14:332:438 Software Engineering

Report I

Analysis, Design, and Implementation

Website:

https://github.com/sjlu/RU-Planner/wiki

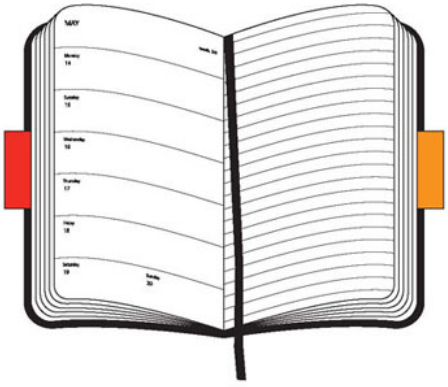
Team Members:

Steven Lu

Nicholas Guida

Project: RUplanner

April 1, 2013



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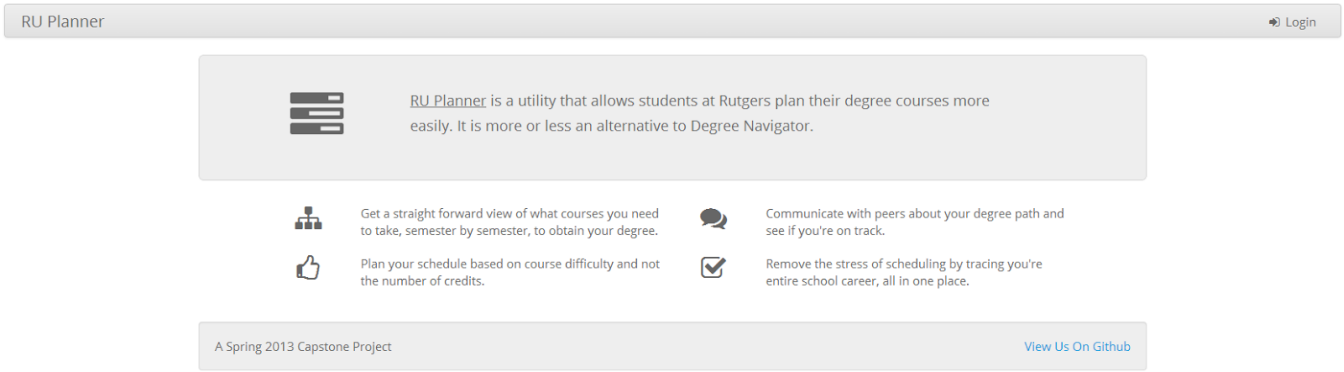
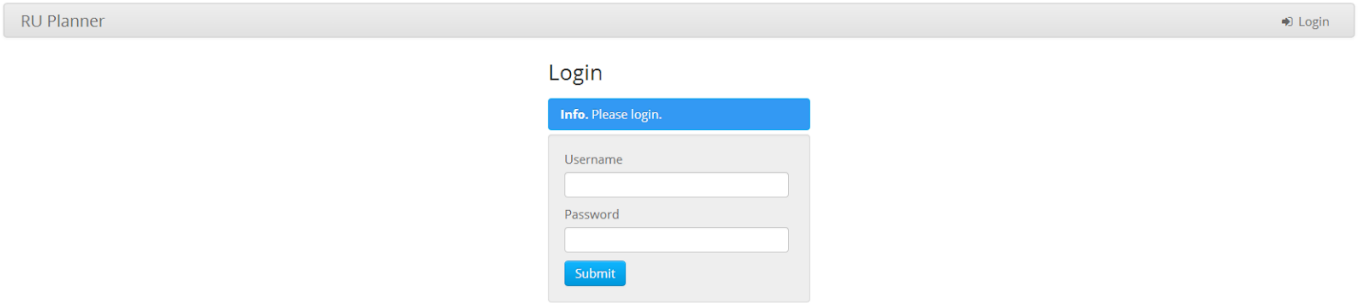
Scope of Report

For this deliverable, our main goal was to get the frontend functioning (e.g user interface and ability to login) and create the backend databases which will implement with the front end. We were successful in these endeavors, however a lot of the work is not tangible since we still need to put both the frontend and backend together. This will be our goal for the second deliverable, which will contain a reasonably longer report due to the implementation of more use cases and a working demo. However, it should not be overlooked the time spent creating the databases and UI so that the next step can go as seamlessly as possible.

Sample webpages:





Ultimately, we feel our final UI template will be setup such that when a student selects a major, a page comes up which looks similar to the handbook image

Computer Engineering Curriculum

Freshman Year

01:160:159	General Chemistry for Engineers		3	14:440:127	Intro to Computers for Engineers		3
01:160:171	Introduction to Experimentation		1	14:440:221	Engineering Mechanics		3
01:355:101	Expository Writing		3	01:640:152	Calculus II Math/Phy		4
14:440:100	Engineering Orientation		1	01:750:124	Analytical Physics IB		2
01:640:151	Calculus I Math/Physics		4	__:___:___	**Hum/Soc. elective**		3
01:750:123	Analytical Physics IA		2				
01:220:102	**Introduction to Microeconomics**		3				
Total Credits			17	Total Credits			15

Sophomore Year

14:332:221	Principles of Electrical Engg. I	M	3	14:332:222	Principles of Electrical Engg. II	M	3
14:332:223	Principles of E.E. I Lab	M	1	14:332:224	Principles of E.E. II Lab	M	1
14:332:231	Digital Logic Design	M	3	14:332:226	Probability & Random Processes	M	3
14:332:233	Digital Logic Design Lab	M	1	14:332:252	Programming Methodology I	M	3
01:640:251	Multivariable Calculus		4	14:332:254	Programming Method. I. Lab	M	1
01:750:227	Analytical Physics IIA		3	01:640:244	Differential Equations for Engg/Phy		4
01:750:229	Analytical Physics IIA Lab		1				
Total Credits			16	Total Credits			15

Junior Year

14:332:331	Computer Arch.& Asmb. Lang.	M	3	14:332:312	Discrete Mathematics	M	3
14:332:333	Computer Arch. Lab	M	1	14:332:366	Digital Electronics	M	3
14:332:345	Linear Systems & Signals	M	3	14:332:368	Digital Electronics Lab	M	1
14:332:347	Linear Systems & Signals Lab	M	1	14:332:452	Software Engineering	M	3
14:332:361	Electronic Devices	M	3	14:332:393	Professionalism/Ethics	M	1
14:332:363	Electronic Devices Lab	M	1	01:198:416	Operating Systems	M	4
14:332:351	Programming Methodology II	M	3	__:___:___	**Computer/Tech elective**	M	3
Total Credits			15	Total Credits			18

Senior Year

14:332:437	Digital System Design	M	3	14:332:___	**Capstone Design elective**	M	3
__:___:___	**Computer elective**	M	3	__:___:___	**Computer elective**	M	3
__:___:___	**Tech elective**	M	3	__:___:___	**Hum/Soc elective**	M	3*
__:___:___	**Science Math Engg elective**	M	3	__:___:___	**Hum/Soc elective**	M	3*
__:___:___	**Hum/Soc elective**	M	3				
Total Credits			15	Total Credits			12

which allows each student to fill in their remainder courses while also able to add additional courses or remove prefilled courses (either due to overrides or retaking the class at a different time, etc).

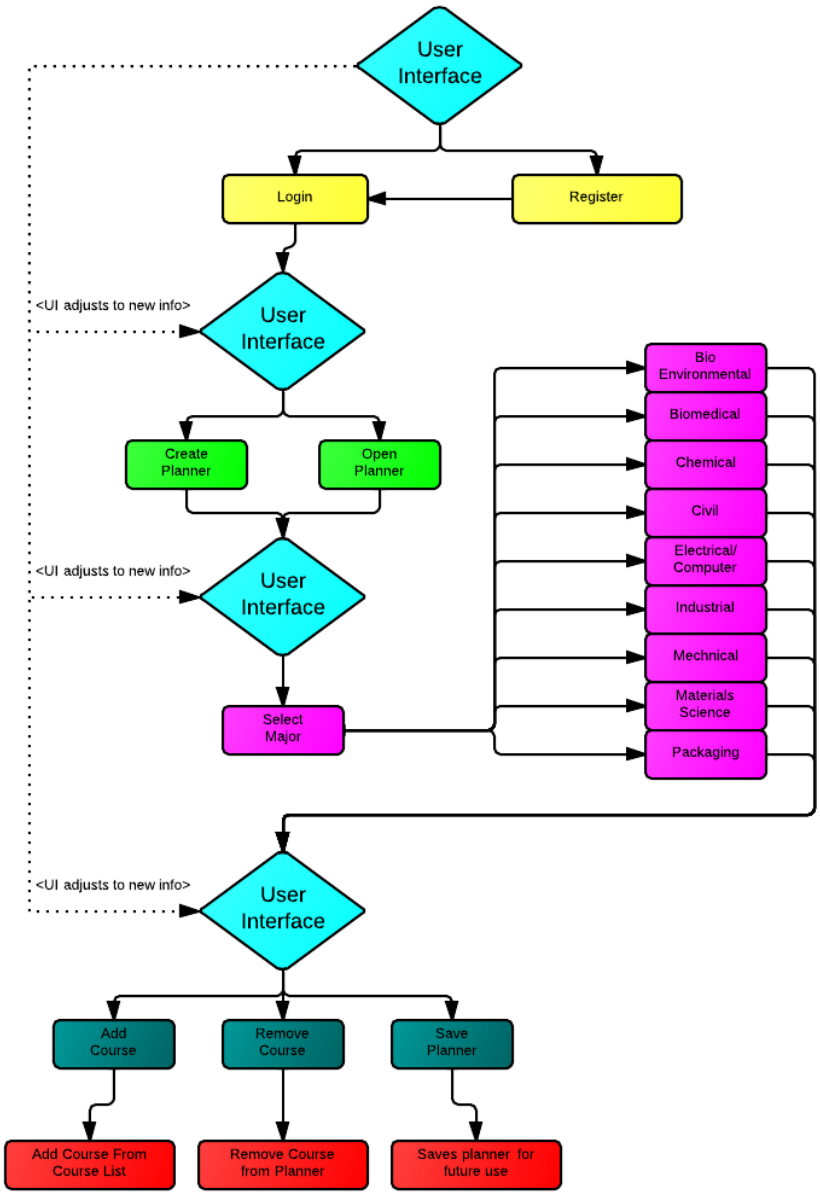
Use Cases

Implemented Use Cases for Deliverable

Name: Login **Number**: UC2
Description: Allows the user to login to his previously registered account **Purpose**: To provide access to the websites functionality and start/reopen their planner

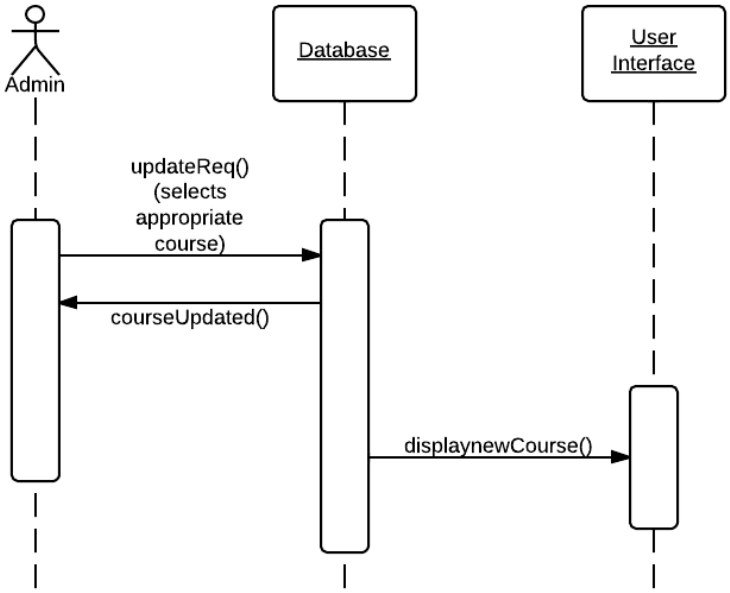
Name: Update Requirements **Number**: UC10
Description: Allows the admin to update the requirements for the engineering majors **Purpose**: Due to university changes in major requirements, periodic updating of the requirements for each engineering major is required in order to not fall out of date

Conceptual Model

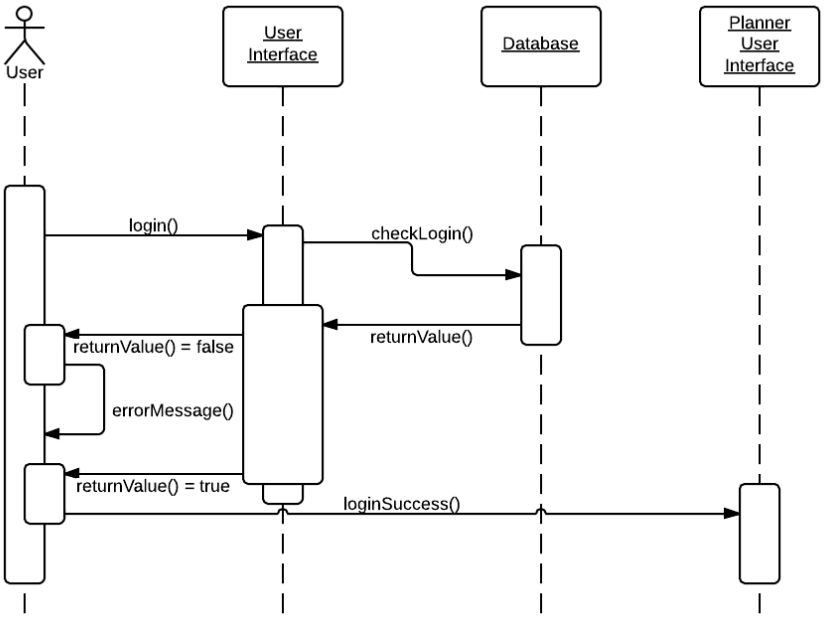


Sequence Diagrams

Update Requirements



Login



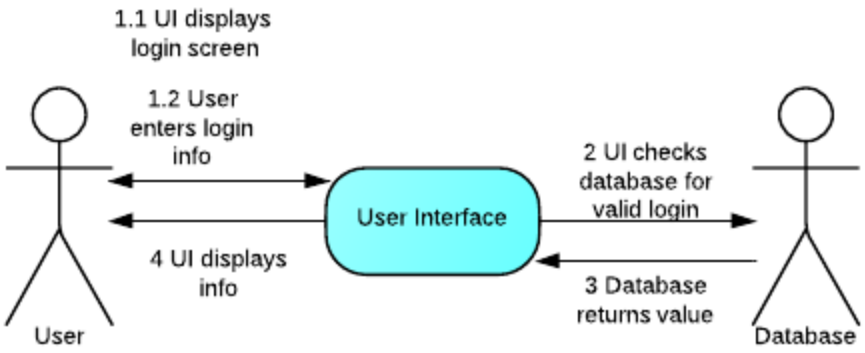
Document Contracts

Operation:	Login
Cross References:	UC-2
PreCondition:	Student is at correct URL Student has a valid account Student's computer is connected to internet
PostCondition:	Student is at correct URL Student has a valid account Student's computer is connected to internet Student successfully logged in - displaying planner workspace

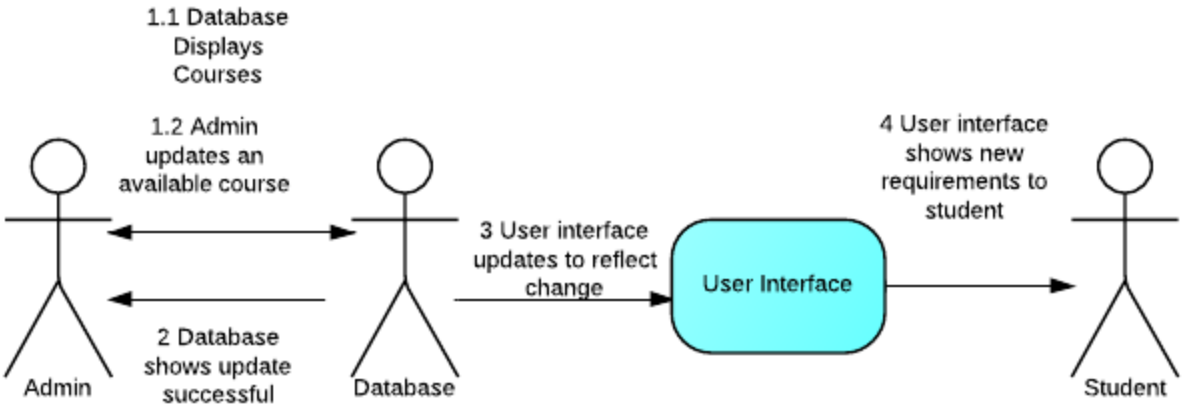
Operation:	Update Requirements
Cross References:	UC-10
PreCondition:	Admin is at administrative panel Admin has permission to update database Admin knows which course to update
PostCondition:	Admin is at administrative panel Admin has permission to update database Admin knows which course to update Course is updated in database Updated course is reflected properly through UI to student

Collaboration Diagrams

Login



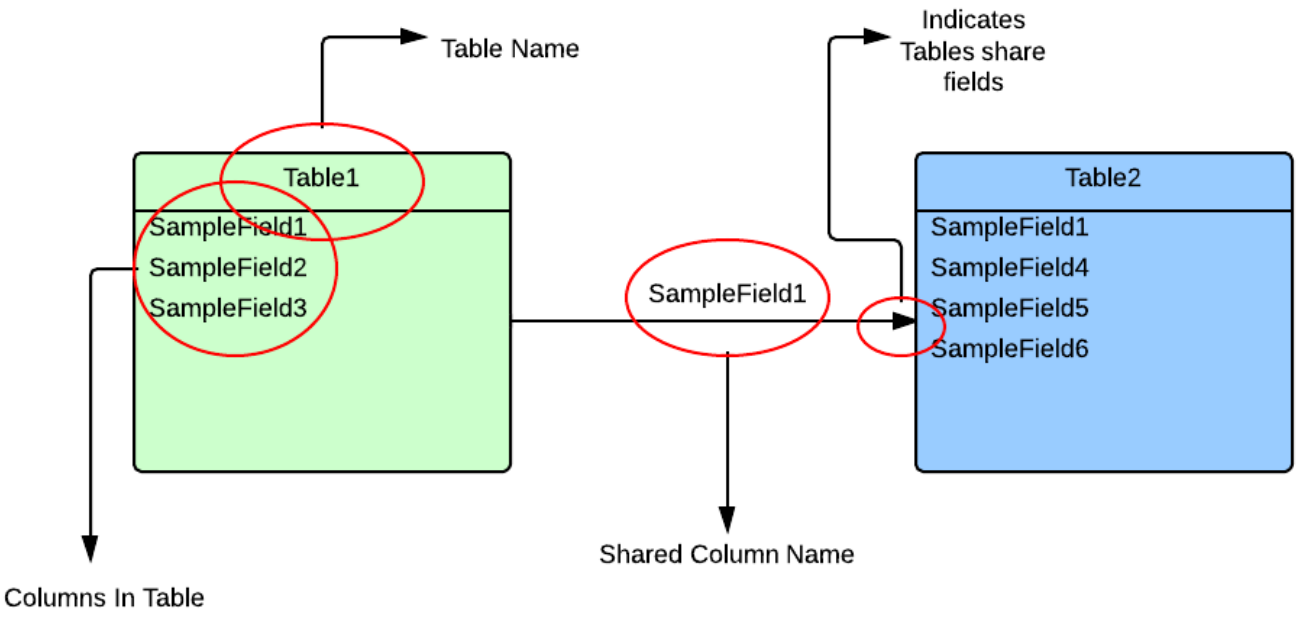
Update Requirements



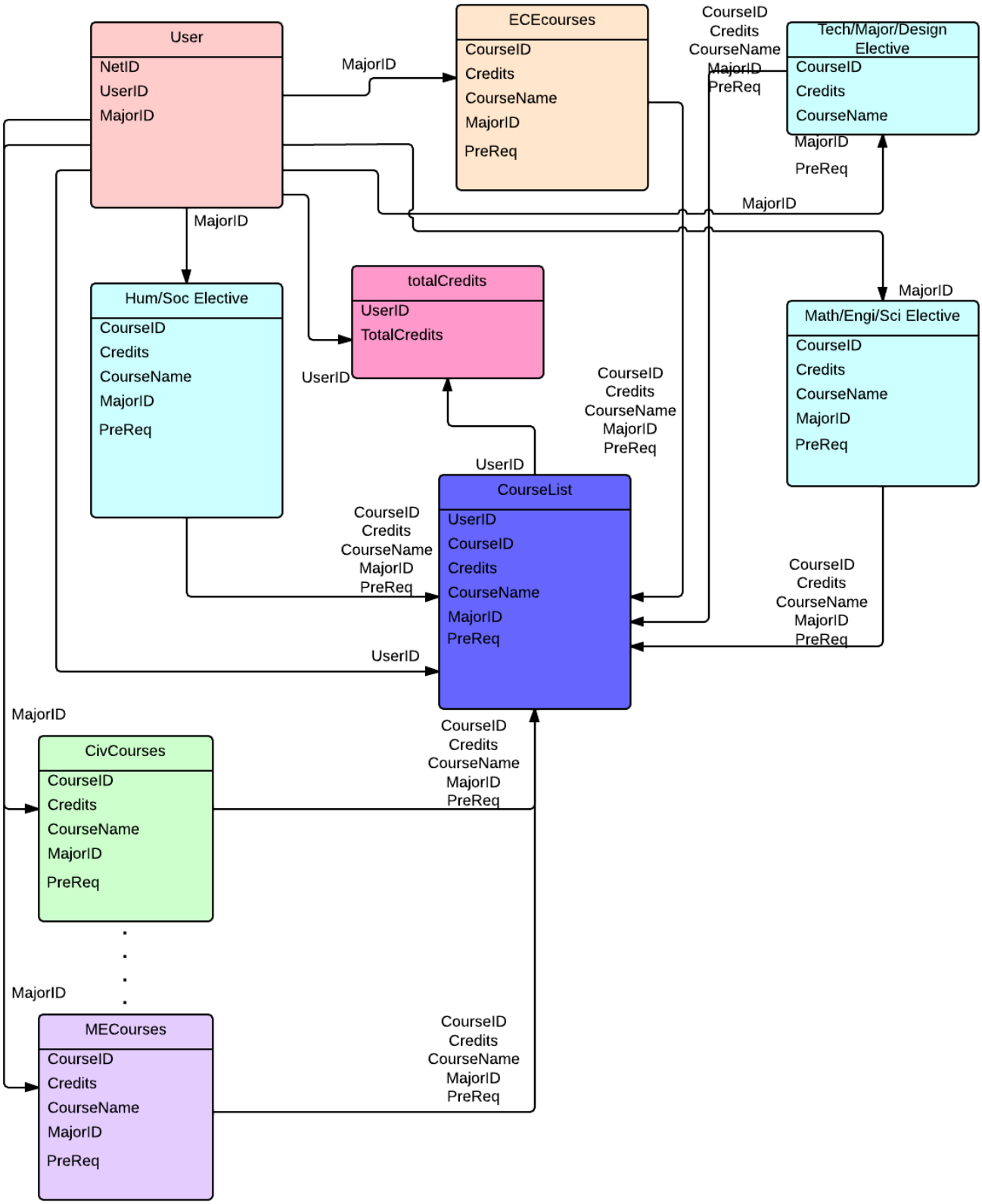
Class Diagram

Because our capstone project is completely based on the web, we don't have any classes from OOP languages. However, since we had to create numerous databases, we'll include each type of database (e.g. we won't show each course database for every major, rather just one course database for one major so the idea is understood) and how they link together. Each database was programmed in mySQL and is subject to change throughout the project, however this is how it currently is.

Each Box represents a different table in our database, and each arrow represents how the tables communicate within the databases with the text next to the arrow showing the field which gets shared between tables. EX:



Database Relationship Diagram



Code (Header Files)

All of our code (which is html/css/php/mysql) can be found on our github repository:

https://github.com/sjlu/RU-Planner

Modifications

Our original project statement had use case Register (UC-1), which required the student to have to register for the website in order to login. However, we were able to having the login system match up with the current Rutgers database, so that students can now log in using their traditional NetID and password. This removes the need to have anybody register and automatically limits the website for use by only Rutgers students. These are the exact requirements we had in mind from the beginning, so this was an important and convenient change from our original plans.

Future modifications may also come about, however it is too early to tell at the current time. Our project schedule is still as planned (with the modification of UC-1, Register):

UC#	Deliverable I (3/27/2013)	Deliverable II (4/15/2013)	Deliverable III (5/12/2013)
UC1	-	-	-
UC2	✓	✓	✓
UC3	x	✓	✓
UC4	x	✓	✓
UC5	x	✓	✓
UC6	x	✓	✓
UC7	x	x	✓
UC8	x	x	✓
UC9	x	x	✓
UC10	✓	✓	✓

Individual Contributions

Steven Lu:

- Web Page Design
- Web Page Development
- UI Development

Nicholas Guida:

- Created Report/Presentation
- Database Creator

Time Log

Name	Date	Time	Reason
Steven/Nick	2/16	2 hours	Meeting
Steven	2/18	2 hours	Website Design
Steven/Nick	2/19	3 hours	Meeting
Steven	2/22	4 hours	Website Design
Steven	2/23	3 hours	Website UI
Nick	2/27	4 hours	Database Design
Nick	2/28	3 hours	Database Management
Steven	3/10	2 hours	Website UI
Nick	3/15	3 hours	Database Integration
Steven/Nick	3/25	2 hours	Meeting
Steven/Nick	3/26	2 hours	Meeting