# Classic Cipher Practice

**[Objective]** We will understand the operation principle of modern cryptographic algorithms by writing down various classic cipher programs directly using classical cipher source code learned in class.

**[Note]** Do not use the library when writing source code. Capture the full screen of the operation result screen (e.g., a screen with a path, c: //yhchoi/a.cpp, which shows your account information) on your own desktop. Use the examples in the lecture material to verify the operation of each algorithm.

**[Report]** Submit a report containing the source code, the source code operation process, and the execution result.

**[Problem 1]** Write the Affine cipher source code at p8 of lecture material and describe the operation procedure.

**[Problem 2]** The Gronsfeld cipher is a variant of the Vigenere cipher that defines the Shift key as a number. To convert a plain text to a cipher text using a password, take plain text characters one by one and apply the Shift value corresponding to that key's number. For example, if the text to be encrypted is "gronsfeld" and the key is 1234, move the alphabet 'g' by 1 digit to become 'h' and the alphabet 'r' by 2 digit to become 't'.

**O Example:**

**Plain text**: gronsfeld, **Key**: 123412341, **Cipher text**: htrrthhpe

Write the Gronsfeld cipher source code and describe its operation.

**[Problem 3]** Write down the source code of the Rail Fence cipher in lecture material when the number of rails is more than 2 and describe the operation procedure.