Course Syllabus

Course Name: Programming 3
Course ID: CSCI 2308
Prerequisites: Programming 1 & 2
Lecture Times: Section 101: Sat, Mon & Wed: 09:00-10:00, Room: K517
Section 102: Sun & Tue: 12:30-14:00, Room: K116
Section 201: Sat, Mon & Wed: 10:00-11:00, Room: L418
Lecturer: Dr. Abdelkareem M. Alashqar
Office Hours: Sat, Sun, Tue & Wed: 11:00-12:00
Office Location: Room: I214
Contact Details: E-mail: aashgar@iugaza.edu.ps Internal Tel: 2963

Course Description

This course includes advanced topics in Java programming language. It covers the following topics; graphical user interface (GUI) using JavaFX, event handling, generic collections, functional programming using Java lambdas and streams, accessing database using JDBC, Java Persistence API (JPA), Java frameworks using Spring Boot, Java multithreading, string processing with regular expressions.

Course Objectives

Upon successful completion of the course, the student is expected to be able to:

- Design graphical user interface using JavaFX components and apply event handling.
- Access various types of data appropriately using generic collections.
- Understand and apply functional programming using lambda expressions.
- Apply good practices in accessing different types of databases.
- Use and apply Java Persistence API (JPA).
- Understand how to develop software applications using Spring Boot framework.
- Apply concurrency using Java multithreading.
- Enhance collaborative work between students.

Course Content

Week	Topic	Reading
1	Introduction and Review to Programming 1&2	Chapter 1
2,3,4	GUI Components using JavaFX	Chapter 2 Part 1 to 3
5,6	Collections and Streams	Chapter 3
7,8	Accessing Databases with JDBC	Chapter 4
9,10	Java Persistence API (JPA)	Chapter 5
11,12	Introduction to Spring Framework	Chapter 6
13	Java Multithreading	Chapter 7
14	Regular Expressions	Chapter 8
15	Review and Course Project Discussion	

Course Teaching Method

The class will be taught as a combination of lectures, software presentations, programing practices, group discussion, exercises and discussion of real-world cases. Online learning using Moodle is adopted for the course as a combination of the traditional class.

Main References

- Paul Deitel and Harvey Deitel, *Java How to Program: Early Objects*, 11th Edition, Pearson, 2018.
- Y. Daniel Liang, *Introduction to Java Programming and Data Structures: Comprehensive Version*, 7th Edition, Pearson, 2017.

Additional References

- Walter Savitch, Java: *An Introduction to Problem Solving and Programming*, 8th Edition, Pearson (2019).
- Tony Gaddis, *Starting Out with Java: Early Objects, 6th Edition*, Pearson, 2018.
- Cay S. Horstmann, *Core Java, Volume II--Advanced Features*, 11th Edition, 2019.
- Case studies and additional reading materials will be distributed during the semester.

Course requirements

Include attendance of all lecturers, demonstrations and review of assignments given in previous classes. Excessive absences that exceed 25% of the lectures will be reported to the college administration. The students must learn and use the following software tools carefully: Apache NetBeans, Visual Studio Code and GitHub. Also, they must prepare and submit complete documented programming assignments as given in the lectures.

Grading

Criterion	Percentage
Assignments and Quizzes	20%
Midterm Exam	30%
Final Exam	50%
Total	**100%**