Computational Expression
Summary and Applications

Janyl Jumadinova

24 April, 2019
Computer Science is

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- is more than programming,
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- is applicable to many fields,
Computer Science is

- is a process of computation,
- is more than programming,
- is applicable to many fields,
- since technology is everywhere
What is Computer Science?
What is Computer Science?

Programming → Java
Variables

Data Types

Expressions

Conversion

int temp;

int double char ... 

temp = temp +10;

(double) temp = 10.5;
double new_temp = temp+10.5;
```java
int temp;

int double char ...

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(existing classes:
Scanner, Random,
Math, String, Iterators,
ArrayList)
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Scanner, Random,
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Writing Algorithms:
Conditionals (if, if/else, switch)
Repetition (while, do/while, for)
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Creating new classes, methods

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Existing classes:
Scanner, Random, Math, String, Iterators, ArrayList

Applications:
Math
Music
Art
Bioinformatics
Management Systems

Creating new classes, methods

Writing Algorithms:
Conditionals (if, if/else, switch)
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Programming → Java

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Creating new classes, methods

Writing Algorithms:
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Applications:
Math
Music
Art
Bioinformatics
Management Systems

Tools:
Slack
GitHub
Linux
Script (GG)
Travis
What is Computer Science?

- Teamwork
- Computational Thinking
- Programming → Java
- Problem Solving
- Creativity
Using Computer Science you can:

- Develop technology
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- Develop technology
- Study the usability of technology
Using Computer Science you can:

- Develop technology
- Study the usability of technology
- Design IT infrastructure
Using Computer Science you can:

- Develop technology
- Study the usability of technology
- Design IT infrastructure
- Solve problems in other fields
Technology is changing our world.

Technology careers are lucrative and computing skills are in demand.

- 3.5 million jobs
- 17% degree recipients

By 2026, **3.5 million computing-related job openings** are expected. At the current rate, only **17% of these jobs could be filled** by U.S. computing bachelor’s degree recipients.

Diversity in computing is lacking.

Women, especially women of color, are essentially “absent” from technology innovation.

- 26% all women
- 10% women of color
- 74% men

In 2017, **26% of the computing workforce were women**, and **less than 10%** were women of color. (5% were Asian, 3% were African-American, and 1% were Hispanic.)

Change leadership is critical.

Ineffective strategic leadership allows underrepresentation in computing to persist.

- Isolated efforts are not enough for sustained change. Organizations must take a comprehensive, systemic approach in order to increase gender diversity.

From NCWIT

Janyl Jumadinova

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24 April, 2019
Now, computing is slowly becoming recognized as a new literacy.
Computational Thinking

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- Programming helps to develop computational thinking skills
Computational Thinking

- Now, computing is slowly becoming recognized as a new literacy
- Programming helps to develop computational thinking skills
- High-level (object-oriented) programming makes programming accessible
Programming helps with

- Problem solving skills
- Critical thinking skills
- Analysis
- Computational thinking
- Understanding underlying technologies
Java is Used in Many Companies/Industries

- Google (gmail)
- Facebook
- Ebay
- Kayak
- Amazon
- Netflix
- Linked In
- AT & T
- E-banking (Bank of America)
- Some blue-ray players
- etc.
Java Benefits

- Write once, run everywhere
- Network-centric
- Internationalization
- Performance
- Programmer Efficiency
There is more

- A lot more programming techniques than covered in this class
- A lot of other programming languages and tools
- Learning never ends
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**Hour of Code**

**Trinket**
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**Hour of Code**

**Trinket**

Next courses for CS/Informatics:

- Data Abstraction
- Discrete Structures
- Bioinformatics
- Data Analytics
- Web Development
- COMRT 529 (AIM Internship)