



School of Computing

CS1020 Data Structures and Algorithms I

Lecture Note #0

Course Admin

(AY2011/2 Semester 2)

Welcome to CS1020

<http://www.comp.nus.edu.sg/~cs1020>



The banner features the NUS logo on the left, the course title "CS1020 Data Structures and Algorithms I" in the center, and a date "Wednesday, 28 December 2011." on the right. Below the banner is a navigation menu with three dropdown menus: "Module Info...", "Resources...", and "CA...".

Designed by [Aaron Tan](#) | [Terms of Use](#) © NUS | 2011

Wednesday, 28 December 2011.

Module Info... ▾

Resources... ▾

CA... ▾

- Welcome to CS1020! (AY2011/2 Semester 2)
- This course website is being updated for the coming semester.

Hits since 28-Dec-11: 26. Accesses today: 3. [Statistics](#).

Staff

■ Lecturers

- Prof Ling Tok Wang
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- A/P Tan Sun Teck
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- Dr Aquinas A. Hobor
COM2-03-12
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- Mr. Aaron Tan Tuck Choy
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Lecture Sectional Groups

❑ **Sectional Group 1 (SG1)**

- ❑ Wednesday 10am – 12nn @ LT19
- ❑ A/P Tan Sun Teck: Weeks 1 – 6
- ❑ Prof Ling Tok Wang: Weeks 7 – 13

❑ **Sectional Group 2 (SG2)**

- ❑ Wednesday 10am – 12nn @ PL2 (COM1-B-09)
- ❑ Mr Aaron Tan

❑ **Sectional Group 3 (SG3)**

- ❑ Tuesday 2 – 4pm @ PL2 (COM1-B-09)
- ❑ Dr Aquinas A. Hobor

Between the Sectional Groups

- Differences:
 - Delivery styles
- Similarities:
 - Cover **exactly** the same topics
 - Using the same lecture notes
 - Shared assessments:
 - Tutorials, labs, test and exam
 - Graded together
- Don't worry 😊
 - All assessments are jointly set to ensure fairness



Tutorial Groups

- **Bidding Period:**
 - Starting 13th January, 2012
- **Tutorial Groups (all on Friday):**
 - T1 9-10am TR12 (COM1/215)
 - T2 10-11am TR12 (COM1/215)
 - T3 11-12nn TR12 (COM1/215)
 - T4 2-3pm TR12 (COM1/215)
 - T5 3-4pm TR12 (COM1/215)
 - T6 4-5pm TR12 (COM1/215)
 - T7 5-6pm TR12 (COM1/215)
 - T8 2-3pm TR11 (COM1/216)
 - T9 3-4pm TR11 (COM1/216)
 - T10 4-5pm TR11 (COM1/216)

Laboratory Groups

- **Bidding Period:**
 - Starting 13th January, 2012
- **Laboratory Groups (all on Thursday):**
 - B1 10am-12nn PL2 (COM1/B09)
 - B2 12nn-2pm PL2 (COM1/B09)
 - B3 10am-12nn PL3 (COM1/B08)
 - B4 12nn-2pm PL3 (COM1/B08)
 - B5 10am-12nn PL4 (COM1/B11)
 - B6 12nn-2pm PL4 (COM1/B11)
 - B7 10am-12nn PL6 (COM1/120)
 - B8 12nn-2pm PL6 (COM1/120)

Outline

1. Module Overview
2. Objectives
3. Resources
 - 3.1 Module website
 - 3.2 IVLE
 - 3.3 Textbook
4. Assessments
 - 4.1 Tutorial
 - 4.2 Laboratory

1. Module Overview

- This module is:
 - The second part of the 3-module introductory programming course
 - CS1010 → **CS1020** → CS2010
 - Emphasizes on *algorithms* and *linear data structures*
- Topics covered:
 - Object Oriented Programming (OOP) Model
 - Using Java programming language
 - Classic data structures
 - Lists, Stack and Queue
 - Recursion
 - Basic algorithmic analysis
 - Sorting methods
 - Hashing

2. Objectives

- With this course, you should be able to:
 - Use object oriented modeling to formulate solution
 - Utilize appropriate simple data structures in problem solving
 - Understand recursion and data abstraction
 - Understand program efficiency through algorithm analysis

3. Resources: Module Website and IVLE

❑ Module website

<http://www.comp.nus.edu.sg/~cs1020>



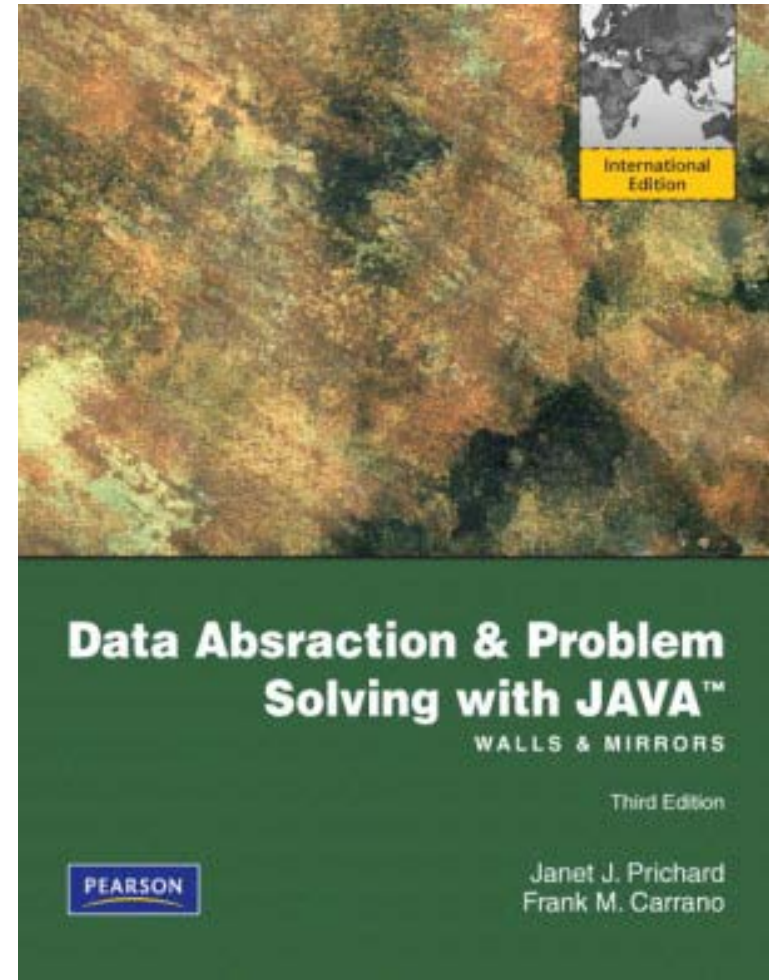
The screenshot shows the header of the CS1020 website. On the left is the NUS logo and 'School of Computing'. In the center is 'CS1020' and on the right is 'Data Structures and Algorithms I'. Below the header is a navigation menu with three dropdown menus: 'Module Info...', 'Resources...', and 'CA...'. To the right of the menu, there are two bullet points: 'Welcome to CS1020! (AY2011/2 Semester 2)' and 'This course website is being updated for the coming semester.' At the bottom of the screenshot, there is a statistics line: 'Hits since 28-Dec-11: 25. Accesses today: 3. [Statistics](#)'.

❑ IVLE

- ❑ Forums: Use appropriate heading when you post
- ❑ Announcements: Check daily
- ❑ Anonymous feedback: Not to use this if you expect a reply

3. Resources: Textbook

- **Data Abstraction and Problem Solving with Java: Walls and Mirror**
 - International edition, 3rd edition
 - Authors: Janet J. Prichard and Frank M. Carrano
 - Publisher: Pearson
 - ISBN: 9780273751205



4. Assessment: Overview

■ CA 55%

□ Labs 30%

- More on this later

□ Midterm test (closed book) 20%

- 2nd March 2012, Friday, 6pm to 7.30pm
- MPSH5
- 1 piece of A4 **HANDWRITTEN** (no photocopy) reference sheet allowed

□ Tutorial attendance/participation 5%

■ Final Exam (closed book) 45%

- 1 piece of A4 **HANDWRITTEN** (no photocopy) reference sheet
- Friday, 27 April 2012, 9 – 11am

4.1 Tutorials

- ❑ See module website for updates
- ❑ Weekly, start from week 3
- ❑ You are expected to present solutions and participate in the discussion
- ❑ Suggested solutions will be released in the following week

4.2 Laboratory sessions

- See module website for updates
- Actual lab session starts from week 3
 - A special lab 0 will be released for week 2
 - Familiarize yourself with the system
 - Give away 1% for “free”
 - if you complete and submit lab 0 before deadline
- Two types of lab sessions:
 - **Normal (take-home) labs**
 - 1% per session, total 5%
 - **Sit-in labs**
 - 8% per session, total 24%

4.2 Laboratory: Normal Lab

- There are a total of 5 normal labs
- Question will be released before actual lab session
 - You are encouraged to attempt before going for the lab
- During the lab session, lab TA will:
 - Discuss possible approaches
 - Cover additional syntax (if any)
- At the end of the session, you are expected to:
 - Submit your work to serve as an attendance record
 - **Worth 1% per session**

4.2 Laboratory: **Sit-in Lab**

- There are a total of 4 sit-in labs
- A sit-in lab is like a mini practical exam to **test your programming skills**
 - Test on topic(s) covered by the previous normal lab
- Each sit-in lab is:
 - 1 hour 40 minutes in duration and **worth 8%**
 - Open book, but limited to printed material only
- Your best 3 sit-in labs out of 4 will be chosen
 - **Total 24%**
- You will get a makeup only if:
 - You missed 2 or more sit-in labs with valid MC

4.2 Laboratory: Schedules (Tentative)

Lab	Date	Type	Topics
0	19 th Jan (Week 2)	<i>Special</i>	
1	26 th Jan (Week 3)	Take-home #1	IO / OOP
2	2nd Feb (Week 4)	Sit-in #1	IO / OOP
3	9 th Feb (Week 5)	Take-home #2	Advanced OO
4	16th Feb (Week 6)	Sit-in #2	Advanced OO
5	1 st Mar (Week 7)	Take-home #3	LL/Stack/Queue
6	8th Mar (Week 8)	Sit-in #3	LL/Stack/Queue
7	15 th Mar (Week 9)	Take-home #4	Recursion
8	22nd Mar (Week 10)	Sit-in #4	Recursion
9	29 th Mar (Week 11)	Take-home #5	Sorting/Hashing

4.2 Sit-in Labs: Marking Scheme

- **Programming style: 30%**
 - Checked by Lab TAs
 - **Meaningful comments: 10%**
 - Purpose of methods and statements
 - Pre- and post-conditions
 - **Modularity: 10%**
 - **Meaningful identifiers: 5%**
 - **Indentation: 5%**
- Try to get the "free" 30% for every sit-in lab!

4.2 Sit-in Labs: Marking Scheme (cont)

- **Correctness and efficiency: 70%**
 - Lab TA manually inspects your program
 - Partial credit will be awarded
- **Penalties:**
 - Non-compileable:
 - 50% off your final score (including both the style and correctness scores)
 - Empty program:
 - E.g. All codes are commented
 - Generally, commented code are ignored. So this could result in 0%

Summary and advice

- The labs focus more on your programming skills:
 - Ability to translate idea into actual program
- Midterm and final exam focus more on your problem-solving skills:
 - Ability to understand and reason about the problem
 - Ability to apply your knowledge to formulate solution
- You need to spend time on:
 - Actually coding to improve your skill
 - Thinking hard about the content of the lectures as memorization does not help

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