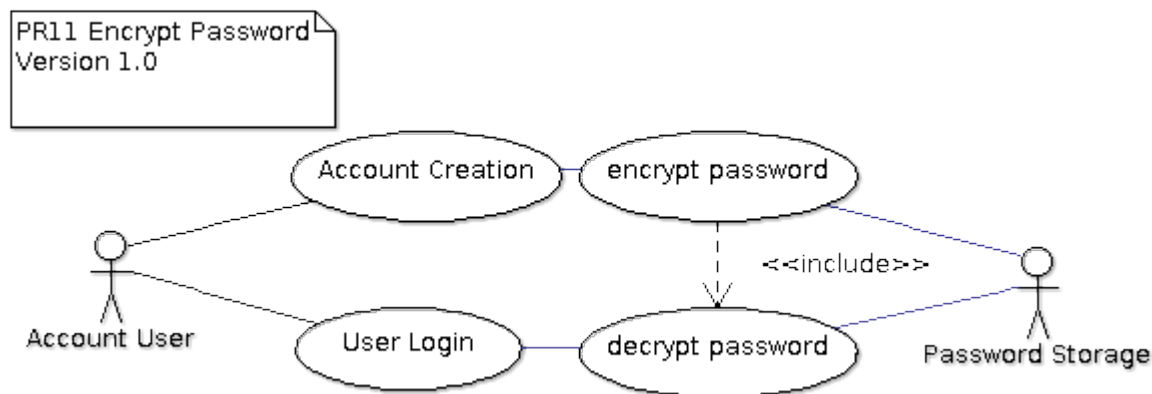


Problem Domain:	Login / Security / Encryption
Mission Summary:	Create a "Password Encoder"
Prerequisite:	Completion of "Python 1000" (available at Udemy.com)
Your Script Name:	PR11_PasswordEncoder.py
Solution Name:	PR11S_PasswordEncoder.py
Version:	1.0

## Synopsis

Application security requires the validation of credentials. In order to avoid unauthorized account access, passwords should always be encrypted.



In this exercise, we will create a pair of functions that can be used to encrypt and decrypt a user's password, or any other string.

## Requirements

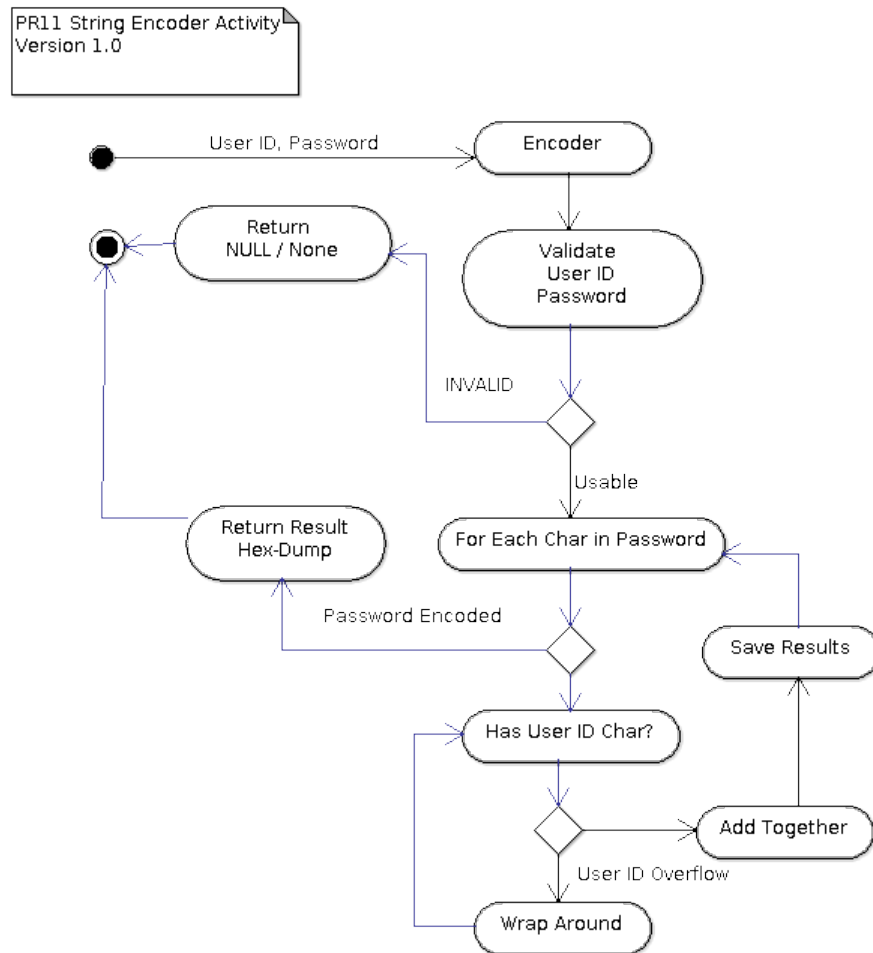
- 1) Create a script named PR11\_PasswordEncoder.py
- 2) Define a function named "encrypt"
  - A) INPUT:
    - 1) "User ID" (String)
    - 2) "Password" (String)
  - B) OUTPUT:
    - 1) Success: Encrypted Password (String)
    - 2) Failure: None / NULL
- 3) Define a function named "decrypt"
  - A) INPUT:
    - 1) "User ID" (String)
    - 2) "Encrypted Password" (String)
  - B) OUTPUT:
    - 1) Success: Original Password

- 2) Failure: None / NULL
- 4) Cypher Strategy
  - A) ENCRYPTION LOGIC:
    - 1) The content of the User ID will be iteratively added to the password
    - 2) User ID iteration to "wrap around" whenever the length of the User ID is less than that of the Password
  - B) DECRYPTION LOGIC:
    - 1) The content of the User ID will be iteratively subtracted from the password
    - 2) User ID iteration to "wrap around" whenever the length of the User ID is less than that of the Password
- 5) Test Case
  - A) Verify Encryption / Decryption of:
  - B) Quotations are used in the above so as to express the requirement to include spaces as part of certain test patterns
  - C) Additional test cases should also be provided
- 6) Automated Testing Support:
  - A) Error messages should be of the format
    - 1) "Error: x"
    - 2) Where "x" is the error message
  - B) The testing success message should be of the format
    - 1) "Success: x"
    - 2) Where "x" can be any message (testing date time, etc.) desired
- 7) BONUS
  - A) Update User ID / Password exercises to use the encryption / decryption routines

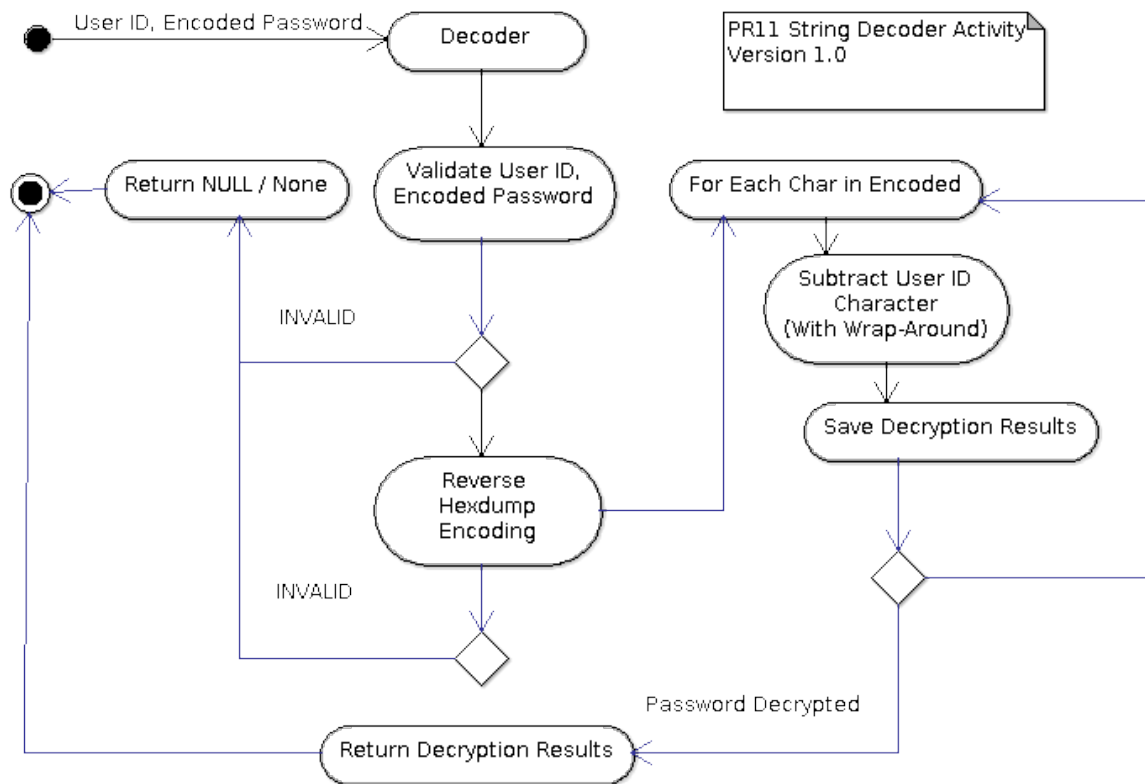
## Related Diagrams

The following is a graphical requirement overview.

1.) The main Activity Diagram depicts a graphical summary of the key encryption requirements, as well as a reasonably demonstrative operational overview:



2.) The decryption routine complements the string / password encryption process:



(document ends)