Chapter 1

Grafos

Competitive programming combines two topics: (1) the design of algorithms and (2) the implementation of algorithms.

The **design of algorithms** consists of problem solving and mathematical thinking. Skills for analyzing problems and solving them creatively are needed. An algorithm for solving a problem has to be both correct and efficient, and the core of the problem is often about inventing an efficient algorithm.

1.1 Breadth-first search y Depth first search

1.2 Topological sorting

1.3 Kruskal

1.4 Dijstra

1.5 Floyd-Warshall

1.6 Bellman-Ford

Order of magnitude

At the moment, the most popular programming languages used in contests are C++, Python and Java. For example, in Google Code Jam 2017, among the best 3,000 participants, 79 % used C++, 16 % used Python and 8 % used Java Some participants also used several languages.

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

using namespace std;

int main() {
    // solution comes here
```

```
}
```