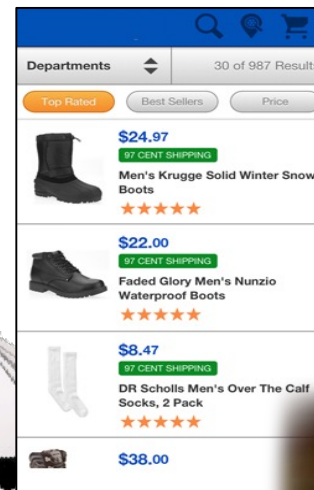# Lecture 20: Important Dates

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College of Engineering

Goal of the Final Project

- Apply learned knowledge of data structures and algorithms to solve interesting problems

Requirements

- Each team has 3 students

- Required topics:

- Eclipse Java Project
- GUI (Graphical User Interface): Either using Java Swing, JavaFX or others.

Required topic in the list

- Bag (Chapter 1, 2, 3)
- The Efficiency of Algorithm (Chapter 4)
- Stacks (Chapter 5, 6)
- Recursion (Chapter 9, 14)

One topic from this list

- Queues, Deques, Priority Queue (Chapter 7, 8)
- Lists (Chapter 10, 11, 12)
- Sorting (Chapter 15, 16)
- Hashing (Chapter 22, 23)
- Trees (Chapter 24, 25)
- Binary Search Tree (Chapter 26)
- Heap (Chapter 27)
- Balanced Search Tree (Chapter 28)
- Graph (Chapter 29, 30)

(At least) Three topics from this list

Requirements (cont.)

- Submission
  - » The project with source files (Eclipse Java project)
  - » A term report: (< 10 pages, two columns)
    - o Problem Description (Introduction)
    - o Analysis (your study, research, etc.)
    - o Design (algorithms, system design, flow chart, etc.)
    - o Implementation (what APIs are used, what tools are used, etc.)
    - o Evaluation (screenshots of sample runs, comparison, user study, etc.)
    - o Discussion (reflection)
    - o Conclusion (and Future Work)
    - o Job assignments (each member's contributions)
  - » The report template is in "Docs" module on the Canvas.

Possible Final Project Topics

- Implement different sorting algorithms (Java GUI app, mobile app)

- Sort and search from a deck of cards

- Search a pattern from a huge data (DNA sequencing)

- Write a Java GUI program to show the effect of hashing

- Find the shortest path from point A to point B

- Design and implement binary search tree (BST)

- Visualize different sorting algorithms

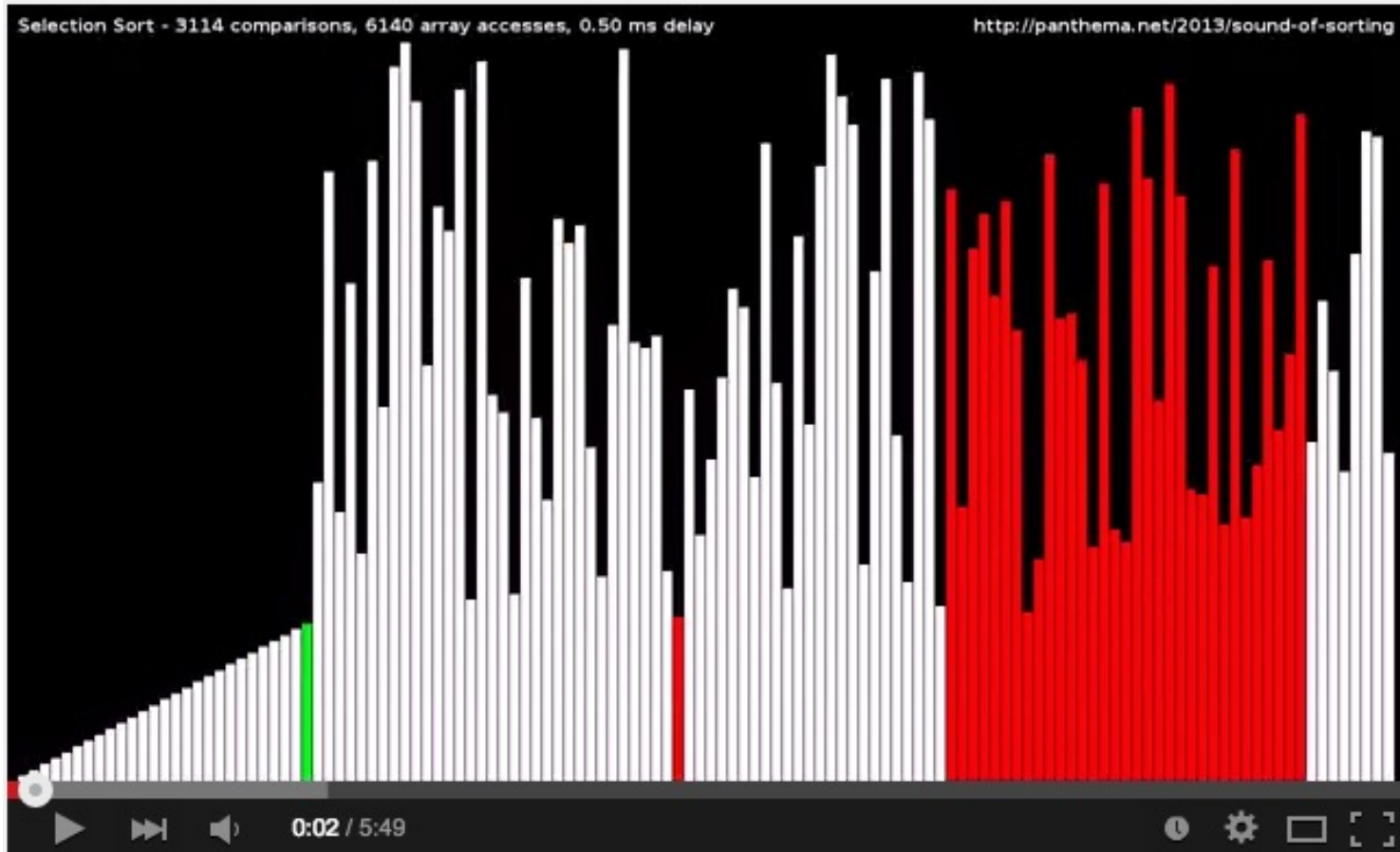- Recursion/dynamic programming and its application

- …

Important Dates

- **Final Project Presentation and Live Demo Submission**

  » Due: <mark>11:59 pm, Wednesday, December 4</mark>

  » A Recorded Video (<20 min, .mp4 or .mov format)

  » Final Project Presentation

    » <mark>All team members need to turn on camera and contribute during the presentation.</mark>

  » Live Demo

  » Submission link will be available on the Canvas
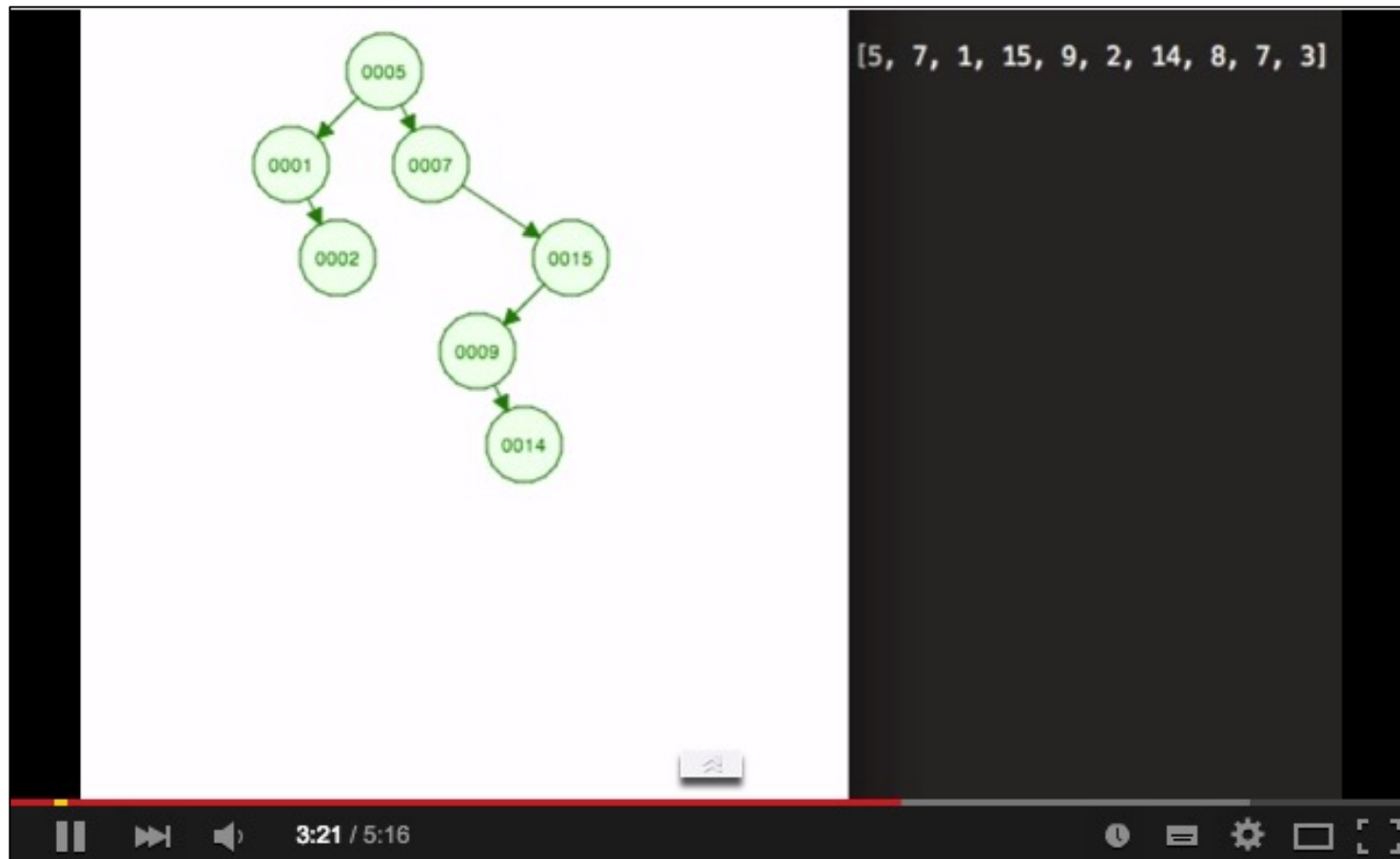
Important Dates

- Final Project Submission

  » Due: ==11:59 pm, Saturday, December 7==

  » Term project source files (Eclipse project)

  » Add ==an instruction file== (.txt) to explain how to run the project.

  » Term project report (.pdf or .docx file)

  » Final project presentation slides (.pdf or .pptx file)

  » All of above files should be in one folder and compressed as ==a .zip file==. The file name should be "TeamName.zip".

  » Submission link will be available on the Canvas.

Example

Visualization of Different Sorting Algorithms
https://www.youtube.com/watch?v=kPRA0W1kECg

Example

Construct a Binary Search Tree (BST)
https://www.youtube.com/watch?v=FvdPo8PBQtc

Example

Walking Navigation System - Find A Shortest Path
https://www.youtube.com/watch?v=p2-INZ_Nfoc