Algorithm:-

1. Admin Portal:

  - Admin authentication:

    - Prompt the admin to enter their username and password.

    - Verify the credentials against the admin user database.

    - If authenticated, allow access to the admin portal; otherwise, display an error message.

  - Manage quizzes:

    - Display a list of existing quizzes.

    - Allow the admin to create a new quiz by providing a quiz name.

    - Provide the option to add questions to the quiz by selecting them from the question bank.

  - Manage questions:

    - Allow the admin to view, add, edit, or delete questions in the question bank.

  - Manage users:

    - Provide functionality to view and manage user profiles, including updating profile information and changing passwords.

2. User Portal:

  - User registration:

    - Allow new users to register by providing a username and password.

    - Validate the registration inputs and store the user details in the user database.

  - User authentication:

    - Prompt the user to enter their username and password.

    - Verify the credentials against the user database.

    - If authenticated, allow access to the user portal; otherwise, display an error message.

  - Quiz listing:

- Display a list of available quizzes for the user to explore.

- Provide information about each quiz, such as quiz name and description.

- Quiz participation:

  - Allow the user to select a quiz to attempt.

  - Display the quiz questions one by one.

  - Allow the user to select an answer for each question.

  - Validate the selected answer against the correct answer.

  - Keep track of the user's score as they progress through the quiz.

- Leaderboard:

  - Display a leaderboard showing the scores and rankings of users who have participated in a specific quiz.

  - Sort the users based on their scores in descending order.

3. Database Operations:

  - Set up a MySQL database to store information about quizzes, questions, users, user responses, and leaderboards.

  - Implement JDBC (Java Database Connectivity) to perform database operations such as querying, inserting, updating, and deleting data.

Note: This algorithm provides a high-level overview of the project's functionalities. The implementation details, data models, and specific algorithms will depend on your design choices, database structure, and programming framework.

It's essential to plan and design the project architecture, including database schemas, servlets, JSP files, and their interactions, to ensure a cohesive and scalable solution.