

Secure Chat App

This is a secure end-to-end encrypted chat application that simulates man-in-the-middle (MITM) attacks for educational purposes. It includes a real-time chat interface along with an attacker control panel that demonstrates various attack techniques such as interception, tampering, spoofing, and message corruption.

Technologies Used

- JavaScript, HTML, CSS
- Socket.io for real-time communication
- Python (Flask) for the backend server
- RSA encryption for secure messaging

Project Structure

```
secure-chat-app/  
├── node_modules/  
├── server/  
│   ├── static/  
│   ├── templates/  
│   ├── app.py  
│   └── requirements.txt  
├── users.json  
├── mitm-proxy.js  
├── package.json  
├── package-lock.json  
└── README.md
```

Getting Started

1. Install Dependencies

Install Python packages:

```
pip install -r server/requirements.txt
```

Install Node modules (if not already installed):

```
npm install
```

2. Run the Application

Terminal 1 – Navigate to the `secure-chat-app` folder and start the MITM proxy:

```
node mitm-proxy.js
```

Terminal 2 – Navigate into the `server` folder and run the Flask app:

```
cd server  
python app.py
```

3. Open the Application in Your Browser

- Go to `http://localhost:5002/chat` to access the chat interface
- Go to `http://localhost:5002` to access the attacker control panel