Project 1: Database Management

Due Date: 3/1

A. Project Objectives

You have learned how to work in Linux and code in shell. In this project, you will practice with your knowledge. You are expected to

a) Practice various commands in UNIX
b) Make a not-simple shell script to manage a small text-based database
c) Learn to read other shell scripts
d) Learn to use unknown commands

B. Project Tasks

Task I: Design database

The database is text-based and stores the information about your contacts. Figure 1 is an example of such a database. Please design your own database such that it contains at least the fields in Figure 1 and records at least four contacts.

Figure1. A Small Database of Contacts

Name	Address	Phone	Email
Qijun Gu	209E Comal	2453518	qijun@txstate.edu

The database should be stored in a text file. Figure 2 is an example of the file for the database in the Figure 1. In the file, all fields are separated by ":". So, it is important that any information in a field should not include a colon.

Figure 2. Database File

```
Name:Address:Phone:Email
Qijun Gu:206 Nueces:2453518:qijun@txstate.edu
```

Task II: Design function and interface

Your script should help you to manage your database. In general, you need the following functions in order to manage your database. You are expected to add more functions in addition to the list below.

- Find a record
- Add a new record
- Update a record
- Remove a record

You also need an interactive interface to access these functions. The interface should allow you to select the functions, read the input of your keyed information, and get the result of an operation. For example, when you get into the database, you should be able to see a menu as below.

```
Welcome to my contact database, please select in the following menu:
(a) Find a record
(b) Add a new record
(c) Update a record
(d) Remove a record
(e) Quit
> Selection is :
```

Task III: Implementation

Please implement shell scripts to realize the database management.

NOTE:

- Group members should design the database together and divide the implementation workload.
- **The database management has a list of functions as described in Task II. Each group member must implement at least one of the functions. NO ONE could be responsible for writing a group report only.**

C. Project Report

How to Deliver

A group report is needed to show what you did in the project. Please clearly state the results of this project. You are expected to hand in a report as follows:

a) **Submit a hard copy of your group project report on the due day.**

b) **Upload your group project report and shell scripts in TRACS. Please tar them into one file. You are expected to learn how to use gzip and tar by yourself.**

c) **The complete code shall be separated from the report. Only required code can be included in the report.**

The format of group project report is

a) A cover page with names of your group members with font size 12.
b) Single space and single column.
c) 5-10 pages (not including the cover page).
d) The report file should be a PDF file, NOT a WORD file.

Note: Be sure to include the names of all group members in the report and the code. The report and the code should be turned in on the specified due date. **Late grade will be deducted according to the course policy.**

What to Deliver

The report should have the following sections.

Section I (Introduction):

Clearly state the responsibility of each group member, e.g. who did which task, who wrote which part of the report, how your group was coordinated, etc.

Section II (Task I):

Please describe your design of the database and the text file. Please list all the fields and explain the meaning of each field. Please show a text-based database file with at least four records.

Section III (Task II):

Please describe your design of function and interface. List and explain all functions in your database management. Use screen shots to describe an operation of update an existing record step by step.

Section IV (Task III):

Please copy and paste the code for finding a record. Please explain this piece of code line by line. Use screen shots to illustrate the following three scenarios with queries and results.

1) Find an exactly matching record for a query
2) Find multiple matching records for a query
3) Find nothing for a query

D. Grading Rubrics

If you do not participate in group work, you will get 0.
If your group does not upload the tar file of the project report and code to tracs, your group will get 0.

Group (70%):
Section I: Introduction (10%)
Section II: Task I (20%)
Section III: Task II (20%)
Section IV: Task III (20%)

Individual (30%):
1) If you finish any least one function of database management, you get 15%.
2) If you write any part of the report, you get 15%.
3) If you only write a part of the report, you get 0%.