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**Source Code:** [**https://github.com/Dhruvil30/A1**](https://github.com/Dhruvil30/A1)

Documentation

Overview

With the encryption key, the application converts the specified cypher text to plain text. If sufficient language texts are provided, it can also estimate the language.

Files and external data

The program consists of 3 files:

• SubstitutionCiher.java – Contains core methods to perform decryption and estimate the language.

• A1.java – Provide key and external files to decrypt or generate a frequency table for different languages.

• text.java – Contains text cases for given program.

Data structures and their relations to each other

Hash maps are used to store most of the data and array to iterate over data.

To store encryption and decryption hash map is used.

Language frequency table uses nested hash tables with map language name with the frequency count of the given letter.

Assumptions

The assignment statement lists the main assumptions for the project.

User should provide encryption key in the when object for the SubstitutionCipher is created.

Users must provide language files for match language method to work efficiently.

Limitations

- User will not be able to provide encryption key from the terminal. Encryption key must be provided while creating object from main method in A1 class.

- Methods “guessKeyFromFrequencies” and “setDecodeLetter” are yet to be implemented.

- Boundary test cases and some control flow test cases are remaining.