“ONLINE TEST PLATFORM USING LINUX PATTERN MATCHING COMMANDS AND FILE HANDLING CONCEPT “

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1. ABSTRACT:

Online test platform is a BASH shell-based tool where tests are conducted online through the internet using a computer system. The main goal of this online examination system is to effectively evaluate the student thoroughly through a totally automated system that not only reduces the required time but also obtains fast and accurate results.

It is a good source of interactivities among the students and between the teacher and students. It is done in order to improve students' comprehension levels and learning motivation. As one of their tools, online test tools are quite effective. However, in order to use the online test tool, a teacher generally requires a great deal of labor.

For example, a teacher needs to create quizzes and input them in the online test tool.

In order to solve these problems, we have developed a Bash shell based Online Test Platform which can create quizzes competitively and collaboratively by students for the purpose of reducing the load required for a teacher and promoting interactions among students and between the teacher and students.

Keywords: Bash, Shell Scripting, Index Page, Sign-In, Sign-Up, Pattern Matching, File Handling

2. INTRODUCTION:

Command line test is a BASH shell-based tool that simulates login based online testing scenarios. Initially the user will be provided with a sign-in option where predefined users will be allowed to log in. Upon successful login, this tool will display questions on the screen for the user from the existing database. It will also handle error conditions like time-out. This tool will also store answers provided by users for future verification.

There are a lot of online test platforms which enable students to take tests online. They will typically have a user-interface, backend question bank and evaluation part. They will also support other features like predefined time per question, output reports etc. The idea of this project is to simulate such an online test interface using Linux Shell Scripting and commands.

By implementing this Linux Shell Scripting Project, we will apply Shell programming constructs (ex: loops), Pattern matching commands (ex: grep, sed, etc…) and File handling (ex: permission, directories etc…) aspects during implementation.

We start implementing this Linux Shell Scripting Project by first making an Index Page.

3. Index Page

In this, three options will be displayed on the user's screen : **1.** Sign-In

2. Sign-Up

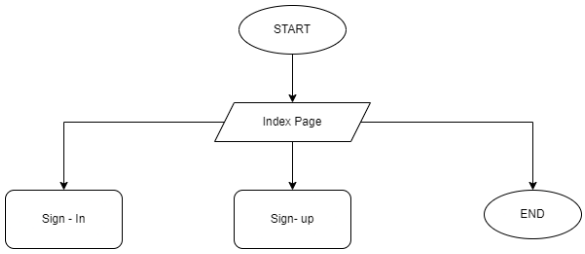
3. Exit

Then a pop-up message will be displayed on the user's screen to take the input from the user, and from the input given by the user, the program will proceed accordingly.

For instance, if the user enters the input as '**1**', then he'll be redirected to the Sign-In Page where the user will be given options to log into the page and further can take the test.

If the user enters the input as '**2**', then he'll be redirected to the Sign-Up page where the user will be asked some details for Sign-up.

And if the user enters the input as '**3**', then the program will be terminated.

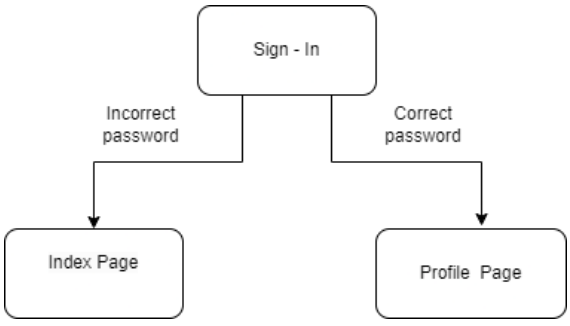


Algorithm

1. Three options will be displayed on the screen: **1.** Sign-In
   2. Sign-Up
   3. Exit
2. The user will have to enter one of the options displayed on the screen.
3. If the user prompts 1 as the input, he'll be redirected to the Sign-In Page where the student's email id and password will be asked.
4. If the user prompts 2 as the input, he'll be redirected to the Sign-Up Page where the program will ask for the details of the student like name, password, email-id, mobile-number, date of birth and place of birth.
5. If the user prompts 3 as the input, then a pop-up message will be displayed with a message "Are you sure you don't want to proceed further?" and the user will have to enter the input either as "Yes" or "No".
6. If the user enters "Yes", then the program will be terminated, and if the user enters "No", then the user will again be redirected to the index page.
7. If the user gives an input other than "Yes" or "No", then a pop-up will appear with a message "Invalid Input. Please enter a valid input."
8. And if the user doesn't provide any input, another pop-up will appear with a message "Please give an input."

4. Sign-In Page

In the sign-in page the user will be asked to enter the email id and password. The email id and password provided by the user are matched with the details of the users present in the user_database.csv. If the details do not match, then the message is printed with an incorrect sign in details. If the email id provided by the user is matched with the details present in the user_database.csv. Then the details will be validated. And the user will be redirected to the profile page.



Algorithm

The user will be asked to enter the email id and the password. The input given by the user will be stored as variable sign_in_email and sign_in_password.

If the $ sign_in_email is blank then the user will be asked to pass a valid entry.

If [${email_id_field[i]}==$sign_in_email -a $[{password_field[i]}==sign_in_password} then

bash profile_page.sh

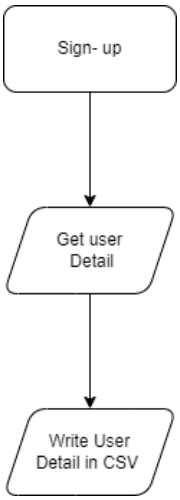
${user_name_database[$index]}
${email_id_field[$index]}
${mobile_number_field[$index]}
${dob_field[$index]} ${place_field[$index]} $index

else

Print Incorrect sign in details

5. Sign-Up Page

In the sign-up page the user will be asked to enter the Name, E-mail ID, Contact number, Date of Birth and place of birth. All the above details will be stored in different variables. The password should be 8-alphanumeric characters, the email-id should be with "@." , the mobile number should be of 10 digits and the date of birth of the user should be in (dd/mm/yyyy) format. If any of the above conditions are not met then an error message will be displayed on the screen.



Algorithm

The user will be asked to enter username, password, email id, contact no., dob and place of birth. All these above inputs by the user will be stored as variables user_name_from_user, user_password, email_id, mobile_no,DOB and place.

if [${user_name_from_database[i]} == $user_name_from_user] else
Print a message "Username is already present" if [[$user_password =~ [a-zA-Z]*..*[0-9]+[a-zA-Z]*]] else
Print a message "Password should have at least 8 alphanumeric characters" if [[$email_id =~ .@.*\.[a-z]+] else
Print a message "Enter valid email id" if [[$mobile_no =~ ^[0-9]{10}$]] else
Print a message "Enter a valid phone number" if [[$DOB =~ ^[0-3][0-9]/[0-1][0-9]/[0-9]{4}$]] else
Print a message "Invalid Date. Try again."

6. **Profile Page**

In this, five message will be displayed on the user's screen to take the input from the user:

1. Name

2. E-mail

3. Mobile no.

4.DOB

5.Place

All the above details of the users will be printed. Then a pop-up message will be displayed on the user's screen to take the input from the user. For instance:

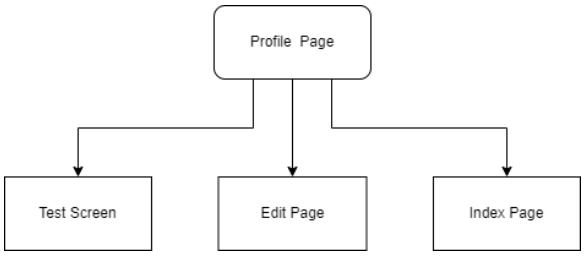
1.ENTER[T] TO TAKE THE TEST

2.ENTER[E] TO EDIT PROFILE

3.ENTER[L] TO LOGOUT

If the user enters the input "T" then he will be redirected to take test, If the user enters the input "E" then he will be redirected to edit profile page, If the user enters the input "L" then will be redirected to

logout, If the user enters any other input then will be redirected to profile page.



Algorithm

1. In this, five message will be displayed:

   1. Name

   2. E-mail

   3. Mobile no.

   4.DOB

   5.Place

2. If user will fill all the 5 inputs, Then a pop-up message will be displayed on the user's screen to take the input from the user:

   1.ENTER[T] TO TAKE THE TEST

   2.ENTER[E] TO EDIT PROFILE

   3.ENTER[L] TO LOGOUT

3. If the user enters the input “T” then he will be redirected to take the test.

4. If the user enters the input “E” then he will be redirected to edit profile page.

5. If the user enters the input “L” then it will be redirected to logout.

6. If the user enters any other input, then it will be redirected to the profile page.

7. Edit Page

The user will be asked what the user wants to update then the program will replace the credentials and will be able to edit the details present in the user_database.csv.

Algorithm

The user will be asked to enter a choice. The input given by the user will be stored in variable user_input.

If $user_input==1

The username of the user will be changed in the user_database.csv.

If $user_input==2

The email id of the user will be changed

If $user_input==3

The mobile no. of the user will be changed

If $user_input==4

The dob of the user will be changed

If $user_input==5

The place of the user will be changed

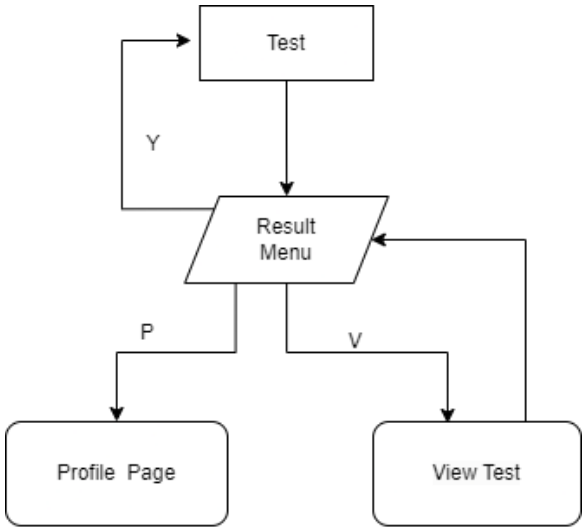
If $user_input==*

Then print an error “Invalid choice”

8. Test Screen

In the test screen, some instructions will be displayed on the user's screen before starting the test. After this, the user will be asked whether he wants to proceed further to take the test or not. If the input enters “Y” as the input, then the user will be redirected to the test screen to take the test. And if the user enters “N” as the input then the user will be redirected to the profile page.

If the user enters anything else other than yes or no, then a pop-up will appear on the user's screen with a message "Invalid Input".



Algorithm

if [$# -eq 6]
Then
The user will be asked to enter the choice (Y/N). The input by the user will be stored as variable test_input. If $test_input==Y then the use will be redirected to test.sh
If $test_input==N
Then the user will be redirected to profile_page.sh
If $test_input==*
Then a message will be printed "Invalid input"
Else
Print a message "Please log-in" then the user will be redirected to index_page.sh

9. Test Result

1. In this, "RESULT" and "TOTAL SCORE" messages will be displayed on the user's screen.

2.Then a pop-up message will be displayed on the user's screen to take the input from the user, For instance, if the user enter the input :

1. ENTER[Y] to retake the test
2. ENTER[P] to go to profile page
3. ENTER[V] to view the test

3.If the user enters the input "Y" then he will be redirected to retake test, If the user enters the input "p" then will be redirected to profile page, If the user enters the input "V" then will be redirected to view the test, If the user enters any other input then "INVALID OPTION " will be displayed.

Algorithm

1. "RESULT" message will be displayed on the user's screen.

2. "TOTAL SCORE" message will be displayed on the user's screen.

3. Then a pop-up message will be displayed on the user's screen to take the input from the user:

1. ENTER[Y] to retake the test
2. ENTER[P] to go to profile page
3. ENTER[V] to view the test

4.If the user enters the input “Y” then he will be redirected to retake the test.

5.If the user enters the input “p” then he will be redirected to the profile page.

6. If the user enters the input “V” then he will be redirected to view the test.

7.If the user enters any other input then “INVALID OPTION ” will be displayed.

10. View Test

In view test, the user will be able to evaluate the test. The question as well as the option selected by the user will be displayed on the screen along with the correct answer. By viewing the test, the user will be able to evaluate his marks as well as the topics in which the user is lacking.

11. Test Questions

In this online test platform, the user will be given 10 questions. Each question has a time limit of 30 seconds. If the user failed to attempt the question in the given time, then he will be directly transferred to another question and the user won’t be able to attempt that question that the user missed. And the above 10 questions will be randomly picked from a set of 20 questions provided in the question bank.

12 Conclusion

We have developed an online test platform using Ubuntu operating system which will let the students give their assessment using the provided access source.

13. Reference

1. Geeksforgeeks
2. allproject4u
3. Mr. Saurabh Sharma (Assistant Professor, MIET)