

BS IT 1 2024 - 2025

# TECH TALK:

# COMPUTER SCIENCE AS A DISCIPLINE

FIVE COMPUTING DISCIPLINES AND MAJORS

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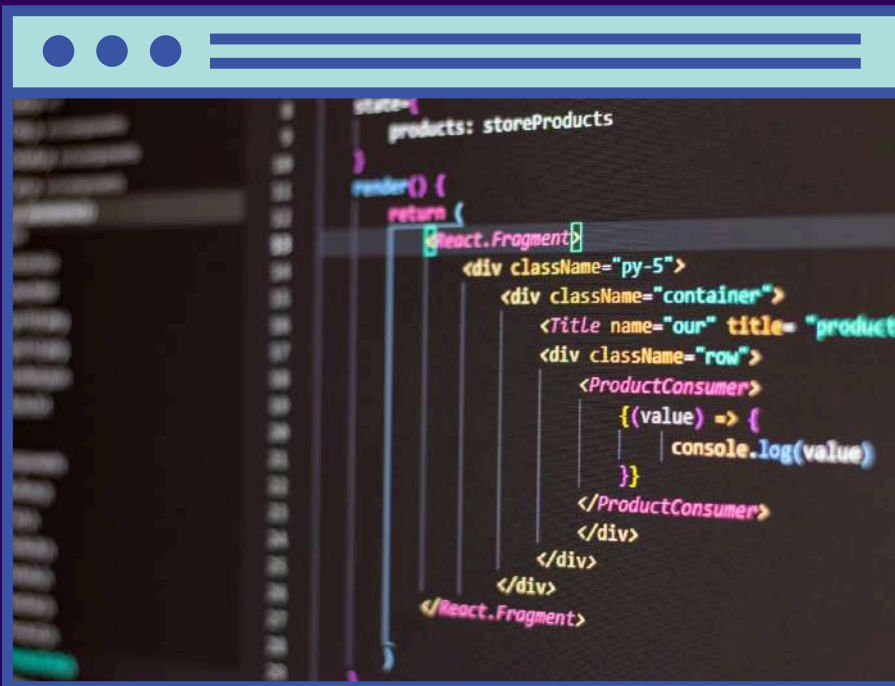
# COMPUTER SCIENCE AS A DISCIPLINE

EXPLORING THE SCOPE, FOUNDATIONS, AND APPLICATIONS OF COMPUTER SCIENCE



# COMPUTER SCIENCE

*(theory-focused, usually the creators and build-ers of programs)*



Computer Science is the academic subject that deals with computing. The intellectual processes of the field included theory, abstraction, and design. Problems are tackled in a unique way, with the overarching goal of recognizing and applying repeating conceptual ideas. Although these intellectual processes are derived from other disciplines, a computer scientist's perspective provides a distinct and significant voice in a community of learning, such as a liberal arts college.

Mathematics is the source of the "process of theory" in computer science. Formal definitions, conjectures, and proofs are used at all levels to test the accuracy of hardware and software, analyze the performance of specific designs, and establish the theoretical limits of computation.



# COMPUTER ENGINEERING

(BS CS + BS EE = BS CE, bridge of hardware and software)



Computer engineering is a vast field that encompasses both electrical engineering hardware and computer science software. When computer engineers design hardware, they prioritize what the hardware is trying to accomplish over the nitty-gritty details of how to arrange the transistors. They design processors for systems of all sizes, whether they resemble computers or not. Processors are used in desktop computers, cellphones, tablet computers, supercomputers, kitchen appliances, automobiles, space vehicles, and other devices. Computer engineers also create specialized processors, such as GPUs (graphics processing units), or hardware to accelerate AI algorithms.

Computer engineering bridges the gap between hardware and software. While computer scientists often concentrate on computer system theory, including software and programming, computer engineers are familiar with all aspects of computer systems.



# INFORMATION SYSTEMS

*(business-y side of the tech industry through systems)*



*the CEO, probably*

Information systems is an academic field that studies the complementary networks of hardware, software, people, and business processes that businesses employ to gather, filter, analyze, create, and disseminate data. Any information system seeks to help with planning, operations, management, and decision making.

For example, firms use information systems to process financial accounts, manage human resources, and reach out to potential customers through online advertisements. Many significant corporations are based entirely on information systems. These include eBay, a mostly auction marketplace; Amazon, a developing electronic mall and provider of cloud computing services; Alibaba, a business-to-business e-marketplace; and Google, a search engine company that earns the majority of its revenue from keyword advertising on Internet searches. Governments use information systems to provide cost-effective services to citizens. Information systems are used to distribute digital commodities (e.g., electronic books, video products, and software) as well as online services like gaming and social networking. Individuals rely on information systems, most of which are Internet-based, to perform many aspects of their personal lives, including socializing, studying, shopping, banking, and entertainment.



# INFORMATION TECHNOLOGY

*(the practical APPLICATION of technology)*

Information technology is a term that has two meanings. In its broadest sense, information technology encompasses all aspects of computers. In academia, it refers to undergraduate degree programs that train students to satisfy the information technology requirements of businesses, governments, healthcare, schools, and other institutions. In several countries, comparable degree programs go by different titles.

IT is a relatively new and quickly expanding subject that began as a grassroots response to the practical, everyday demands of businesses and other organizations. Today, all types of enterprises rely on information technology. They must have proper systems in place.

IT is more of an applied computing discipline than a theoretical one. Specifically, IT focuses on addressing the demands of users within an organizational and societal environment by completing the following tasks for computing technologies:

- selection
- creation
- application
- integration
- administration



# SOFTWARE ENGINEERING

(BS CS + BS IS = BS SE, the bridge between theory and business)



Software engineering is the discipline concerned with applying theory, knowledge, and practice to the creation of dependable software systems that meet the computing needs of clients and users. It is suitable for small, medium, and large-scale computing systems and organizations. Software engineering employs engineering methods, procedures, techniques, and measurements. Software development, whether done by an individual or a team, necessitates selecting the best tools, methodologies, and approaches for a given situation.

As software has grown in size and complexity, the concept of reuse has become increasingly important in software engineering, as it is clear that large amounts of new software cannot be created cheaply and quickly without incorporating existing program modules.





# ANALYSIS/REACTION

As I worked on this presentation, I realized that my early assumptions about the IT industry were right: it is a very broad field that covers a variety of disciplines, each with its own special opportunities, challenges, and of course skillsets. It was clear to me from the hard theoretical foundations of computer science to the real-world applications in software engineering and information technology that the technological environment is far more complex and connected than I originally thought. This insight has only strengthened my motivation to obtain an information technology degree because it is a wonderful fit for my goals and areas of interest.

Despite the tremendous breakthroughs in Artificial Intelligence (AI), one of the most reassuring realizations I took away from this research is the fact that experts in our industry continue to have a stable role. While AI has certainly advanced significantly, automating a great deal of repetitive work and simplifying processes in a variety of industries, human skill in solving challenging issues, coming up with creative solutions, and controlling the unpredictable aspects of technology will always be valued. The more I studied the various intellectual processes that make up computer science, like theory, abstraction, and design, the more I realized that artificial intelligence (AI), for all its potential, will never be able to match human professionals' depth of knowledge or their capacity to apply creativity and critical thinking.





# ANALYSIS/REACTION

This portfolio-making also made me more aware of the wide range of employment options in the field of technology. Every field I looked into, such information systems, which combines technology with business operations, or computer engineering, which focuses on hardware and system design, gave me a different viewpoint and set of abilities to look into. I'm more confident that, should my interests change, I can always follow other career routes without having to leave the IT industry because of the diversity within the profession. It's exciting and comforting to know that you might go to a different sector of technology if necessary, because it emphasizes how important flexibility is in this fast-paced world.

This experience has also emphasized the importance of lifelong learning, especially in an industry that is always changing. Because of the rapid pace of technological innovation, the skills and information we learn today may need to be updated or replaced in a few of years. Embracing the motto "never stop learning" is more than a cliché in the computer business. Whether through formal education, self-study, or hands-on experience, remaining current with developing technologies and industry trends is critical for anybody who wants to have a long and successful career in information technology.



# GET TO KNOW ME



**Johnfranz B. Impas**

*an aspiring IT specialist*

Age: 18

Birthdate: 11/ 23/ 2005

Gender: Male

Nationality: Filipino

Residence: Ibabao, Cordova, Cebu



*San Roque College de  
Cebu - Cordova Campus  
(Elementary to Junior  
High 2011-2021)*

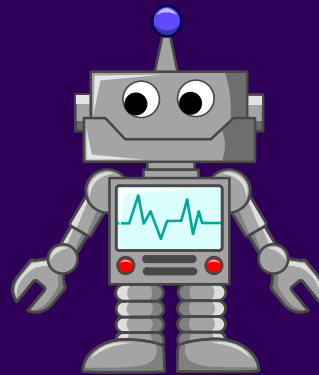


*University of San  
Carlos North Campus  
& Talamban Campus  
(Senior High to  
College) 2021- Present*



# GET TO KNOW ME

*“what made me choose IT?”*



Primarily, what made me choose BS Information Technology was my fascination for video games and anything sci-fi that involves technology, and secondarily, I've always wanted a remote job where I'll be able to work wherever, whenever, whatever. I strive to develop and further hone my skills here at the University of San Carlos so hopefully in the future I can attain my dream job which is to get into Cybersecurity, a job that I have always found intriguing and impactful, especially in this day of age where we are pushing technology to the limit. Almost everything can be and is done digitally. Last but not least, I chose this because of my qualities: well-organized, strategical, and comfortable with repetitive tasks which I think are great, if not, good qualities as an aspiring IT specialist.

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