The City College of New York
City University of New York
Department of Compute Science
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Course Information	
Title:	*CSc 221: Software Design Laboratory*
Credits:	*3*
Class Hours:	*3*
Meeting Times:	*Via ZOOM*
	M, W 3:30PM – 5PM
Term:	*Fall 2020*

Instructor's Information	
Name:	*Ayman Zeidan*
E-mail:	*azeidan@ccny.cuny.edu*
Course Website:	*Blackboard*
Office Hours:	via ZOOM before/after class or by appointment. Please see Blackboard for hours and the link to the ZOOM session.

Course Objectives:

This course focuses on the use of object-oriented programming and design to solve a wide range of computer applications. The course combines the practical aspects of programming exercises with more theoretical discussions of application design methodologies as well as several key internals of object-oriented systems exemplified with Java programming language. Encapsulation, inheritance, and polymorphism are stressed. Goals of the course are:

1. To help you develop proficiency in Java.
2. To help you develop an understanding of object-oriented programming: what it is, why it is important, and how to do it.
3. To extend your command of what is meant by program design.
4. To introduce you to the Java approach to compilation and execution, which involves the Java Virtual Machine executing bytecode.
5. To build a foundation understanding of Design Patterns.

We will study graphical user interfaces (GUIs) in some detail, although it will be impossible to cover more than a fraction of the power that the Java-based graphics packages provide. You will get enough experience with GUI development to learn the rest of that subject on your own; we need course time for things that are not so easily learned by oneself.

Specific course information

- Accelerated introduction to Java programming language and its standard library usage. The course covers coding principles, graphic user interface, event-driven programming, design patterns, security issues, and network and mobile computing capabilities. This course also introduces application development under the Android mobile operating system. A small-scale, team-based application development including software specifications and unit and user testing is required.
- Prerequisites: CSc 21200 and Engle 21007 or Engle 21002 Engle 21003

Online Related Information:

This course will be taught as an online course. The class will meet via ZOOM during the official class' times shown above under the course information section. Please check Blackboard for the ZOOM link. You will need a stable and reliable Internet connection. During the class' meeting time, there will be lab activities which must be submitted to Blackboard by the specified time. In addition, homework assignments will be posted on Blackboard during the semester, a separate submission page will be created with details when to submit your solution. Late submissions are not permitted.

Class attendance is mandatory; the instructor will take attendance during each class. If your unable to attend; please contact your course's instructor and inform them of your absence and ask how you can catch up on missed topics and assignments.

Technical requirements

Please make sure that you have access to a PC with a reliable Internet connection. You will need a Java compiler in order to complete the work assignments. A microphone is highly recommended since it increases the level of interaction with the instructor and your classmates.
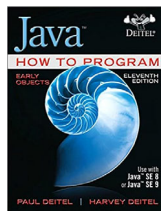
Required Text & Readings

Textbook:	*Java How to Program (early objects), 11/E*
Author:	*Paul Deitel & Harvey Deitel*
Publisher:	*Prentice Hall, 2015*
ISBN-13:	*978-0134743356*
Other Resources:	Backup drive (flash or cloud) is recommended

Contacting your instructor:

The preferred method of contact is during the online office hours. You may also send me an e-mail and I will respond back as soon as possible. When sending an e-mail, please be specific as to what you would like me to help you with. If asking help about an assignment, clearly state the problem, what you have done to resolve the problem, and which portion of your solution you are unable to fix. If sending an attachment, please send only the relevant files and you may include screenshots of the error.

Specific goals for the course and Relationship to student outcomes

		1	2	3	4	5	6
a.	The student acquires proficiency in Java to implement and test various small-scale applications in Java programming language	R	R				R
b.	The student acquires an understanding of event-driven programming and ability to clearly explain what it is, why it is important, and how to do it	R					R
c.	The student is able to list the main principles of software specifications, program design, and unit and user testing	R					R
d.	The student acquires a foundation understanding of Java-approach for platform independence and ability to use IDE-based compilation and debugging		R				R
e.	The student acquires a foundation understanding of design patterns and ability to use it for project design			I	I	I	
f.	The student develops an understanding of legal and security issues related to network-deployed application developments				P		I

I - introductory-level; R - reinforced-level; P - program-level

Evaluation & Requirements of Students:

Quizzes:	*15%*
Programming Assignments	*60 %*
Final Programming Project:	*25%*
	100%

Policies

- The course work must be carried out individually. Instructions to submit each assignment will be given later. Weekly programming work needs to be submitted on time.
- Warning: the assignment and project work must be done independently. Sharing materials with classmate, especially programming work including logic, and/or modifying the materials to fabricate and reproduce other versions is very seriously treated based on the CUNY Academic Integrity Policy. Do not underestimate my reaction resulted from breaking this rule.

- Late assignment submission will be allowed only within two days. Submission due Monday can be submitted Wednesday of the same week but will incur score deduction of 25%. Submissions after this late due are not allowed.
- Three exams will be given in class. You are expected to arrive at the beginning of the class period, and no extra time will be given for late arrivals. No make-up exams will be considered for absent students.
- Any disagreement resulted from my grading must be reported in writing for the resolution
- I would like the course to run smoothly and enjoyably. Feel free to let me know what you find good and interesting about the course. Let me know sooner about the reverse

Outline of Topics:

Week		Topics	Required Chapters
1		▪ Introduction to Computer and Java; Java Applications; Classes, Objects, Methods and Strings ▪ Assignment #1	Ch.1 – skim Ch. 2 and 3
2		▪ Methods and Strings (cont.); Control Statements	Ch. 4 and 5
3		▪ Methods: A Deeper Look and Arrays and ArrayLists ▪ Assignment #2	Ch. 6 and 7
4		▪ Exception Handling; Android Application Development Basics	Ch. 11
5		▪ Classes and Objects: A Deeper Look; Inheritance ▪ 1st Exam	Ch. 8 and 9
6	10/7	▪ Polymorphism and Interfaces ▪ Assignment #3	Ch. 10
7		▪ Android Programming Tutorial; ▪ GUI Components ▪ Project – Phase I	Ch. 12
8		▪ GUI Components (cont.); Graphics and Java 2D ▪ Assignment #4	Ch. 13
9		▪ Strings, Characters and Regular Expressions ▪ Assignment #5	Ch. 14
		▪ File, Streams and Object Serialization	Ch. 15
10		▪ 2nd Exam ▪ Java Security; Secure Coding Guidelines	
11		▪ Generic Collections ▪ Project – Phase II	Ch. 20
12		▪ Generic Collections (cont.); Lambdas and Streams	Ch. 17
13		▪ Generic Classes and Methods; Custom Generic Data Structures ▪ Assignment #6	Ch. 21 and 22
14		▪ GUI Components: Part 2; Concurrency ▪ 3rd Exam	Ch. 23
15		▪ Course Wrap-up; Final project demos	

Class Participation

Participation in the academic activity of each course is a significant component of the learning process and plays a major role in determining overall student academic achievement. Academic activities may include, but are not limited to, attending class, submitting assignments, engaging in in-class or online activities, taking exams, and/or participating in group work. Each instructor has the right to establish their own class participation policy, and it is each student's responsibility to be familiar with and follow the participation policies for each course.

Policy on Plagiarism and Academic Integrity Statement

Plagiarism is the presentation of someone else's ideas, words or artistic, scientific, or technical work as one's own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations, require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism. Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on the college's Web site, https://www.ccny.cuny.edu/academicaffairs/integrity-policies. For further information on integrity and behavior, please consult the college bulletin (also available online)