

Code Guide

To run the code, we can use python interpreter to run the main.py can open the UI interface. Or we can run the exe file can also open the UI interface. The directory of the exe file is "/dist/main/main.exe".

When running the code, the UI interface is like this:

The screenshot shows a window titled "MainWindow" with standard Windows window controls (minimize, maximize, close). The interface is organized into several sections:

- Top Section:** Three buttons labeled "Generate Prime Numbers", "Plaintext process", and "Method".
- Second Section:** A large button "Big Prime Generation" on the left. To its right are two buttons: "Improve by Ascii" and "Quick power".
- Third Section:** A button "No treatment" is positioned below "Improve by Ascii". To its right is a button "Chinese remainder theorem".
- Fourth Section:** A row of four buttons: "Encryption", "Decryption", "Refresh", and "Python RSA".
- Input/Output Fields:** Below the buttons are five rows, each with a label and a corresponding text input field:
 - "Plaintext:"
 - "Ciphertext:"
 - "Decryption text:"
 - "Encryption time:"
 - "Decryption time:"

There are five functions to process RSA. "Big Prime Generation" can generate big primes. "Improve by Ascii" can transform the plaintext into Ascii format. "No treatment" means the plaintext is not going to be transformed before encryption. "Quick power" means the RSA uses this function to encrypt and decrypt. "Chinese remainder theorem" means the RSA uses this function to encrypt and decrypt.

Below is the process of using this interface:

1. Input the plaintext and select functions.

2. After choosing the functions and inputting the plaintext, click the "Encryption" button and then the Ciphertext and Encryption time will show up.
3. Next, click "Decryption" button and the Decryption text and Decryption time will show up.
4. Click "Refresh" button to initialize the information.
5. If you click "Python RSA" button, the system will use the python's RSA function.
6. Note: This RSA does not support Chinese plaintext.