

Conduct research to understand how HTTP applications preserve the state of an application across multiple request-response cycles, especially concerning user authentication and session management. Write a paragraph describing your findings.

HTTP, depends on various tactics to preserve application state across multiple request-response cycles. The main usage is the use of cookies. Cookies are tiny sections of data that the server transfers to the client's browser, the server manufactures a special session ID and stores it, with affiliated user data and server-side. The sessionID is delivered to the client as a cookie

The browser automatically includes this cookie in the HTTP headers, approving the server to recognize the user and recapture their affiliated session data and maintaining their authenticated state

Lesser known forms like URL. The rewriting and hidden form fields also exist but are less used due to security and usability issues

Modern web applications often enlist more advanced tactics like token-based authentication like JWT. A token works by containing user details is supplied upon login and sent with each request, approving for stateless authentication on the server side

Investigate and document the procedures for performing Django database migrations to a server-based relational database like MariaDB. Write a paragraph describing your findings

Django database migrations to a server-based MariaDB instance, the process usually includes establishing the MariaDB server is operating and attaining and arranging the Django project's file (**settings.py**) with the correct database connection details (**django.db.backends.mysql**) and having the suitable MariaDB database driver deployed (**mysqlclient**)

After you compose the SSH into your server, navigate to your Django project's root directory, activate the virtual environment, and then implement the commands (**python manage.py makemigrations**) to manufacture new migration files, then after run this command (**python manage.py migrate**), these migrations to the MariaDB database schema on the server