

PORTFOLIO #1

Computer Science as a Discipline and the 5
Computing Disciplines and Majors



Analysis

What are the 5 different computing disciplines? What makes them different from each other? As computer science is a discipline in itself, what is it about? This Computing discipline doesn't hold a single true definition; the discipline itself varies and is multidisciplinary, and includes many other different sciences and disciplines. Schools like the University of Joensuu in Finland aimed to properly define the discipline by means of its theoretical and empirical research traditions from the journal article of Tedre (2007, p. 1). This gave way to the creation of the course for the school, entitled "The Philosophy of Computer Science". Which, at its core, is to answer the question, why this specific discipline doesn't have a unified methodological definition.

Analysis

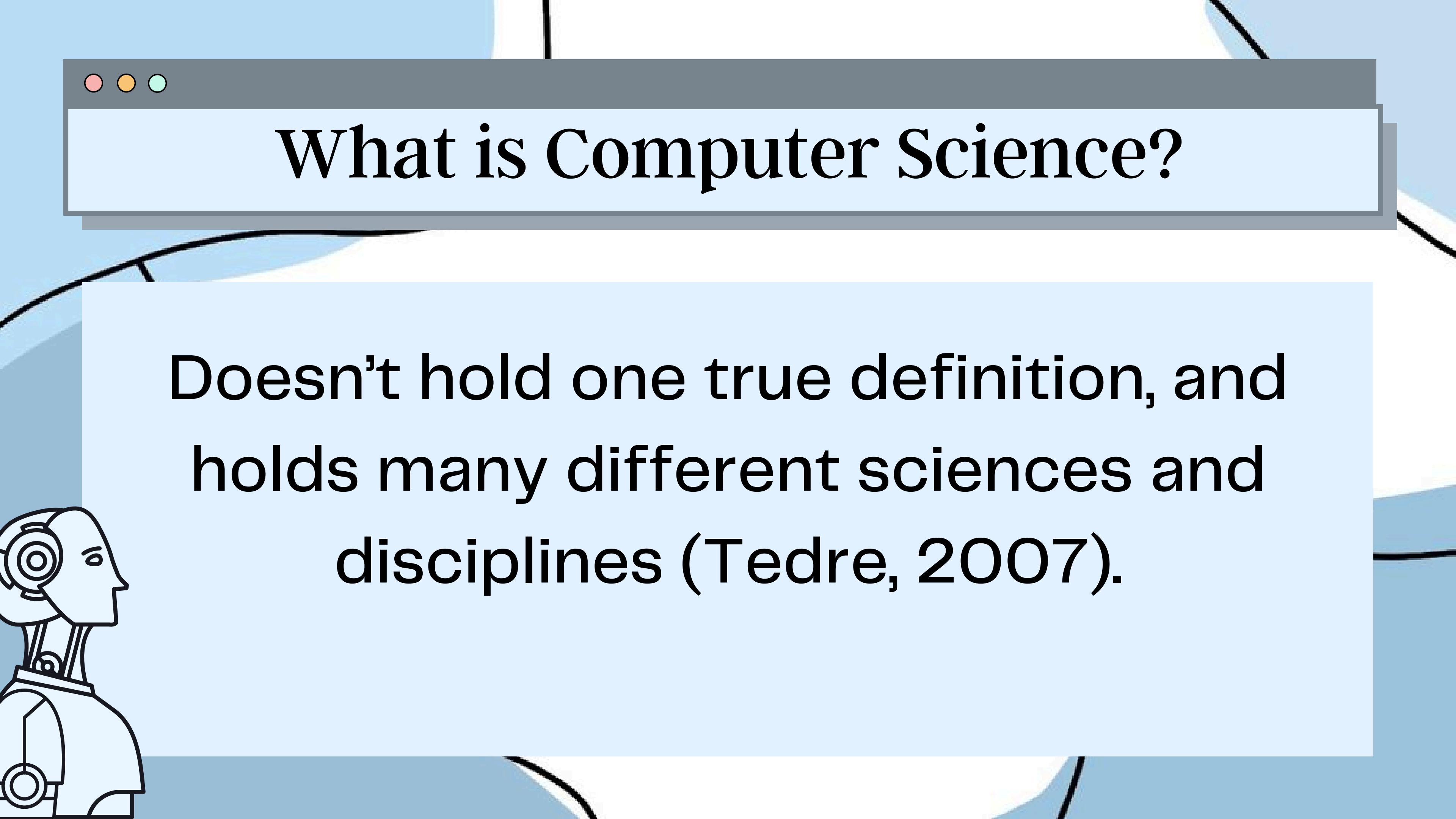
While other definitions seem to stem from the history of the discipline rather than from its different traditions, according to Denning (1999), computer science originates from the roots of algorithmic theory and logic theory in the 1940s, citing works from Kurt Gödel and Alan Turing. According to Denning, the definition of the course is the study of algorithmic processes that manipulate information, but he also stated that this definition was too narrow. Unlike that of the journal article from Tedre (2007), Denning (1999) emphasized the need for user-centered concerns, which are clearly tied to the five distinct disciplines of computing: computer science, computer engineering, software engineering, information systems, and information technology (Lunt & Ekstrom, 2008).

Analysis

When both articles are viewed together, they offer a cohesive view of the 5 different disciplines. The article by Denning (1999) offers a historical overview and the core of the discipline's method of thinking, which is algorithmic. And the paper from Tedre acts as a direct response to the 'narrow' definition by broadening the view with its different traditions to define the discipline.

Analysis

In essence, the core of computing can be summarized into one question, which is stated by Denning (1999) as “What can be (efficiently) automated?” This question can be fundamentally answered by each of the five different computing disciplines. A computer scientist answers it by focusing on theory and a variety of algorithms. A software engineer answers it by creating a safe, secure, and reliable process to build the solution. A computer engineer answers the question by creating hardware designed to run the solution. An information systems professional answers it by applying the solution within a certain organizational context. An information technology professional answers it by ensuring the infrastructure in relation to the solution is used efficiently and effectively (Computing Curricula, 2005; Hopcroft, 2007; Lunt & Ekstrom, 2008).



What is Computer Science?

Doesn't hold one true definition, and holds many different sciences and disciplines (Tedre, 2007).



What is Computer Science?

- Study of algorithmic processes to describe and transform information and data (Denning, 1999).
- Originated from algorithmic theory and logic theory in the 1940s
- According to Denning, is a narrow definition and does not include the connection of the computing discipline to the concerns of the people.



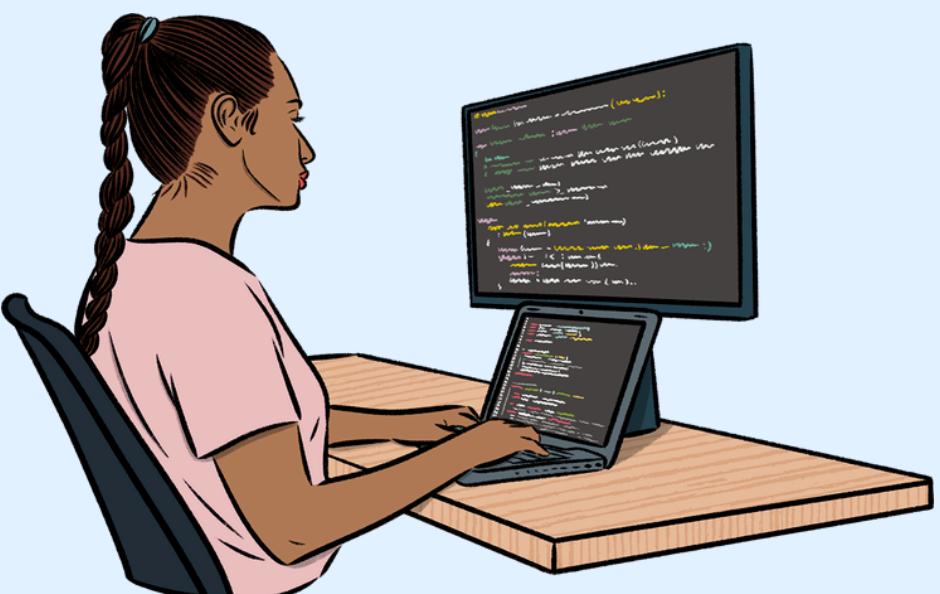
What is Computing and its Disciplines?

- Computing can be summarized with the question,
“What can be efficiently automated”?

A **computer scientist** answers it by focusing on theory and a variety of algorithms



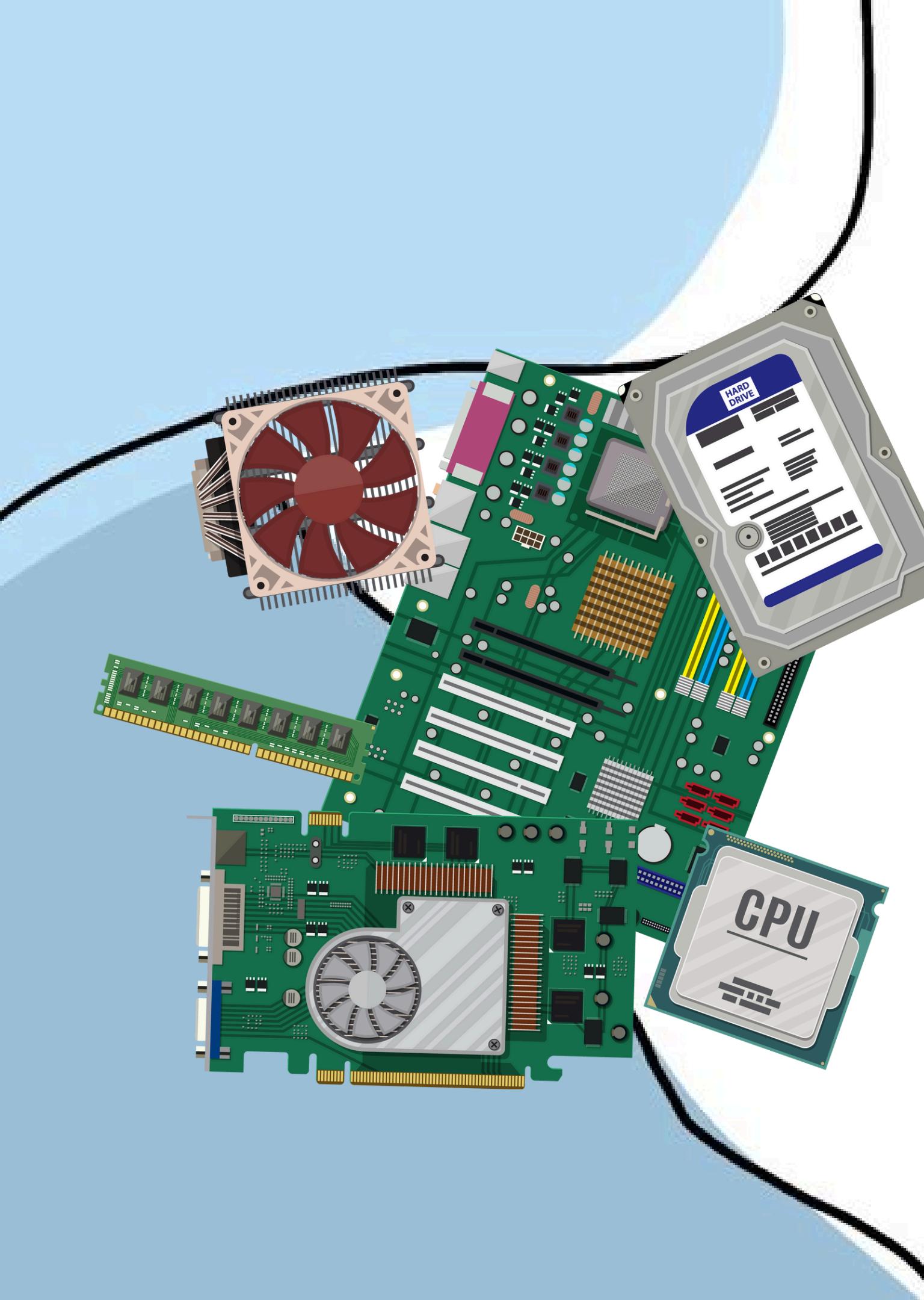
A **software engineer** answers it by creating a safe, secure, and reliable process to build the solution.





An **information technology** professional answers it by ensuring the infrastructure in relation to the solution is used efficiently and effectively.





● ● ● CONS OF INFORMATION
TECHNOLOGY

A computer
engineer answers
the question by
creating hardware
designed to run
the solution.



An **information systems** professional answers it by applying the solution within a certain organizational context.





Getting to Know Me



Educational Background

- University of San Carlos–North Campus Senior High School Graduate (2024–2025)
- University of San Carlos–North Campus Junior High School Graduate (2022–2023)
- University of San Carlos–North Campus BED Graduate (2018–2019)

Why I chose to take up Computer Science

One of my favorite hobbies is solving problems, and most especially programming. I like the idea of building something from scratch, fun and meaningful discussions, and experiencing all the problems coming along with it and the countless time spent on forging solutions and making use of these solutions later on with similar problems.

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