





Computer Science as Discipline

combines technical skills with a desire to improve the world, creating solutions that genuinely benefit people.






11:11PM

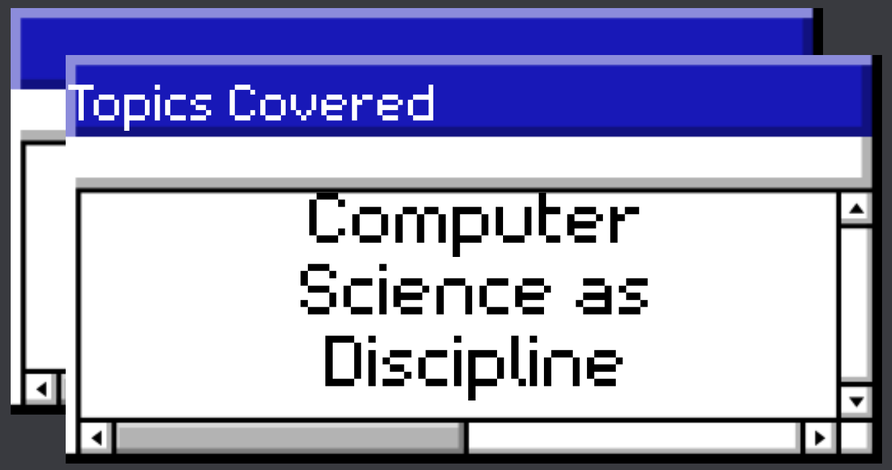
WHAT IS COMPUTER SCIENCE?

OFTEN SEEN AS A FIELD FOCUSED SOLELY ON TECHNOLOGY AND CODING. HOWEVER, AT ITS CORE, IT'S MUCH MORE THAN THAT. IT COMBINES TECHNICAL SKILLS WITH A DEEP DESIRE TO IMPROVE THE WORLD. THIS COMBINATION IS KEY TO CREATING SOLUTIONS THAT GENUINELY BENEFIT PEOPLE. IN PRACTICAL TERMS, COMPUTER SCIENCE IS ABOUT SOLVING REAL PROBLEMS. FOR EXAMPLE, SOFTWARE DEVELOPERS CREATE APPS THAT HELP PEOPLE MANAGE THEIR HEALTH, COMMUNICATE BETTER, OR LEARN NEW SKILLS. THESE SOLUTIONS COME FROM UNDERSTANDING BOTH THE TECHNOLOGY AND THE NEEDS OF USERS. WHEN COMPUTER SCIENTISTS WORK ON A PROJECT, THEY USE THEIR TECHNICAL SKILLS TO BUILD TOOLS AND SYSTEMS, BUT THEIR MAIN GOAL IS TO MAKE LIFE EASIER OR BETTER FOR PEOPLE.

Topics Covered

Computer Science as Discipline

Computer Science is neither an art nor engineering discipline, and while it is most similar to a science discipline even this is not exactly accurate. Computer Science is definitely not an artistic discipline. Artistic disciplines suggest that the end product is for purely creative purposes. Though computer science can be used in artistic ways, such as creating a film, video game, or modern song, computer science is more the vehicle rather than the process itself.



The first theme in the course is centered around a fundamental question--What is computer science? Students are introduced to the disciplinary history of computer science, to a number of characterizations of computer science made by the pioneers of the discipline, and to some methodological and epistemological viewpoints on computer science. The second theme is centered around the question--What is science? Students are introduced to, for instance, the concepts of pure and applied science, "hard" and "soft" sciences, the aims of science, the scientific method, scientific reasoning, the formation of scientific concepts and theories, and the Science Wars.

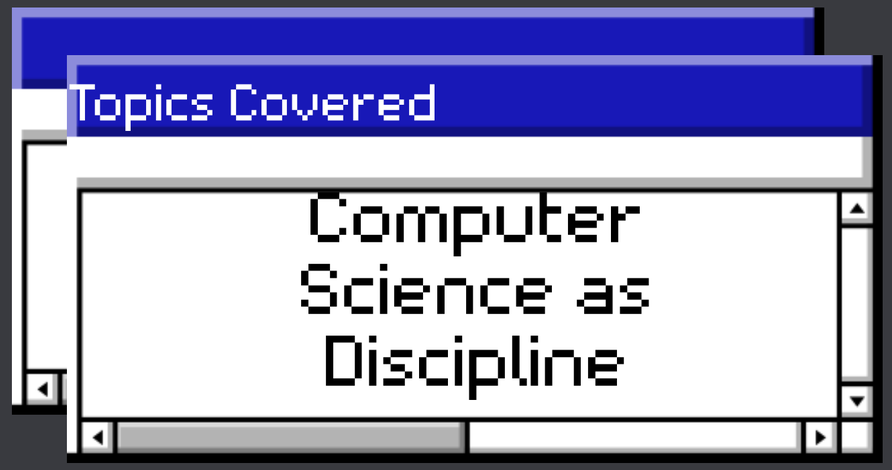
The third theme concerns the division of computer science into its theoretical, engineering, and empirical traditions. The lecture notes introduce the students to descriptions of computer science that emphasize the mathematical tradition over other traditions and to descriptions that emphasize engineering or empirical traditions. The fourth theme is the philosophy of science. Throughout the course terminology of the philosophy of science is used, and the students are introduced to a number of central issues in the philosophy of science, to some of the most notable schools in the philosophy of science, and to some critical views of science.

Topics Covered

Computer Science as Discipline

George Forsythe identified the "computer sciences" as the theory of programming, numerical analysis, data processing, and the design of computer systems.

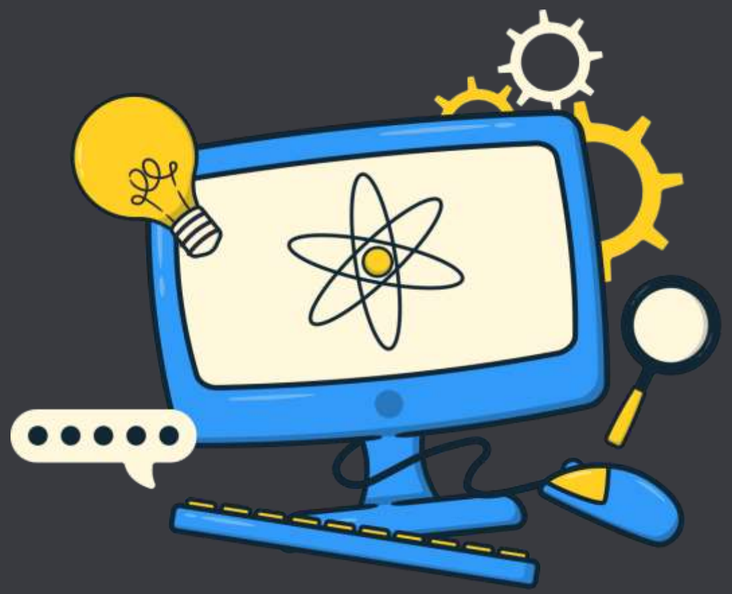
[Computers] are developing so rapidly that even computer scientists cannot keep up with them. It must be bewildering to most mathematicians and engineers...In spite of the diversity of the applications, the methods of attacking the difficult problems with computers show a great unity, and the name of Computer Sciences is being attached to the discipline as it emerges. It must be understood, however, that this is still a young field whose structure is still nebulous. The student will find a great many more problems than answers.



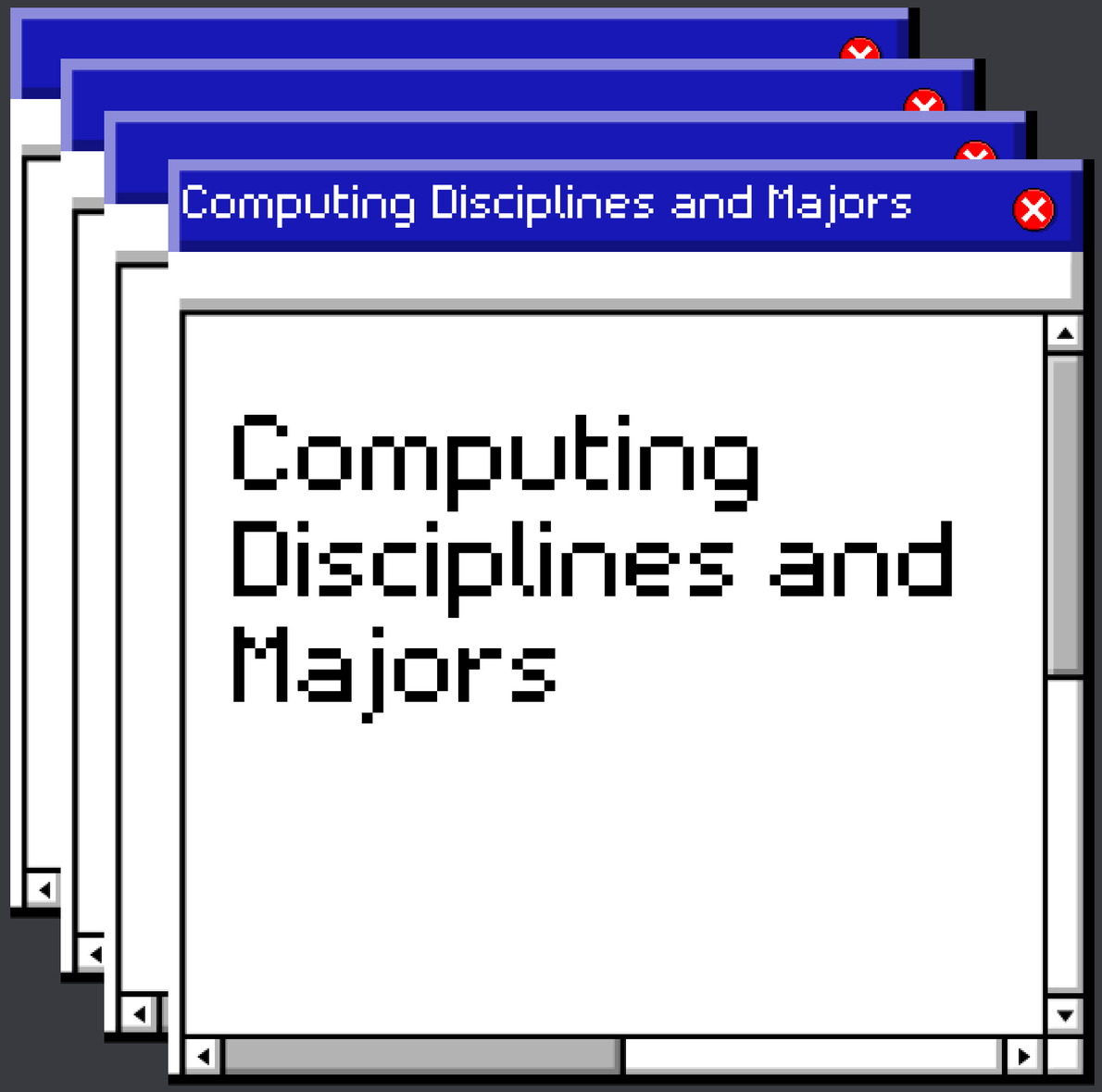
It is interesting to contrast the findings for the three disciplines. CS examines topics related to computer concepts at technical levels of analysis by formulating processes/methods/algorithms largely using mathematically-based conceptual analysis; further, it does not rely on reference disciplines. SE is somewhat similar, but quite distinguishable from CS. It examines topics related to systems/software concepts at technical levels of analysis by formulating processes/methods/algorithms using non-mathematically-based conceptual analysis; like CS, it does not rely on reference disciplines.

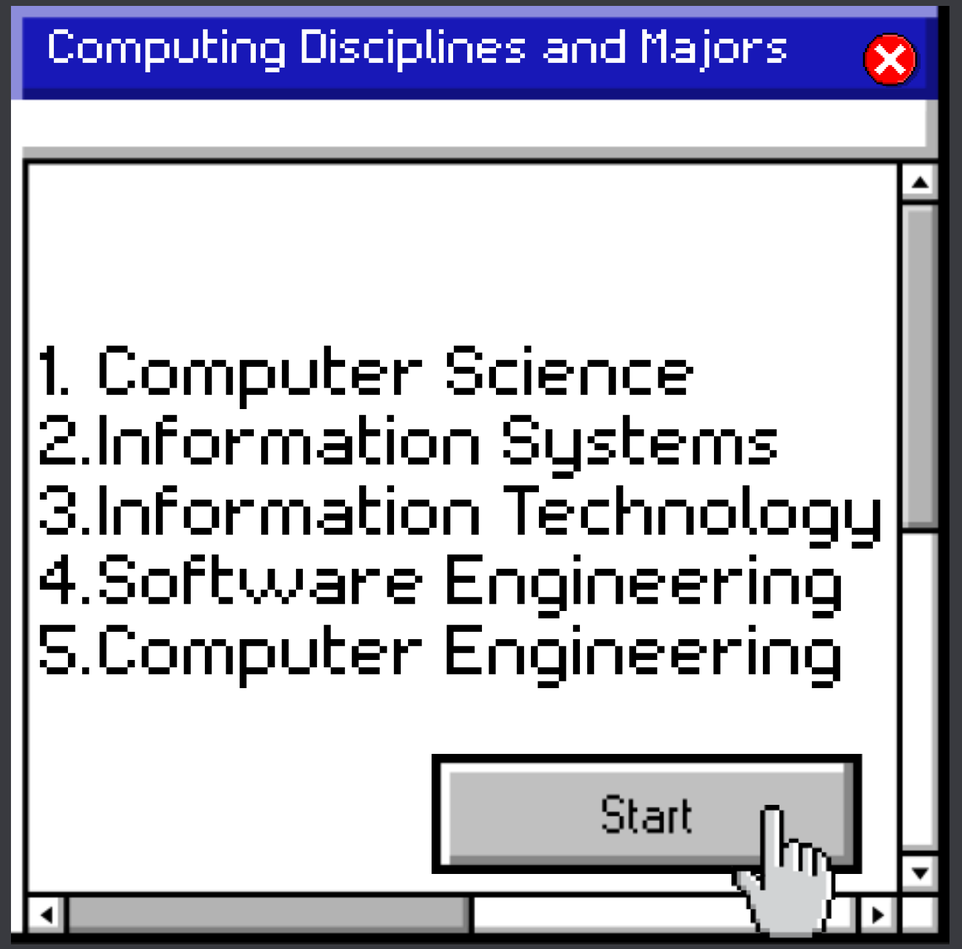
Topics Covered

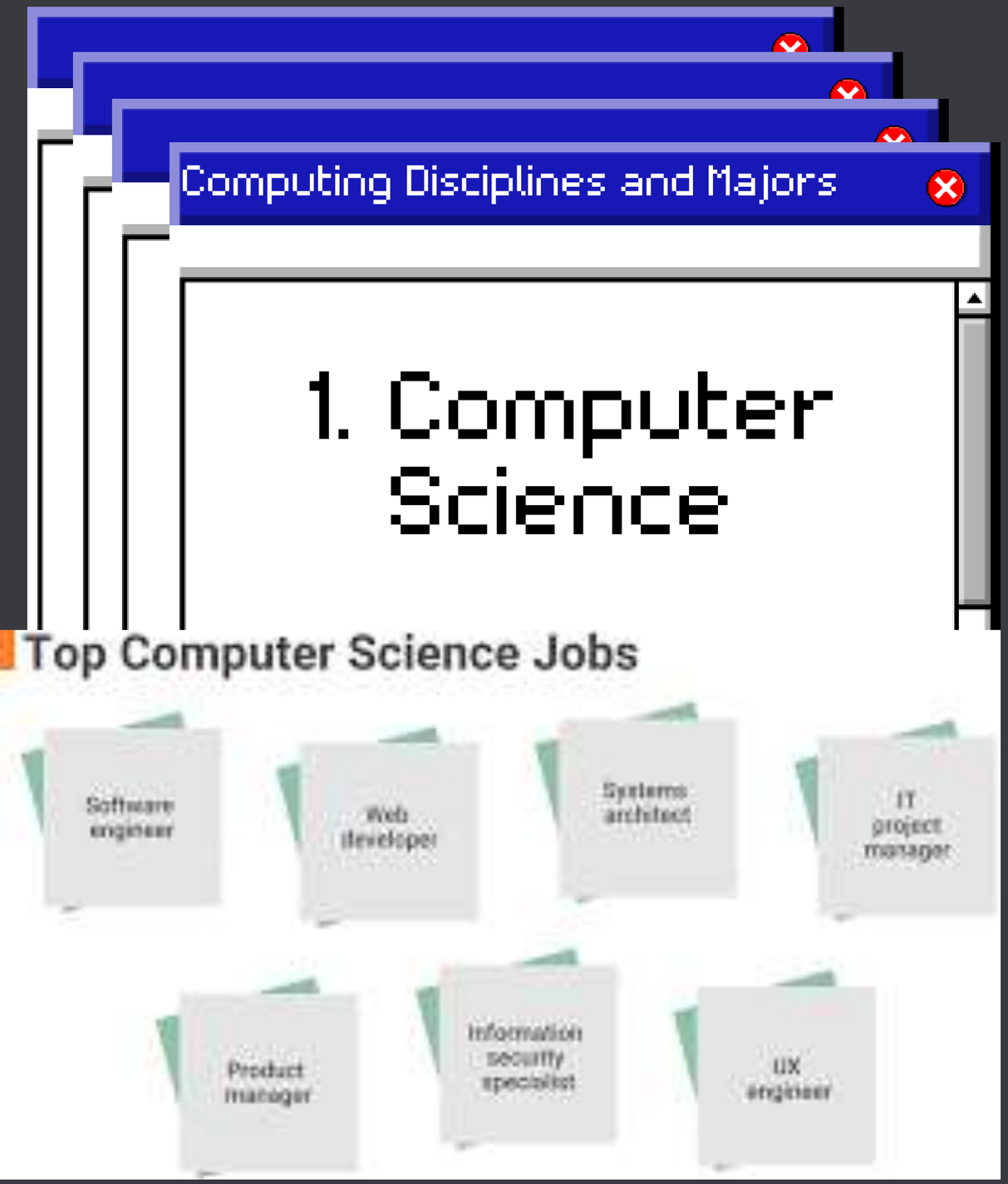
Computer Science as Discipline



Computing sits at the crossroads among the central processes of applied mathematics, science, and engineering. The three processes are of equal-and fundamental-importance in the discipline, which is a unique blend of interaction among theory, abstraction, and design. The binding forces are a common interest in experimentation and design as information transformers, a common interest in computational support of the stages of those processes, and a common interest in efficiency. The d.iscipline of computing is the systematic study of algorithmic processes that describe and transform information: their theory, analysis, design, efficiency, implementation, and application. The fundamental question underlying all of computing is, "What can be (efficiently) automated?"


Computing Disciplines and Majors
Computing Disciplines and Majors


Computing Disciplines and Majors
1. Computer Science
2.Information Systems
3.Information Technology
4.Software Engineering
5.Computer Engineering
Start



Computer Science focuses in developing and maintaining computer software. On one side, it focuses in the development of new knowledge and techniques to enhance and make more efficientthe computing discipline. Additionally, CS focuses in the application of current knowledge and techniques to design and create "infrastructure software", like operating systems, data base management systems, browsers, and search engines. It works less in the creation of software applications, and it typically does not work in the deployment and support of software applications for organizations. CS is probably the more theoretical and researchoriented computing discipline. CS has a strong emphasis on algorithms & complexity, computer hardware, programming, and software life cycle.

Computing Disciplines and Majors

2. Information Systems

Information systems specialists focus on integrating information technology solutions and business processes to meet the information needs of businesses and other enterprises. This discipline's perspective on information technology emphasizes information, and views technology as an instrument for generating, processing, and distributing information. Information systems has a strong emphasis on developing information systems

Computing Disciplines and Majors

3. Information Technology

IT refers to undergraduate degree programs that prepare students to meet the computer technology needs of business, government, healthcare, schools, and other kinds of organizations. In some nations, other names are used for such degree programs.

IT has emphasis in human-computer interaction, information management (databases), development of information systems, networks, programming and security.

Computing Disciplines and Majors

4. Software Engineering

Software engineering is the discipline of developing and maintaining software systems that behave reliably and efficiently, are affordable to develop and maintain, and satisfy all the requirements that customers have defined for them. SE seeks to integrate the principles of mathematics and computer science with the engineering practices developed for tangible, physical artifacts.

Focuses on developing and maintaining software systems (particularly large, complex systems) that behave reliably and efficiently, and are affordable to develop and maintain. Software engineering has their major emphasis in the area of the software life cycle.

Computing Disciplines and Majors

5. Computer Engineering

Computer engineering is concerned with the design and construction of computers and computer-based systems. It involves the study of hardware, software, communications, and the interaction among them. Its curriculum focuses on the theories, principles, and practices of traditional electrical engineering and mathematics and applies them to the problems of designing computers and computer-based devices.

Focuses on the design and construction of computers and computer-based systems/devices (i.e., hardware and related software).

Ok

ANALYSIS

A FIELD THAT DELVES INTO HOW COMPUTERS WORK AND HOW THEY CAN BE USED TO SOLVE PROBLEMS, INTEGRATING BOTH THEORETICAL AND PRACTICAL ASPECTS. IT COMBINES TECHNICAL SKILLS WITH A DEEP DESIRE TO IMPROVE THE WORLD AND TO CREATE SOLUTIONS THAT GENUINELY BENEFIT PEOPLE. IT INVOLVES UNDERSTANDING ALGORITHMS, STEP-BY-STEP PROCEDURES FOR SOLVING TASKS, SIMILAR TO RECIPES. PROGRAMMING, A MAJOR PART OF THE DISCIPLINE, ENTAILS WRITING CODE TO MAKE COMPUTERS PERFORM SPECIFIC ACTIONS, SIMILAR TO GIVING INSTRUCTIONS TO A ROBOT. THE IMPACT OF THIS FIELD IS SIGNIFICANT, SHAPING MANY ASPECTS OF MODERN LIFE THROUGH INNOVATIONS LIKE THE INTERNET AND SMARTPHONES, AND INFLUENCING AREAS SUCH AS COMMUNICATION, WORK, AND ENTERTAINMENT. AS TECHNOLOGY ADVANCES, NEW AREAS SUCH AS ARTIFICIAL INTELLIGENCE ARE EMERGING, PUSHING THE BOUNDARIES OF WHAT'S POSSIBLE. STUDYING COMPUTER SCIENCE OFFERS THE CHANCE TO CONTRIBUTE TO SOLVING GLOBAL ISSUES AND DRIVING FUTURE INNOVATIONS, WHICH MAKES IT A DYNAMIC AND ESSENTIAL DISCIPLINE.

THERE ARE FIVE KEY DISCIPLINES IN THE WORLD OF COMPUTING, NAMELY; COMPUTER SCIENCE, INFORMATION SYSTEMS, INFORMATION TECHNOLOGY, SOFTWARE ENGINEERING, AND COMPUTER ENGINEERING. EACH ONE OFFERS UNIQUE PERSPECTIVES AND CONTRIBUTIONS, SHAPING HOW TECHNOLOGY IMPACTS OUR LIVES. COMPUTER SCIENCE IS FOUNDATIONAL, FOCUSING ON THE THEORY AND PRINCIPLES BEHIND ALGORITHMS, PROGRAMMING, AND PROBLEM-SOLVING, AND FUELS INNOVATION BY DEVELOPING SOFTWARE AND SYSTEMS THAT POWER EVERYTHING FROM MOBILE APPS TO COMPLEX SOFTWARE SOLUTIONS. INFORMATION SYSTEMS ON THE OTHER HAND, BRIDGES TECHNOLOGY AND BUSINESS, EMPHASIZING HOW TO USE TECHNOLOGY TO MANAGE AND ANALYZE INFORMATION EFFECTIVELY WITHIN ORGANIZATIONS, AND ALSO ENSURES THAT TECHNOLOGY SUPPORTS BUSINESS PROCESSES AND DECISION-MAKING. ADDITIONALLY INFORMATION TECHNOLOGY IS CENTERED ON THE PRACTICAL ASPECTS OF IMPLEMENTING AND MANAGING TECHNOLOGY, SUCH AS SETTING UP NETWORKS, ENSURING DATA SECURITY, AND PROVIDING TECHNICAL SUPPORT. MOREOVER SOFTWARE ENGINEERING INVOLVES THE SYSTEMATIC DESIGN, DEVELOPMENT, AND MAINTENANCE OF SOFTWARE, WHICH AIMS FOR EFFICIENT APPLICATIONS THAT MEET THE USERS NEEDS AND INDUSTRY STANDARDS. AND LASTLY, COMPUTER ENGINEERING WHICH COMBINES ELEMENTS OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE TO DESIGN AND BUILD HARDWARE AND INTEGRATED SYSTEMS, SUCH AS PROCESSORS AND EMBEDDED SYSTEMS, THAT ARE CRUCIAL FOR ALL COMPUTING DEVICES.

MY NAME IS

ELLIS JOHN A. ALBARRACIN

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GEMINI

I LOVE CODING

I'M KINDA SPORTY, I MAINLY PLAY BASKETBALL BADMINTON, AND TABLE TENNIS.

I ALSO LOVE PLAYING ONLINE GAMES AND MANHWAS

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COMPUTING DISCIPLINES & MAJORS
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