Lesson activity: Programming challenge 1 User registration

Exercise 1

The program is intended to allow a user to register a new account by entering a username and password.

- If the username has been used before then an error message is shown, and the programs ends.
- If the username has not been used before then the password is checked to make sure that it is at least 12 characters long.
- If the password is too short the program ends.
- If the username and password are valid then they are displayed to the user with a success message.

Enhance the Python code in **Figure 1** so that it meets the brief above and works correctly.

Figure 1

```
#########################
#  AQA User Registration #
#########################

userNames = ["User1", "User2", "User3", "User4", "User5"]

print("Welcome to AQA User Registration")

userName = input("New username: ")

userPassword = input("Password (12 characters or more): ")

# end of program
```

Exercise 2

The Python code in **Figure 2** is supposed to be a working solution to Exercise 1.
Identify the errors and fix them.

Figure 2

```
###########################
#  AQA User Registration #
###########################

userNames = ["User1", "User2", "User3", "User4", "User5"]

print("Welcome to AQA User Registration")

userName = input("New username: ")

if userName in userNames:
    print("The username is already used")
else
    userPassword = input("Password (12 characters or more): ")

    if len(userpassword) == 12:
        print("The password is not long enough")
    else:
    print("Your username is " + userName)
    print("Your password is " + userPassword)

# end of program
```

Exercise 3

Amend your code from Exercise 1 so that it meets the following requirements:
- Add comments so the code is self-documenting
- When checking the username, the program should treat upper case letters and lower case letters as being the same. eg User1 is the same as user1
- The user is allowed 3 tries to enter a username that has not already been used, before the program ends
- The user is allowed 3 tries to enter a password that is at least 12 characters long before the program ends.

Extension

- Add a text file with usernames and passwords. This file is read in at the beginning of the program and a new username and password is appended to the end of the text file when it has been validated.

NB This extension task goes beyond the scope of the specification and is designed to add stretch and challenge for students.

Exercise 4

Amend the program so that it is a fully functioning user registration system.

- Add a menu to the program, so that the user can choose between entering and validating an existing username and password, registering a new username and password, or quitting the program.
- Use file(s) to store username / password combinations.
- You should use modular code in your program.
- The program output might look like the output in **Figure 3**.

Figure 3

```
Welcome to AQA User Registration

#############################################
Please enter a menu choice
Enter 1 to login with username and password
Enter 2 to register a new username and password
Enter 3 to quit the program
#############################################
Menu choice: 1
Please enter your username: User1
Please enter your password: Password0001

Your login is successful

#############################################
Please enter a menu choice
Enter 1 to login with username and password
Enter 2 to register a new username and password
Enter 3 to quit the program
#############################################
Menu choice: 2
Please enter a new username: User1234
Please enter a password, 12 characters or more: Password1234
Congratulations, you have registered as a user
Your username is User1234
Your password is Password1234

#############################################
Please enter a menu choice
Enter 1 to login with username and password
Enter 2 to register a new username and password
Enter 3 to quit the program
#############################################
Menu choice: 2
Please enter a new username: user1
The username is already used
Please enter a new username: user2
The username is already used
Please enter a new username: user3
The username is already used
Only three tries are allowed

#############################################
Please enter a menu choice
Enter 1 to login with username and password
Enter 2 to register a new username and password
Enter 3 to quit the program
#############################################
Menu choice: 3
Goodbye
>>>
```