

Chapter 4: Writing Classes

Overview

This chapter is an introduction to object oriented design for students. This chapter explores some of the concepts of how to break code into usable pieces as well as some of the important features of designing abstract data types and data storage classes.

Reading Assignment

Read pages 196 – 237 and “summary of key concepts” on page 243 in Java Software Solutions textbook.

Textbook Assignment

Book problems are due at the beginning of the class period *before* the Chapter 4 test. Problems will be checked for completion. You are encouraged to correct your answers with the solutions key during class, break or lunch.

- Multiple Choice pg 244-245 (4.1, 4.2, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10)
- Short Answer pg 248-250 (4.1, 4.3, 4.5, 4.7, 4.8, 4.13, 4.14)
- Programming Projects pg 251 (4.8 Modify the `Student` class – test your code!)
- AP Style pg 254 (4.4, 4.5, 4.6)

PracticeIt! Assignments

Complete the following PracticeIt! assignments. For each problem, *take a screen shot of the solution* and attach with a printed copy of your “My Problems” page *sorted with newest on top*.

Chapter 3: Parameters and Objects

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| • Self-Check 3.1: <code>methodHeaderSyntax</code> | • Self-Check 3.19: <code>stringExpressions</code> |
| • Self-Check 3.2: <code>MysteryNums</code> | • Exercise 3.1: <code>printNumbers</code> |
| • Self-Check 3.3: <code>Oops3-errors</code> | • Exercise 3.6: <code>largerAbsVal</code> |
| • Self-Check 3.4: <code>Odds</code> | • Exercise 3.8: <code>quadratic</code> |
| • Self-Check 3.9: <code>parameterMysterySoda</code> | • Exercise 3.10: <code>area</code> |
| • Self-Check 3.16: <code>min</code> | • Exercise 3.17: <code>padString</code> |

Labs

Download the zip file from GitHub, “Chapter 4 Lab Files”. Save to your \APCS folder and extract. A \Chapter 4 folder will be created containing the lab manual and lab files. Make sure you get each lab stamped off to receive credit.

Lab	Assignment	Completed
1	<ul style="list-style-type: none">Using the Coin Class (Folder CoinProject -> files Coin.java and CoinTest.java)	

2	<ul style="list-style-type: none">A Bank Account Class (Folder AccountsProject -> files Account.java and ManageAccounts.java)	
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3	<ul style="list-style-type: none">Tracking Grades (Folder GradesProject -> files Grades.java and Student.java)	
	<ul style="list-style-type: none">Band Booster (You create folder BandProject -> files BandBooster.java and BandTest.java)	

4	<ul style="list-style-type: none">Representing Names (You create folder NameProject -> files Name.java and NameTest.java)	
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5 GUI	<ul style="list-style-type: none">Stick Figure (You create folder StickProject -> files LineUp.java, LineUp.html and StickFigure.java)	
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Download the correct finch robot files for the IDE and operating system you are using from <https://www.finchrobot.com/software/java>. Create a finch program by copying the main method from the FinchTemplateFile.java file.

Remember to:

- Configure the IDE to use the finch.jar package.
- Add the statement `import edu.cmu.ri.createlab.terk.robot.finch.Finch;` at the top of your class file.

Complete the Finch labs with a partner.

6 Finch	<ul style="list-style-type: none">Meeting Finch (You create FinchCommands.java)	
	<ul style="list-style-type: none">Finch Security (You create FinchSecurity.java)	