2005 - Assignment #5 - Description

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Since the assignment has been assigned our group has met together multiple times to discuss the structure of different objects/methods we want our classes to have.

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Programming Component & Module Design

Authentication

The authentication system built into our quiz application will allow for the creation of users, both student and instructor. Defined in the high-level diagram for this application is a selection of data strucutres shared throughout the different modules within the project is simply a 'User' object, the role of the user being an list of roles, permitting for a user in the future to have more than one role. In our case however a user will only either have a role of following:

```
from structures import User

a = User(...)
a.roles # -> ["student"]

b = User(...)
b.roles # -> ["professor"]

c = User(...)
c.roles # -> ["guest"]
```

‘C’ is to abide by the requirement to have users “who are guests or not formally registered for the course.”.

Since the function of creating a user is delegated to my module, I will define each property of a user, and how it relates to the functional requirements.

- Username:
    - What a user will use to login/identify themselves with.
    - Unique, there cannot be two Users with the same Username; the creation of a user will verify this restriction.
- Password:
    - Will be hashed at creation, and hashed at any future update, therefore a raw password will never reach the persistence class.
    - Will have the potential for password requirements if the client requests, such as minimum length/character usage.
- Roles:
    - Covered in example above.
- Classes:
    - List of classes that the user has been enrolled in.
- Question Banks:
    - Question Banks created by and for the usage of professors; therefore empty for regular users.

Persistence

Creating the methods for persistence required collecting what each of my coworkers wanted their modules to have access to; the interface is much more than a generic object/list/etc. data storage.

Since each item has some unique key, rather that be a id/username/etc, the items can be pulled from the data storage using these IDs.

This is useful, since by starting at a users username, all information about what classes they are in/what quizes they can create/question banks can be pulled from that.

```
from structures import Quiz

q = Quiz(...)

print(q.id) # -> "123abc"
```

```
persist.store(q)
```

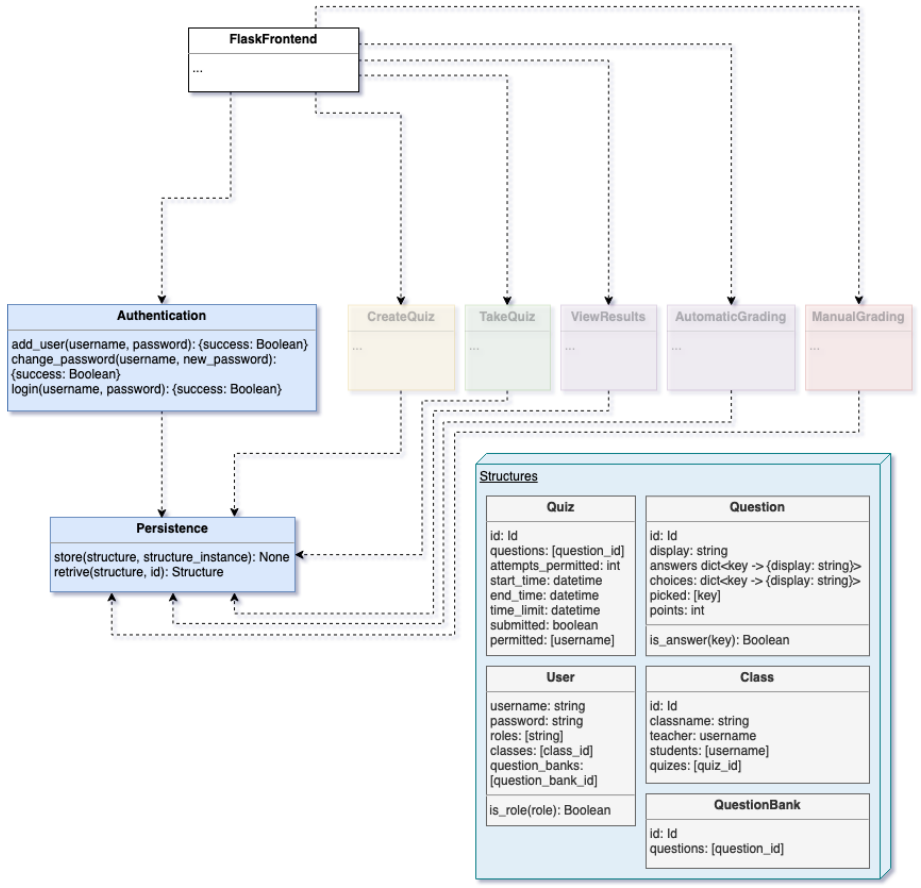
Sometime later, even after a reboot of the application

```
some_id = "123abc"

q = persist.retrive(Quiz, some_quiz_id)

# we have q again!
```

The diagram below does most of the speaking for what the purpose of the Persistence is; other details are merely implmentation aspects and not important to the higher level concepts at hand.



Use Case

Title: Creating and logging into the application

Primary Actor: Professor

Stakeholders and Interests

- Student: Wants an account to view quizes for a class he is physically enrolled in.
- Professor: Wants to create account for student, and assign to class.
- Tech: Does *NOT* want to have the password for any of the above stakeholders to be stored in the database/logs, but wants all created users to end up stored in the database correctly.

Precondition

Professors account exists in the storage.

Main Scenario

1. Professor logs into account with correct credentials
   1. A) If credentials are incorrect, is not logged in.
2. Professor navigates to page to create a new user.
3. Professor creates a new user.
   3. A) Professor is not permitted to create a user with the username of a user already in storage.
4. Professor adds new user to a class.
5. Student logs in.
   5. A) If credentials are incorrect, is not logged in.
5. Student can view quizes for class he was assigned to by the Professor.