

EMERTXE TRAINING PROJECT DOCUMENTATION FRAMEWORK  
**REQUIREMENTS & DESIGN DOCUMENT**

**Module – Linux Systems**

**Address Database**



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# 1 Abstract

A simple shell script (named "database.sh" will be called as "script" in description) which is capable of manipulating address database. Using this script user should able to store the information, view the information and to edit the information.

## 2 Requirements

- Activity log file
  - Every activity while the script is to be logged in file named database .log.
  - Attach timestamp to every entry.
- Working environment settings
  - Should create directory called "Database" in user's ECEP/LinuxSystems/Projects directory if doesn't exists.
  - Create a file named "database.csv" under Database directory if doesn't exists.
  - Check the existence of at least one valid data entry in database.csv.
  - If the file is empty, script should only prompt for data addition unless and until it gets a valid entry to display.
- User interface
  - The script should have the following functionalities as listed below

Add Entry

Search / Edit Entry

- Add Entry

When the user selects the "Add Entry" option it should have the following fields to be added

- Name
  - Accept the user entry in any case but convert it to sentence case while storing.
  - Accept only alphabets and spaces
- E-mail
  - Accept only symbols like ".", "\_", alphabets, and numbers. Validate for "@" and a "." after it
- Telephone Number
  - Accept only numbers
- Mobile Number
  - Add country code (assume Indian customers)

- Validate for 10 digit entry
- Accept only numbers
- Place
  - Accept the user entry in any case but convert it to sentence case while storing
  - Accept only alphabets and spaces
- Message
  - Any character allowed
  - No formatting has to be done, user entry has to be captured as is.
  - Proper formatted output

When the user finishes all the above fields the information has to be stored with current "date" and "time" automatically

- Search / Edit Entry

This feature should have option to search an entry with any parameters you have in add entry, like

- Name
  - Place
  - Message
- etc.,

Once the search pattern matches, It should have provision to edit it and save

- Time-out
  - The script should timeout if the user input is absent for more that 10 seconds.

## 3 Design

The following function have to be implemented

- log
  - Write activities to log files along with timestamp, pass argument as a string
- menu\_header
  - Just to print welcome menu presentation
- field\_menu
  - To print a selected user information Name, Email, Tel no, Mob num, Address, Message
- edit\_operation
  - Provide an option to change fields of an entry
  - Ask user about the field to edit
  - As per user selection, prompt a message to enter respected value
  - Verify the user entry to field for matching. Eg mob number only 10 digits to enter
  - Prompt error in case any mismatch of entered data and fields
- search\_operation
  - Ask user for a value to search
  - Value can be from any field of an entry.
  - One by one iterate through each line of database file and search for the entry
  - If available display all fields for that entry
  - Prompt error in-case not available
- search\_and\_edit
  - UI for editing and searching
  - Show real time changes while editing
  - Call above functions respectively
- database\_entry
  - user inputs will be written to database file
  - If some fields are missing add consecutive ','. Eg: user,,,,,
- validate\_entry
  - Inputs entered by user must be verified and validated as per fields
  - Names should have only alphabets
  - Emails must have a @ symbols and ending with . Eg: user@mail.com
  - Mobile/Tel numbers must have 10 digits .
  - Place must have only alphabets
- add\_entry
  - adding a new entry to database
  - Validates the entries
  - Add to database

## 4 Sample Output

```
My Database Project
Please choose the below options:

1. Add Entry
2. Search / Edit Entry
x. Exit

Note: Script Exit Timeout is set

Please choose your option: 1
```

Fig 4 1: Main Menu. Proceeding towards Add Entry

```
My Database Project
Please choose the below options:

Add New Entry Screen:

1: Name      :
2: Email     :
3: Tel No   :
4: Mob No   :
5: Place    :
6: Message  :
x: Exit

Please choose the field to be added: 
```

Fig 4 2: Add Entry Screen

```
My Database Project
Please choose the below options:

Add New Entry Screen:

1: Name      :
2: Email     :
3: Tel No   :
4: Mob No   :
5: Place    :
6: Message  :
x: Exit

Please enter the Name: Jayakumar
```

Fig 4 3: Adding a new Contact with help of Name

```
My Database Project
Please choose the below options:

Add New Entry Screen:

1: Name      : Jayakumar
2: Email     :
3: Tel No   :
4: Mob No   :
5: Place    :
6: Message  :
x: Exit

Please choose the field to be added: 4
```

Fig 4 4: View of added contact. Proceeding to add Mobile Number

```
My Database Project
Please choose the below options:

Add New Entry Screen:

1: Name      : Jayakumar
2: Email     :
3: Tel No   :
4: Mob No   :
5: Place    :
6: Message  :
x: Exit

Please enter the Mobile Number: 0895557333
```

Fig 4 5: Adding Mobile Number

```
My Database Project
Please choose the below options:

Add New Entry Screen:

1: Name      : Jayakumar
2: Email     :
3: Tel No   :
4: Mob No   : +91-0895557333
5: Place    :
6: Message  :
x: Exit

Please choose the field to be added: x
```

Fig 4 6: Updated contact view. Proceeding to previous screen

```
My Database Project
Please choose the below options:

1. Add Entry
2. Search / Edit Entry
x. Exit

Note: Script Exit Timeout is set

Please choose your option: 2
```

Fig 4 7: Main Menu. Proceeding towards Search / Edit Entry

```
My Database Project
Please choose the below options:

Search / Edit by:

1: Name      :
2: Email     :
3: Tel No   :
4: Mob No   :
5: Place    :
6: Message  :
7. All
x. Exit

Please choose the field to be searched: 
```

Fig 4 8: Search Menu. Observe the color highlight, The Edit Menu would be similar once the item is searched

```
My Database Project
Please choose the below options:

Search / Edit by:

1: Name      :
2: Email     :
3: Tel No   :
4: Mob No   :
5: Place    :
6: Message  :
7. All
x. Exit

Please choose the field to be searched: 1
```

Fig 4 9: Search Menu. Proceeding towards Search by Name

```
My Database Project
Please choose the below options:

Search / Edit by:

1: Name      :
2: Email     :
3: Tel No   :
4: Mob No   :
5: Place    :
6: Message  :
7. All
x. Exit

Please enter the Name: Jayakumar
```

Fig 4 10: The name to be Searched



```
My Database Project
Please choose the below options:

Search / Edit by:

1: Name      : Jayakumar
2: Email     :
3: Tel No    :
4: Mob No    : +91-0895557333
5: Place     :
6: Message   :
7. Save
x. Exit

Please choose your option: 5
```

Fig 4 11: Search Result. Observe the color highlight, its in Edit Menu now, Proceeding to add Place field

```
My Database Project
Please choose the below options:

Search / Edit by:

1: Name      : Jayakumar
2: Email     :
3: Tel No    :
4: Mob No    : +91-0895557333
5: Place     :
6: Message   :
7. Save
x. Exit

Please enter the new Place: Bangalore
```

Fig 4 12: Adding Place

```
My Database Project
Please choose the below options:

Search / Edit by:

1: Name      : Jayakumar
2: Email     :
3: Tel No    :
4: Mob No    : +91-0895557333
5: Place     : Bangalore
6: Message   :
7. Save
x. Exit

Please choose your option: 7
```

Fig 4 13: Updated screen with Place. Proceeding to Save

```
My Database Project
Please choose the below options:

Search / Edit by:

1: Name      :
2: Email     :
3: Tel No    :
4: Mob No    :
5: Place     :
6: Message   :
7. All
x. Exit

Please choose the field to be searched: x
```

Fig 4 14: Proceeding to Exit Search / Edit Screen

```
My Database Project
Please choose the below options:

1. Add Entry
2. Search / Edit Entry
x. Exit

Note: Script Exit Timeout is set

Please choose your option: x
```

Fig 4 15: Back to Main Screen. Proceeding to Exit Script

```
user@emertxe] cat ~/ECEP/LinuxSystems/Projects/Database/databash.csv  
19-04-21,16:26:15,Jayakumar,,,+91-0895557333,Bangalore,,  
user@emertxe] █
```

Fig 4 16: The contact database in .csv file format

```
My Database Project  
Please choose the below options:  
  
Search / Edit by:  
1: Name      :  
2: Email     :  
3: Tel No    :  
4: Mob No    :  
5: Place     :  
6: Message   :  
7. All  
x. Exit  
  
Please enter the Name: Jayakumar  
  
[1] 19-04-21,16:26:15,Jayakumar,,,+91-0895557333,Bangalore,,  
[2] 19-04-21,17:27:16,Jayakumar,,,,,Did not mention the contact info,  
  
Select the user number to be displayed: 2█
```

Fig 4 17: Assuming multiple entries with same n, This is how the Search result should be shown. Selecting 2 entry to Edit

```
My Database Project  
Please choose the below options:  
  
Search / Edit by:  
1: Name      : Jayakumar  
2: Email     :  
3: Tel No    :  
4: Mob No    :  
5: Place     :  
6: Message   : Did not mention the contact info  
7. Save  
x. Exit  
  
Please choose your option: █
```

Fig 4 18: Selection of 2nd user to Edit

## 5 Artifacts

### Skeleton Code

### References

- <http://www.thegeekstuff.com/2012/09/SNMP-INTRODUCTION/>
- <http://www.cisco.com/networkers/nw04/presos/docs/NMS-1N02.pdf>
- <https://www.serverdensity.com/monitor/linux/how-to/>
- <https://www.linux.com/learn/remote-administration-linux>