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Revision History

Name	Date	Changes	Version
Kyle Hinsz	05/13/2014	Initial Draft	1.0
Shamima Huq	05/17/2014	Overview, Test Cases, Data Structures, TOC, Revision history	2.0
David Mattox	05/18/2014	Added menu mockups	2.1
Ajay Chankramath	05/18/2014	Added object model	3.0
David Mattox	05/18/2014	Added file model	4.0

Technical Design

1. Application Overview

The application is a student registration system that displays an alphabetically ordered list of courses available for registration. The initial course list is a text file that includes the course identification number, course dates, name, brief summary, the enrollment limit, and the number of students already enrolled.

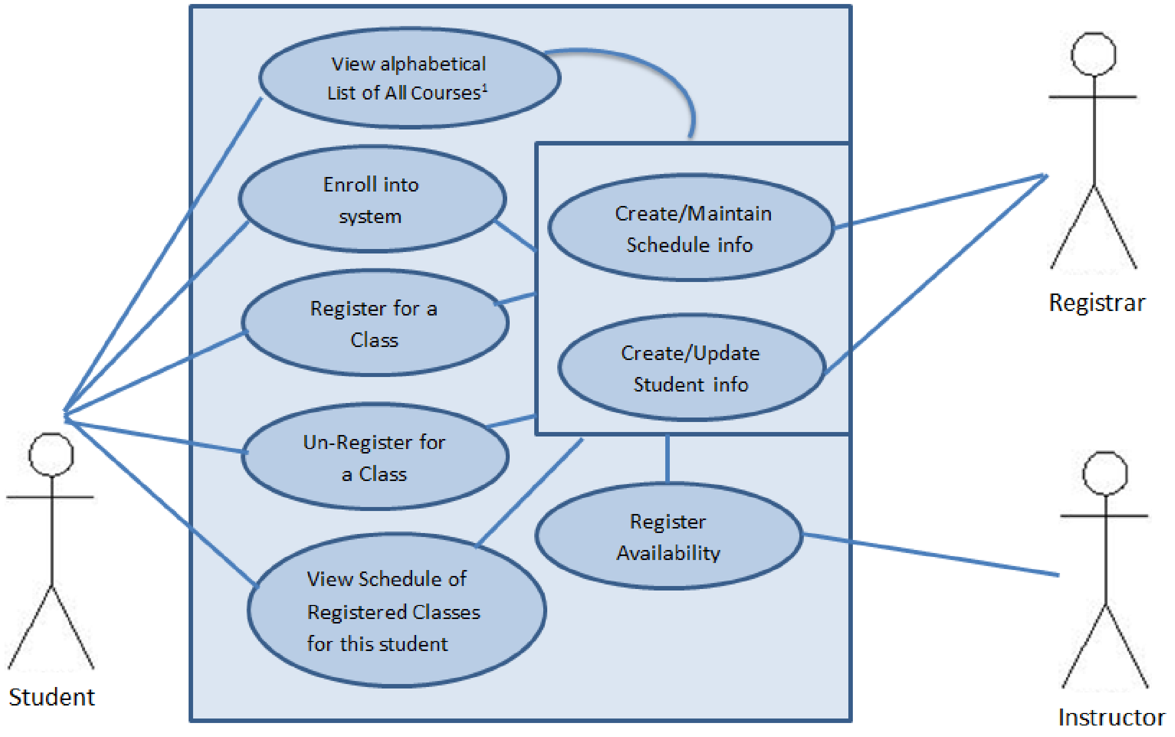
The program shows current registration numbers and available seats for each course. As students register/unregister the course's counter of currently registered students will be adjusted. After a student successfully registers, the registration information is stored in a file and the system displays a list of classes for which he/she is currently registered.

The system does not allow a student to register for a course beyond its maximum student capacity. This number is assigned in the initial text file as input. Also, before a student is able to un-register from a course, the system checks to make sure he/she was actually registered. Additionally, the system does not allow one student to view the registration information for another student.

2. System Process

Use-Case Diagram For University Registration System

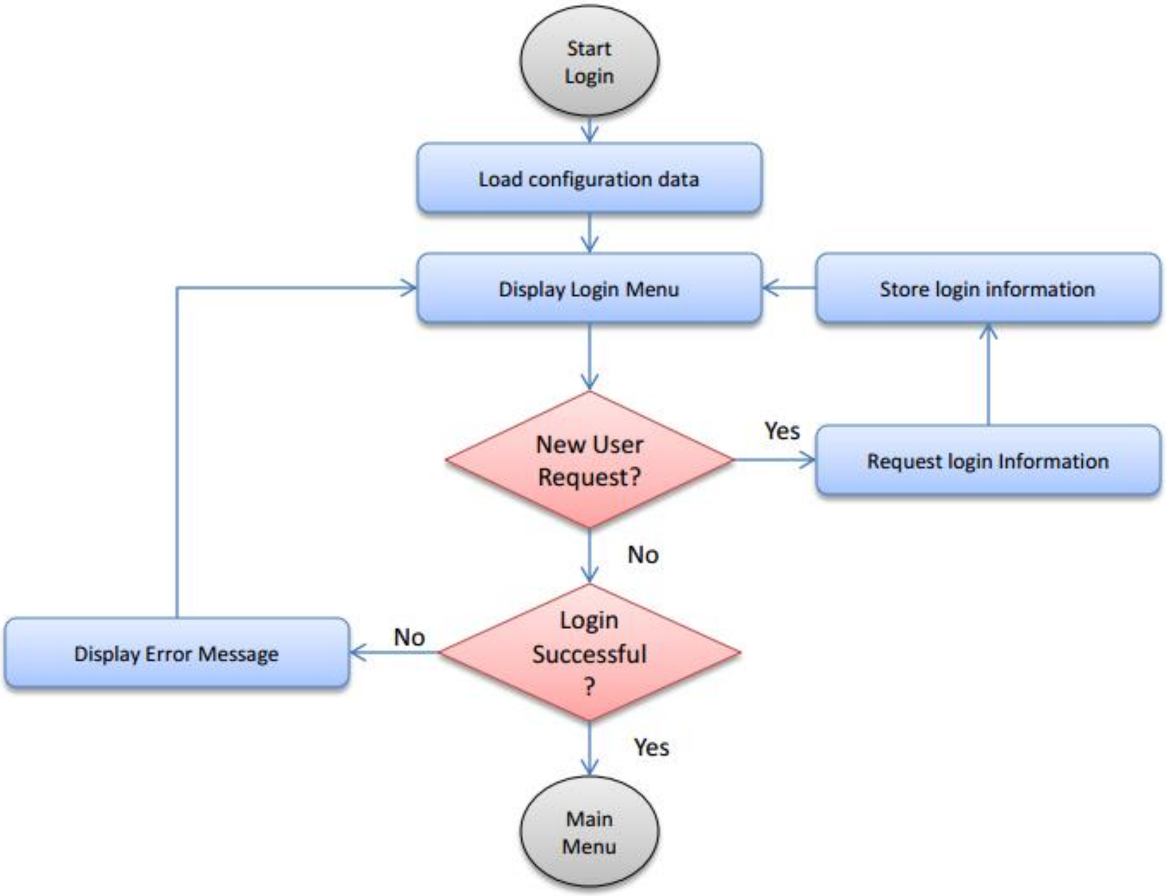
(Identifying Main Actors and Functions)


View alphabetical List of All Courses[1]
Enroll into system
Register for a Class
Un-Register for a Class
View Schedule of Registered Classes for this student
Create/Maintain Schedule info
Create/Update Student info
Register Availability
Student
Registrar
Instructor

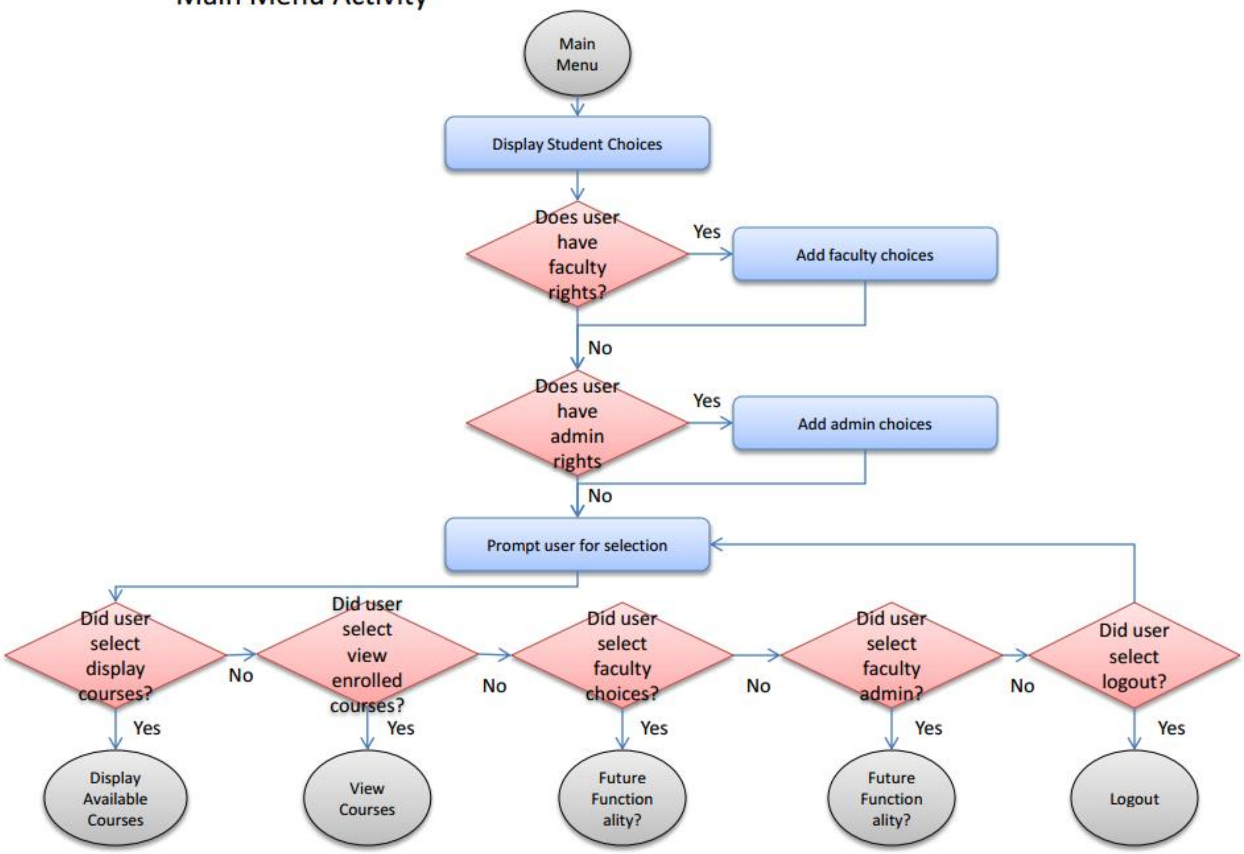
1) Course list should include course identification number, course dates, name, brief summary, the enrollment limit, and the number of students
2) One student should not be allowed to view the registration information for another student.

3. System Flow

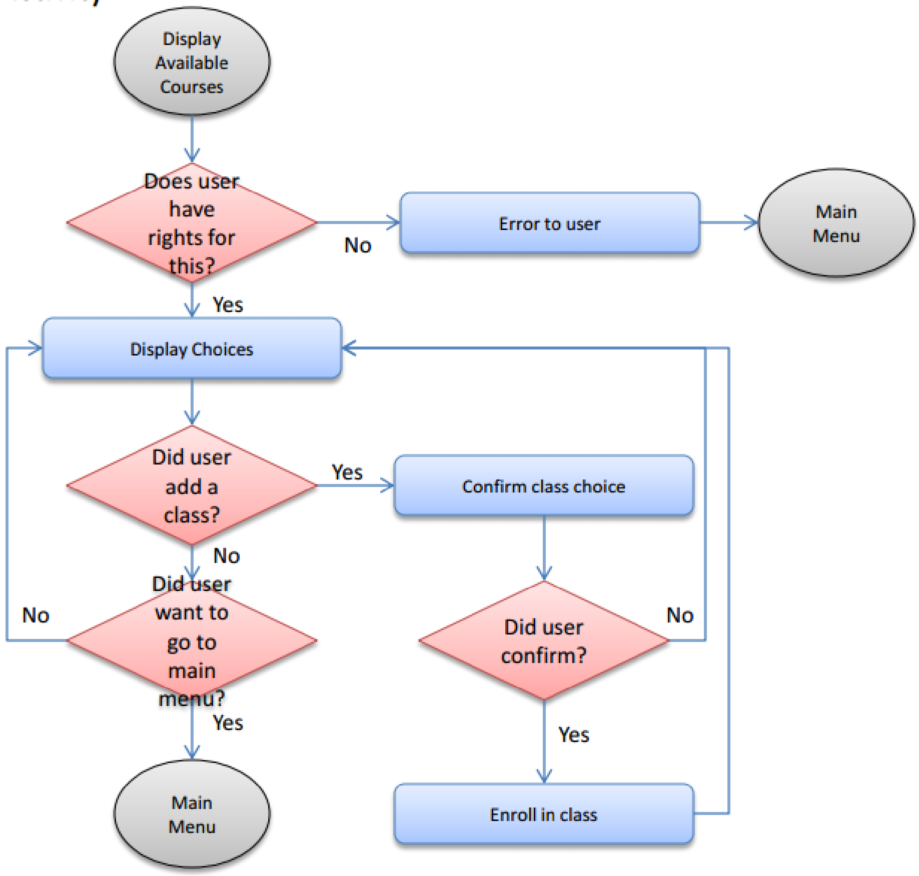
Login Activity



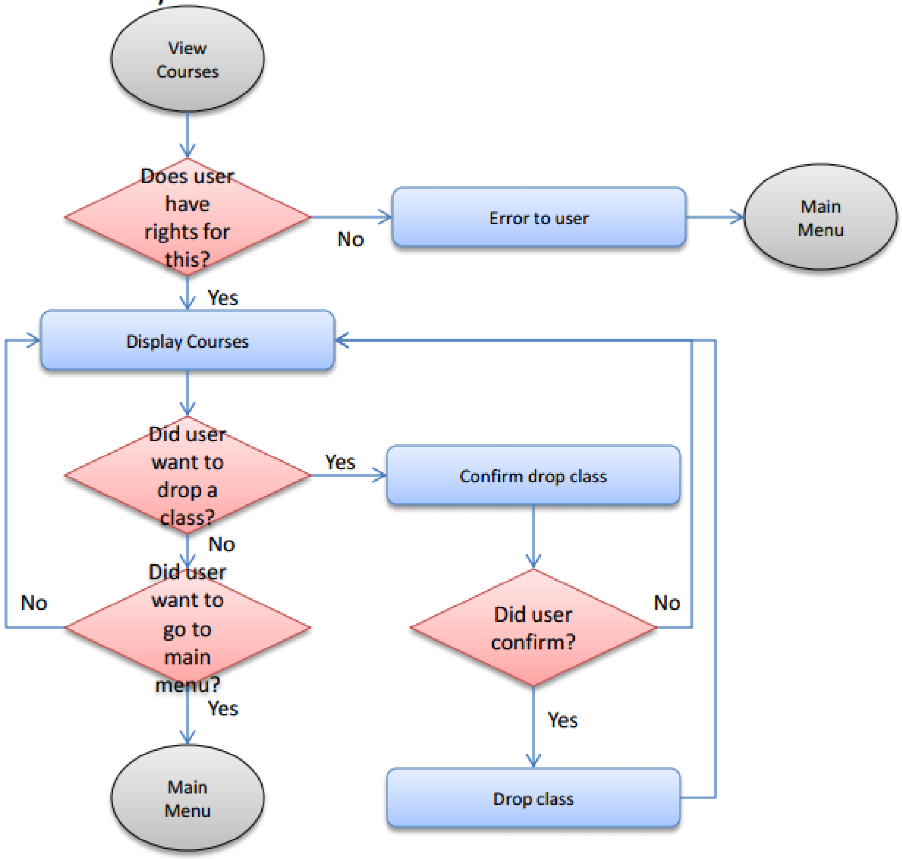
Main Menu Activity


Main Menu
Display Student Choices
Does user have faculty rights?
Yes
Add faculty choices
No
Does user have admin rights
Yes
Add admin choices
No
Prompt user for selection
Did user select display courses?
No
Did user select view enrolled courses?
No
Did user select faculty choices?
No
Did user select faculty admin?
No
Did user select logout?
Yes
Yes
Yes
Yes
Yes
Display Available Courses
View Courses
Future Function ality?
Future Function ality?
Logout

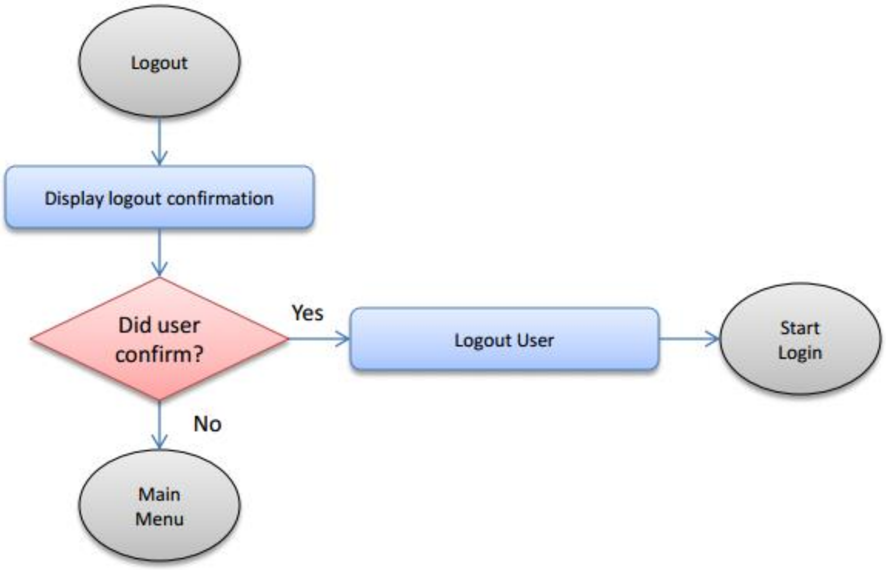
Available Courses Activity



View Enrolled Courses Activity

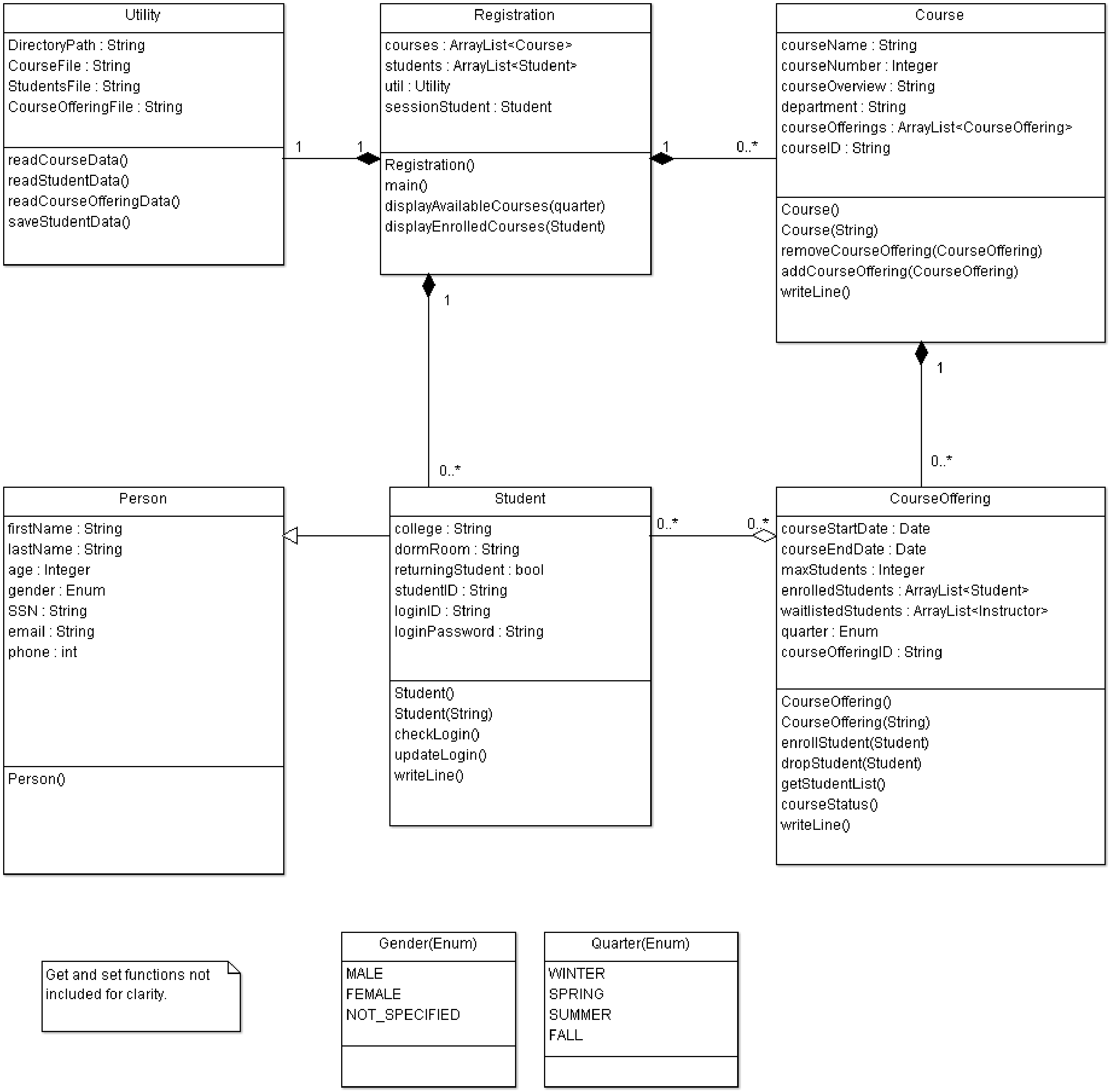


Logout Activity



4. Object Model

4.1 Class Diagram



4.2 Member Functions

***All member variables will have get and set functions made available.**

Registration Class

Registration() : Default constructor
main() : Main function for the application
loginMenu() : displays the login menu
loginPrompt() : displays the prompt for the user ID and password
newUserPrompt() : displays the prompt for new user enrollment
mainMenuPrompt() : displays the main menu
logoutPrompt() : displays the logout prompt
displayAvailableCourses() : displays the list of available courses for the current quarter
displayEnrolledCourses() : displays the list of enrolled courses for the current student

Course Class

Course() : Default constructor
Course(String) : creates a instance from a string in the same format as writeLine()
removeCourseOffering(CourseOffering) : Removes a an offered course (not used for this assignment)
addCourseOffering(CourseOffering) : Adds an offered course
String writeLine() : returns a comma delimited string with the member variables of the class

CourseOffering Class

CourseOffering() : Default constructor
CourseOffering(String) : creates a instance from a string in the same format as writeLine()
enrollStudent(Student) : enrolls a student in the course
dropStudent(Student) : drops a student from the course
ArrayList<Student> getStudentList() : returns the list of students in the course
courseStatus() : returns the status of the course
String writeLine() : returns a comma delimited string with the member variables of the class

Student Class

Student() : Default constructor
Student(String) : creates a student from a string in the same format as writeLine()
Boolean : checkLogin(String userID, String password) : returns true/false if the userID and password match
updateLogin(String userID, String password) : updates the student's user ID and password
String writeLine() : returns a comma delimited string with the member variables of the class

5. User interface mockups

Login Menu:

```
==================================
Welcome to the Registration System
Please select from the following:
1. Login
2. Request Access
3. Exit
Enter the number of you request: _
```

Login Prompt:

```
==================================
Login
Please enter your login ID.
_
Please enter your password.
*
```

Login Prompt Error Message:

```
Unrecognized login id/password combination.
```

New User Prompt:

```
==================================
New user request
Please enter your student ID.
_
Please enter your requested login ID.
_
Please enter your password.
*
Please confirm your password.
*
```

New User Prompt Error Messages:

```
Unrecognized student ID.
Student already enrolled.
Login ID not available, please select another.
Password does not meet security requirements.
Passwords do not match.
```

Main Menu:

```
==================================
Main Menu
Please select from the following:
1. Display all available courses
2. Display all enrolled courses
3. Logout
Enter the number of you request: _
```

Logout Prompt:

```
Please confirm you would like to logout (Y/N): _
```

Display Available Courses:

```
==================================
Displaying all available courses
Please select from the following:
1. Add -> CS150 - Intro to computer programming - 50 seats available
2. Waitlist -> CS160 - Intro to Java - 25 on Waitlist
3. Add -> Advanced Java - 7 seats available
4. Main Menu
```

```
Enter the number of you request: _
```

Display Available Courses Prompts:

```
Please confirm you would like to enroll in CS150 - Intro to computer programming (Y/N): _
Please confirm you would like to be added to the waitlist for CS160 - Intro to Java (Y/N): _
```

Display Enrolled Courses:

```
==================================
Displaying enrolled courses
Please select from the following:
1. Drop -> CS150 - Intro to computer programming
2. Drop -> CS160 - Intro to Java
3. Main Menu
Enter the number of you request: _
```

Display Enrolled Courses Prompt:

```
Please confirm you would like to drop CS150 - Intro to computer programming (Y/N): _
```

6. Data structures

The data file structures will be comma separated text files list of fields in which one courses data is captured on each line.

- Each field type matches the type specified in the Class Diagram
- There are no header and trailer records.
- No control information (number of records, size of files, etc.).

6.1 Course.csv structure

Description: contains the list of courses offered by the school

Fields: courseID, courseName, courseNumber, courseOverview, department

6.2 CourseOffering.csv structure

Description: contains the instances of courses offered by the school.

Fields: courseOfferingID, courseStartDate, courseEndDate, maxStudents, quarter

6.3 StudenttoCourseMapping.csv structure

Description: contains the list of enrolled/waitlisted students mapping to course offerings

Fields: studentID, status (“ENROLLED”/”WAITLIST”), courseOfferingID

6.4 Student.csv structure

Description: contains the list of enrolled/waitlisted students mapping to course offerings

Fields: studentID, firstName, lastName, age, gender, SSN, email, phone, college, dormRoom, returningStudent, loginID, loginPassword

7. Test Cases

Test cases will be prepared to evaluate functionality of the system as the application is developed. Initial few records have been added as students already in the system.

- Enroll into System
  - New user … create account
  - Existing user – (login pass/fail)
- Register for a Course
  - Register for a course – First time– (pass/fail)
  - Attempt to register for a course (already registered) – (pass/fail)
- Unregister for a Course
  - Unregister for a course (already registered) – (pass/fail)
  - Unregister for a course (not already registered) – (pass/fail)
- View Course List
  - View all registered courses – (pass/fail)
  - Check Alphabetic List of all Available Courses – (pass/fail)

The list below is the student text file input for the system

```
<Username>, <Password>, <Registered Course List>
Cecile2014, nm$rh&, MS201, SC203
SarahMAY13, Sr34%f^, CS101, MS104, SC305
Bill4456, 3654SRK@, MS403
Ly%3342, dsw@4567, MS405
```