**Team Formation 2**

**QUESTION DESCRIPTION**

FC Codelona is trying to assemble a team from a roster of available players. They have a minimum

number of players they want to sign, and each player needs to have a skill rating within a certain range.

Given a list of players' skill levels with desired upper and lower bounds, determine how many teams can be

created from the list.

**Example**

skills = [12, 4, 6, 13, 5, 10]

minPlayers = 3

minLevel = 4

maxLevel = 10

* The list includes players with skill levels [12, 4, 6, 13, 5, 10].
* They want to hire at least 3 players with skill levels between 4 and 10, inclusive.
* Four of the players with the following skill levels { 4, 6, 5,10} meet the criteria.
* There are 5 ways to form a team of 3 players : {4, 5, 6}, {4, 6, 10}, {4, 5,10}, {5, 6, 10}, and {4, 5, 6, 10}.
* Return 5.

**Function Description**

Complete the function countTeams in the editor below.

countTeams has the following parameter(s):

int skills[n]: an array of integers that represent the skill level per player

int minPlayers: the minimum number of team members required

int minLevel: the lower limit for skill level, inclusive

int maxLevel: the upper limit for skill level, inclusive

**Return**

int: the total number of teams that can be formed per the criteria

**Constraints**

* 1 ≤ n ≤ 20
* 1 ≤ minPlayers ≤ n
* 1 ≤ minPlayers ≤ n
* 1 ≤ minLevel ≤ maxLevel ≤ 1000
* 1 ≤ skills[i] ≤ 1000

Input Format for Custom Testing

Input from stdin will be processed as follows and passed to the function.

1. The first line contains an integer n, the size of the array skills.
2. The next n lines each contain an element skills[i] where 0 ≤ i < n.
3. The next line contains an integer, minPlayers, the minimum number of players to be included in the team.
4. The next line contains an integer, minLevel, the lower limit of skill level to select
5. The next line contains an integer, maxLevel, the upper limit of skill level to select

**Sample Case 0**

**Sample Input 0**

STDIN Function

4 → skills[ ] size n = 4

4 → skills = [4, 8, 5, 6]

8

5

6

1 → minPlayers = 1

5 → minLevel = 5

7 → maxLevel = 7

**Sample Output 0**

3

**Explanation 0**

* The list includes players with skill levels [4, 8, 5, 6].
* They want to hire at least 1 player with skill levels between 5 and 7, inclusive.
* Two of the players with the following skill levels { 5, 6} meet the criteria
* There are 3 ways to form a team of at least 1 player : {5}, {6}, {5, 6} .
* Returns 3.

**Sample Case 1**

**Sample Input 1**

STDIN Function

**4 → skills[ ] size n = 4**

**4 → skills = [4, 8, 5, 6]**

**8**

**5**

**6**

**2 → minPlayers = 2**

**5 → minLevel = 5**

**7 → maxLevel = 7**

**Sample Output 1**

1

**Explanation 1**

* The list includes players with skill levels [4, 8, 5, 6].
* They want to hire at least 2 players with skill levels between 5 and 7, inclusive.
* Two of the players with the following skill levels { 5, 6} meet the criteria
* There is only one ways to form a team of at least 2 players : {5, 6} .
* Returns 1

**Sample Case 2**

**Sample Input 2**

STDIN Function

4 → skills[ ] size n = 4

4 → skills = [4, 8, 5, 6]

8

5

6

2 → minPlayers = 2

7 → minLevel = 7

8 → maxLevel = 8

**Sample Output 2**

0

**Explanation 2**

* The list includes players with skill levels [4, 8, 5, 6].
* They want to hire at least 2 players with skill levels between 7 and 8, inclusive.
* One of the players with the following skill levels { 8 } meet the criteria.
* There is no way to form a team of at least 2 players.
* Returns 0.

**Hint 1**

* Count the number of eligible players. Now you just need to count the number of ways you can choose at least minPlayers from the eligible players. Look over the constraint of n.

**Hint 2**

* We can say that the number of ways to choose at least minPlayers from the eligible players is equal to number of ways to choose exactly p players such that p > minPlayers.

CANDIDATE ANSWER

Language used: Java 8

class Result {

/\*

\* Complete the 'countTeams' function below.

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\* The function is expected to return an INTEGER.

\* The function accepts following parameters:

\* 1. INTEGER\_ARRAY skills

\* 2. INTEGER minPlayers

\* 3. INTEGER minLevel

\* 4. INTEGER maxLevel

\*/

public static int countTeams(List<Integer> skills, int minPlayers, int minLevel, int maxLevel) {

// Write your code here

}

}