

Name: \_\_\_\_\_

**SE-2030 Midterm Exam  
11 October 2007**

- You may not share materials with your neighbors.
- Please read each question carefully and provide all your work neatly, clearly, and precisely in the space provided.
- No partial credit will be provided unless your answers provide sufficient detail.
- Any questions related to the grading of this exam must be resolved with me within 1 week after the test is returned to you.

Problem 1: (10 pts) \_\_\_\_\_

Problem 2: (15 pts) \_\_\_\_\_

Problem 3: (20 pts) \_\_\_\_\_

Problem 4: (25 pts) \_\_\_\_\_

Problem 5: (20 pts) \_\_\_\_\_

Problem 6: (10 pts) \_\_\_\_\_

**Total:** (100 pts) \_\_\_\_\_

**1. (10 pts) Write a brief definition for each of the following elements found within a Use Case.**

a. Actor

b. Goal

c. Scenario

**2. (15 pts) Draw each of the following objects and briefly describe what each represents**

a. Boundary

b. Control

c. Entity



#### 4. (25 pts) Use Case Analysis – High Level Design

For the following Use Case,

- a. Circle the objects in the Use Case text.
- b. Underline the messages.
- c. On the following page, draw the high-level Interaction Diagram on the following page, adding appropriate icons for Boundary, Control, and Entity objects to the diagram.

#### Use Case : Student Enters and/or edits time into FAST

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6/20/2003

#### Description

This use case describes the interactions between a student and the FAST system as the student enters or edits time log data for a particular course and time interval.

#### Identification of Actor(s)

Student - a student taking a course for which time data is to be logged.

#### Pre-conditions

Section Exists - the quarter, course, and section specified by the student is present in the FAST database.

Student is authenticated - the student has been authenticated by the FAST system as a valid user via login.

#### Basic/Normal Flow

Student	FAST system
1. From the main menu, an authenticated student tells the FAST system that he/she wants to enter or edit time log data	FAST displays section selection screen.
2. The student selects a section by indicating the quarter (e.g. "Fall 2003"), course name (e.g. CS183), and section number (e.g. 001-999).	FAST displays the screen containing itemized time data that has already been entered for this section and student and each of its weeks including any special designation for that week provided by the professor (e.g. "Lab 3").
3. The student selects a week from the time data screen	FAST displays the time entry screen.
4. The student enters a time amount and then indicates whether this amount is to "Replace" or be "Appended/Added" to the time log.	FAST replaces the time entry in the FAST time database or appends the amount to the existing time entry in the FAST time database. Following this, FAST displays the itemized time data once again.

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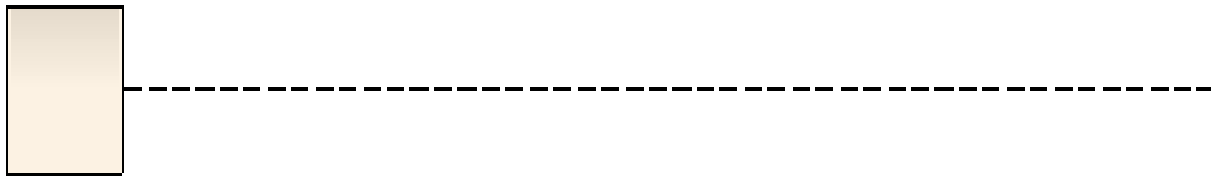
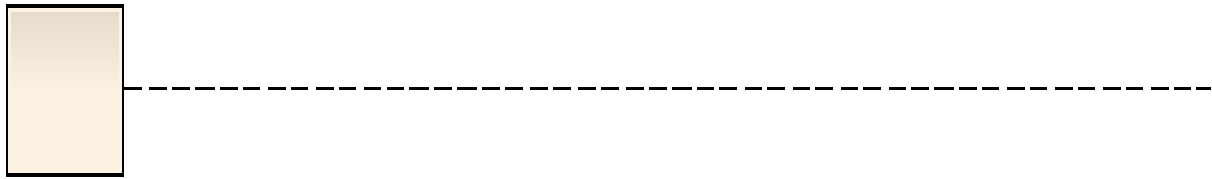
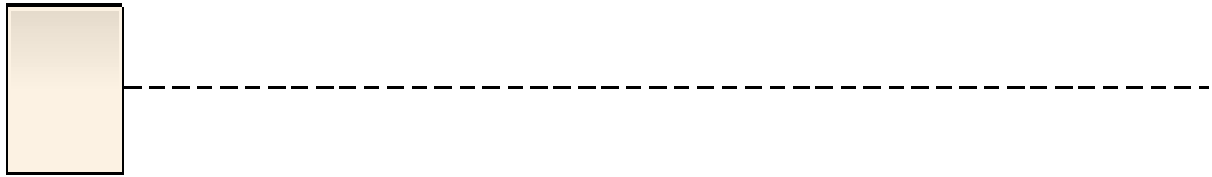
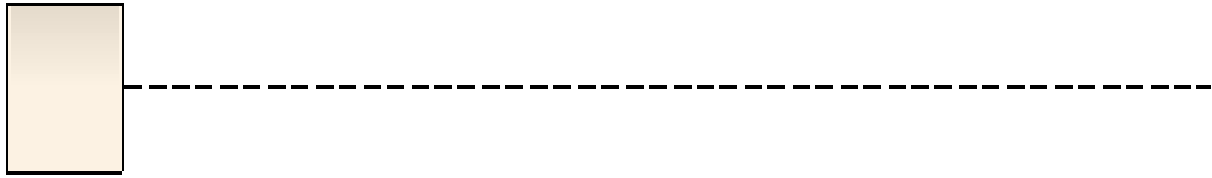
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High Level Design Diagram for problem 4.

5. (20 pts) On the following page, draw the sequence diagram for the code found below. Within the rectangles on the sequence diagram, label the objects appropriately.

```
public class Midterm {  
  
    public static void main(String[] args) {  
        JOptionPane.showMessageDialog(null, "Midterm");  
        drawStuff(300,300);  
    }  
  
    public static void drawStuff(int w, int h){  
        WinPlotter plotter = new WinPlotter();  
        plotter.setWindowSize(w, h);  
        plotter.setBackgroundColor(0, 0, 255);  
        plotter.setPenColor(255, 200, 0);  
        plotter.drawPoint(50, 100);  
        plotter.drawTo(100, 200);  
        plotter.drawPoint(100, 200);  
        plotter.drawTo(150, 100);  
        displayDate(plotter, 0, 255, 0);  
    }  
  
    public static void printName(int w, int h){  
        WinPlotter plotter= new WinPlotter();  
        plotter.setWindowSize(w, h);  
        plotter.setBackgroundColor(250, 250, 250);  
        plotter.setWindowTitle("Jon Dough");  
        plotter.setPenColor(0, 0, 0);  
        plotter.printAt(175, 195, "Jon Dough");  
        displayDate(plotter, 0, 0, 255);  
    }  
  
    public static void displayDate(WinPlotter plotter, int r, int g, int b){  
        Date today = new Date();  
        SimpleDateFormat sdf = new SimpleDateFormat("HH:mm:ss SSS");  
        plotter.setPenColor(r, g, b);  
        plotter.printAt(15, 50, sdf.format(today));  
    }  
}
```

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Sequence Diagram for problem 5

6. (10 pts) Show the code generated by Enterprise Architect for ClassC in the diagram shown below:

