

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
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overview

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

course objectives

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

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

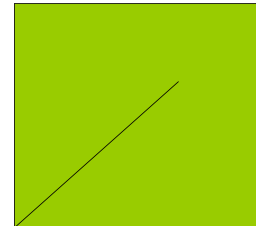
why principles of cs?

- 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?

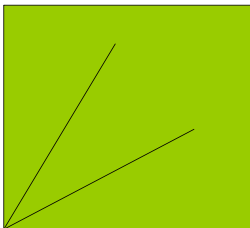
origami problem

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



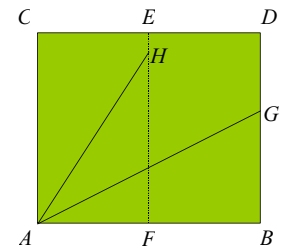
another origami problem

- 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?

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?