Conttents

Course Description

1. Course Name: Practical Computer Science 2
   - Advanced Java Programming
2. Prerequisites:Introduction to Practical Computer Science I and II.
3. Number of credits: 4CP
4. Lecturer: Sayed Ahmad Sahim
5. Contact: emailgmail.com
6. Time: Saturday and Sunday 10:20 - 12:00

Introduction and objective

- Students get a deeper understanding in the object oriented programming paradigm.
- They can handle the I/O operations and can work with graphical user interfaces.
- They are able to use the class library and have good command in the programming language in use.
- They will understand the concepts of Java Programming Language properly.
- The practical knowledge along with projects will help them enter the Java professional domain
  - Compilers
  - Operating Systems
  - Databases
  - Search Engines
  - etc.

Objectives

- List the basic data structures
- Analyze operations with data structures
- Choose appropriate basic data structure for a task at hand
- Apply basic data structures in programming challenges
- Develop a program that simulates network packet processing

Topics Covered

- We will cover the following topics in this course:
  - Quick overview to Java Basics and OOP concepts
  - Java exceptions
  - File I/O
  - Serialization and Generic Types Collections
  - Thread handling and synchronization
  - GUI Programming (awt, swing, applets)
  - GUI Event handling
  - Socket-based network programming and serialization (java.net)
  - Java Remote Method Invocation (RMI)
  - Java Packages (Beans)
    - Basic Packages (java.util, java.lang, java.security...)
    - Specially packages: (XML, Real-Time Java...)

Teaching Methods Strategies:

- Lecture presentation
- Exercises
- Assignments to be carried out in groups at home
- Debriefing
- Q&A

Topics Covered

- Final Exam 60%
- Midterm Exam 20%
- Project and Assignment 20%

Assignment

- All assigned tasks should be submitted on time.
- Tasks are assigned to a group of students.
- Copy or cheated tasks will get zero.
- Everyone in the group will be evaluated according the performed task.

References

- Dietel, P., Deitel, H.; Java How to Program, 9th ed., 2011
- Tymann, P. T., Schneider, G. M.; Modern Software Development Using Java, 2007.
- Culwin, F.; Java GUI Programmers Primer A.
- Oaks, S., Wong, H.; Java Threads, OReilly, 2004.

Question