CMPT 120

Topic: Introduction to Computing Science and Programming + Problem Solving
Last Lecture

- Introduced the course
  - What this course is about
  - Its resources
- Little activity -> thank you!
- Some questions
Learning Outcomes

At the end of this course (and this lecture), a student will be able to:

• Describe fundamental concepts pertaining to computing science
  • Computing science
  • Problem solving
  • Decomposition
Today’s Menu

• i-clicker – Practice Session
  • About our readings and more

• Course Title: “Introduction to Computing Science and Programming 1”
What is Computing Science?

- Study of *computation* -> all aspects of problem solving
  - a.k.a. computational thinking

**Design and analysis of algorithms**

**Formalization of algorithms as programs**

**Development of computational devices (e.g.: computers) for executing those programs**
1st part of the course’s title:

What is Computing Science?

• Let’s hear what people have to say!
Computer versus Computing

- Computer: a tool
- Computing: field of study

“Despite its name, a significant amount of computer science does not involve the study of computers themselves.”

According to http://wordnetweb.princeton.edu/perl/webwn?s=computation
  - Computing = Computation

Problem Solving

• What is *problem solving*?
• How do we go about solving a problem?
• What are the steps we go through when we solve a problem?
Problem Solving – Example

Problem: There is no more milk.
Steps of Problem Solving

1.

2.

3.

4.

5.
1. Problem Statement: There is no more milk.
Decomposition

• What if the description of the solution is not detailed enough for someone that does not know our milk drinking habit (e.g., a robot) to do it and solve the problem?
• Then we need to decompose the description of our solution into “finer” details
• Example:

Now, the robot can “implement” the solution since it has sufficient details.
Activity: Let’s solve another problem!

1.

2.

3.

4.

5.
Summary

• i-clicker Practice Session
• Computing Science -> Problem solving
• Steps in Problem Solving Process
• Decomposition
Next Lecture

- Problem Solving using computers