

You are expected to implement a function that checks a list of chemical elements and determines whether each of them is dangerous or not. The function definition and its parameters are as follows:

```
check_list(NameOfChemical,XFactorList, YFactorList,ZFactorList)
```

- `NameOfChemical`: A list of strings
- `XFactorList`: A list of floats.
- `YFactorList`: A list of floats.
- `ZFactorList`: A list of floats.

Every chemical element has a score which you can calculate with this formula $(XFactor/YFactor-1)*ZFactor$. if it is greater than 1 then the element is dangerous, if it is less than or equal to 1, then it is not dangerous.

The function should *return* a list:

- The list should contain the names of the elements and their classification, whether the element is dangerous or not. The element name should be followed by a `'D'` if the element is dangerous, otherwise it should be followed by an `'ND'`.

Notes:

- Your function shall receive its data via its parameters only. Your submitted solution will NOT use any `input()` function.
- Your function shall *return* its results. It will NOT print anything.
- Any return value that doesn't conform to the expected output type will be graded as zero.

SAMPLE I/O:

Input:

```
>>> check_list(['Neon', 'Vanadium', 'Niobium', 'Chlorine'], [1.13, 1.85, 1.76, 1.26], [1.96, 1.95, 1.06, 1.08], [13, 28, 19, 31])
```

Output:

```
['Neon', 'ND', 'Vanadium', 'ND', 'Niobium', 'D', 'Chlorine', 'D']
```

Note that the output is not printed by the `check_list` function. It is the *read-eval-print_result* looping of the Python interpreter that did the printing of the list value, returned by the function.

Input:

```
>>>check_list(['Fermium', 'Roentgenium', 'Zirconium', 'Vanadium', 'Copernicium'], [1.96, 1.95, 1.06, 1.08, 1.84], [1.24, 1.54, 1.37, 1.6, 1.63], [13, 6, 20, 9, 4])
```

Output:

```
['Fermium', 'D', 'Roentgenium', 'D', 'Zirconium', 'ND', 'Vanadium', 'ND', 'Copernicium', 'ND']
```

To help you understand the question better, you can follow the execution steps of the second example input/output combination which you can find below:

- First chemical Fermium, its XFactor is 1.96, its YFactor is 1.24 and its ZFactor is 13. if you put these scores into the formula which is $(XFactor/YFactor-1)*ZFactor$.
 - $(XFactor/YFactor-1)*ZFactor=(1.96/1.24-1)*13=7.5483$ so it is greater than 1, it is dangerous.
- Put Roentgenium values into formula:
 - $(1.95/1.54-1)*6=1.5974$ so it is greater than 1, it is dangerous.
- Put Zirconium values into formula:
 - $(1.06/1.37-1)*20=-4.525$ so it is lower than 1, it is not dangerous.
- Put Vanadium values into formula:
 - $(1.08/1.6-1)*9=-2.925$ so it is lower than 1, it is not dangerous.
- Copernicium values into formula:
 - $(1.84/1.63-1)*4=0.5153$ so it is lower than 1, it is not dangerous.
- Returned list should be: ['Fermium', 'D', 'Roentgenium', 'D', 'Zirconium', 'ND', 'Vanadium', 'ND', 'Copernicium', 'ND'] because Zirconium, Vanadium and Copernicium are not dangerous, rest of them is dangerous.

Solution

```
def check_list(NameOfChemical,XFactorList, YFactorList,ZFactorList):  
    main_list=[]  
  
    for i in range(len(NameOfChemical)):  
        if ((XFactorList[i]/YFactorList[i]-1)*ZFactorList[i])>1:  
            main_list.append(NameOfChemical[i])  
            main_list.append("D")  
        else:  
            main_list.append(NameOfChemical[i])  
            main_list.append("ND")  
  
    return main_list
```