The time limit for this exam is 120 minutes. A deduction of 2 points per minute will be assessed for late submission. You can use any of your own notes, books, or files. You can also use your own notebook computer and you can use the Internet. **However, DO NOT COMMUNICATE WITH ANYONE (EXCEPT ME) OR SHARE MATERIALS WITH ANYONE DURING THIS EXAM. Any violations will be considered academic dishonesty and may result in an XF grade on your transcript.** Remember that I can clarify the test for you, but **I cannot answer questions about program errors**, etc.

 Create a complete Java application that meets these requirements AND ONLY THESE REQUIREMENTS:

1. Using the file **CreateDbTable.java**, create an SQLite database file called **carDB.db** with a table called **car**, which has four columns: **vin** (String, a primary key, such as ABC123), **make** (String, not null, such as Ford), **year** (int, such as 2000), and **mpg** (real, such as 20.5). (20 pts.)
2. Create a file called **CarAppGui.java** that builds a GUI that has/does the following:
    a. Introductory **comments** including your name and the purpose of the class. (10 pts.)
    b. Four **labels** and four **text fields** (corresponding to the four columns in the car table), in the **north** region of a BorderLayout. (20 pts.)
    c. Four **buttons** in the **south** region of a BorderLayout. These buttons are for (1) creating a record in the table, (2) read a record from the table, (3) making various calculations on database information, and (4) resetting values in the GUI to blanks. (20 pts.)
    d. The output of the GUI is displayed in a **text area**, which is located in the **center** region of a BorderLayout. (20 pts.)
    e. In the east region of the BorderLayout are three check boxes for **min**, **max**, and **avg**. There are also two radio buttons for **year** and **mpg**. The user will make selections for these toggle buttons before clicking the **Calculate** command button. (20 pts.)
    f. Create inner **listener classes** that call separate methods which perform the functions of the four buttons. (50 pts.)
    g. Some sample **output** in the text area should appear as follows. (20 pts.)

> The maximum MPG is 25.5.
> The average MPG is 20.2.

3. Create a file called **CarApp.java** that contains a main method which calls the constructor CarAppGui. (20 pts.)

Follow all Java coding conventions. Zip the three .java files and the .db file (select them all, right-click the selection, select **Send to, Compressed (zipped) folder)**, and email this ZIP file to RichardJohnson@MissouriState.edu (use the delivery receipt option in Bearmail to verify delivery of the email). **Make sure that your ZIP file contains these four files!** Then, upload this ZIP file to the final exam 'assignment' on Blackboard (under Content >> Exams) as a backup. **SIGN AND RETURN THIS EXAM SHEET WHEN YOU ARE FINISHED!** Failure to properly follow exam instructions may result in a significant loss of points. **DO NOT DISCUSS THIS EXAM WITH ANYONE UNTIL AFTER THE LAST DAY OF FINALS!!!** Doing so may result in an XF grade on your transcript.

Signing below signifies that you did not engage in ANY form of academic dishonestly during this exam.

Signed _____

IMPORTANT!!! Return this sheet to the instructor IMMEDIATELY after your exam or you will lose points. Slide under office door if necessary (Glass 336).