To create a servlet based web application that shows a log in page and validates it, you can follow the following steps :

1. Create a new dynamic web project in Eclipse on any other IDE.
2. Create a new servlet for handling user authentication.
3. Create a html page with a form that takes input from the user.
4. Submit the form data to the authentication servlet using POST method.
5. In the authentication servlet, hard-code the email id and password for successful login validation.
6. Validate the user’s input against the hard-coded values.
7. If the validation succeeds, redirect the user to the dashboard page.
8. If the validation fails, show an error message on the login page.
9. Create a dashboard.html page with a link to logout.
10. Implement the logout functionality in a separate servlet.
11. When the user clicks on the logout link, invalidate the session and redirect the user to the login page.