CSC101 Lecture 1

Introduction

Course Goals

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1. Learn to develop algorithms to solve problems.
2. Improve analytical and problem-solving skills.
3. Develop sound logical reasoning skills.
4. Learn to implement algorithms in Python.

What is Computer Science?

Computer Science is the study of computers and computational systems. Unlike electrical and computer engineers, computer scientists deal mostly with software and software systems; this includes their theory, design, development, and application.

Subfields of Computer Science

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1. Algorithms and Data Structures.
2. Artificial intelligence.
3. Computer systems and networks.
4. Cyber Security.
5. Database systems.
6. Human computer interaction.
7. Machine learning.
8. Software engineering.
9. Bioinformatics and theory of computing.

History of Computing Devices Continued

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The Antikythera mechanism is an ancient Greek analog computer which could predict the astronomical position, solar eclipse, cycle of Olympic game and many more.
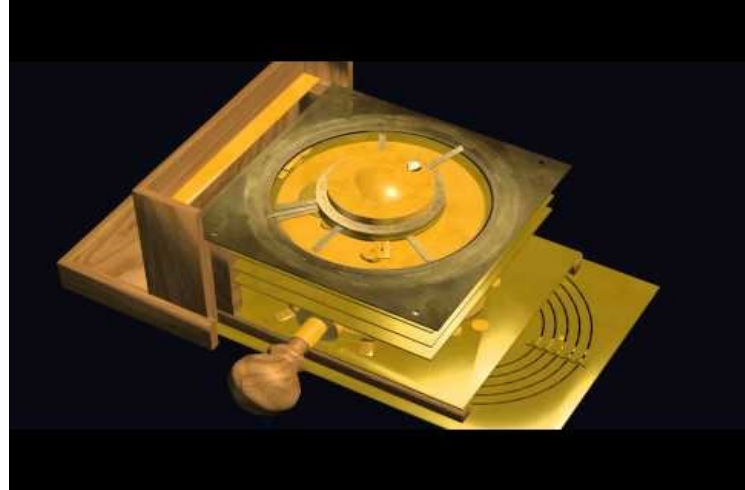
History of Computing Devices Continued

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Charles Babbage and Ada Lovelace together are often thought of as the founders of modern computing. Babbage invented the difference engine. Ada Lovelace is known for designing the first algorithm and in this sense she is considered as a pioneer in modern programming.
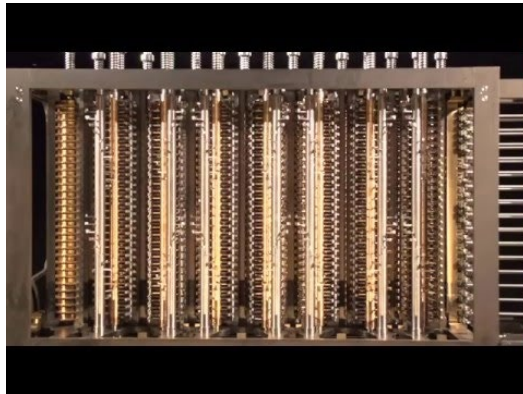
History of Computing Devices Continued

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In 1837 Charles Babbage proposed the Analytical Engine which was successor to Babbage's Difference Engine. The Analytical Engine incorporated an arithmetic logic unit, control flow in the form of conditional branching and loops, and integrated memory, making it the first design for a general-purpose computer that could be described in modern terms as Turing-complete.

History of Computing Devices Continued

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Turing Machine was invented by Alan Turing in 1936.

Why we moved from C++ to python?
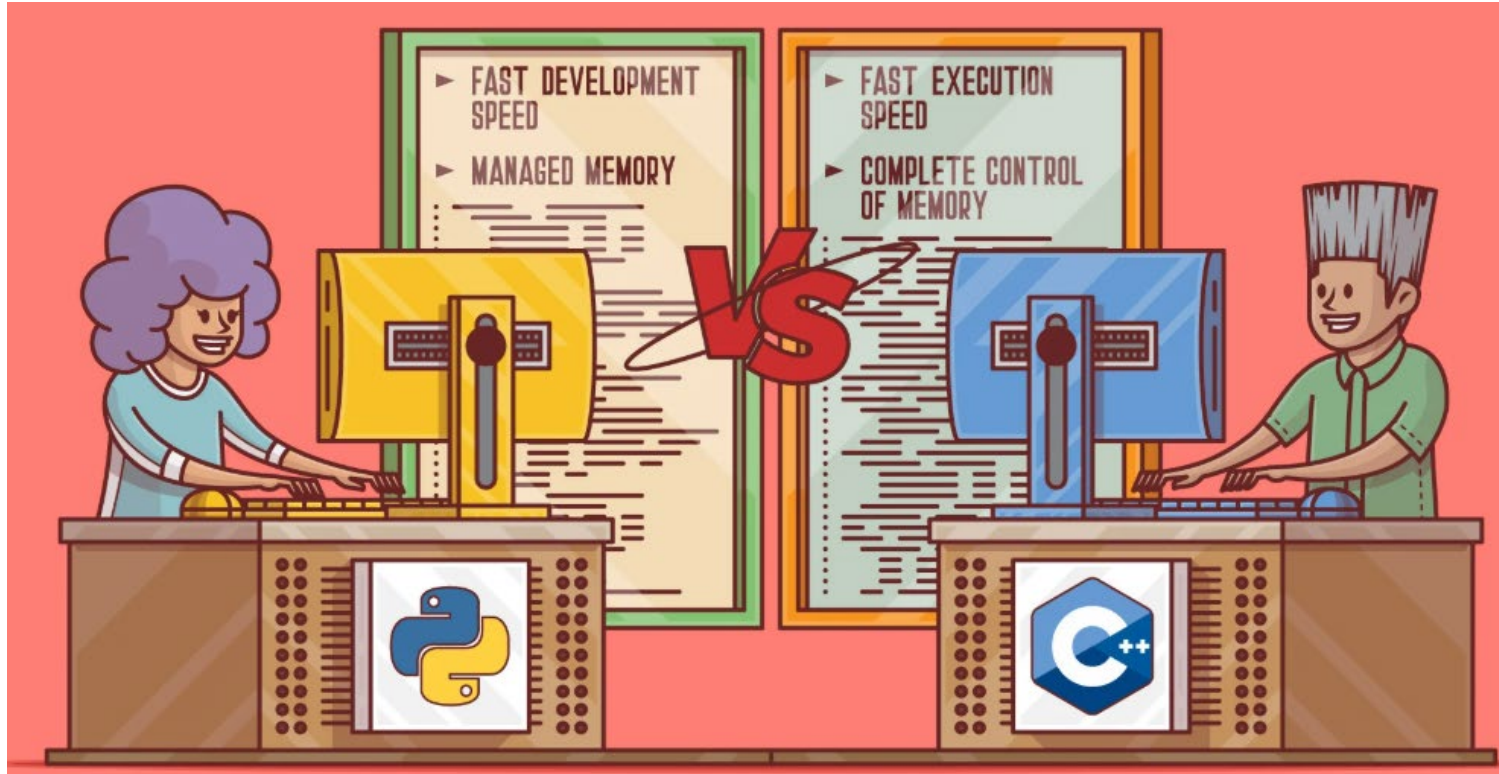
Why we moved from C++ to python?

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- C++ has more syntax rules and other programming conventions, while Python aims to imitate the regular English language. When it comes to their use cases, Python is the leading language for machine learning and data analysis, and C++ is the best option for game development and large systems.
- Python is more popular

How python is important for computer science?

Big Data:
https://www.youtube.com/watch?v=bAyrObl7TYE&list=RDCMUCsvqVGtbbyHaMoevxPAq9Fg&index=2

Deep Learning:
https://www.youtube.com/watch?v=6M5VXKLf4D4&list=RDCMUCsvqVGtbbyHaMoevxPAq9Fg&index=1

Neural Network
https://www.youtube.com/watch?v=bfmFfD2RIcg&list=RDCMUCsvqVGtbbyHaMoevxPAq9Fg&index=3

How python is important for career?

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- https://www.youtube.com/watch?v=UGj0bOYPdCw

Lets have a look where we will execute our code.
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- https://colab.research.google.com/notebooks/intro.ipynb?utm_source=scs-
- https://www.youtube.com/watch?v=RLYoEyIHL6A

Let have a look a source for practicing some codes

- https://www.tutorialspoint.com/python/index.htm

How will we compile or code?
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- https://colab.research.google.com/notebooks/intro.ipynb?utm_source=scs-index#scrollTo=C4HZx7Gndbrh
- https://www.youtube.com/watch?v=i-HnvsehuSw