CS490: Problem Solving in Computer Science

Lecture 2: FAQ and Common Programming Datatypes

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Fridayday January 6, 2006
Registration

- Registration

- Frequently Asked Questions

- Programming Primitive Datatypes
People Who I Will Register

- Hans Lee
- Ke Kay Miao
- Faisal Al-Humoud
- Luqman Masood
- Brian Luus
- Sandy Robertson
- Andrew Juren
- Clement Keng-Li Lim
People That Aren’t Sure

- James McRoberts
- Mark Jia
- Sharareh Sherry Farzaneh
- Peter Wong
People That Want To Leave?

- Clement Keng-Li Lim
- Henry Ho
- Philip Hsu Hua Chu Hsu
Frequently Asked Questions

- Registration
- Frequently Asked Questions
- Programming Primitive Datatypes
FAQ

Q: Can I still register?
A: Yes, but NOT FOR LONG!
   Talk to me TODAY!
FAQ

Q: Is this an easy class?
A: No. It is a forth year course.
FAQ

Q: How much work load is it then?
A: It should be around the workload of CPSC 320/420, or any other high level CPSC courses. During the week of your group’s presentation, expect more work (in return you get no final!)
Q: How do I find group members? How many do I need?
A: Each group should be 2-3 people in size. We’re planning to leave sometime today for students to meet each other. Why don’t we have an intro from everyone now?
Q: When do I have to pick a topic?
A: ASAP, please have some topic in mind on Monday. By next Wednesday, everyone should have a topic, unless there is a conflict. By next Friday, we’re planning to have the topics all assigned.
Q: How will I ever start a presentation?
A: There’s several places to start. Textbooks such as Goodrich and Cormen can help you with theoretical parts (and a little bit of coding). If possible, coordinators will start you off with some stuff from last year.
Q: How will I be marked on presentations?
A: Right now we have peer review in mind. That includes the coordinators :\)

FAQ

Q: Where can I see more examples of problems similar to that of the course?
A: UVA http://acm.uva.es/problemset/
   TopCoder http://www.topcoder.com/tc
   These are also good problem sources when you’re presenting.
   Igor’s UVA tools http://shygypsy.com/acm/
   Demo later if we have time.
FAQ

Q: What should I be doing now?
A: You should be listening to this magnificent speech. After class don’t forget to:
   • talk to us about registration (if needed)
   • look for group partners
   • keep thinking about the topics
Registration

Frequently Asked Questions

Programming Primitive Datatypes
Integers in C/C++

int:
  ▶ size: 32-bit, 4 bytes
  ▶ range: [-2,147,483,647, 2,147,483,647]

long:
  ▶ size: 32-bit, 4 bytes
  ▶ range: [-2,147,483,647, 2,147,483,647]

long long:
  ▶ size: 64-bit, 8 bytes
Integers in C/C++

unsigned int:
  ▶ size: 32-bit, 4 bytes
  ▶ range: [0, 4,294,967,295]

unsigned long:
  ▶ size: 32-bit, 4 bytes
  ▶ range: [0, 4,294,967,295]

unsigned long long:
  ▶ size: 64-bit, 8 bytes
  ▶ range: [0, 18,446,744,073,709,551,615]
Integers in C/C++

int:
  ▶ size: 32-bit, 4 bytes
  ▶ range: [-2,147,483,647, 2,147,483,647]

long:
  ▶ size: 32-bit, 4 bytes
  ▶ range: [-2,147,483,647, 2,147,483,647]

long long:
  ▶ size: 64-bit, 8 bytes
Integers in Java

int:
- size: 32-bit, 4 bytes
- range: [-2,147,483,647, 2,147,483,647]

long:
- size: 64-bit, 8 bytes

BigInteger:
- a class defined in Java API
- handles arbitrarily large integers
- BigInteger(String val)
- BigInteger add(BigInteger val)
- see API for more detail
Floating Points in C/C++ and Java

float:
▶ size: 32-bit, 4 bytes
▶ range: 3.4E +/- 38
▶ precision: 7 digits

double:
▶ size: 32-bit, 8 bytes
▶ range: 1.7E +/- 308
▶ precision: 15 digits

long double (C/C++ only):
▶ size: 80-bit, 10 bytes
▶ range: 1.2E +/- 4932
▶ precision: 19 digits
Comparing floating points

Using the comparison operator is a bad idea, since sometimes two numbers are effectively equal. Instead, we usually do the following:

```java
double eps = 1e-7;

function equal(double a, double b) {
    // instead of using (a==b)
    // where a and b are compared bit by bit
    return (abs(a-b) < eps)
}
```
What Else?

- Demo on UVA: http://acm.uva.es/p/v100/10055.html
- Form groups if haven't done that
- Think about topics
- Feedbacks (even on the evaluation form itself)