Hashing Application

The Hashing Application is a web-based tool that allows users to calculate the hash of a message using three popular hashing algorithms: MD5, SHA-1, and SHA-256. Hashing is a fundamental cryptographic technique that converts data of arbitrary size into a fixed-size output, known as a hash value. This application provides a simple and convenient way for users to generate and view the hash values of their messages.

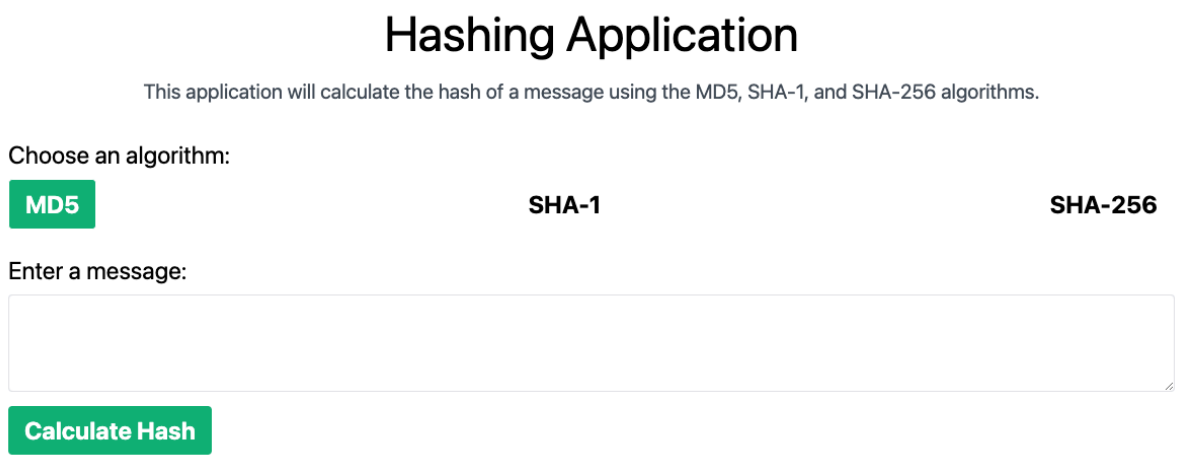
Key Features

- **Algorithm Selection**: The application offers three hashing algorithms: MD5, SHA-1, and SHA-256. Users can select the desired algorithm by clicking on the corresponding button.
- **Message Input**: Users can enter a message in the provided text area and the application will calculate the hash value for the given message.
- **Hash Display**: After the hash calculation, the application will display the original message and the corresponding hash value generated by the selected algorithm.
- **Copy to Clipboard**: The application provides a copy button that allows users to easily copy the generated hash value to their clipboard for further use.

How to Use the Application

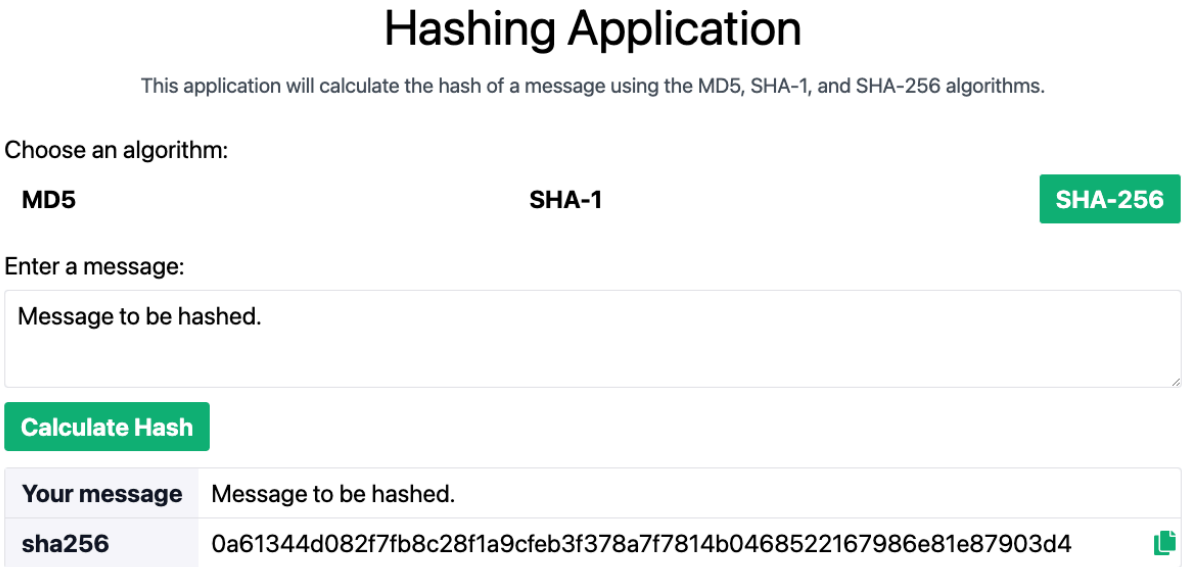
1. Open the Hashing Application in your web browser.

2. Choose the desired hashing algorithm by clicking on the corresponding button (MD5, SHA-1, or SHA-256).

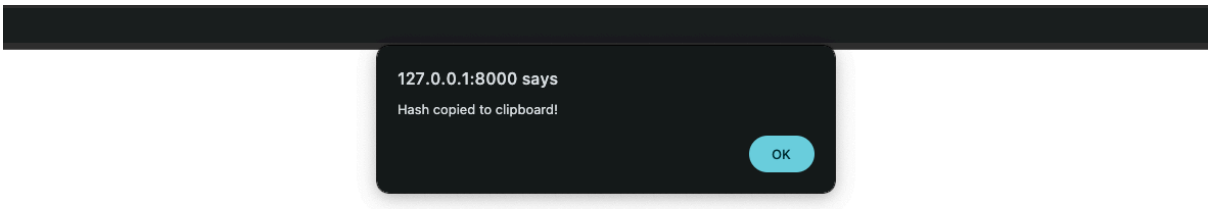


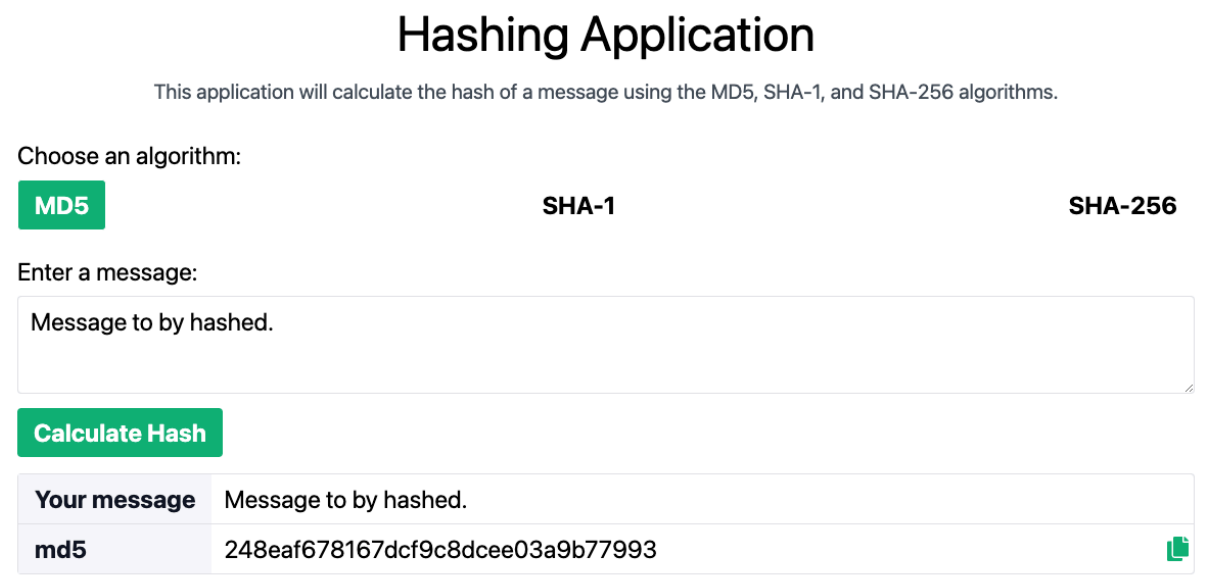
3. Enter the message you want to hash in the text area provided.

4. Click the "Calculate Hash" button to generate the hash value for the message.
5. The application will display the original message and the calculated hash value.



6. To copy the hash value to your clipboard, click the copy button next to the hash value.

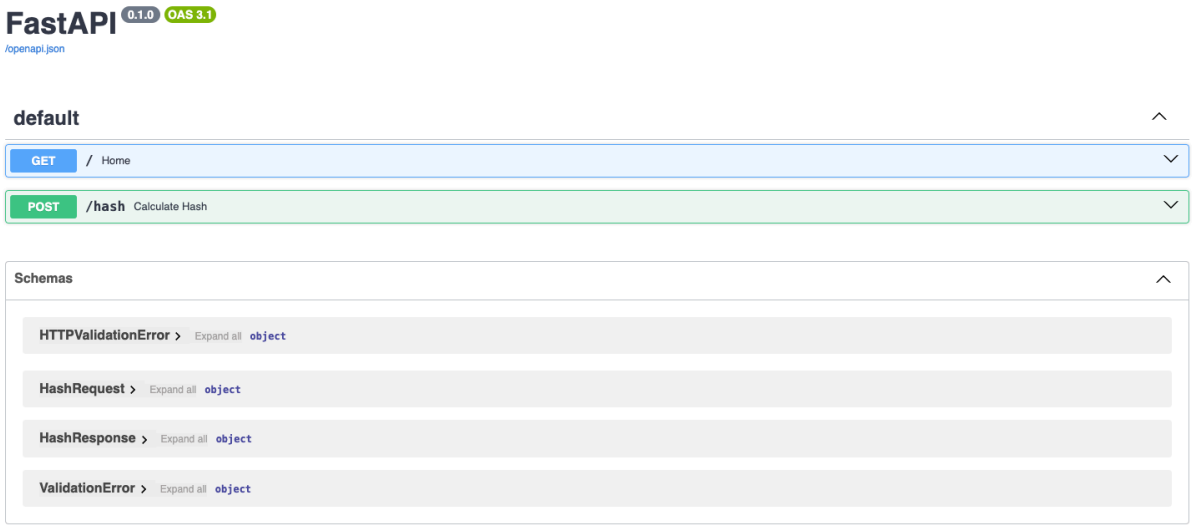




Backend Implementation

The Hashing Application is powered by a Python-based backend using the FastAPI framework. The backend provides the following functionality:

- Handles the HTTP requests for the hashing operations.
- Implements the MD5, SHA-1, and SHA-256 hashing algorithms using the static.algorithms.Algorithm class.
- Returns the calculated hash value as a JSON response.
- Documentation of the backend interface on “/docs” url (if running the application locally, then the following url: “http://127.0.0.1:8000/docs”)



Additional Information

The application uses client-side JavaScript to handle the user interface and interact with the backend.
The application is styled using the Tailwind CSS framework, which provides a modern and responsive user interface.
The application also includes the use of Font Awesome icons to enhance the visual appeal and user experience.

Limitations and Considerations

The application is limited to the three hashing algorithms (MD5, SHA-1, and SHA-256) and does not support additional hashing algorithms.
The application is designed for simple hashing tasks and may not be suitable for more advanced cryptographic use cases.
The security and reliability of the application depend on the implementation of the back-end server-side components, which are built using FastAPI and Python.