

Advanced Placement Computer Science

Unit 7 – Decisions

Each unit, you will have an assignment that includes some reading, some questions from the reading, called Review Exercises, and between one and three programming exercises.

Calendar of Meeting Places for September/October

27	28 <u>Class</u> Lesson 7.1	29	30 <u>Class and Lab</u> Finish Lesson 7.1 and Begin Unit 7 Programs	1	2 <u>Class</u> Synchronous Exam #1 Units 1 – 6 Asynchronous Unit 7 Programs	3
4	5 <u>Lab</u> Lesson 7.2	6	7 <u>Lab</u> Unit 7 Programs	8	9 <u>Lab</u> Unit 7 Programs	10
11	12 <u>Lab</u> Introduction to CodingBat	13	14 <u>Lab</u> Unit 7 Programs	15	16 <u>Lab</u> Complete Unit 7 Programs Start Unit 8	17

Assignment Type	Description
Reading	Java Methods – Chapter 7
Homework Exercises	<u>Programming</u> JavaBat Programming Assignments Please see JavaBat schedule for due dates

Program #1

Write a program that creates one Vic object. The Vic object will work with a collection of 5 CD slots. The job of this Vic is to reverse the order of the CD's in the collection.

FOR THIS PROGRAM YOU CAN ASSUME THERE ARE ALWAYS 5 SLOTS.

One way to do this is as follows:

- One at a time, place each CD onto the CD stack (`takeCD()`).
- Back up to the beginning (hint: you know that there are 5 slots).
- One at a time, remove a CD from the stack (`putCD()`) until all of the CD's in the stack are gone. You can first check to see if there are any CD's using the `boolean` class method `Vic.stackHasCD()`.

Note: This is the same programming assignment as Unit 3, Program 1, except that now you must make the program function whether there are CD's in the slots or not. This means that you have to check the slot to see if there is a CD before taking it.

Program #2

Write a program that creates two Vic objects (call them `vicOne` and `vicTwo`). The first Vic object will try to transfer each of its CD's in a particular slot to the second Vic in the same slot (by using the stack as a temporary storage). The exception is if the second Vic object already has a CD in a particular slot, then the first Vic should leave its CD where it is.

Remember that there is a maximum of 8 CD's in a collection...but for this program there could be anywhere from 1 to 8, generated randomly. (you need to check for a slot just like the example in the lesson!!)

Program #3 – Lab: The Game of Craps

The complete description of this program is on pages 169 - 177 of Java Methods. Please read the problem description before asking for any help. The problem is well defined and is typical of a programming task in the real world. You will need to set up your project with the files needed from my website.

Challenge (*if you are shooting for an A in this class*)

Continue with program #2, but create Four Vic objects. The first Vic object will try to transfer each of it's CD's to the second (just like Program #2), but if the second is already full, it should try to transfer to the third...and if the third is full, to the fourth.

I will check the functionality of your programming exercises as you complete them in the lab.