Option 01

Develop Phase

- Stored Parameters (total of 20 + extra)
    - o 9 ints
    - o 4 strings
    - o 2 enums (different types)
    - o 2 doubles
    - o 1 bool
    - o 1 Vector of type <class::item> (extra)
    - o 1 int array of size 4
- Encryption/Decryption Method
    - o XOR using 3 character keys (Found online)
- Tampering Detection
    - o The use of a hash (signature) of the stored data
- File architecture
    - o Contents: It essentially holds two copies of the information in two different and unreadable forms. The first form is in theory, non-reversable and is used to prevent tampering. The second form is it's encrypted state so we can actually retrieve it.
    - o Save:
        - ▪ Hash info into a signature and place on first line
        - ▪ Encrypt info and place on second line
    - o Load:
        - ▪ Retrieve signature
        - ▪ Retrieve encrypted info
        - ▪ Decrypt info
        - ▪ Hash decrypted info into a signature
        - ▪ Compare retrieved and calculated signatures
            - • If they are different, tampering has occurred
                - o Use default values that are hard-coded
            - • Otherwise load decrypted info into respective variables
- Program architecture
    - o Description: A type of game where the user takes control of a "character" Character fights monsters etc in a typical RPG fashion
    - o On program start: attempts to load any character and enemy data
        - ▪ If data is tampered or does not exist yet, uses hard-coded defaults
    - o On program end: saves character and enemy data to a file (@FileArchitecture)