

Problem: Happy Lady Bugs

Happy Ladybugs is a board game having the following properties:

- The board is represented by a string, `s`, of length `n`. The character of the string, `s[i]`, denotes the cell of the board.
 - If `s[i]` is an underscore (i.e., `_`), it means the cell of the board is empty.
 - If `s[i]` is an uppercase English alphabetic letter (i.e., `A` through `Z`), it means the cell contains a ladybug of color `s[i]`.
 - String `s` will not contain any other characters.
- A ladybug is *happy* only when its left or right adjacent cell (i.e., `s[i-1]` or `s[i+1]`) is occupied by another ladybug having the same color.
- In a single move, you can move a ladybug from its current position to any empty cell.

Given the values of `n` and `m` for `m` games of Happy Ladybugs, determine if it's possible to make all the ladybugs happy. For each game, print `YES` on a new line if all the ladybugs can be made happy through some number of moves; otherwise, print `NO` to indicate that no number of moves will result in all the ladybugs being happy.

Input Format

The first line contains an integer, `m`, denoting the number of games. The subsequent lines describes a Happy Ladybugs game in the following format:

1. The first line contains an integer, `n`, denoting the number of cells on the board.
2. The second line contains a string, `s`, describing the cells of the board.

Constraints

- `1 ≤ m ≤ 10`
- `1 ≤ n ≤ 100`
- It is guaranteed that string `s` consists of underscores and/or uppercase English alphabetic letters (i.e., `_` and `A` through `Z`).

Output Format

For each game, print `YES` on a new line if it is possible to make all the ladybugs *happy*; otherwise, print `NO`.

Sample Input 0

```
4
7
RBY_YBR
6
X_Y_X
2
_
6
B_RRBR
```

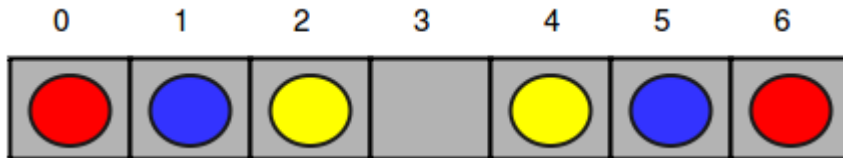
Sample Output 0

YES
NO
YES
YES

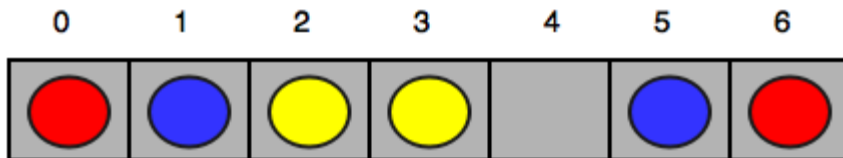
Explanation 0

The first three games of Happy Ladybugs are explained below:

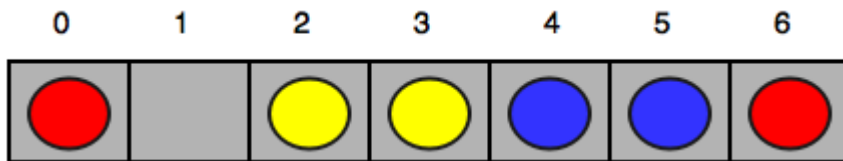
1. Initial board:



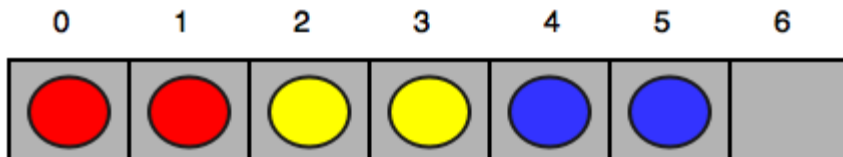
After the first move:



After the second move:



After the third move:



Now all the ladybugs are happy, so we print YES on a new line.

2. There is no way to make the ladybug having color Y happy, so we print NO on a new line.
3. There are no unhappy ladybugs, so we print YES on a new line.

Solution

```
string sort(string &str) //Arranges same color bugs together
{ if(str.find('_')<100) //no empty slot, cannot Move
    { int length=str.length();
      for(int i=0; i<length-1; i++)
        { for(int j=0; j<length-1-i; j++)
            { if(str[j]>str[j+1])
                {
                    char temp=str[j];
                    str[j]=str[j+1];
                    str[j+1]=temp;
                }
            }
        }
    }
    return str;
}

//-----
int happyCheck(string str) //Checks for happy Bugs
{
    int length=str.length();
    for(int i=0; i<length; i++)
        { if(str[i]!='_')
            { int count=0;
              if(i==0 && str[i]==str[i+1]) {count+=1; }
              else if(str[i]==str[i+1] || str[i]==str[i-1]){count++;}
              else if(i==length-1 && str[i]==str[i-1]){count+=1;}

              if(count!=1){return 0;} //no happy bug found Abort
            }
        }
    return 1;
}

//-----
```

```
int main()
{
    int testCases, size;
    string str;
    cin>>testCases;
    for(int i=0; i<testCases; i++)
    {
        cin>>size >>str;
        (happyCheck(sort(str))==1 ? cout<<"YES" : cout<<"NO");
        cout<<endl;
    }
    return 0;
}
```

” Anshul AgGarwal