

## CSCI 343 – Exam #1 – Open book section

5 May, 1999 – 6:00 to 8:30 PM

This exam is given in two parts. The closed book section of this exam is to be worked without reference to any other written information other than the exam. You must turn in the closed book section of the exam before consulting your book and notes.

You'll need to write your answers on your own paper.

### Question 1

The Fearsome Fours day care center maintains a list of all the “boo-boos” their clients incur. The list contains 4 columns with the following information

Name of child with boo-boo  
Location (on child) of boo-boo  
Place (at Fearsome Fours) where boo-boo occurred  
Date of boo-boo  
Time of boo-boo

Here's some example from this list:

Billy	Right knee	Kitchen	3/4/1998	8:47 am
Mary Jane	Left little finger	Playground	3/4/1998	12:30 pm
Billy	Left knee	Front porch	3/4/1998	1:50 pm
Dylan	Chin	Back steps	3/5/1998	9:00 am

### Question 1a: (6 points)

Define a database to maintain the information in this list. You need to give attribute names and attribute domains *and* you need to define a primary key or key set.

### Question 1b: (24 points)

Write SQL queries to list the following information:

1. All boo-boos of Billy. (List all available information.)
2. All daycare locations in which boo-boos have occurred and a count of the number of boo-boos that have occurred in each location.
3. All days in which there was more than three boo-boos.
4. All days in which both Billy and Mary Jane had a boo-boo.

### Question 2: (20 points)

In the question, you'll design a relational database to keep up with C++ functions used in a project.

Here are the **ground rules**:

1. There are many projects.
2. There are many files.
3. There are many functions.
4. Each project is composed of one or more functions.
5. Each file is composed of one or more functions.
6. A function is stored in exactly one file.
7. A function may be used in zero or more projects.

First, draw an ER diagram that represents the **ground rules**. Include entities in your diagram, but do not worry about the attributes of the entities. Be sure to show the cardinality of the relationships.

Second, describe how your ER diagram will be represented in a relational database.