

List of Projects

Students will work in teams, each of which consists of up to 3 students.

Each team will accomplish the following materials when completing the project.

- A report written by LaTeX. A hard copy of the report must be printed and submitted to TA. The maximum length is 25 pages.
- A web page developed by HTML sharing the same contents with the LaTeX report.
- A video illustrating the project with slides and demo (to be uploaded to Youtube).

The life of famous persons:

Project 1: Study about the life of Bill Gates and describe his contributions to Computer Science.

Project 2: Study about the life of Steve Jobs and describe his contributions to Computer Science.

Project 3: Study about the life of Elon Musk and describe his contributions to Computer Science.

The impact of technology:

Project 4: Study about the applications of Natural Language Processing (NLP) in Information Technology. Recently, which applications are most popular?

Project 5: In recent years, the social networking has a large number of people to connect and express the feeling or personal opinions for different topics in various ways. Discuss these ways and give the application problems to handle the emotions or opinions in Natural Language Processing

Project 6: Study about what is the Natural Language Processing (NLP) and the problems of NLP. Outline the difficulties in the field of NLP.

Project 7: What is Deep Learning? Describe the history and the development of Deep Learning? Discuss some prominent architectures of Deep Learning? Introduce some recent outstanding achievements of Deep Learning.

Project 8: What is 3D Printing? Describe the history and the development of 3D Printing? Discuss some prominent architectures of 3D Printing? Introduce some recent outstanding achievements of 3D Printing.

Project 9: What is Responsive Web Design? Describe the techniques of Responsive Web Design and give illustrative examples.

Project 10: What is Autonomous Car? Describe the technologies of Autonomous Car that related to Computer Science? Discuss the achievements of Autonomous Car in modern society.

Project 11: Since founded in 1998 to now, Google has provided a large number of services on the Internet, among which the main service that made the company brand is Google Search Engine. Describe the operation mechanism of this tool from the organization of data and the queries processing to returning results to the user.

Project 12: A prominent feature of Google Search Engine is to display the suggestions when users enter text for searching. Over the time, the several suggestions will no longer appear in the list of suggested phrases or Google sometimes does not come up with the suggestions. Study about this feature to be able to explain the above case.

Project 13: A significant contribution of Computer Science is deciphering Enigma code machine, which contributed to the victory of Allies in World War 2. This event is also associated with the name of scientist Alan Turing. Describe this event as well as the understanding of Enigma machine.

Project 14: The rapid development of information system in general and the Internet in particular have led to the increasing demand on expanding information storage. The issue of volume information processing is extremely large (Big Data) while the processing tools are limited, which provided a huge challenge to the Computer Science. Discuss the understand of Big Data and its challenges.

Project 15: Artificial Intelligence plays a significant role in the connecting people and machine together. Watson, a project related to Artificial Intelligence, developed by IBM, is emerging in Computer Science. It is argued that this is a gamble to bring back the heyday for IBM. Study about this project of IBM.

Project 16: In recent year, the mathematical models are used a lot in the field of Computer Science. Study about k -means model and give specific examples.

Project 17: In recent year, the mathematical models are used a lot in the field of Computer Science. Study about Markov model and give specific examples.

Project 18: In recent year, the mathematical models are used a lot in the field of Computer Science. Study about Linear model/Linear programming and give specific examples.

Project 19: In recent year, the mathematical models are used a lot in the field of Computer Science. Study about AR regression model and give specific examples.

Project 20: In recent year, mathematical models are used a lot in the field of Computer Science. Study about HAC model and give specific examples.

Project 21: IT industry stands at the threshold of a new era in the technological leap. Cloud Computing is everything that could answer the problems of IT companies. Cloud Computing has the ability to make IT resources cheaper and it gives businesses a great flexibility to expand. Discuss how Cloud Computing will prove to be the next milestone in IT world.

Project 22: There are a number of fields like military, healthcare, architecture where Computer Graphics play a crucial role. The image analysis, threat identification, weather prediction, body analysis, architectural drawing show where the graphics are important. By reading about the most advanced graphic systems, analyze and discuss innovations and developments of them in Information Technology.

Project 23: Recommendations on the Web is a general term representing a specific type of information filtering technique that attempts to present information items (queries, movies, images, books, Web pages, etc.) that are likely of interest to the users. With the diversified and explosive growth of Web information, discuss how to organize and utilize the information effectively and efficiently in order to satisfy the information needs of Web users and improve the user experience in many Web applications.

Project 24: Big Data has changed the way we manage and analyze data in any industry. One of the most promising areas where Big Data can be applied to make a change is healthcare. Discuss how to apply Big Data analytics techniques to predict future health outcomes for patients as well to diagnose existing conditions of patients.

Project 25: The Internet of Things is an emerging topic of technical, social, and economic significance. Consumer products, durable goods, industrial and utility components, sensors, and other everyday objects are being combined with Internet connectivity, which promises to transform the way we work, live, and play. So, discuss the impact of Internet of Things on the development of society as well as the global economic.

Project 26: Study about the impact of mobile devices for their users and describe your opinion about the idea that the development of the current mobile technologies (smartphones, copper lake smart, smart glasses) will be harmful to the privacy of users.

Project 27: Study about the impact of social networks to users and describe your opinion about the idea that social networks have violated the privacy of users by extracting and selling user information, for the purpose of advertising.

Project 28: Study about the development of the Internet and describe your opinion about the idea that, in the future, all equipment (household electrical applications, household items and vehicles, ...) will have the ability of connecting to the Internet. (Internet of Things).

Project 29: Propose by yourself the project. After selecting, this group of students have two weeks to study and then present to the teacher.

Project 30: Study about the Content Management System (CMS), the advantages of CMS. Present at least 5 famous CMSs which you know. Bonus: Present the installation and usage of a CMS.

Project 31: Study about the development of the OS. Compare the most famous operating systems and describe your opinion about the application of the operating system.

Project 32: Study about the development of the massive open online course and present the advantages and disadvantages of these courses in the educational environment of Vietnam

Project 33: How are the smart applications used in today's life? Describe your opinions about the impact of these applications especially for young people, and more specifically for the students in learning, research, entertainment ...

Project 34: Study the impact of the social opinion on buying behavior of consumers, describe your opinions about the review of social networks and the direct impact to purchase decisions.

Project 35: What is open source? Why does open source software still needs a license? List and compare 3-5 popular open source licenses which you know.

The development of computer hardware:

Project 36: Study about the development of hardware technology for desktop and describe your opinions about the idea that the traditional desktop will be replaced by the electrical mobile equipment (laptops, tablets).

Project 37: Study about the development of manufacturing technologies for server hardware and describe your opinions about the idea that the traditional server clusters with high performance and expensive hardware will be replaced by the compact cluster of servers with low power consumption, low price and average performance.

Project 38: Study about the development of chip technology and describe your opinions about the idea that the current generation of CPU chips used in computers will be replaced by the integrated chip (CPU and other components are packed in a single chip). (System on Chip-SoC)

Project 39: Study about the development of wireless technology and the describe your opinions about the idea that, in the future, the standards for wireless data transmission (WiFi, Bluetooth, NFC, WiFi Direct ...) will replace the wired data transmission (USB, VGA, HDMI, ...).

The development of computer software:

Project 40: Study about the development of Cloud Computing technology and describe your opinions about the idea that the IT service providers such as web hosting, email, data backup, ... will absolutely use Cloud Computing as an alternative to maintain their own data centers.

Project 41: In recent years, HTML5 has a strong development. Many vendors such as Apple, Opera, Mozilla and Google have recently built many compatible elements with HTML5 in their browsers. Some said that HTML5 with its advantages will completely replace Flash in the near future. Describe your opinions about this idea.

Project 42: In the past few years, OTT applications help chat, free calls over the Internet to become very popular. The development of these applications provide many benefits for users, reducing the cost for the communication, but cause great damage to the network providers. Study about these applications and describe your opinions about the development of these applications.

Project 43: Python is said to be a programming language for Machine Learning. Study about this statement and give specified examples

Project 44: Nowadays, mathematical models are widely applied in the field of computer science. Let's figure out HAC model and build a specific illustration.

Project 45: Google thinks that their search engine is not looking for text strings but for what users are looking for ("Things, not strings"). Students figure out and explain this.

Project 46: The application of artificial intelligence to health care is currently being developed very strongly and promises a lot of potential in the future. Students figure out and present some examples of this.

Project 47: What is the Web Service model? What is the difference between this model and the traditional Web model? What are the components of a web service? Describe the mechanism of operation of the Web Service model? Comparison between SOAP and RESTful?

Project 48: In any job or application in life, to ensure efficiency, we need a process. So, process becomes the property of many organizations and companies. Students figure out some basic symbols and template to model some specific business processes. (Keyword: Business Process Modeling and Notation - BPMN)

Project 49: Any organization or enterprise wishing to operate stably and develop continuously over time, they must have a system for measuring and giving a comprehensive warning of the situation of that organization or enterprise. The format of such a software system is often called Enterprise Resource Planning (ERP). Students figure out some concepts about ERP and prepare presentation slides.

Project 50: Study about the development of high performance computer including the design, applicability and future development trends

Project 51: Study about Blockchain including its origins, historical development, applicability and the potential development in the future

Project 52: The data explosion has allowed AI to grow very rapidly over the past few years. The more data an AI system collects, the faster it learns and the more accurate it becomes. This leap forward in the field of AI means computers can now undertake more and more human tasks. Let's learn about some applications of AI in the field of virtual assistants (Amazon Alexa, Google Assistant ...)

Project 53: The advent of 3D printing technology is revolutionizing manufacturing and having a huge impact in industries. In the traditional manufacturing field, objects are cut and cut from materials such as metal, steel, etc. But in 3D printing (also called additive manufacturing), objects are created by overlapping layers of materials. The materials used in 3D printing can be anything: plastic, metal, concrete, liquid, powder, even chocolate or human tissue. It also allows for a much more customized production of products. Students figure out about 3D printing and its application in healthcare.

