Module 3 - Exercises

1. Write a program to provide a menu for user to:
    a. Input a password (which is a string). Save it into a file namely "**pwd.dat**".
    b. Read the stored password from the file. Print it out to the console.

    Example Run:

```
Password management program:
1. Save your password
2. Read your password
Your choice: 1
Enter the password: abc123
Saved to the file!
```

    Additional: modify the program so that the password string may have spaces (e.g. “abc 123”).

2. Define a class namely **Student** with attributes are ***name*** (string) and ***score*** (integer). Both of them are public.
    a. Write a **constructor** for the class to initialize attributes’ values.
    b. Create two student objects and initialize values for them using class constructor. Print out all information of the two students.
    c. Create an array of three students and initialize values for all of them using class constructor. Print out information of the student with highest score.

    Additional: modify the program so that *score* is private, and make a method namely get_score() to provide reading access to it.

3. From the **Student** class in question 2, add another private *string* attribute namely **password**. Write a method for the class namely **changePwd()** to allow people to change their password as below and test it in main function.
    a. If there is no existing password (*no **name.dat** file,* whereas **name** is student name, *or no content in the file*), allow them to provide value for the password. Save it into the file (***name***.***dat***).
    b. If there is an existing password, ask them to enter their previous password to check. If it is matched, save the new password into their file.

4. Define a class namely **Cat** with public attributes are **name (string)**, **age (int)**.

   Define another class namely **Person** with public attributes are **cat** (**Cat** class) and **name** (string).

   Each class must have their own constructors.

   a. Make an array of three persons, and initialize values for them.

   b. Print out the information of the person who has the cat with the highest age (also print out information of that cat).