2 <= locations.length <= 100`
- `1 <= locations[i] <= `10^9
- All integers in `locations` are **distinct**.
- `0 <= start, finish < locations.length`
- `1 <= fuel <= 200`