# Contents



# 1 Todo

1. Add code and complexity
2. Add brief explanations

# 2 Contest Setup

## 2.1 vimrc

```
set number      " Show line numbers
set mouse=a     " Enable inaction via mouse
set showmatch       " Highlight matching brace
set cursorline      " Show underline
set cursorcolumn    " highlight vertical column

filetype on "enable file detection
syntax on   "syntax highlight

set autoindent      " Auto-indent new lines
set shiftwidth=4    " Number of auto-indent spaces
set smartindent     " Enable smart-indent
set smarttab        " Enable smart-tabs
set softtabstop=4   " Number of spaces per Tab

" ---------Optional----------

set undolevels=10000    " Number of undo levels
set scrolloff=5     " Auto scroll

set hlsearch    " Highlight all search results
set smartcase   " Enable smart-case search
set ignorecase  " Always case-insensitive
set incsearch   " Searches for strings incrementally

highlight Comment ctermfg=cyan
set showmode

set encoding=utf-8
set fileencoding=utf-8
scriptencoding=utf-8
```

contest_setup/vimrc

## 2.2 bashrc

```
alias g++="g++ -Wall -Wextra -O2"
```

contest_setup/bashrc

## 2.3 C++ template

```
#include <bits/stdc++.h>

using namespace std;

#define x first
#define y second

typedef long long int ll;
typedef pair<int, int> ii;

11111111112222222222333333333344444444455555555555

int main()
{
    return 0;
}
```

contest_setup/main.cpp

### 2.4 Java template

```java
import java.io.*;
import java.util.*;

public class Main
{
    public static void main(String[] args)
    {
        MyScanner sc = new MyScanner();
        out = new PrintWriter(new BufferedOutputStream(System.out));
        // Start writing your solution here.

        // Stop writing your solution here.
        out.close();
    }

    public static PrintWriter out;

    public static class MyScanner
    {
        BufferedReader br;
        StringTokenizer st;

        public MyScanner()
        {
            br = new BufferedReader(new InputStreamReader(System.in));
        }

        boolean hasNext()
        {
            while (st == null || !st.hasMoreElements()) {
                try {
                    st = new StringTokenizer(br.readLine());
                } catch (Exception e) {
                    return false;
                }
            }
            return true;
        }

        String next()
        {
            if (hasNext())
                return st.nextToken();
            return null;
        }

        int nextInt()
        {
            return Integer.parseInt(next());
        }

        long nextLong()
        {
            return Long.parseLong(next());
        }

        double nextDouble()
        {
            return Double.parseDouble(next());
        }

        String nextLine()
        {
            String str = "";
            try {
                str = br.readLine();
            } catch (IOException e) {
                e.printStackTrace();
            }
            return str;
        }
    }
}
```

contest_setup/Main.java

# 3 Reminder

1. Read the problem statements carefully. Input and output specifications are crucial!
2. Estimate the **time complexity** and **memory complexity** carefully.
3. Time penalty is 20 minutes per WA, **don't rush**!
4. Sample test cases must all be tested and passed before every submission!
5. Test the corner cases, such as 0, 1, -1. Test all edge cases of the input specification.

# 4 Useful code

## 4.1 Fast Exponentiation

## 4.2 GCD

小心負數!

## 4.3 Extended Euclidean Algorithm

## 4.4 STL quick reference

### 4.4.1 Map / Set

### 4.4.2 String

# 5 Search

## 5.1 Binary Search

### 5.1.1 Find key

### 5.1.2 Upper / lower Bound

## 5.2 折半完全列舉

## 5.3 Two-pointer 爬行法

# 6 Basic data structure

## 6.1 1D BIT

## 6.2 2D BIT

## 6.3 Union Find

## 6.4 Segment Tree

Hehe