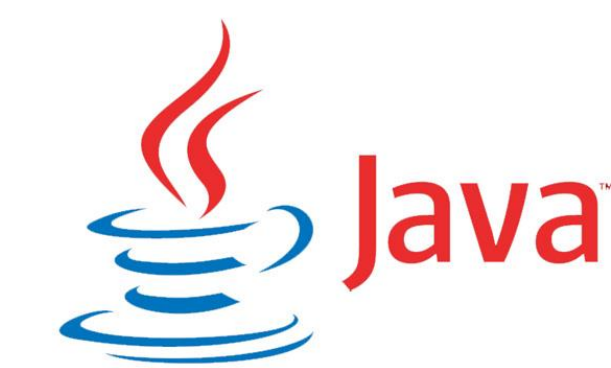




Student: Nelson Capote, Florida International University
Mentor: Masoud Sadjadi, Florida International University
Industry Advisor: Juan Caraballo, Florida International University
Instructor: Masoud Sadjadi, Florida International University



Problem

The Senior Project class is designed to test the prospective graduates' readiness to work in a real-world software development environment. During the first week, the students must find a project of interest and find the team that will work with them on the most important project of their university career.

Students from last semester's senior project class designed a website to automate this process.

While this existing system is step in the right direction towards resolving the issue at hand, its implementation is not perfect and it is flawed from several key perspectives.

Our role this semester was to continue working on version 2 of the system to improve some of the existing functionalities and to add new functionality, with the goal of having a consistent system ready to be deployed for Spring 2014 semester.

My role on this project is to provide an API capable of providing information about students enrolled on the class that will help to control access to the system as well as to have updated information constantly.

Current System

Currently, students enrolled in the Senior Project course at FIU SCIS use a Google Docs to formalize their participation within a team. Last semester, a group of Senior Project students identified the drawbacks of using the shared document to carry out this procedure and thus they developed the SPWv.1. The system that was developed implements some functionality that aims to resolve the problem, but there are some issues associated with the design that inhibit the system from actually being operational.

Major issues associated with SPWv.1

- All types of users have the ability to execute the same actions within website, there is no differences between actors.
- Users have the ability to change their role in the context of the system
- The privileged functionality that was originally specified for the "head professor" and "professor" roles is missing
- System allows to register/login any user without verifying if they are Senior Project students or registered professors.

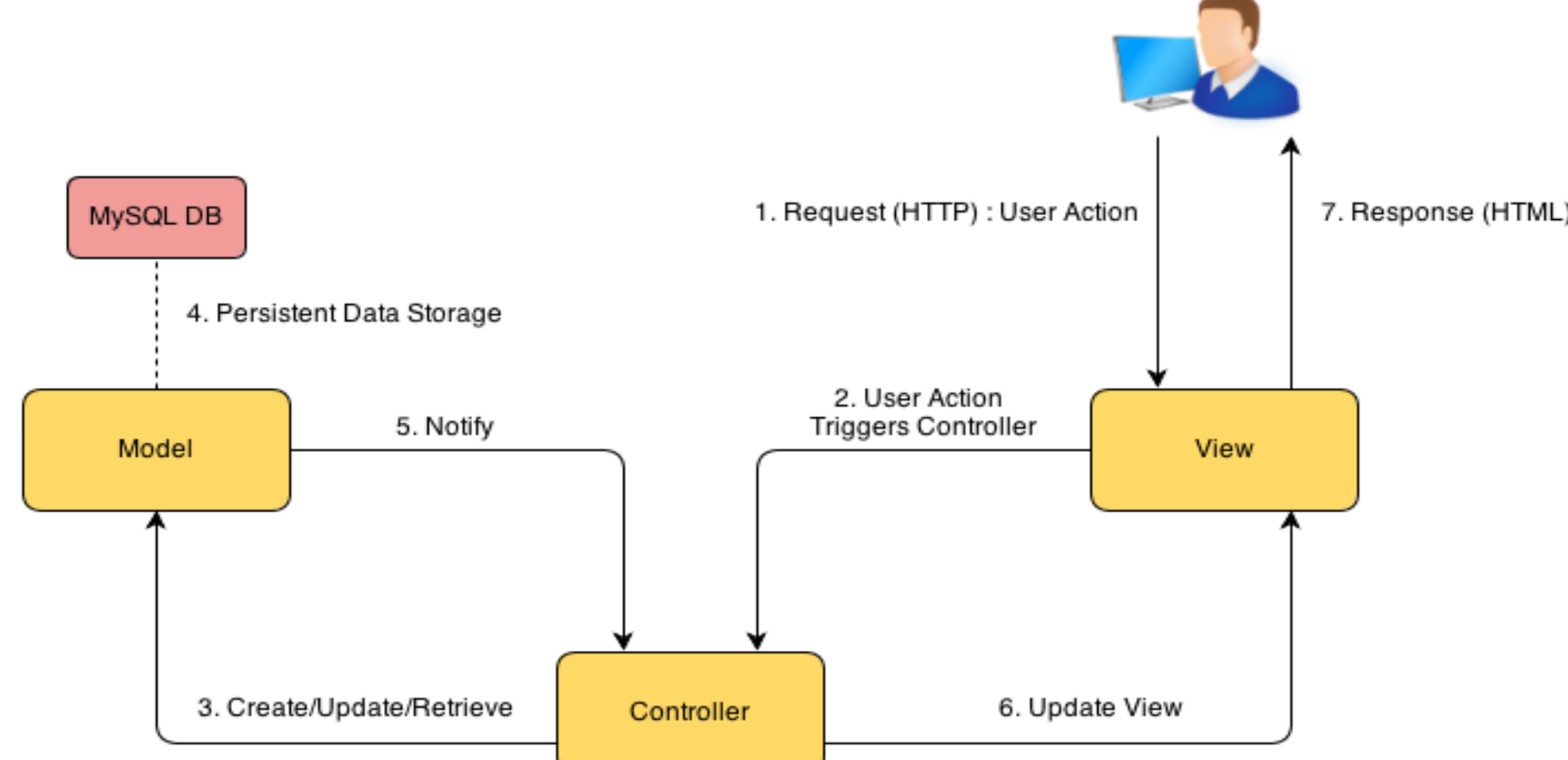
Requirements

- Authenticate using FIU Panther Mail and Senior Project authentication system.**
- Allow guest access.**
- Create an API to gather information about FIU senior project students.**
 - Information includes: Full Name, Email, Panther ID and the Title of their project.**
- Admin dashboard for Head Professor.
 - Set join/leave deadline, create professor accounts, activate/deactivate users, **update users from API**, manage uploaded documents.
- Head professor to accept/reject projects
- Documents management system for projects.
- Create / Edit projects
- Browse user profiles and projects
- Internal messaging system integrated with email notification.**

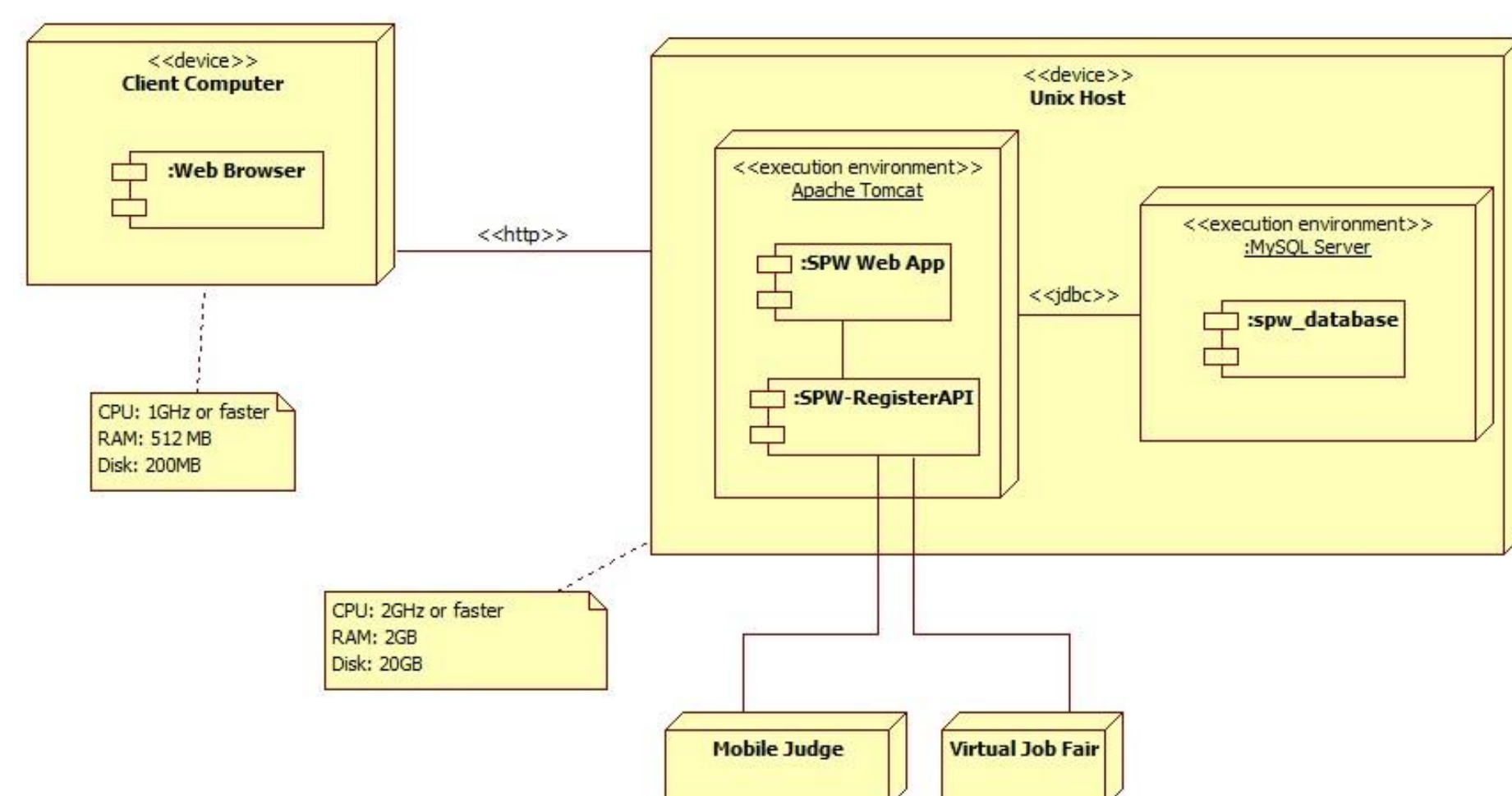
*Requirements developed by me are in bold.

System Design

The system was developed using the MVC architectural pattern.

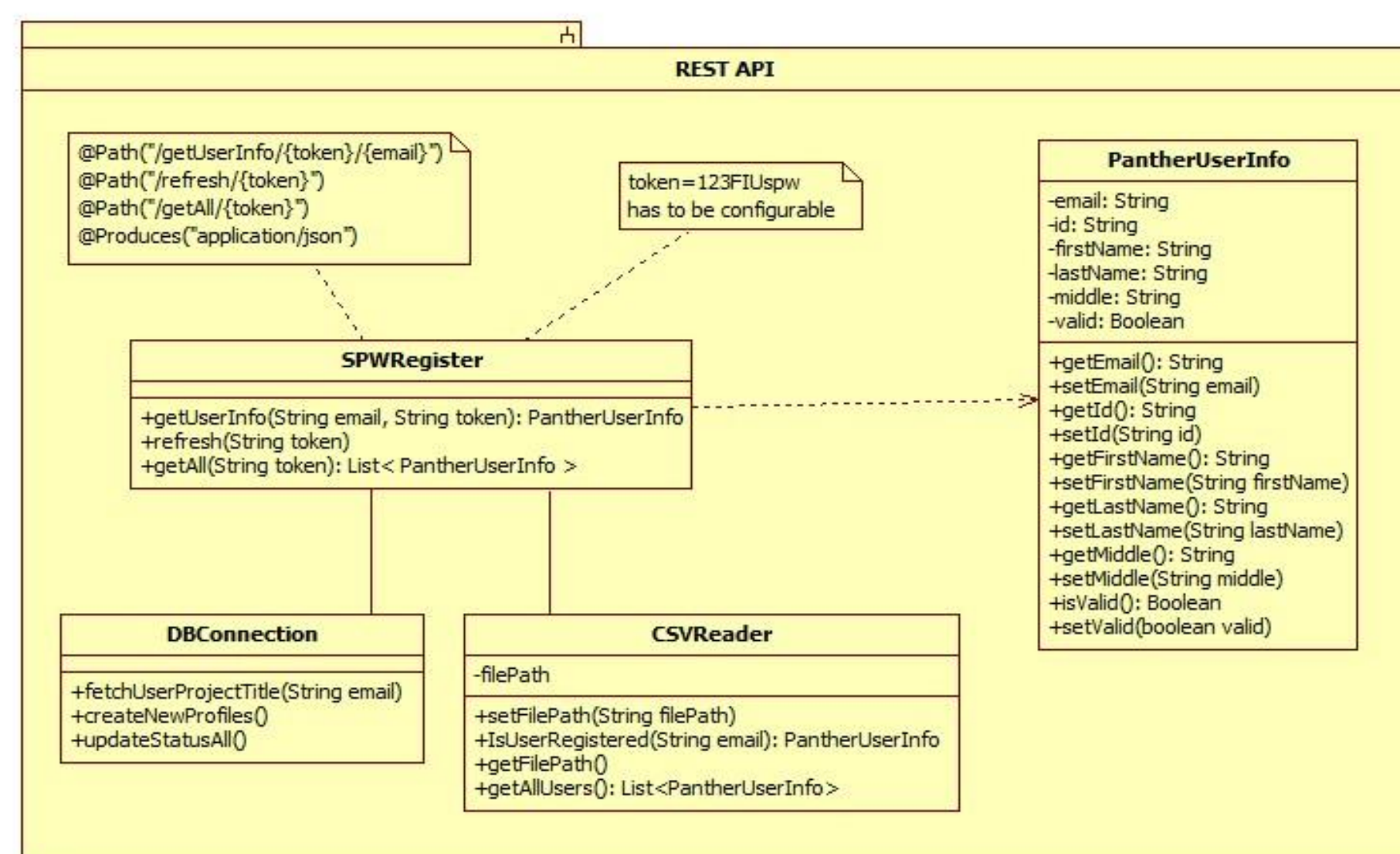


Deployment Diagram



Object Design

API Class Diagram



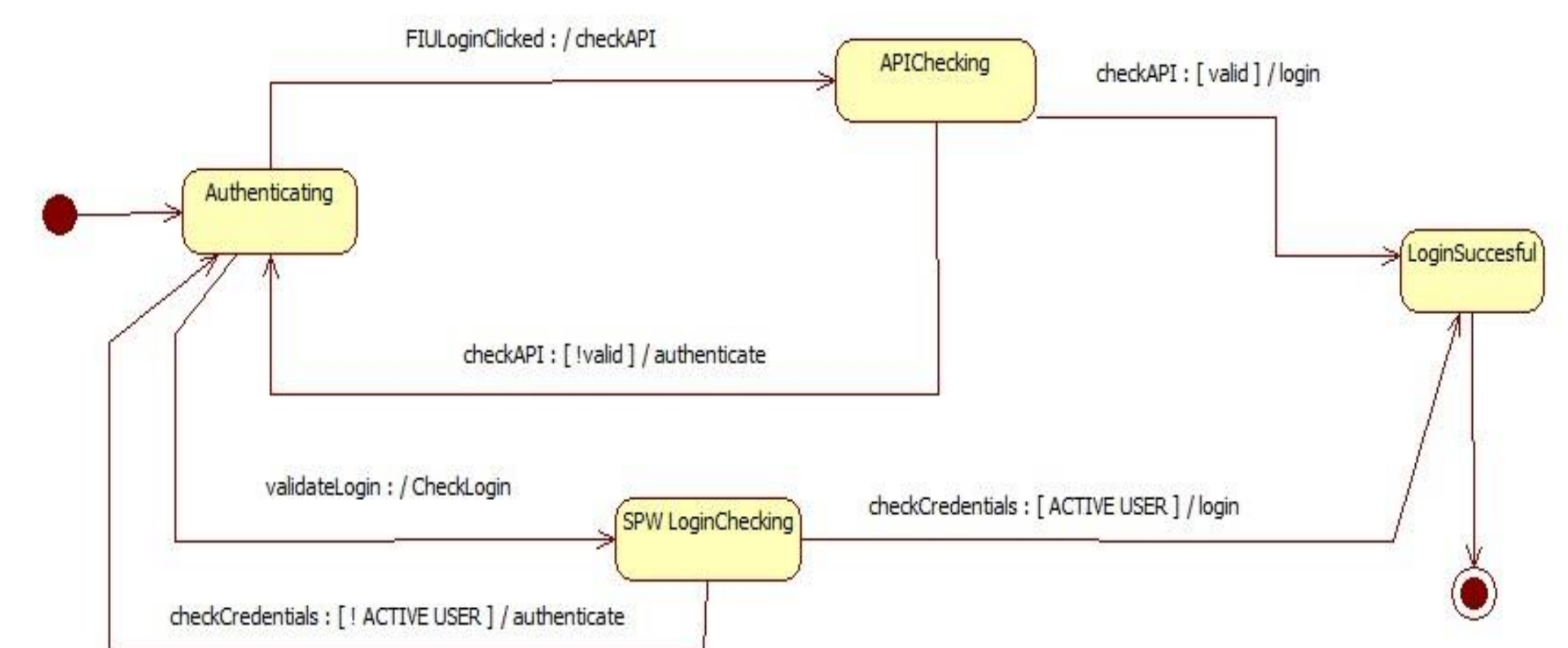
PantherUserInfo: Represents the student info.
SPWRegister: This is the portal for external applications to consume the REST service. Method **getUserInfo** is to validate if a student is part of the class. Method **refresh** will allow the Head Professor to get the most updated information about current students enrolled on the class, from the API. Method **getAll** will allow Mobile Judge team to get all the students and the project they are working on.

The API returns a **JASON** object representing the PantherUserInfo class and it requires a Token to be provided to allow only trusted applications to consume the service.

Implementation

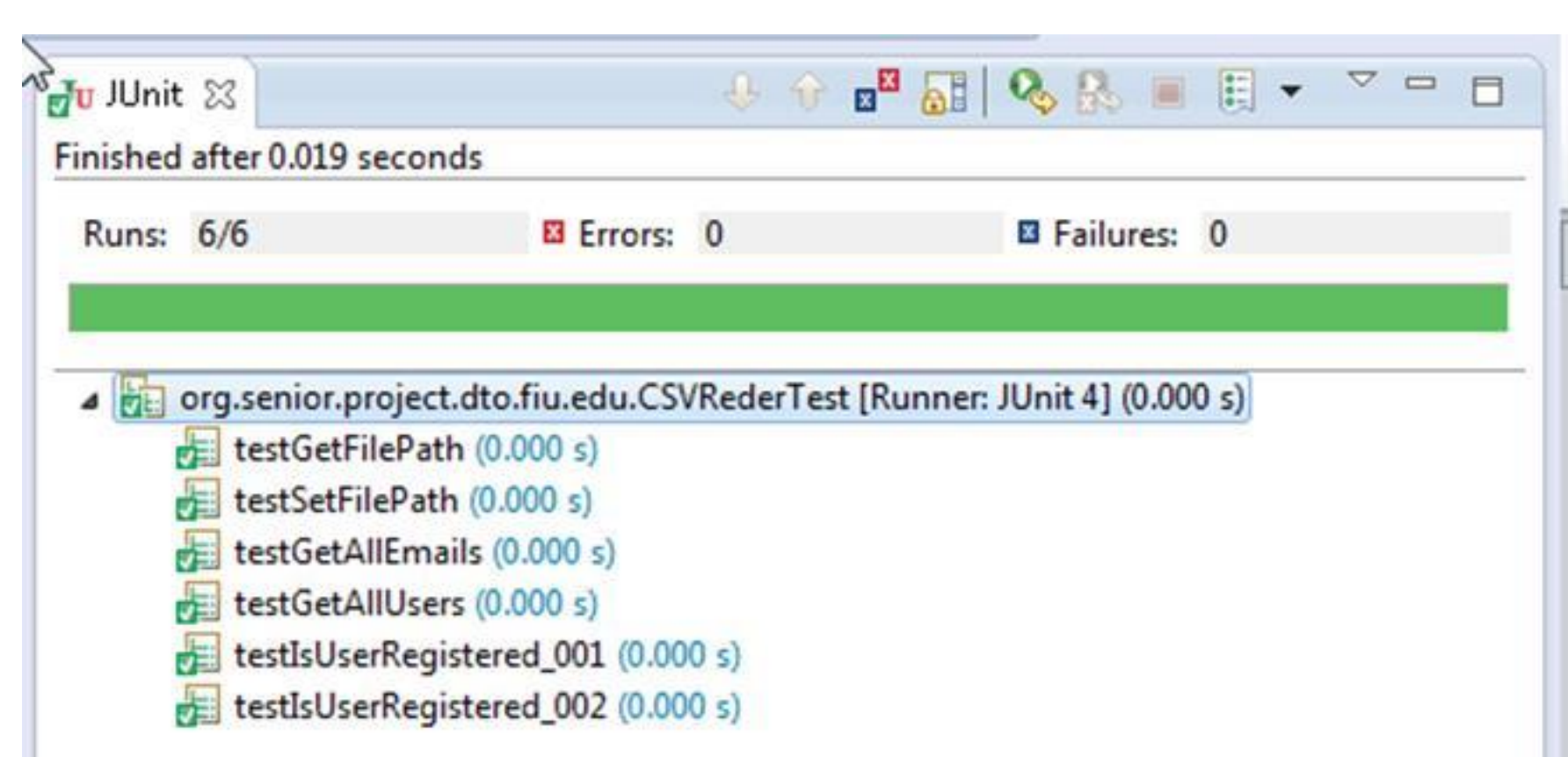
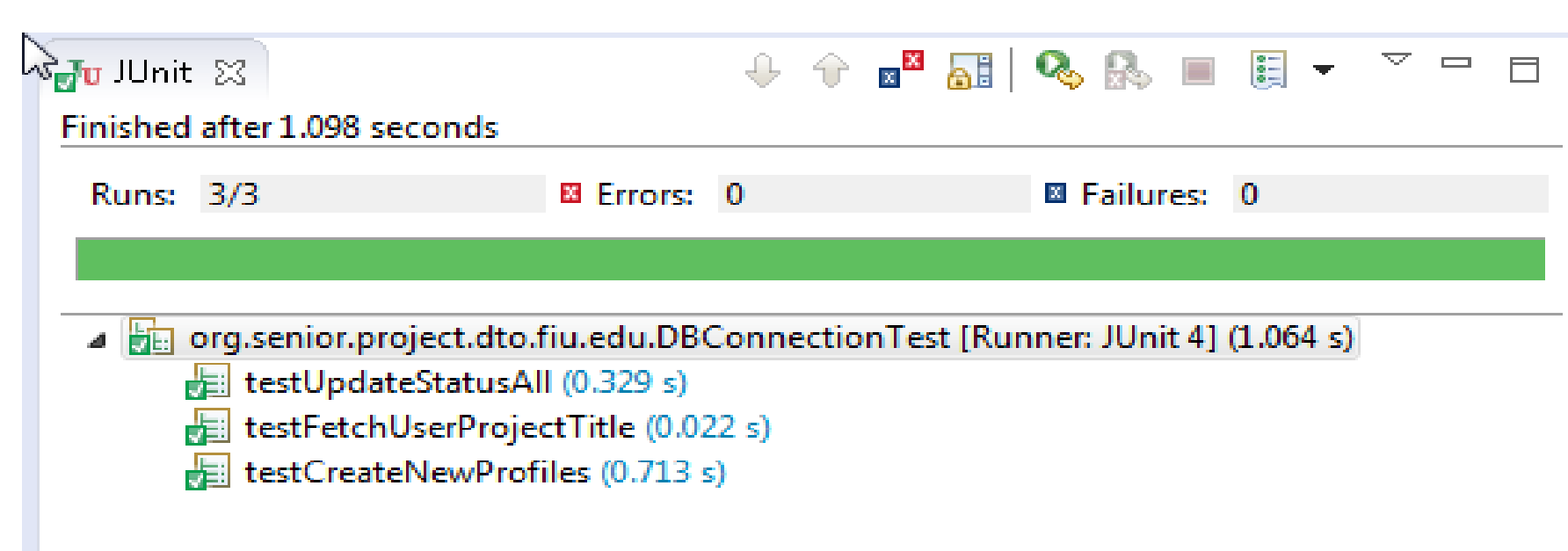
The API was implemented in java using Representational State Transfer (REST) software architecture. It has a servlet class that runs a daily task to update the SPW database with the latest info. Notifications System which includes: Join / Leave Project, Send Project for Approval, Accept/Reject project proposals now has emails notifications using PHP and CodeIgniter framework.

State Machine for Register/Login subsystem



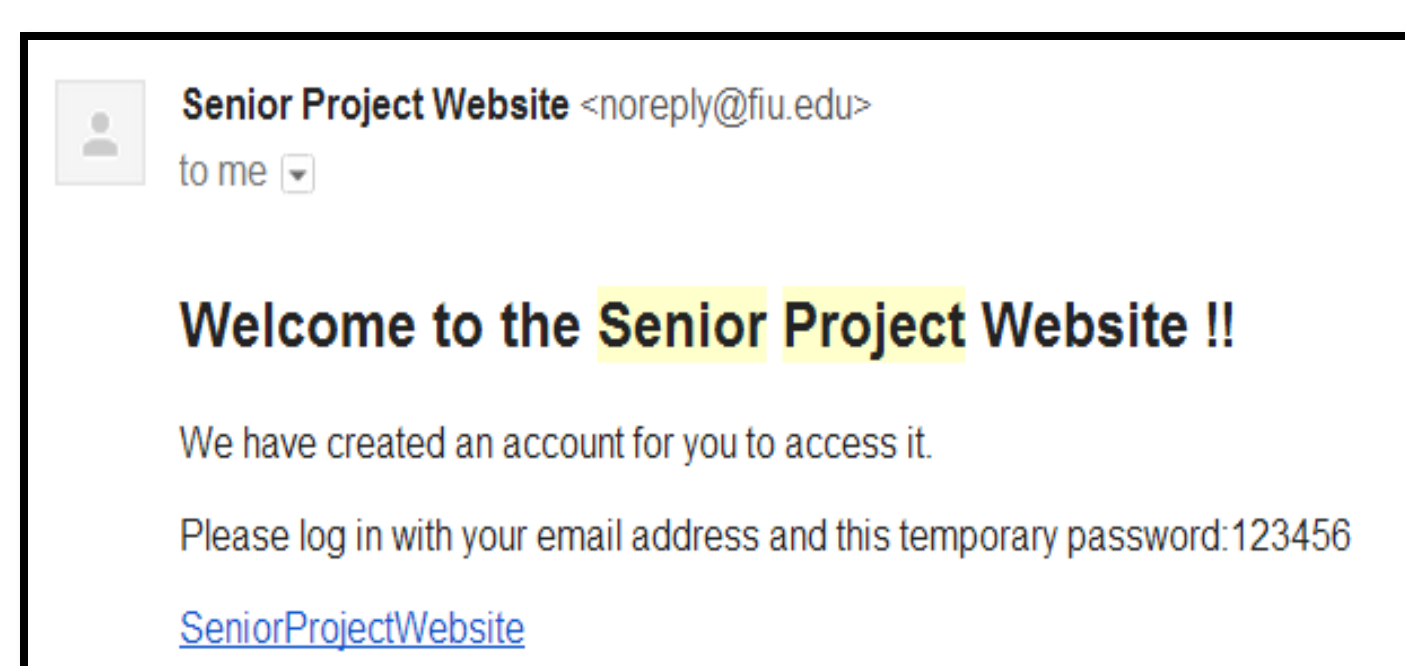
Verification

Test Cases created for the API rest service using JUnit framework. No failures were reported.

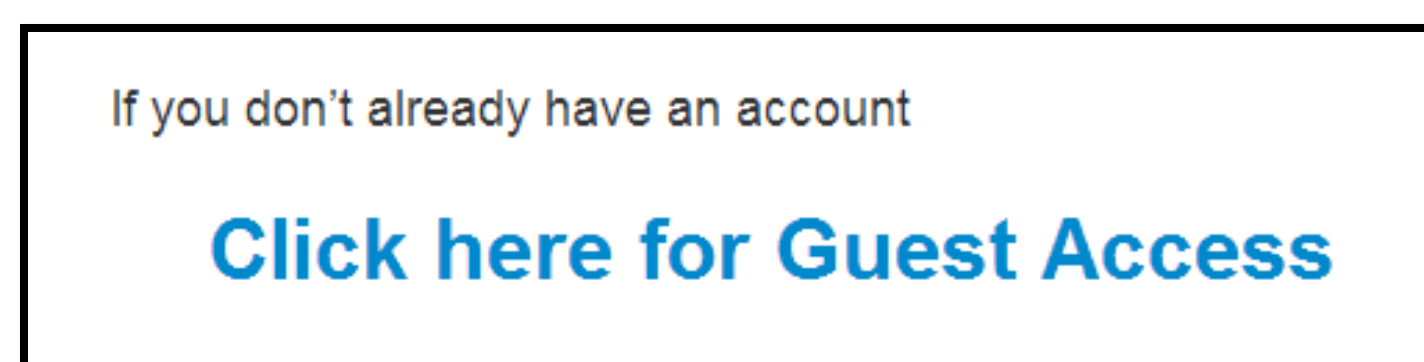


Screenshots

Email Notifications



Guest Access To Senior Project Website



API call for all students on class



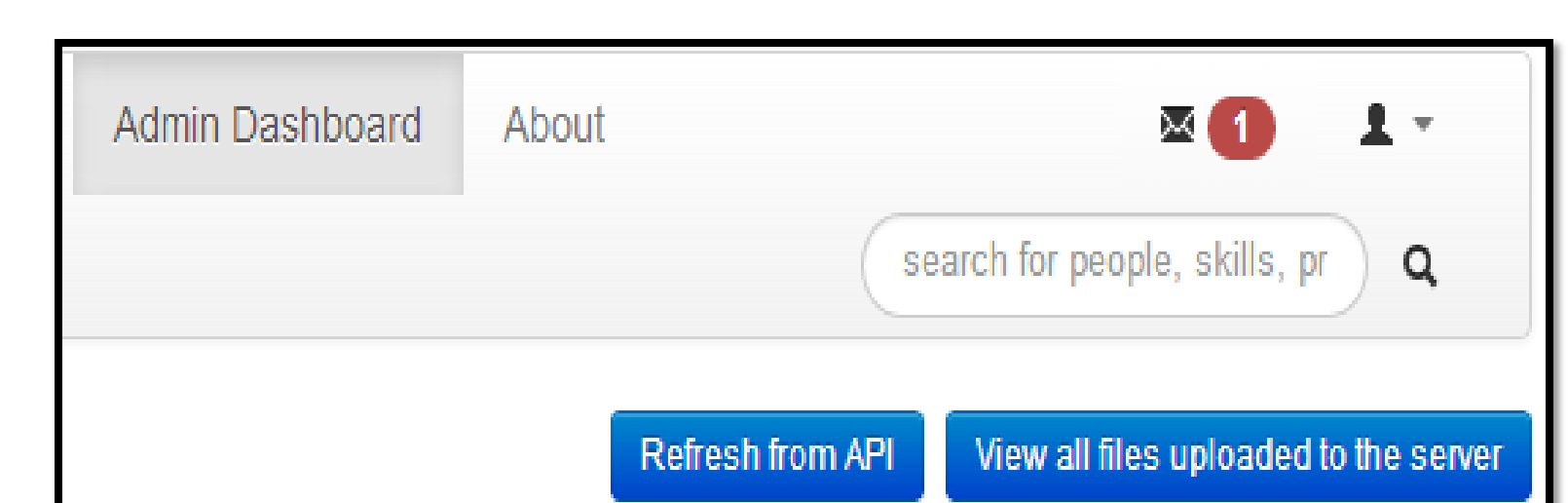
API call to validate a student



Summary

- Website implemented using open source platform which allows the faculty staff to host and maintain the system with the resources and training they already have.
- Architected using Model-View-Controller design pattern which enforces separation of concerns and therefore a clear, organized and granular code.
- Through the notification system every user keeps track of the latest changes in their team.
- The use of the API makes this site consistent on information and allows only access to those who need it. In addition it provides services to Mobile Judge and Virtual Job Fair senior projects.

Refresh from API on Admin Dashboard



Acknowledgment

I am thankful for the help that I received from my team members: Michael Garcia and Antonio Vazquez, as well as for the job done by the team who worked on version 1 of the system, last semester: Yaneli Fernandez, Keiser Moya and Camilo Sanchez