

CSIT-890 – Object-Oriented Programming in Java

Topics for Review in preparation for the Midterm Exam

Textbook Chapters

Chapters 1 - 7

Programming Languages

Machine language
Assembly language
High-level programming languages
Program syntax
Syntax vs. program logic
Source code
Executable code

Java Concepts

Java Virtual Machine (JVM)
Java Runtime Environment (JRE)
Java Development Kit (JDK)
Compiling and running a java program
Java bytecode

Java Language Fundamentals

Keywords
Identifiers
Constants
Literals
Variables, Scope of Local Variables
Expressions, arithmetic and Boolean expressions
Operators and operands
Operator precedence
Primitive and reference types
Declaring and using variables
Comments

Control structures

Conditional Statements

If-else
Switch-case-default

Loop Statements

For
Enhanced For
While
Do-while

Casting (between primitive types), parse methods
System.exit() method

Classes and Objects

Objects and Classes
Object Instantiation

- Primitive Variables vs. Objects
- Accessor (Getter) and Mutator (Setter) Methods
- Data Hiding
- Access Specifiers: Public and Private
- Instance Fields and Instance Methods
- Constructors (Default Constructor, No-Arg Constructor)
- String Class Constructor
- Method Overloading, Overloading Constructors
- Method Signature
- Scope of Instance Fields
- Shadowing
- Packages and Import Statements

File Input / Output

- File, Scanner, Printwriter Classes
- Checking a File for Existence
- Opening a File for Sequential Reading
- Opening a File for Writing in Overwrite Mode
- Opening a File for Writing in Append Mode

Arrays

- Arrays, Processing Array Elements
- Array Length
- Passing Arrays as Arguments
- Returning Arrays
- Arrays of Strings
- Arrays of Objects
- Two-Dimensional Arrays
- Three-Dimensional Arrays
- Multi-Dimensional Arrays
- Ragged Arrays
- Command-Line Arguments
- Variable-Length Argument Lists
- Arraylist Class

Packages

- Java API – Documentation
- Java API – Common Packages, Classes, and Interfaces

UML

- Static or structural view: Class Diagram