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### Term Project Proposal

## Project Description

We will be creating a message exchange application in Java. A user will be able to send and receive encrypted messages from another party. The user will be able to select which algorithm they would like to use to encrypt the message they wish to send. We will have three options for the user to choose from. For the symmetric key based encryption algorithm, we will implement AES. For the public key-based encryption algorithm we will implement RSA. Lastly, for the classical encryption cipher we will implement the Vigenere cipher.

## Steps

We will be using the IntelliJ IDE, and GitHub for version control to maintain our project. The first thing we will implement is the simple java chat application – we will have a simple GUI. First, we will set up the server, which will wait for a client to be connected. Next, we will set up a client application, which will connect to the server using IP and port number. After successful connection, the client and server applications will be able to send and receive messages. From there, we will begin implementing the encryption and decryption algorithms. Each algorithm will be in its own class. After each algorithm has been implemented, we will run a performance evaluation.

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| Algorithm Quick Summary | |
| Symmetric-Key | AES |
| Public-Key | RSA |
| Classical cipher | Vigenere Cipher |