



Computer Programming club



Why choose this?

- ▶ A club that gives you an opportunity to share your experience with your teammates.
- ▶ To learn more about computer programming and gain challenges by taking part in competitions
- ▶ Happy coding!



What's computer programming?

- ▶ Write code to solve problems

Writing

Compiling

Testing

Debugging

Programming language

- ▶ A programming language is a formal constructed language designed to communicate instructions to a machine, particularly a computer. Programming languages can be used to create programs to control the behavior of a machine or to express algorithms.

C++

```
1  #include<iostream>
2  using namespace std;
3
4  int main() {
5      cout<<"Enter The Size Of Array: ";
6      int size;
7      cin>>size;
8
9
10     int array[size], key,i;
11
12     // Taking Input In Array
13     for(int j=0;j<size;j++){
14         cout<<"Enter "<<j<<" Element: ";
15         cin>>array[j];
16     }
17
18     //Your Entered Array Is
19     for(int a=0;a<size;a++){
20         cout<<"array[ "<<a<<" ] = ";
21         cout<<array[a]<<endl;
22     }
```

Java

```
ActorOne.java
//© A+ Computer Science - www.apluscompsci.com

import info.gridworld.actor.Actor;
import info.gridworld.grid.Location;
import info.gridworld.actor.ActorWorld;

public class ActorOne
{
    public static void main(String[] args)
    {
        ActorWorld world = new ActorWorld();
        Actor dude = new Actor();
        world.add(new Location(0,0), dude);
        world.show();
    }
}
```

Python

```
def add5(x):  
    return x+5  
  
def dotwrite(ast):  
    nodename = getNodeName()  
    label=symbol.syn_name.get(int(ast[0]),ast[0])  
    print ' %s [label="%s" % (nodename, label),  
    if isinstance(ast[1], str):  
        if ast[1].strip():  
            print '= %s";' % ast[1]  
        else:  
            print ""  
    else:  
        print ""  
        children = []  
        for n, child in enumerate(ast[1:]):  
            children.append(dotwrite(child))  
    print ' %s -> {' % nodename,  
    for name in children:  
        print '%s' % name,
```


IDEs

- ▶ a software application consists of a source code editor, build automation tools and a debugger.
- ▶ C++ (Codeblocks, dev-c++)
- ▶ Java (eclipse)
- ▶ Python (Enthought Canopy)



- ▶ Choose a programming language you truly love
- ▶ Make up a team in the same language
- ▶ Use your time to learn knowledge together
- ▶ Practice and solve more problems in your spare time!
- ▶ (there is no shortcut!)



HAPPY CODING

Our goals

Competitive programming

- ▶ A programming competition generally involves the host presenting a set of logical or mathematical problems to the contestants (who can vary in number from tens to several thousands), and contestants are required to write computer programs capable of solving each problem.



Example

- ▶ Farmer John's N cows, conveniently numbered $1 \dots N-1 \dots N$, are all standing in a row (they seem to do so often that it now takes very little prompting from Farmer John to line them up). Each cow has a breed ID: 1 for Holsteins, 2 for Guernseys, and 3 for Jerseys. Farmer John would like your help counting the number of cows of each breed that lie within certain intervals of the ordering.
- ▶ **INPUT FORMAT** (file `bcount.in`):
- ▶ **OUTPUT FORMAT** (file `bcount.out`):
- ▶ **SAMPLE INPUT:**
- ▶ **SAMPLE OUTPUT:**

Cornell University High School Programming Contest



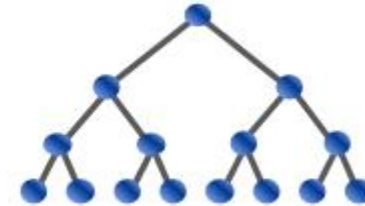
Rules

- ▶ Three people one team
- ▶ One computer each team, so do all the problems **together**
- ▶ If you think your solution is correct, submit your code.
- ▶ If your answer is correct, you will get one point. (**correct means you need to pass all the data!!!**)
- ▶ Time is very important
- ▶ **Can use any paper resource!**

Online competitions

USACO

USA Computing Olympiad



Codeforces



Topcoder



[topcoder]TM



How ?



Make up your team!!!

- ▶ Three members each team in the same language!
- ▶ Come up a team name

Please tell us before next meeting!

Online training websites

- ▶ CodeEval (www.codeeval.com)
- ▶ USACO Training
(<http://train.usaco.org/usacogate>)

Topcoder Tutorials

(<https://www.topcoder.com/community/datascience/datasciencetutorials/>)

- ▶ A2 online judge
- ▶ (<http://a2oj.com/>)

Plan

- ▶ Grammars (divide into several groups to learn own language)
- ▶ Data structure and algorithm
- ▶ (together to learn and write achieve in different languages)
- ▶ Run as fast as you can!



Other challenges

- ▶ We may create contests on the A2 online judge to compete with other teams
- ▶ We may give you problem sets to exercise in your sparetime

Schedule



**THANK
YOU
AND
KEEP
CODING**