

# Programming Seminar

## XXIX ACIS Colombian Programming Contest tips

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# Content

## 1 Template

- What is a template?
- Writing your template
- Recommended template

## 2 Input

- Types of input
- Reading from a file
- Reading from standard input

# Set up

## Get ready

Open your favourite editor.

*We recommend Dev C++ or CodeBlocks for C/C++  
NetBeans or Eclipse for Java*

# Content

## 1 Template

# What is a template?

## What is a template?

The template is the code contained by every program in the contest, i.e. a base code.

For example:

*The main method should be included in all programs.*

```
1  int
2  main() {
3      // Your code goes here.
4      return 0;
5  }
6
```

# Let's write a template

Let's imagine that we already are in the contest. How would the editor be configured?

## Test 1

### 5 minutes

Each team should write a template for their favourite programming language. (*We hope it is C++*)

*The first team writting a good template and configuring the editor will win.*

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# A fast and enough template

- Did you include lots of header files?
- Did you write `using namespace std;`?
- Did you write the main method?



# A fast and enough template

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- Did you write the main method?

## Template

```
#include <bits/stdc++.h> // Just include this header.

using namespace std; // Don't forget this.

int
main() {
    // Your code goes here.
    return 0;
}
```

# Content

## 2 Input

# Common types of input

In a programming contest, the most common input method is the standard one, i.e. reading from **standard input**. However, you could be required to **read from a file**, let's see how to do it.

# Reading from a file in C++

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## Redirect standard streams

```
freopen("file.in", "r", stdin);  
freopen("file.out", "w", stdout);  
int num;  
cin >> num;  
cout << "I read: " << num << endl;
```

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```

## Use new streams

```
ifstream fin("file.in");  
ofstream fout("file.out");  
int num;  
fin >> num;  
fout << "I read: " << num << endl;
```

# Reading from a file in Java

You should use the `FileInputStream` class to read from a file.

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## Redirect standard streams

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

class Main {
    public static void main(String [] args)
        throws FileNotFoundException {

        System.setIn(new FileInputStream("file.in"));
        System.setOut(new PrintStream("file.out"));

        Scanner in = new Scanner(System.in);
        int n = in.nextInt(); String a = in.next();
    }
}
```



# Let's read some inputs

Use any reading method.

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## Test 2

### 4 minutes

Each team should write a program that reads from standard input an arbitrary set of integers and strings.

You don't know how many elements are in the input, you only have to print each one in a single line.

An element is a number or a string that is separated from another element by at least one space or line break.

#### Sample input

```
hi 251
mornin6a
read 1 this
```

#### Sample output

```
hi
251
mornin6a
read
1
this
```

# Reading from standard input in C++

You can use `cin`, `scanf`, `getline`. Depending on your needs. Take care of:

- Usage of `cin` with `getline`: *use `cin.ignore()`*
- Usage of `cin` with `scanf`: *write `ios::sync_with_stdio(false);` in the first line of your main method when using only `cin` to get a better performance.*