Linux course exercises

Part 1 - Shell Scripting exercises

Ex1 - phonebook application

The application should present a menu to the user with the following entries:

1. insert a name
2. delete a name
3. search for a name
4. show current phonebook
5. show number of entries in current phonebook
6. update a name
7. exit

The user will select the operation required.

1. Insert a name - will receive a name, check that it is not in the current phonebook and will emit an error and will return to the loop if that is the case. If the name is a new one then it will request a phone number and will insert that name into the phonebook.
2. Delete a name - will receive a name, check that it is in the current phonebook and proceed to delete it from the current phonebook.
3. Search for a name - will receive a name, check that it is in the current phonebook, find the phone number related to it and will show it on the screen (only the number is to be shown).
4. Show current phonebook - will print the content of the current phonebook.
5. Show number of entries in current phonebook - will only show the number of entries in the current phonebook.
6. Update a name - will receive a name, will check that the name is in the current phonebook, then will receive a phone number and will update that entry to this phone number.
7. Exit - will exit the application with a "success" return code.

Technical instructions:

1. Use select for the menu.
2. Use exit to exit the application.
3. Use PS3 env var to customize the prompt.
4. Create an empty phonebook if one doesn't exist.
5. Only hardcode the name of the phonebook file ONCE in your application.
6. Use case for handling the user input.
7. Use /dev/null to avoid unnecessary output from tools you are using.
8. The phonebook should be stored on the HARD DRIVE.

Advanced:

- Now modify your phone book to store its data in a relational database.
- Install mysql on your machine and configure it.
- Create a database that you can use for both read and write and create a table in it for your data.
- Use the mysql(1) command line client in order to access the database, issue SQL statements and parse the results using the shell (have a look at the mysql cmdline options to make your life as easy as possible).
- Add an option to the phonebook user interface to erase the entire book (clear it) and implement that too.
- Make sure that your phonebook can handle lots of records (try it with a million entries).

Ex2 - Pstree in ksh/bash

Create a pstree like program in a ksh/bash.

It should look like this

```
$ ./mypstree.bash
init-+-sshd
     +-apache-+
              +apache
     +-syslogd
```

- stage1: Call ps to create a temp file with the data you need (program cmd line, pid -> process id, ppid -> parent process id)

- stage2: Read the information from the file you created into variables (arrays) in your program.

- stage3: Print the tree, start with process id 1 (init).

- stage4: streamline your program.
  Get ridd of any temporary files and make your program as fast as possible.
  This is the hardest part.