

WELCOME TO COMPUTER SCIENCE 1027a

COMPUTER SCIENCE FUNDAMENTALS II

Instructor: Vadim Mazalov

1

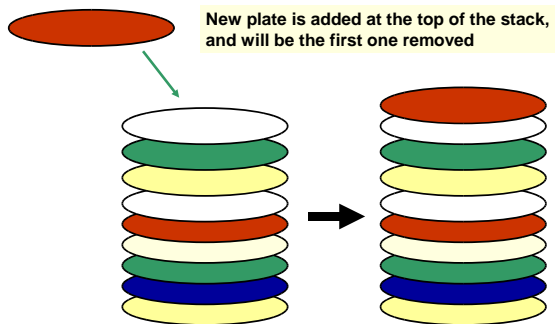
What is CS1027 about?

Main focus:

- The organization and manipulation of *data*
- Choosing how to organize data: into collections such as
 - *stacks*
 - *queues*
 - *lists*
 - *trees*

2

A Stack of Plates



3

A Queue of People

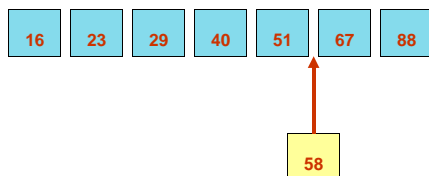
First person served will be the one at the front of queue



4

A List of Numbers

This is an example of an **Ordered List**, so a new number must be added such that the numbers remain in order



5

...What is CS1027 about?

Collections (aka *Abstract Data Types*)

- What would we use them for?
- Why would we use them?
- How are they implemented?

6

...What is CS1027 about?

plus:

- Sorting and searching techniques
- Analysis of algorithms
- Recursion (*methods calling themselves*)

and, continuing from CS1025 / 1026:

- Good object-oriented design
- Good programming practices

7

COMPUTING ENVIRONMENT

- Our Programming will be done in **Java 6.0**
- The computers in the CSD First Year Teaching Environment (**FYTE**) run under **Windows XP**
- Our Java computing environment for CS1027a is **Eclipse**
 - A “real” IDE (DrJava in CS1026 is a pedagogical environment)

8

Should you be here?

- **Prerequisite:**
Comp Sci 1025a/b or 1026a/b
- *You should be comfortable with Java syntax.*
- **Note:** “Unless you have either the prerequisite for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees.”

9

COURSE TOPICS

- Revisit Object-oriented programming
- Object-oriented design concepts:
inheritance
- Abstract data types and their implementations:
stacks, queues, lists, trees
- Recursion
- Analysis of algorithms
- Sorting and searching techniques

10

ADMINISTRATIVE DETAILS

Required Textbook

Java Software Structures: Designing and Using Data Structures, Lewis and Chase, 3rd Edition

- There is a copy on 1-day reserve in the Taylor Library (NatSci building)

11

CS 1027a Website

- <http://www.csd.uwo.ca/courses/CS1027a>
- Contains course related information:
 - Lecture notes
 - Lab instructions
 - Assignments
 - Links to other sites
 - Sample code
 - etc.
- **Check it frequently for announcements**

12

Lecture Notes

- Available from the CS1027a website
- They are copies of the slides used in class, and are intended to help in note-taking during lectures
- They are **NOT** a substitute for attending lectures
- There may be other material presented in lectures also

13

Textbook Code

- We will discuss many code samples in class
 - Can be ftp'd from the textbook website
 - Most will be available on the CS1027a website
- It may help you to have paper copies of the sample code in class

14

Labs

- 1 lab hour per week, in computer lab room in MC
- Purpose of labs: to introduce or expand on practical material + programming exercises
- Lab instructions will be posted on the course website
 - Read through the lab instructions before coming to the lab.
 - Do the pre-lab preparation.
 - Bring a printed copy of the lab instructions to the lab.

15

Computing Facilities

CSD First Year Teaching Environment

- FYTE computer labs are in *Middlesex College Rooms 8, 10, 230, 235*
- Logging in to FYTE
 - Use your CS1027 **user name** and **password**
 - User name is same as that assigned to you by UWO (your "uwo" account)
 - Password emailed to your uwo account (same as your CS1025a/1026a password)
- By using your first-year account, you agree to abide by the **Department's Rules of Ethical Conduct**

16

Email contact

- **Email from me to you:**
 - Course email will be sent to your **uwo** email accounts
 - You are responsible for information sent via email to your account
 - See caveats in Course Outline re: forwarding email and mailboxes filling up
- **Email from you to me:**
 - Feel free to email me with *brief* questions re. lecture material or clarification of assignments
 - Send email from your **uwo** account
 - Please include "**CS1027**" in the Subject line
 - Please use plaintext format

17

Student Evaluation (tentative dates)

<i>Assignment 1</i>	5 %	<i>due Sep. 29</i>
<i>Assignment 2</i>	10 %	<i>due Oct. 20</i>
<i>Assignment 3</i>	10 %	<i>due Nov. 10</i>
<i>Assignment 4</i>	10 %	<i>due Dec. 6</i>
<i>Labs</i>	10%	<i>weekly</i>
<i>Midterm Exam</i> (1 hour 45 min.)	20 %	<i>Tuesday Nov. 1</i> <i>(in class)</i>
<i>Final Exam</i> (3 hours)	35 %	<i>in December</i>

18

Important Conditions

To pass the course:

- Final Exam mark must be at least 45%
- Weighted average of assignments must be at least 45%
- Otherwise your maximum course grade is 45%

To achieve a final grade of 65% or higher:

- Final Exam mark must be at least 50%
- Weighted average of assignments must be at least 50%
- Otherwise your maximum course grade is 60%

19

Midterm Exam

Tuesday, November 1 (in class)

- There is **no** makeup midterm exam, except for students requesting a Special Midterm Exam for religious reasons (must request a Special Midterm Exam *and* file documentation with their Dean's office at least *two weeks* before the midterm exam date)
- If you do not write the midterm exam, the weight of the midterm exam will be shifted to the final exam
- **If your final exam mark is higher than your midterm exam mark, the weight of the midterm exam will be shifted to the final exam!** 😊

20

Labs

- Labs are worth **10%** of your final mark
- Each completed lab is worth **1%** (evaluated by the TA in your lab session)
 - But, there are more than 10 labs; so, lab mark is based on *best 10* of your individual lab marks
- You **must** attend the lab session for which you are registered
- There are **no** makeup labs
 - In cases of lengthy / serious illness, contact your Dean's office

21

Programming Assignments

Assignment Submission: details will be posted on our website

Late Assignments:

- Late penalty is 10 % of the max. assignment mark per day late
- Maximum **two** days late
- No extensions given
- In cases of lengthy illness etc. take documentation to your Dean's office

22

Ethical Conduct

- Assignments are to be completed by **individuals, not pairs or groups**
- Discussing approaches to problems is OK, but writing code that looks the same is not!
- **Collaboration that results in assignments that are more than coincidentally alike is unacceptable and will be regarded as an occurrence of academic dishonesty**

23

What is academic dishonesty?

- Collaboration
- Copying another student's assignment
- Allowing another student to copy
- Altering of assignment results
- **Penalty for academic dishonesty:** reported to Dean, penalty starts at -100% for the assignment in question

24

Tutoring

- Role of a tutor: to help students understand course material, **not** to write part or all of their assignment
- Names of tutors are available from the Tutor Referral Service at www.stats.uwo.ca/trs.htm (this is not run by the Computer Science Department)

25

Questions you may have ...

- Do I need to buy the textbook?
- Is this course hard?

Other questions?

26