**Week-01 (Study Liang Chapter 09)**

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| * https://docs.oracle.com/javase/tutorial/java/index.html * https://docs.oracle.com/en/java/javase/11/ * use <https://www.w3schools.com/java/> as much as possible * Create account on **onlinegdb.com** to create projects and access from anywhere * Use **Liang** book for all content of this course |

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| * **Study Liang Chapter 09** * Base class & Test class creation   + encapsulation of data via access modifiers (public, package, private) (Liang-9.8, 9.9) (Liang-10.2) (protected will be studied in **inheritance**)   + constructors   + accessor(getter) and mutant(setter) methods   + service methods   + static attributes, methods (Liang-9.7) * Lab Exercise: Expression class (of the previous Java-1 Final) * Lab Exercise: Stopwatch (Liang-9.6) * UML Class diagram format   + <https://www.tutorialspoint.com/uml/> UML Class Diagram * Liang-9.1, 9.2, 9.3 * Liang-Figure 9.3, Listing 9.1, 9.2, 9.3, 9.4 * Liang-9.4, 9.5 * Passing object to methods (Liang-9.10) * Lab Exercise: Write ( Square / Rectangle / Circle ) & Test class to practice   + static concept via static count & getCount()   + compare static concept with non-static (Liang-9.7)     - static and non-static area() methods     - static and non-static equal() methods |

**Week-02 (Study Liang Chapter 10)**

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| * **enum** type (Liang annex-I) * Arrays of objects (Liang 9.11)   + Liang Listing 9.11   + Lab Exercise: Circle class, Test class to create and process an array of circle objects * Wrapper classes (Liang 10.7) * mutable vs. immutable classes (Liang-9.12)   + String vs. StringBuilder classes (Liang-10.11) * Lab Exercise: MyInteger class (Liang 10.3) * Homework: Liang 10.3, 10.4, 10.7, 10.8, 10.9, 10.13, 10.20, 10.22, 10.23, 10.24, 10.25, 10.26 |

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| * **Random** class usage (Liang-9.6.2)   + Example: RandomString.java   + Example: int randomInt = new java.util.Random().nextInt(max); * **Math** class usage (Liang-4.2) (Deitel-6.4)   + Example: MathTest.java * **BigInteger** class usage (Liang-10.9)   + https://docs.oracle.com/javase/7/docs/api/java/math/BigInteger.html * **String** Class usage (Liang-10.10) |

**Week-03 (Study Liang Chapter 11)**

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| * **java.time** package is in Java 8 (2014) and shall be used for all Date & Time issues   + https://docs.oracle.com/javase/8/docs/api/java/time/package-summary.html   + LocalDate.java   + LocalDateTime.java   + ZonedDateTime.java |

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| * **Inheritance** (Liang-11.2) (Listing 11.1, 11.2, 11.3, 11.4) * **protected** access modifier (Liang-11.14) * **super** keyword (Liang-11.3) * **Overriding** (Liang-11.4, 11.5) * Package hierarchy & **Object** class (Liang-11.6)   + its importance in class hierarchy   + its components such as equals(), toString() (Liang-11.10) * Preventing extending and overriding by **final** (Liang-11.15) |

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| * **Polymorphism** (Liang-11.7, 11.8) * Homework: Liang-11.1, 11.2, 11.3, 11.4 * Casting Objects and instanceof Operator (Liang-11.9) * The **Object**’s **equals** method (Liang-11.10) |