Connecting with Computer Science

CPSC 101 / WMST 201

http://www.ugrad.cs.ubc.ca/~cs101/

Instructor: Holger Hoos

Slides and Materials based on work by Anne Condon, Holger Hoos and Steve Wolfman

course objectives

• introduce principles of computer science
• build practical computer skills
• develop a long-term interest in computing

overview

• course objectives
• a bit of CS
• a bit of connections
• course administrivia

practical skills

• basics (e-mail, text processing, the web)
• creating a web page
• simple computer programming in java

Date: Sat, 23 Aug 2003 21:47:52 -0700

Hi Anne,
I hope that all is well with you in Vancouver... I am putting my CPSC 100/WMST 425 skills to use once again! ... I looked back at the old lab on Web Design that we did in 2001 for a refresher on html, and I thought I would send you the link to show you what I have designed so far: http://www.students.yorku.ca/~siobhans/
... it is a wonderful feeling to now be more comfortable with computers. Even though my web-designing capabilities are very basic, I still get excited each time I make something new and I am so happy that I took your course....

Siobhan N Smith

Date: Fri, 28 Nov 2003 12:09:14 -0800 (PST)

hi dr. condon,

i have been wanting to sell on eBay for a year now, and now that i've learned basic html in your course, i'm able to create beautiful discriptions of the items i'm selling and i also get to bypass the extra fees for uploading pictures....

- stephanie thai
why principles of cs?

- soul of the field!
- relevant for the long haul
- exercises creative and logical thinking
- help you assess if you like cs
- example: what is an algorithm?

origami problem

- how can you bisect a corner of a square piece of paper?

another origami problem

- how can you trisect a corner of a square piece of paper?

angle trisection algorithm

- create vertical line $EF$ by folding in half
- create line $AG$ by folding through corner $A$ so that corner $B$ meets the line $EF$
- create line $AH$ by folding through corner $A$ so that corner $C$ meets the line $AG$
- voila!

what can we do with origami algorithms?

algorithm

- sequence of operations, or basic steps, needed to solve a problem
- in different contexts, different operations are available
- algorithm design strives for elegance and efficiency (minimize number of basic steps)
more on algorithms

- the process of designing a good algorithm for a problem is a central activity in computer science **but...**
- perhaps more important is knowing what is the right problem to solve, or how to create a beautiful output, in the first place.

see creative origami by Joesph Wu (a former UBC CS student!):
www.origami.as/home.html

why a long term interest

“... the machine, which is thought to be cold and inhuman, can help to realize what is most subjective, unattainable, and profound in a human being.”

- Vera Molnar, computer artist

why a long term interest

“... if you figure out a way to make technology work for you, you can explore curved shapes and make them possible at competitive costs. You can do this because of the computer.”

- Frank Gehry (from “frank o. gehry outside in” by Jim Greenberg and Sandra Jordan)

why a long term interest

“I limited my own intelligence by refusing to take pleasure in abstract problems or in information that had no human content...But technical insecurity is a constant strain, and in the end it limits your thinking. I was stacking up trouble for the future.”

- from “Are You Somebody”, by Nuala O’ Faolain

what else?

- details on course work, labs, and grading can be found on the course web page: http://www.ugrad.cs.ubc.ca/~cs101/
- project info coming in 3-4 weeks
- please share interesting articles, web pages, quotes, ... with me
up next: user interfaces

- think: for a user interface you are familiar with, what aspects are well designed? are not well designed?

- what is the field of human-computer interaction?