EMERTXE TRAINING PROJECT DOCUMENTATION FRAMEWORK

REQUIREMENTS & DESIGN DOCUMENT

Module – Linux System

Command Line Test

ΣMERTXE

Contents

1 Abstract

A simple shell script (named "command_line_test.sh" will be called as "script" in description) which should allow user to register and the registered user to login. After login user can take a test on shell.

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2 Requirements

- ○ Provide a prompt for the user to sign-up and sign -in
    - ▪ Signin
        - • Take Test
        - • View Test
    - ▪ Signup
    - ▪ Exit
- ○ Using sign-up user can register with a user-id and password
    - ▪ Ask for user-name. The user-name should contain only alphanumeric symbols
    - ▪ Ask for new password. The password can contain any symbol in it. Accept at-least 8 characters
    - ▪ with at-least a number and symbol
    - ▪ Ask the user to re-enter the password again for validation
- ○ Already registered user can sign-in with id and password
    - ▪ The script should prompt for user-name and password
    - ▪ The password should be like shadow password.
    - ▪ Show error in-case passwords mismatches
- ○ Create log file
    - ▪ Every activity while the script is to be logged in test_activity.log file.
    - ▪ Keep date and time along with every activity.
- ○ Question bank
    - ▪ User should provide a question bank file along with the script
    - ▪ If not search for a file named question_bank.txt as a default question bank.
- ○ Taking a test
    - ▪ Should create directory called ".TestData" in user's ECEP/LinuxSystems/Projects directory if doesn't exists.
    - ▪ Create a file named "answer_file.csv" under .TestData directory if it doesn't exist.
    - ▪ Prompt the user with questions one by one randomly picked from the question_bank.
    - ▪ Prompt for questions with multiple choice
    - ▪ Every question should be timed say 10 seconds
    - ▪ On timeout the question should change with fresh time
    - ▪ Every answer should be stored in answer_file.txt with the question separated by comma

- The answer should be stored with attempt time (say if I answer within 5 seconds, then my answer with 5 seconds (attempt time) should be stored

- If the user chooses this option, the script should show all the questions with all options, the answer should be highlighted

- All the user entered answer have to be entered in the answer_file.csv

- Time-out

  - The script should timeout if the user input is absent for more than 10 seconds on the main menu

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3 Design

- log

  - Write activities to log files along with timestamp, pass argument as a string

- answer_file_creaton

  - create answer csv file. If its already exists create a back up

- menu_header

  - Just to print welcome menu presentation

- view_test_screen

  - UI for view a test.

  - Display all questions from test to user with options answered by user.

  - If it was not answered by user, show message

  - Read answers from csv file

  - Do appropriate activities to log files

- test_screen

  - UI for test.

  - Implement time out

  - Pick and display random question from question bank

  - Answers stores to csv files

  - Do appropriate activities to log files

- test_menu

  - Provide a menu for user for taking test and viewing test.

  - Read input from user and call respective function

- sign_in

  - Read all user credentials and verify

  - Time-out for entering password

  - Do appropriate activities to log files

- sign_up

  - For user sign-up

  - Read all user credentials and verify

  - Time-out for entering password

  - Set minimum length and permitted characters for username and password, prompt error incase not matching

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- Check for same user name already exists.

- Do appropriate activities to log files

4 Sample Output

```
My Command Line Test
Please choose the below options:

1. Sign in
2. Sign up
3. Exit

Note: Scipt Exit Timeout is set

Please choose your option: █
```

Fig 4 1: Main Screen

```
My Command Line Test
Sign Up Screen

Please choose your username: █
```

Fig 4 2: Sign Up Screen

```
My Command Line Test
Sign Up Screen

Please choose your username: Adil
Please enter your password:
Please re enter your password:

Registeration Successful. Please hit any key to continue█
```

Fig 4 3: Sign Up Screen, Credentials Entered. Note the Password should be Shadow Password

```
My Command Line Test
Sign Up Screen
Username "Adil" Exist!!: Please choose some other name
Please choose your username: █
```

Fig 4 4: Sign Up with the same User Name again!!

```
My Command Line Test
Please choose the below options:

1. Sign in
2. Sign up
3. Exit

Note: Scipt Exit Timeout is set

Please choose your option: 1█
```

Fig 4 5: Main Screen. Proceeding to Sign In Screen

```
My Command Line Test
Sign In Screen

Please enter your

Username: Adil
Password: █
```

Fig 4 6: Sign In Screen. The Password should be a Shadow Password

```
My Command Line Test

1. Take a Test
2. View your Test
3. Exit

Please choose your option: 1█
```

Fig 4 7: Features Screen. Proceeding to Take a Test

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```
My Command Line Test

Time Remaining: 7 Seconds

1. Which one of these is a fruit?
[a] apple
[b] onion
[c] tomato
[d] cabbage

Choose your option: █
```

Fig 4 8: Test in progress. Every question is Timed. On timeout it should proceed to the next question. The timer should be a down counter (Say 10 to 0 Secs)

```
My Command Line Test

Time Remaining: 9 Seconds

3. Which one of these is a vegitable?
[a] orange
[b] banaba
[c] beans
[d] mango

Choose your option: s

Test Completed, will be logged off shortly
```

Fig 4 9: Test completion screen. It should automatically logged out within the specified amount of time

```
My Command Line Test

Viewing your prevouis test history

1. Which one of these is a fruit?
[a] apple -> You answered within 1 seconds
[b] onion
[c] tomato
[d] cabbage

2. Which one of these is a vehicle?
[a] car
[b] table -> You answered within 2 seconds
[c] cot
[d] sky

3. Which one of these is a vegitable?
[a] orange
[b] banaba
[c] beans -> You answered within 1 seconds
[d] mango

More: Hit any key to continue or X to exit: █
```

Fig 4 10: View Test Screen. It should highlight the user selected answers and possibly with correct answer

```
user@emertxe] ls -a ~/ECEP/LinuxSystems/Projects/.TestData/
.  ..  Adil_answer_file.csv  .Adil_answer_file.csv.bak  command_line_test.log  .question_bank.csv  .user_credentials.csv
user@emertxe] █
```

Fig 4 11: Expected Output Files containing all user information

```
user@emertxe] cat ~/ECEP/LinuxSystems/Projects/.TestData/Adil_answer_file.csv
1. Which one of these is a fruit?\n[a] apple -> You answered within 1 seconds\n[b] onion\n[c] tomato\n[d] cabbage\n
2. Which one of these is a vehicle?\n[a] car\n[b] table -> You answered within 2 seconds\n[c] cot\n[d] sky\n
3. Which one of these is a vegitable?\n[a] orange\n[b] banaba\n[c] beans -> You answered within 1 seconds\n[d] mango\n
user@emertxe] █
```

Fig 4 12: User Answer Database

```
user@emertxe] cat ~/ECEP/LinuxSystems/Projects/.TestData/.user_credentials.csv
Adil,123456
user@emertxe] █
```

Fig 4 13: User Credentials

```
user@emertxe] cat ~/ECEP/LinuxSystems/Projects/.TestData/.question_bank.csv
1. ,Which one of these is a fruit?,[a] apple,[b] onion,[c] tomato,[d] cabbage,
2. ,Which one of these is a vehicle?,[a] car,[b] table,[c] cot,[d] sky,
3. ,Which one of these is a vegitable?,[a] orange,[b] banaba,[c] beans,[d] mango,
user@emertxe] █
```

Fig 4 14: Question Bank

```
user@emertxe] cat ~/ECEP/LinuxSystems/Projects/.TestData/command_line_test.log
19-04-21-22:54:58 - Created ".user_credentials.csv" file at /home/adil/ECEP/LinuxSystems/Projects/.TestData
19-04-21-22:54:58 - Script invoked
19-04-21-22:55:19 - Created ".Adil_answer_file.csv.bak" file at /home/adil/ECEP/LinuxSystems/Projects/.TestData
19-04-21-22:55:19 - Created "Adil_answer_file.csv" file at /home/adil/ECEP/LinuxSystems/Projects/.TestData
19-04-21-22:55:22 - User took test
19-04-21-22:55:27 - User exited
19-04-21-22:55:27 - Script exited
19-04-21-22:55:28 - Script invoked
19-04-21-22:55:33 - Script timed out!!
19-04-21-22:55:33 - Script exited
user@emertxe] █
```

Fig 4 15: User Activity Log file

5 Artifacts

5.1 Skeleton Code

- www.emertxe.com/content/linux-systems/code/commandlinetest_src.sh

5.2 References

- http://www.testpot.com

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