Project Proposal: SecureChat Discord Plugin

Team Members:

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1. Problem Statement

Communication security and privacy is of a critical concern in online platforms, namely where users exchange sensitive information through chats. The current lack of end-to-end encryption in Discord leaves users vulnerable to potential eavesdropping, unauthorized access, and man-in-the-middle attacks. To address this, we propose the development of the SecureChat Discord Plugin, which aims to provide robust end-to-end encryption for Discord chat messages.

2. Status Quo

Currently, Discord does not offer native end-to-end encryption for its chat messages. Discord relies on HTTPS protocol, which leaves messages vulnerable during transmission. Due to this methodology, users cannot be certain of the security of their messages. As of now, existing solutions are inadequate in providing a robust, user-friendly, and transparent end-to-end encryption mechanism.

3. Requirements and Challenges

Requirements for a Good Solution:

- **End-to-End Encryption:** Implement an encryption method to ensure that only the intended recipient can decrypt and read the messages and prevent discord severs and others for violating privacy.
- **User-Friendly Interface:** Design an intuitive interface that seamlessly integrates with Discord, providing easy-to-understand feedback on encryption status.
- **Prevention of Man-in-the-Middle Attacks:** Develop a method to verify and authenticate the identity of the users to prevent interception by unauthorized third parties.

Challenges:

- **Integration with Discord:** Ensuring smooth integration while maintaining security.
- **Usability:** Balancing security with user-friendliness to encourage widespread adoption.
- **Real-Time Encryption:** Implementing encryption without causing significant latency delivery.

4. Project Plan

Action Plan:

1. **Literature Review:** Research existing encryption protocols and mechanisms suitable for real-time chat applications.
2. **Plugin Development:** ensure compatibility and minimal impact on user with plugin.
3. **User Interface Design:** Create an easy to use interface to display encryption status to users.
4. **Testing and Optimization:** Conduct unit testing to identify and resolve potential vulnerabilities.
5. **Documentation:** Prepare comprehensive documentation for users and developers.

Timeline Starting in week 3:

- **Weeks 1:** Literature review and algorithm library decisions and methodology.
- **Weeks 2-5:** Plugin development and integration with Discord.
- **Weeks 6:** User interface design and initial testing.
- **Weeks 7:** Testing, optimization, and documentation.

Team Roles:

- **Software Developer:** Leads the development and integration of the Discord Plugin.
- **UI/UX Designer:** Designs the user interface for seamless user experience.

5. Deliverables

1. **SecureChat Discord Plugin:** A functional plugin providing end-to-end encryption for Discord.
2. **User Documentation:** Comprehensive guides on installing, configuring, testing and using the plugin to ensure correct function.

6. References

https://discord.com/developers/docs/intro

https://support.discord.com/hc/en-us

https://docs.betterdiscord.app/plugins/