Computational Basics

Introduction to Computing
Class Structure
## Class components

<table>
<thead>
<tr>
<th>Component</th>
<th>Frequency</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>2 per week</td>
<td>29 total</td>
</tr>
<tr>
<td>Quizzes</td>
<td>2 per week</td>
<td>29 total</td>
</tr>
<tr>
<td>Homework</td>
<td>1 per week</td>
<td>14 total</td>
</tr>
<tr>
<td>Laboratory/Discussion</td>
<td>1 per week</td>
<td>13 total</td>
</tr>
</tbody>
</table>

*Attend your own section!*  

<table>
<thead>
<tr>
<th>Component</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams</td>
<td></td>
<td>6 total</td>
</tr>
</tbody>
</table>
Grading

- Lectures: 20%
- Quizzes: 12%
- Labs: 24%
- Exams: 20%
- Homework: 24%
Supporting items

Class Structure

Lecture attendance is recorded starting Mon, Jan 29
Lecture attendance is recorded starting Mon, Jan 29
No laptops!
The story thus far...
$1 + \frac{24}{60} + \frac{51}{3600} + \frac{10}{216000} \approx 1.414213$
BOOK IV. PROP. VIII. PROB.

O inscribe a circle in a given square.

Make \( \overline{OP} = \overline{P_1P_2} \),
and \( \overline{OP} = \overline{P_1P_2} \),
draw \( \overline{OP} \parallel \overline{P_1P_2} \),
and \( \overline{OP} \parallel \overline{P_1P_2} \)  
(B. i. pr. 31.)

\[ \therefore \text{ is a parallelogram;} \]
and since \( \overline{OP} = \overline{P_1P_2} \) (hyp.)

\[ \therefore \text{ is equilateral (B. i. pr. 34.)} \]

In like manner, it can be shown that

\[ \text{ are equilateral parallelograms;} \]

\[ \therefore \text{ and therefore if a circle be described from the concourse of these lines with any one of them as radius, it will be inscribed in the given square. (B. 3. pr. 16.)} \]

Q. E. D.
THE PANTHEON: ROME

SECTION THRO' PORTICO AND ROTUNDA
AN ESSAY
Towards a
REAL CHARACTER,
And a
PHILOSOPHICAL
LANGUAGE.

By John Wilkins D.D. Dean of Ripon,
And Fellow of the ROYAL SOCIETY.

LONDON,
Printed for S. Gellibrand, and for
John Martyn Printer to the ROYAL
SOCIETY, 1668.
Jacquard looms
Calculation
Elements of Computation

- **Calculation**—mathematics, physics, [universal] language, etc.
Calculation—mathematics, physics, [universal] language, etc.

Storage
Elements of Computation

- **Calculation**—mathematics, physics, [universal] language, etc.
- **Storage**—punch cards, tape, drives, RAM
Elements of Computation

- **Calculation**—mathematics, physics, [universal] language, etc.
- **Storage**—punch cards, tape, drives, RAM
- **Control**
Elements of Computation

- **Calculation**—mathematics, physics, [universal] language, etc.
- **Storage**—punch cards, tape, drives, RAM
- **Control**—punch cards, gears, vacuum tubes, transistors
Elements of Computation

- **Calculation**—mathematics, physics, [universal] language, etc.
- **Storage**—punch cards, tape, drives, RAM
- **Control**—punch cards, gears, vacuum tubes, transistors
- **Communication**
Elements of Computation

- **Calculation**—mathematics, physics, [universal] language, etc.
- **Storage**—punch cards, tape, drives, RAM
- **Control**—punch cards, gears, vacuum tubes, transistors
- **Communication**—telephone lines, network
Computing Stack

The story thus far...
Computational thinking
Maze Algorithms
Maze Algorithms
Maze Algorithms
Maze Algorithms
Maze Algorithms
Maze Algorithms

THE RING PATTERNS MATCH AND OVERTAP BACK INTO TIME

A THIS WAS A LIVING TREE WHEN CUT BY US

B THIS BEAM CAME FROM A HOUSE

C THIS BEAM CAME FROM AN OLD HOUSE

1850 1860
1870 1880 1890
1900 1910 1920 1930 1940

DATE OF LAST RING IS THAT OF YEAR WHEN WE CUT TREE

THIS DATE OBTAINED BY COUNTING BACK FROM BARK OF A

THIS DATE OBTAINED BY COUNTING BACK FROM BARK OF A THROUGH B

SPECIMENS TAKEN FROM RUINS, WHEN MATCHED AND OVERLAPPED AS INDICATED, PROGRESSIVELY EXTEND THE DATING BACK INTO PREHISTORIC TIMES.
Class Resources
go.illinois.edu/cs101
How do you get help?

- Course website and FAQ
How do you get help?

- Course website and FAQ
- Forum (Piazza)
How do you get help?

- Course website and FAQ
- Forum (Piazza)
- Textbook
How do you get help?

- Course website and FAQ
- Forum (Piazza)
- Textbook
- Teaching assistants (labs, office hours)
How do you get help?

- Course website and FAQ
- Forum (Piazza)
- Textbook
- Teaching assistants (labs, office hours)
- Course administration (logistics, exceptions, DRES)—cs101admin@cs.illinois.edu
Next steps
Next steps

- Acquire course materials
Next steps

- Acquire course materials
- Complete quiz00, hw00
Next steps

- Acquire course materials
- Complete quiz00, hw00
- Sign up for the forum
Next steps

- Acquire course materials
- Complete quiz00, hw00
- Sign up for the forum
- Attend lab next week