

Advanced Placement Computer Science

Unit 3 – Objects and Classes

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 August/September

29 <u>Lab /Class</u> Lesson 3.1 & Begin Unit 3 Programs	30	31 <u>Lab</u> Unit 3 Programs Using Turtle, Vic	1	2 AP Level Reading Question	3
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Assignment Type	Description
Reference	Java au Naturel, Chapter 1 P. 1–7, 19-20, 26-29 Java Methods – Chapter 3
Homework Exercises	<u>None</u>

Program #1

Write a program that constructs one Turtle object then draws a regular octagon (8-sided polygon) with sides having length of 100 pixels. Make the lines of the regular octagon red in color, then output the word STOP inside.

Program #2

Write a program that constructs one Vic object. The Vic object will work with a collection of 5 CD slots (see instructions on the back of the Vic Gold Sheet to ensure that there is always 5 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.

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

Continue with Program #1, with the following modification. You remove the word STOP from your drawing, then write the code that makes 3 additional octagons (all with different colors), each inner octagon starting at the midpoint of the outer, connecting the midpoints of all the sides. (Hint: there are ways to compute this geometrically...draw a picture to see the problem...or you can just try different lengths for sides until it looks right)

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