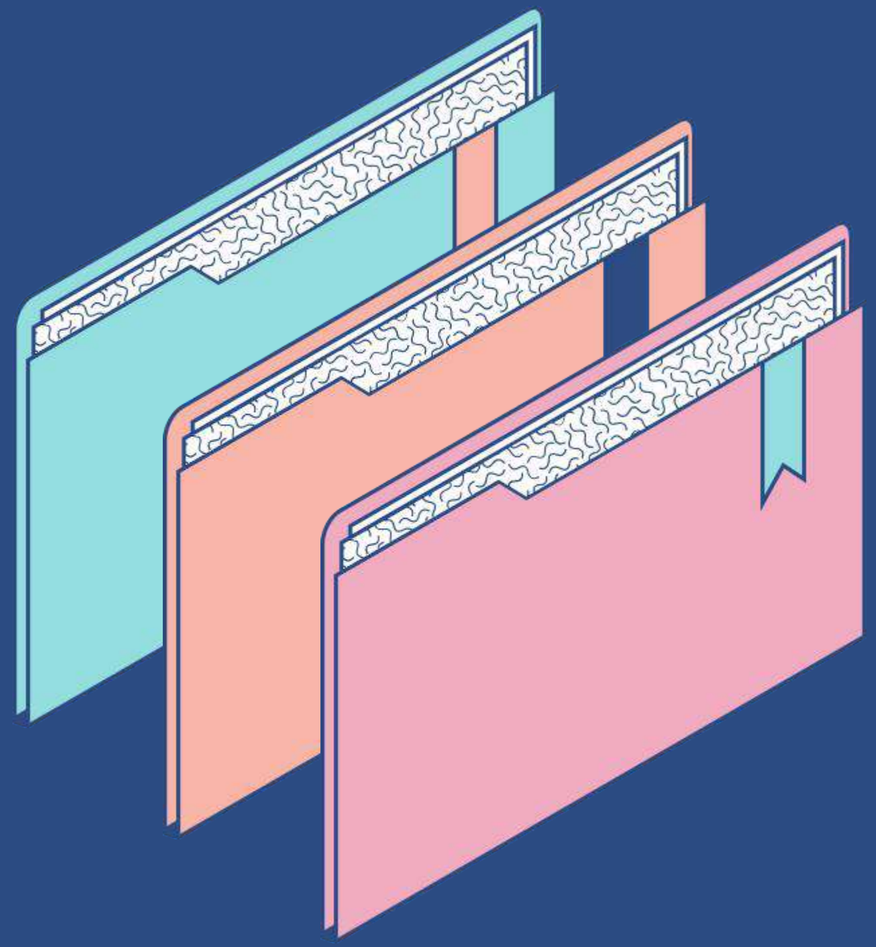
Computer Science as Discipline and The 5 Major Computing Disciplines



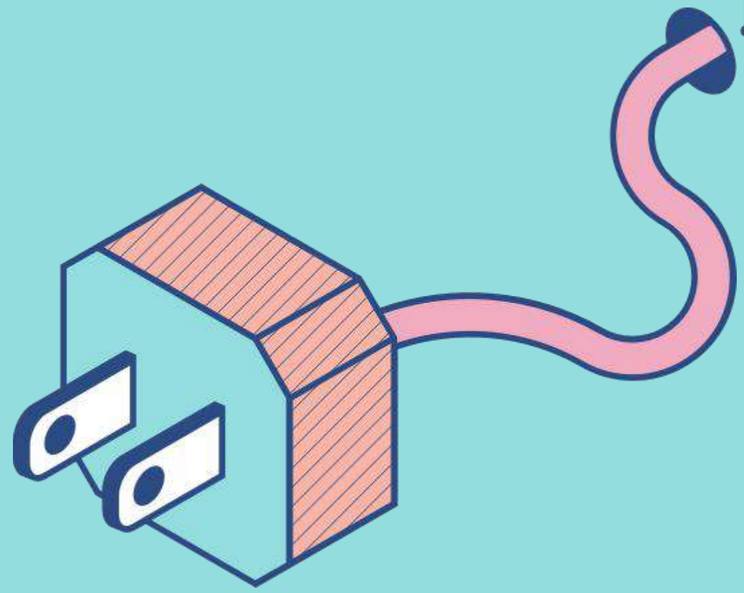
AGENDA

KEY TOPICS DISCUSSED IN
THIS PRESENTATION

- What is Computer Science?
- A little background history of Computer Science
- Computer Science as Discipline
- What are 5 Major Computing Disciplines?
- What is Computer Engineerin, Computer Scienc, Information Technolog, Information Syste, and Software Engineering?

WHAT IS COMPUTER SCIENCE?

Computer science, the study of **computers** and computing, including their theoretical and algorithmic foundations, **hardware** and **software**, and their uses for processing information. The **discipline** of computer **science** includes the study of **algorithms** and data structures, computer and network design, modeling data and information processes, and **artificial intelligence**.



History of Computer Science

The evolution of computer science began with Lady **Ada Lovelace** and **Charles Babbage’s** work on machine-based operations in the 1830s and early 1840s. Major advancements occurred during WWII with the development of programmable electronic computers like ENIAC and Turing's work on artificial intelligence. Grace Hopper's compiler program led to the creation of COBOL, the first standardized computer language. The invention of the microchip by Kilby and Noyce and the establishment of the first computer science department at Purdue University marked further significant milestones in the field. The subsequent decades saw the development of the computer mouse, floppy disc, personal computer, home-modified artificial intelligence, robotics, and computer engineering.

Computer Science as Discipline

Computer science is considered as part of a family of five separate yet interrelated disciplines: computer engineering, computer science, **information systems**, information **technology**, and software engineering. This family has come to be known collectively as the discipline of computing.

The Computing Curricula 1991 recommendations, a joint effort of the two major computing professional societies, characterize the discipline of Computer Science in terms of the three intellectual processes cited above, a collection of subject areas, and a list of recurring concepts. Subsequent curriculum documents, particularly A Revised Model Curriculum for a Liberal Arts Major in Computer Science and Computing Curricula 2001 (both of which inform St. Olaf’s CS curriculum), have affirmed this characterization, while adapting the subject areas to recognize ongoing changes in Computer Science’s body of knowledge.

5 Major Computing Disciplines

1 COMPUTER SCIENCE

2 INFORMATION TECHNOLOGY

3 INFORMATION SYSTEM

4 SOFTWARE ENGINEER

5 COMPUTER ENGINEERING

Computer Science

-Typically involves software and hardware and the development of systems that involve software, hardware, and communications.

Information Technology

-Focuses on computing infrastructure and needs of individual users; tends to involve a study of systems (perhaps just software systems, but perhaps also systems in support of learning, of information dissemination, etc.).

Information System

-Essentially, this is computing in an organizational context, typically in businesses.

Software Engineering

-Focuses on large-scale software systems; employs certain ideas from the world of engineering in building reliable software systems.

Computer Engineering

-Typically involves software and hardware and the development of systems that involve software, hardware, and communications.

I am Niña Margareth Hinoguin
a 1st year student of Bachelor of Science in Information Technology. I take up this program not only because it is on high demand today but I have been curious and interested in digging more about computers and programming. I want to have knowledge more about this program and make a future out of it.

A Reaction/Analysis

As we go through the topic, I learned that computer is not only a program itsel but also a discipline along with the other disciplines such as Information Technology, Information System, Software Engineering and lastly the Computer Engineering. I analyzed that computer science also makes heavy use of hypothesis testing and experimentation during the conceptualization, design, measurement, and refinement of new algorithms, information structures, and computer architectures. This five disciplines are interrelated in the sense that computing is their object of study, but they are separate since each has its own research perspective and curricular focus. These fields of study are all based on the core ideas of computer science, including data structures, algorithms, and programming languages. With computer science providing the theoretical framework and the other disciplines applying it to particular areas, they collaborate to provide creative solutions to challenging issues. These domains change and adapt in tandem with technological advancements, frequently impacting one another and opening up new avenues for study and advancement. In conclusion, each discipline has a unique concentration, yet they are all related to one another and helpful to one another. In exploring this disciplines i have thought that technology is really a helpful thing to our society, as we go through the discipline, one is the mind of all the strof the other discipline, they are connected to one another.

By understanding their relationships and how they contribute to the broader field of computing, we can gain a deeper appreciation for the difficulty and opportunities that exist in this existing area of study.

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