Your (printed!) Name: _____   CS 1803 Exam 3

Grading TA / Section: _____   Monday, Nov. 22th, 2010

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DEVICES: If your cell phone, pager, PDA, beeper, iPod, or similar item goes off during the exam, you will lose 10 points on this exam. Turn all such devices off and put them away now. You cannot have them on your desk.

ACADEMIC MISCONDUCT will not be tolerated. You are to uphold the honor and integrity bestowed upon you by the Georgia Institute of Technology.

1. Keep your eyes on your own paper.
2. Do your best to prevent anyone else from seeing your work.
3. Do NOT communicate with anyone other than a proctor for ANY reason in ANY language in ANY manner.
4. Do NOT share ANYTHING during the exam. (This includes no sharing of pencils, paper, erasers).
5. Follow directions given by the proctor(s).
6. Stop all writing when told to stop. Failure to stop writing on this exam when told to do so is academic misconduct.
7. Do not use notes, books, calculators, etc during the exam.

I commit to uphold the ideals of honor and integrity by refusing to betray the trust bestowed upon me as a member of the Georgia Tech community.

    Signature: _____

Question	Possible Points	Points Earned	Graded By
True False	12		
SQL Queries	20		
Connect	6		
Objects	20		
Web Scraper	20		
Total	78		

Question 1: Indicate True or False for each statement below   12 Points

1.   A compound statement such as a class definition MUST have something in its body.

2.   When writing to an XML file, all attributes must be integers.

3.   In HTML an end tag is indicated by a backslash, ex: </body>.

4.   The following is a valid XML document:
```
<foo></foo>
<bar></bar>
```

5.   ADD, SELECT, and UPDATE are all valid SQL keywords.

6.   To sublcass an existing class, you must provide self and the superclass as parameters ex: class childClass(self, superClass):

7.   All object methods must accept a parameter named self as their first parameter.

8.   A function is a segment of code that performs a specific operation while a method is a function that is part of an object (and accepts an extra first parameter that references the specific instance).

        Use the following code for questions 9-12
```
class Rondo:
        def __init__(self,assists):
                self.assists = assists
                self.points = 0
                self.vertical = 38
```

9.   self.assists and self.points are instance variables.

10.   Self.assists and self.points can be accessed from other methods.

11.   The __init__() method is called each time an instance of the class Rondo is created.

12.   The following code creates an object of type Rondo with 10 assists:
```
                Rondo(10)
```

Question 2: Short-Answer: SQL Query Writing   20 Points

Below is a table, testTable, which represents messages sent between students in a messaging application. The first row is the header which gives the name of each column; every row after that is a sample data row. The id, priority, and timestamp columns are INT columns. (id autoincrements) The username, recipient, and message columns are TEXT columns.

id	username	recipient	message	priority	timestamp
1	william.barr	neaster3	Hey, check the website for the workshop stuff for ...	3	20101116
2	neaster3	william.barr	Ok; I'll see you on Monday.	3	20101116
3	egarcia3	1803TA	Hi everyone, remember we need people to proctor th...	2	20101119
4	spujari3	jstudent5	Ok, I've found the answer to the question you aske...	3	20101117
5	adamliem	jstudent15	Yes, you can see what we're going to be doing duri...	3	20101115
6	summetj	1803TA	Next week during workshop, you should cover XML re...	1	20101119

In the following statements, write the SQL query which will perform the specified action. You should not write any Python code for the following questions.

*Assume that the table is restored to the original (above) after each query that would have actually changed the contents, so each question below should be treated independantly.

1. Return the text of every message that has either been sent or received by william.barr

2. Return the count of how many messages were sent on 20101116 with a priority of 3.

3. Return the timestamp and the average of all messages' priority on each day.   Order the result by the timestamp in descending order.

4. Add a row to the table where the username is william.barr, the recipient is 1803TA, there is no message (NULL, not an empty message), the priority is 5, and the timestamp is 20101120.

5. Reset every row in the table that has a timestamp of 20101115 to have a priority of 1.

Code Writing- DB Connect   6 Points

Write a function named **connect** that takes in a username and password as parameters. Your
function should connect to a MySQL database using the appropriate module. (Use
"testDatabase.gatech.edu" as the host name and "Test3" as the database name) and then print a
message telling the user that the connection is complete. Finally return the database connection
object.

Code Writing- Objects   5 Points

Create a class named Student. Each Student will have a name and a major. The default major
for each Student will be "UEC". The __*init*__ method has one parameter, name, which will be a
string. This method should assign the value of the instance variable **name** to this input
parameter.

Code Writing - Objects (Continued)   15 points

Create a class, CsStudent, that extends Student. Each CsStudent should have "CS" as their major and a default grade of 0. The CsStudent's name will be given as an input parameter when the class is instantiated. You **MUST** call the super class __init__() method to assign the name.

There will be two additional methods in the CsStudent class- takeTest and getGrade.

The takeTest method will have no parameters, and when called it will change the CsStudent's grade to a random integer between 0 and 100 (inclusive).

The getGrade method will return the CsStudent's grade.

Code Writing – Web Scraper   20 Points

Write a function named readHTML that accepts a URL as a string as it's only parameter. Your method should read web page and return the word that immediately follows the first <h2> tag as a string. You may assume that there is a space character after the word which indicates the end of the word.

Once your method is complete, write the line of code to call it using http://www.nytimes.com/ as the url and assign the return value to the variable myHTML. The module import line of code is given for you.

```
import urllib.request
```