

Introduction to Computer Science I

CSE 1020

www.cse.yorku.ca/course/1020

Programming Contests in September and October

Everyone is welcome to participate in these contests. The students who will represent York at the regional ACM Programming contest on October 23, 2010 will be chosen from the students who attend these practice contests.

The first programming contest will take place in **CSEB 1004** on **Friday September 17** from 15:00 until 17:00.

More details about the programming contests can be found at the URL www.cse.yorku.ca/acm.

- **Name:** Franck van Breugel
- **Email:** franck@cse.yorku.ca
Please use your cse account to send me email
- **Office:** Computer Science and Engineering Building,
room 3046
- **Office hours:** Thursdays, 16:30-19:30 in the lab, or by
appointment

Change of focus

- **High-school**
echo concepts, definitions, and formulae
- **University**
use learned concepts, definitions, formulae to solve a specified task/problem

- **A high-school question might be**
What is a compilation error?
- **A programming test task might be**
Create a program that extracts the current temperature in Toronto from the website of the Weather Network. Using the compiler, isolate any syntax errors and correct them.
- **An exam question might be**
Compilation of your program generated the following error.
What steps should you take to correct the error?

- Week 2–11: test (60%)
- Week 12: programming test (15%)
- Exam period: final exam (25%)

The tests will be 45 minutes and will consist of one programming question and several conceptual questions (multiple choice, short answer, and long answer).

The programming test will be 75 minutes and will consist of one substantial programming question.

The final exam will be 120 minutes and will consist mainly of conceptual questions.

In general, students find conceptual questions more difficult than programming questions.

Practice, practice, practice, ...

- eChecks in the textbook
- programming exercises in the textbook

- Computer Science and Engineering Building, room 1002, 1004 and 1006
- Thursdays, 16:30–18:00 and 18:00–19:30
- Attend the lab for which you are registered
- **Week 1:** guided tour
- **Week 2–11:** test (45 minutes) and eCheck (30 minutes)
- **Week 12:** programming test (75 minutes)

Get your CSE account in CSEB 1006 *before* the first lab (it takes roughly 25 minutes to activate your account).

November 12

Until this date you can drop the course without getting a grade for it and, hence, it will not affect your gpa.

www.registrar.yorku.ca/importantdates/fw10.htm contains important dates.

“If you put your name on something, then it is your work, unless you explicitly say that it is not.”

www.cse.yorku.ca/admin/cosc0nAcadHonesty.html contains more details.

How does this course fit within the program?

- CSE 1020: how to use classes
- CSE 1030: how to implement classes
- CSE 2011: how to represent and manipulate data

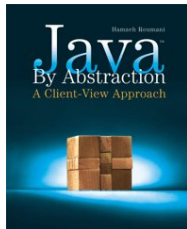
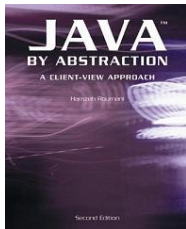
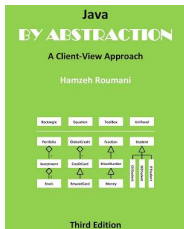
The programming skills and knowledge of basic concepts that you develop in these three courses will be useful in many other courses.

computer science \neq programming

Hamzeh Roumani. *Java by Abstraction: A Client-View Approach*. First or second or third edition. Pearson, Toronto. 2005 and 2007 and 2010.

Why this textbook?

- As far as I know, this is the only textbook that uses the client-view (more about this view later in the course).
- The author is an award winning lecturer and teaches at York.



Read the textbook

Studying only the slides and your lecture notes is *not* sufficient. There will be questions on tests about material that is *not* covered in class. Therefore, you should read the textbook.

Although you need to memorize some material, most of the material you have to understand.

Each chapter consists of

- reading material and contains several types of “boxes”
 - Programming Tip: essential
 - Java Details: useful
 - In More Depth: read and try to understand (don't worry if you don't understand them completely)
- review questions (try some yourself after having read a chapter),
- a lab (do it yourself),
- exercises (try some yourself, good preparation for tests), and
- eChecks (done in the lab).

Apart from attending the lectures and the labs, a student will need to spend on average another 6 hours per week for reading the textbook and practicing writing code.

If you get stuck with a programming exercise,

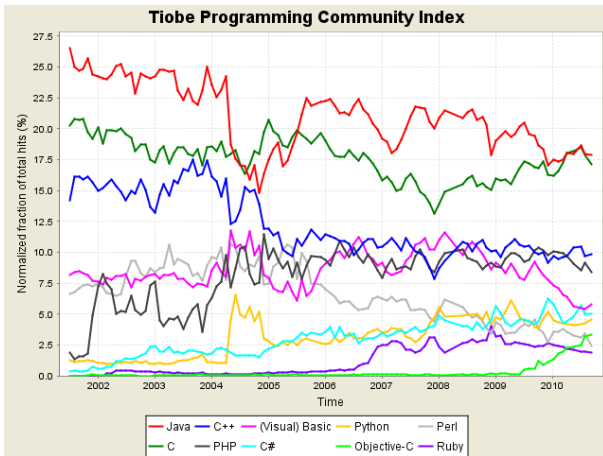
- ask for help during the lab
- post your question on the forum
<https://forum.cse.yorku.ca/viewforum.php?f=124>
- send me email

Programming languages

ABC, Ada, Algol 60, Algol 68, Alice, APL, Basic, BPEL, C, C++, C#, Caml, COBOL, CSP, Eiffel, Emacs Lisp, Erlang, Esterel, Fortran, Haskell, IMP, Java, JavaScript, LaTeX, Lisp, LOTUS, Lustre, Maple, Mathematica, MATLAB, Mesa, Metafont, Miranda, ML, Modula-2, Oak, Oberon, Objective Caml, occam, Pascal, Perl, PHP, Pict, Pizza, PL/I, PostScript, Prolog, Promela, Python, Scala, Scheme, Simula, Smalltalk, SNOBOL, SOAP, Tcl, TeX, Turing, Visual Basic, Z, ...

Why Java?

Java is well-designed and popular.



source: www.tiobe.com

Why Java?

Because Java is popular, there are

- many textbooks about Java,
- many web pages about Java, and
- many software packages written in Java.

... this is *not* a course about Java.

Java is used to introduce you to programming and to explain several fundamental concepts.

In other courses you will get familiar with other languages.

- CSE 2031: C
- CSE 3401: ML and Prolog
- CSE 3311: Eiffel

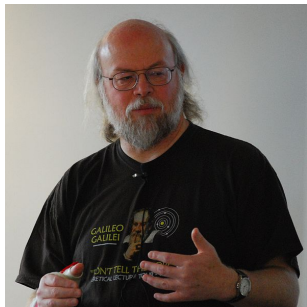
In the early 1990s, James Gosling and some of his colleagues at Sun Microsystems, developed a programming language to program device controllers. The language was called Oak after an oak tree that stood outside Gosling's office. The language was expanded to a general purpose programming language and was renamed Java (because Oak was already a trademark). On May 23, 1995, Java was announced.

“Even though the Web had been around for 20 years or so, with FTP and telnet, it was difficult to use. Then Mosaic came out in 1993 as an easy-to-use front end to the Web, and that revolutionized people’s perceptions. The Internet was being transformed into exactly the network that we had been trying to convince the cable companies they ought to be building. All the stuff we had wanted to do, in generalities, fit perfectly with the way **applications were written, delivered, and used on the Internet**. It was just an incredible accident. And it was patently obvious that the Internet and Java were a match made in heaven. So that’s what we did.”

James Gosling

James Gosling

James Gosling was born near Calgary in 1955. He received his BSc in computer science from the University of Calgary and his PhD from Carnegie Mellon University. In 2007, he was made an officer of the Order of Canada. He is best known as “the father of the Java programming language.”



Trivial problem

Write a Java program that prints the Java's age.

Name of a Java application

According to the Java Language Specification, the name of an application should be a sequence of letters and digits and the symbols `_` and `$`, starting with a letter.

Rules how to write your code such as

- naming conventions for applications, variables, etc,
- indentation,
- etc.

Appendix C of the textbook contains the code conventions to which you and I will (try) adhere during this course.

Another example of code conventions can be found at the URL babelfish.arc.nasa.gov/trac/jpf/wiki/development_coding_conventions.