

Test Cases:

1. Attempt to log in with an empty username and password: Login failed, retry warning.
2. Attempt to log in with an incorrect username: Login failed, retry warning. Also tests logging in with a user not found in the database.
3. Attempt to log in with an incorrect password: Login failed, retry warning.
4. Username should not start with special characters.
5. Invalid email format: Warning to enter the email in the correct format (e.g., edinkoc@hotmailcom, etc.). Valid domains must be used.
6. Invalid phone number: Warning to enter the phone number in the correct format. Special character checks when entering the phone number (e.g., 0532A@B154, etc.).
7. Weak password usage: Encourage the user to create a strong password (e.g., @, !, %). Passwords should include at least one uppercase letter, one lowercase letter, one special character, and one number. They must also be a minimum of 8 characters long (e.g., Koç@24Edin).
8. Username must have a minimum number of characters (e.g., 3-4, single letters like "A" are not acceptable).
9. Names with special characters (e.g., Anne-Marie, O'Neill): No errors should occur.
10. Listing users with an empty role: Display an informative message like "No records found."
11. Incorrect data type during updates (e.g., entering letters for a phone number): Validation error, operation should be blocked.
12. Adding a new user with an already existing username: An error message should be displayed, and the operation should not proceed.
13. Adding a user with missing fields: Prompt the user to complete the missing fields (if all fields are being updated).
14. Invalid date format (e.g., 31-02-2020): Validation error, user should be warned.
15. Administrator attempting to delete their own account.
16. Attempt to delete using a non-existent employee ID/username.
17. Running the algorithm with a minimum data set (e.g., 1,000 records): Should work without errors.

18. Running the algorithm with a maximum data set (e.g., 10,000 records): Should operate without memory issues.

19. Operations with datasets below the minimum or above the maximum limit: User should be warned to input data within the acceptable range.

20. Running the algorithm with negative numbers: Algorithms should handle negative values correctly.

21. Entering letters in numerical fields (e.g., entering letters in a phone number field): The system should give a validation error and block the operation.

22. Leaving mandatory fields empty (e.g., attempting to register without a password or username): User should be warned to fill in the missing fields. (At this point, using `NOT NULL` in the database is crucial).

23. Pay attention to the use of Turkish characters (e.g., ğ, ü, ş, ö, ç, İ).

24. Check leap years in date fields (may be considered a **bonus point**).