HW09 Problem Set

CS-3160

Assignment
HW09: Sebesta: Problem Set: 12.(8, 9, 11, 12, 26), 13.(3, 6); Prog. Ex. 12.(1)
HANDWRITTEN – Due at beginning of class on due date.
PROGRAM – Due at midnight, via Blackboard, at midnight on day prior to due date.

Handwritten Portion

Chapter 12

8. Explain the two problems with abstract data types that are ameliorated by inheritance.
9. Describe the categories of changes that a subclass can make to its parent class.
11. Explain the advantages and disadvantages of having all values in a language be objects.
12. What exactly does it mean for a subclass to have an is-a relationship with its parent class?
26. Can you define a reference variable for an abstract class? What use would such a variable have?

Chapter 13

3. Busy waiting is a method whereby a task waits for a given event by continuously checking for that event to occur. What is the main problem with this approach?
6. Suppose two tasks, A and B, must use the shared variable Buf_Size. Task A adds 2 to Buf_Size, and task B subtracts 1 from it. Assume that such arithmetic operations are done by the three-step process of fetching the current value, performing the arithmetic, and putting the new value back. In the absence of competition synchronization, what sequences of events are possible and what values result from these operations? Assume that the initial value of Buf_Size is 6.

CS-3160
Programming Portion

NOTE: For ALL of these programs, you are to use PYTHON (v3.3 or later)

Chapter 12

1. Rewrite the `single_linked_list`, `stack_2`, and `queue_2` classes in Section 12.5.2 in Java and compare the result with the C++ version in terms of readability and ease of programming.

Grading Rubric
The assignment is worth 25 pts (as a whole) and the score will be recorded as a percentage of that amount.

	Handwritten							Programming		
Problem	12.8	12.9	12.11	12.12	12.26	13.3	13.6	12.1		
Points	2	2	2	2	2	3	3	9		

10% Physical Format
50% Answers correct (and supported by work)
40% Effort evidenced by the submitted work