GUI II PROJECT PROPOSAL

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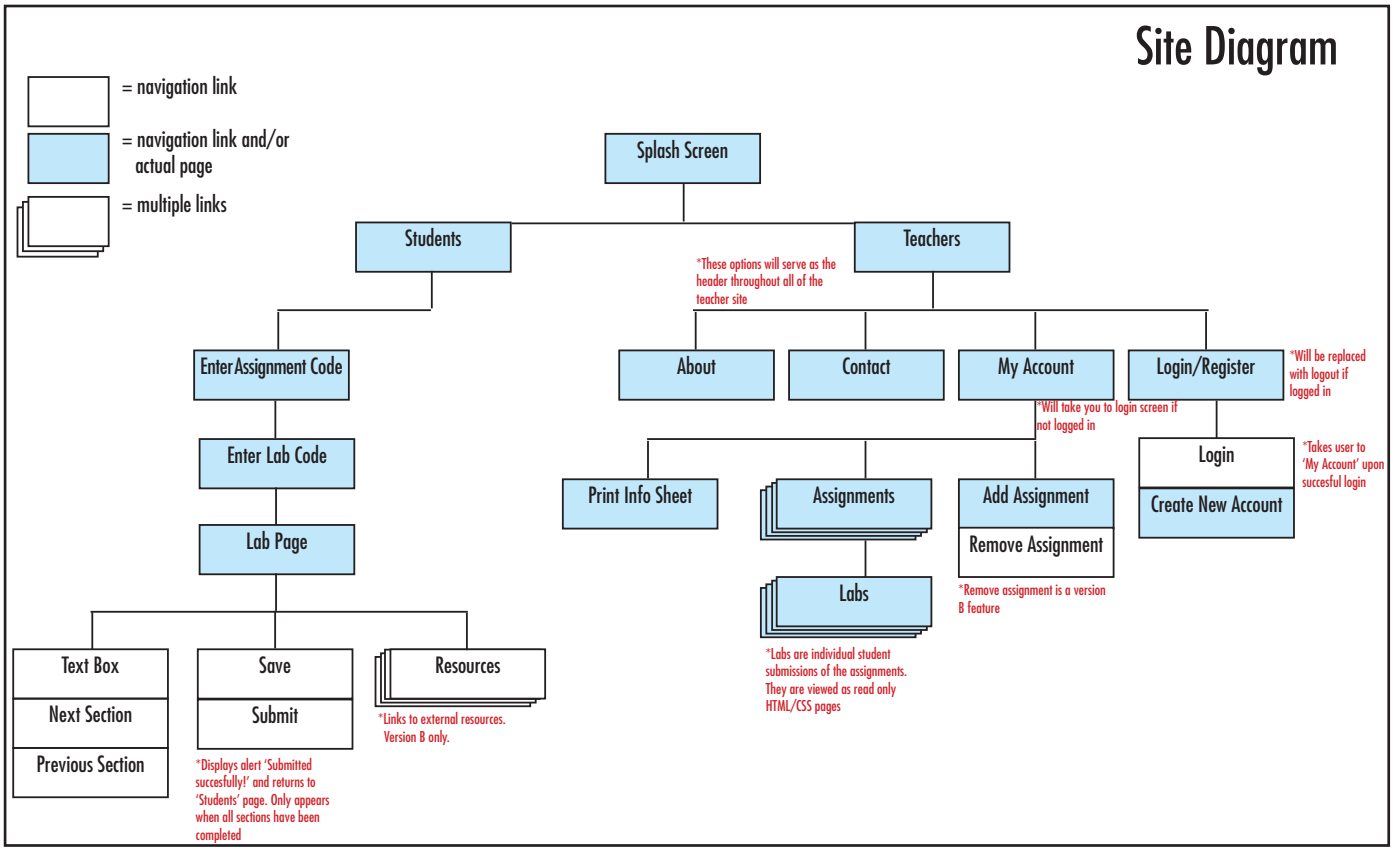
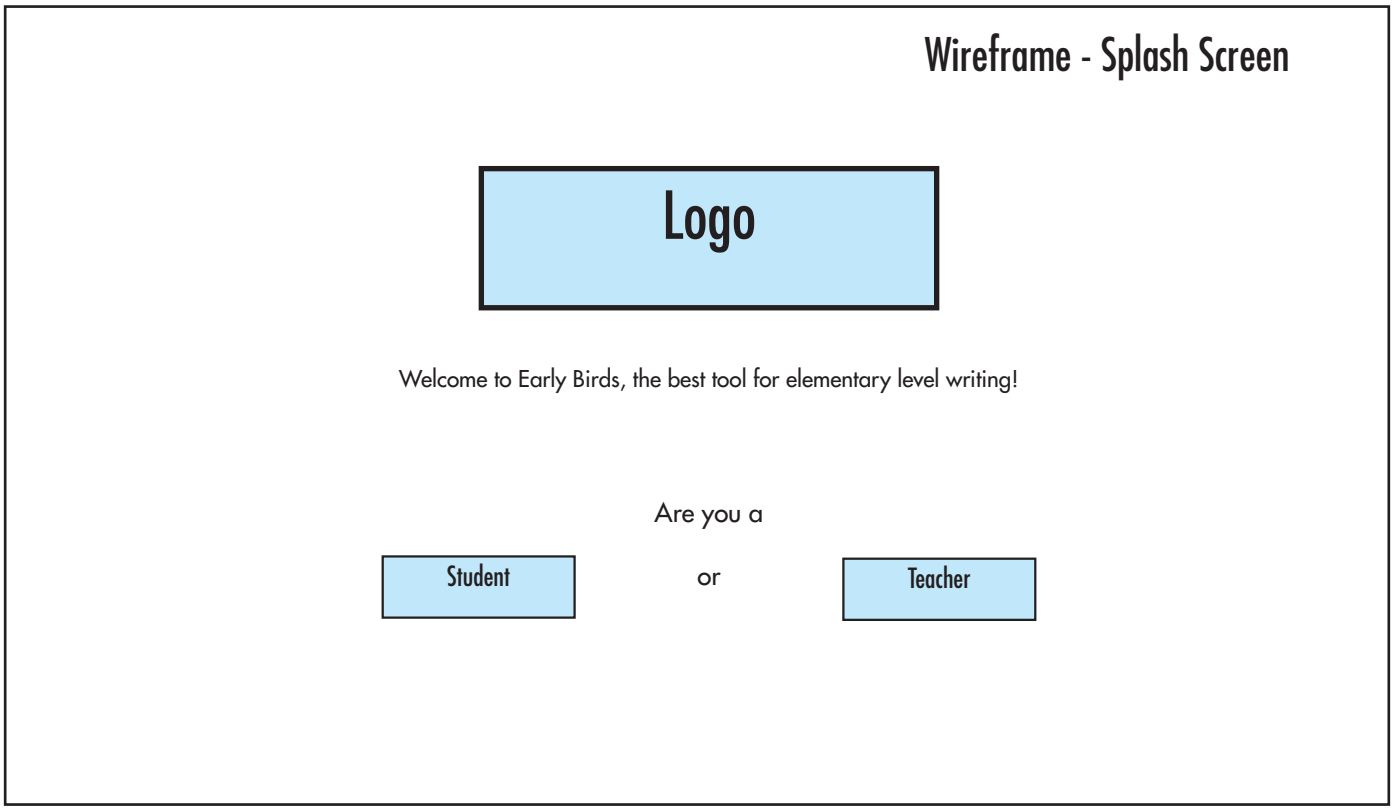
GOAL STATEMENT

Early Birds is a web application that allows teachers to integrate computers into elementary education. It primarily focuses on guiding younger students in using computers to write formal science lab reports.

FEATURE DESCRIPTIONS

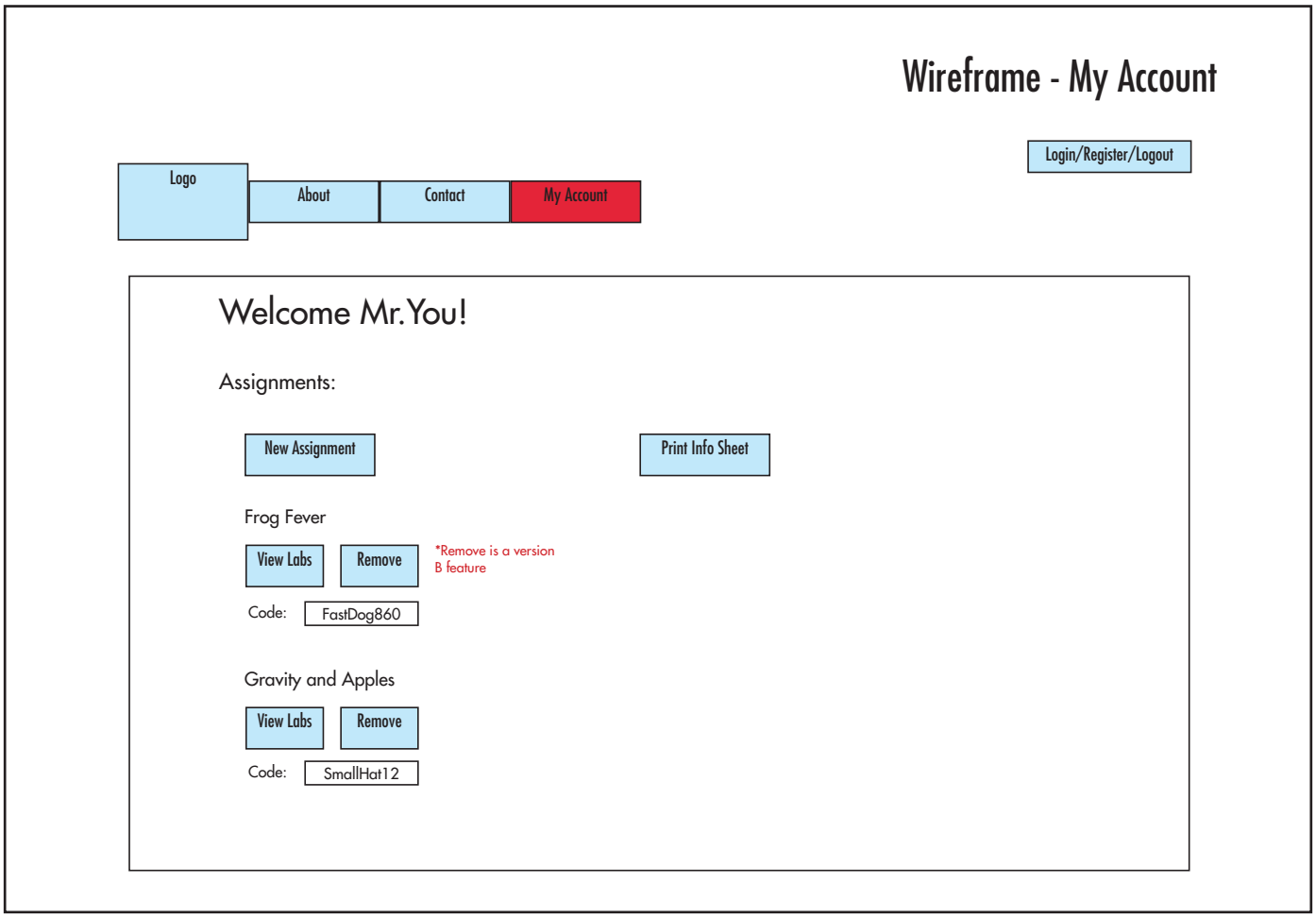
The end product will be a functioning web site that includes two separate interfaces: one for teachers and one for students.





Teacher Interface

The teacher interface will provide information about Early Birds and allow interested teachers to register for accounts. Registered teachers will be able to create 'Assignments,' which will come with a randomly generated 'assignment code' consisting of lowercase letters and numbers, e.g. 'Apple1.' Every assignment will be associated with a unique assignment code to help connect teachers with their students. Teachers will be responsible for giving the assignment code to their students or students' parents. A PDF with instructions for using Early Birds and keeping track of assignment codes and other assignment information will be available for teachers to print and distribute to their classes.



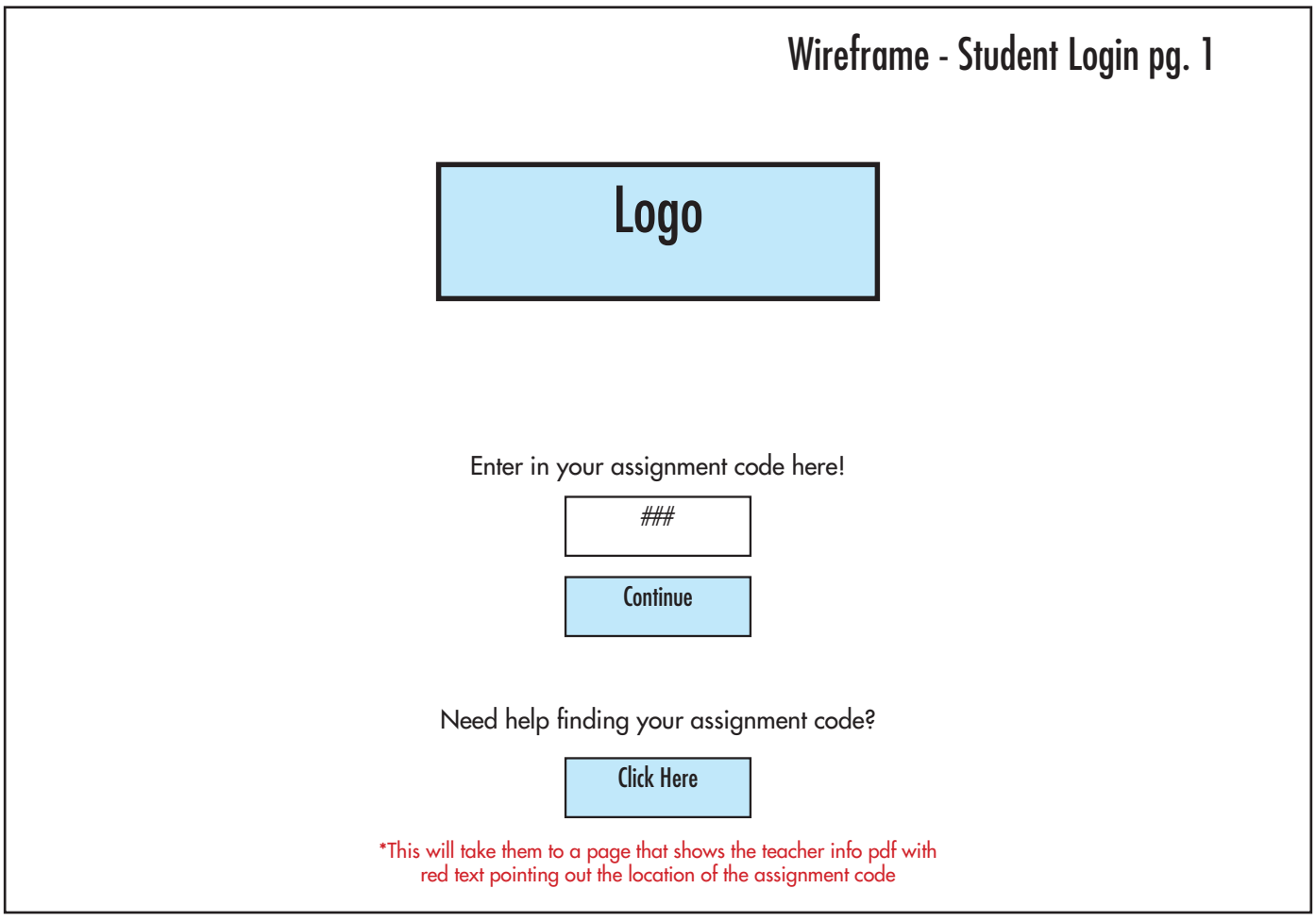
Students will use assignments code to gain access to the student interface. A student's lab report will be associated with the assignment code he or she enters. Teachers will be able to view all in-progress and completed lab reports associated with a particular assignment in the teacher interface.

All assignments in the first Web site release will most likely be lab reports. The primary goal is to provide a lab report template, but Early Birds developers will incorporate an english essay template and customizable template if the project

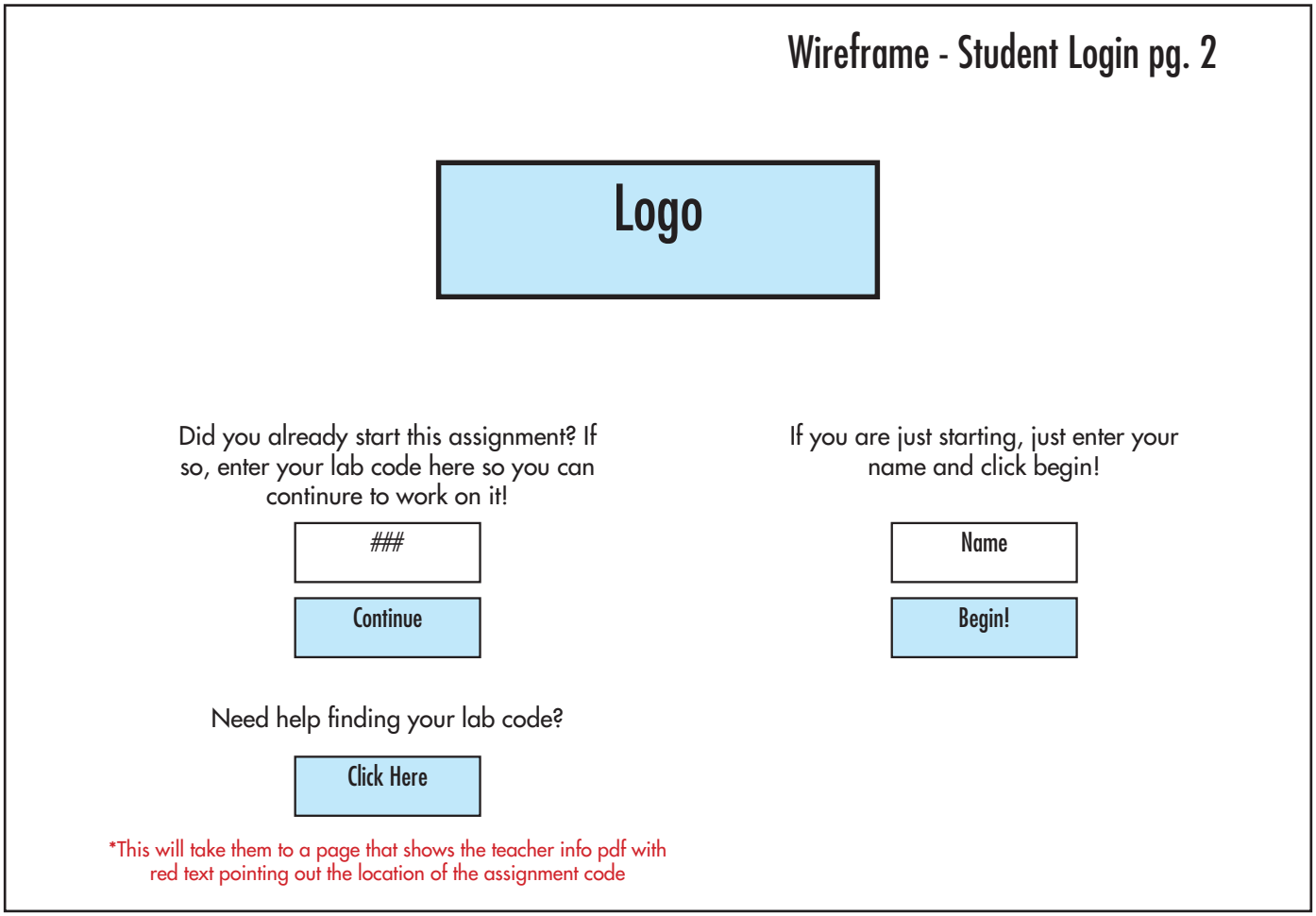
continues beyond the semester. Additional templates would give teachers the opportunity to use Early Birds for multiple subjects.

Student Interface

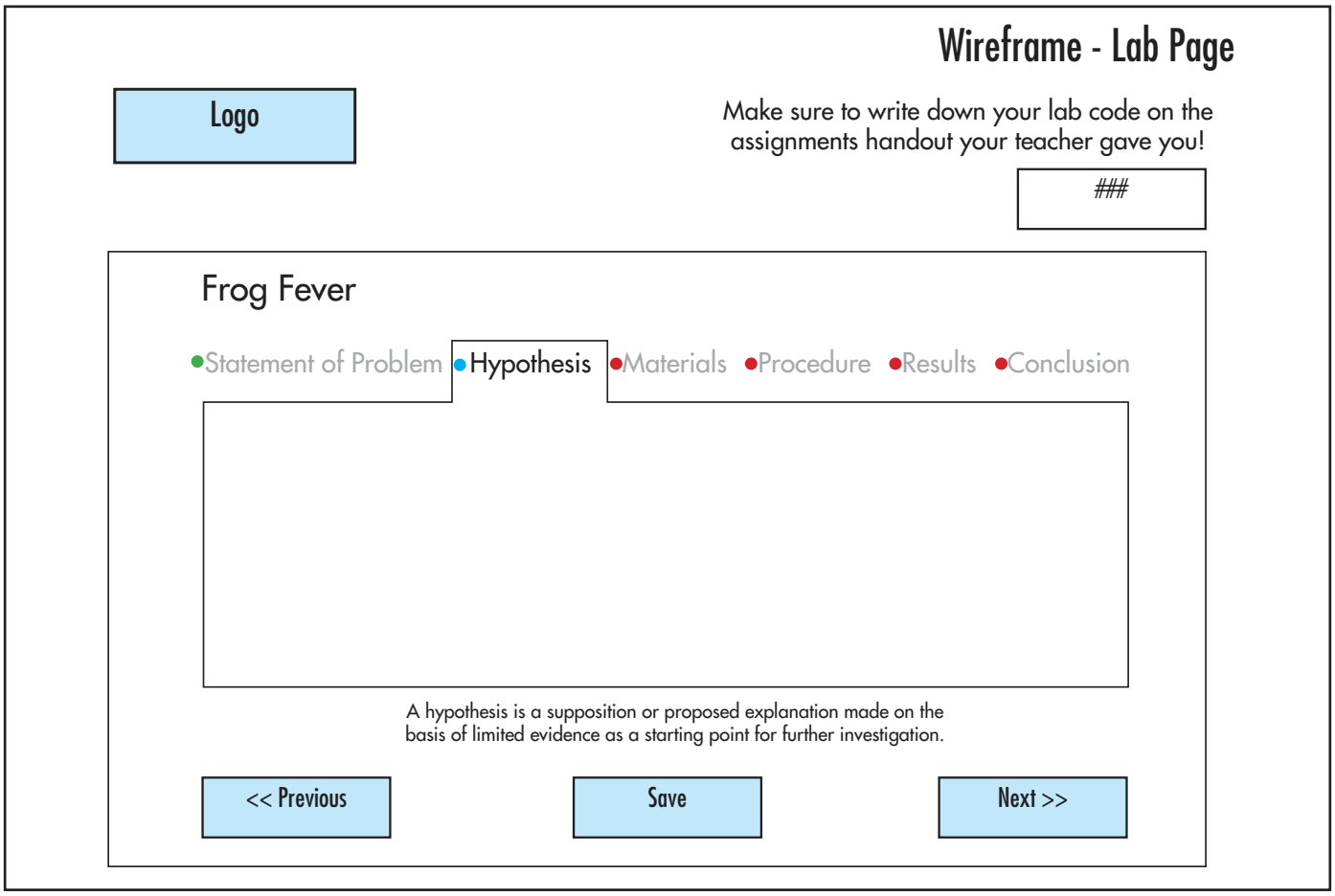
The student interface will be designed with a maximal level of simplicity and clarity. The goal is to have as few options as possible, and the options available will serve simple and clear purposes.



After a student enters their assignment code, he or she will be prompted for his or her name or 'lab code' to begin. A lab code will simply be a number that allows returning students to continue working on a particular lab report. Every lab report will have a unique lab code, and it will be visible in both the student interface as well as the teacher interface.

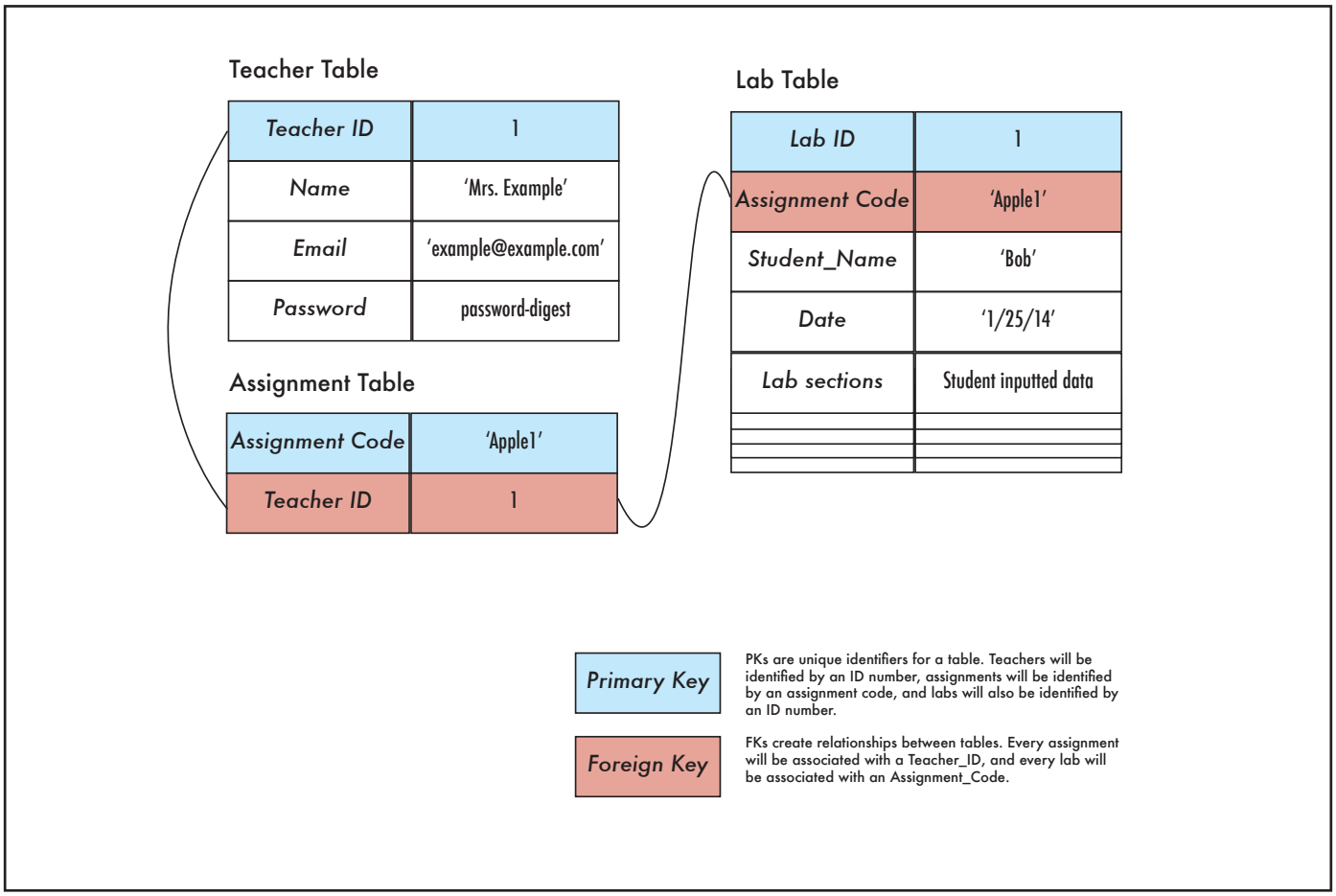


The web application will now walk students through the completing a formal lab report. For example, students will first be prompted for the date and lab report title. Upon hitting a 'Next' button, the program will switch to the 'Statement of the Problem' section. This section will offer a text box for students to enter information and a description of what information to provide in the Statement of the Problem. Students will be able to hit 'Next' to continue working, 'Save' to manually save their work, or 'Previous' to return to previous lab report sections. Students will also be able to preview their lab report put together before submitting it. Submitting a lab report will simply change the lab report status from 'not completed' to 'completed' in the teacher interface.



COMPONENT DETAILS

The PHP programs needed to connect, insert, select, and display information to and from the database will be modelled after PHP programs provided by Professor Jesse Heines in the Fall 2013 Graphical User Interface I Programming Course. (https://teaching.cs.uml.edu/~heines/91.461/91.461-2013-14f/461-lecs/lecture23.jsp)



Assignment codes will be generated using the DinoPass API. DinoPass is a simple password generator for kids.[1] This API will be used in conjunction with a PHP function called file_get_content, which reads a given file's output into a string.[2]

Performing a call to the file_get_content function by passing it the link provided in the DinoPass API (http://www.dinopass.com/password/simple) is all that is necessary to produce the assignment code.

Additional PHP code will be implemented to verify the generated assignment code does not already exist in the database. The assignment code is the primary key of the Assignments table in the database; therefore, the assignment code must always be unique. This PHP program will also be modelled after PHP programs provided by Professor Jesse Heines in the Fall 2013 GUI I Programming Course.[3]

The registration, teacher login, and student login forms will be validated using the jQuery™ Validation plug-in.[4] Validation success and error messages will be styled using CSS for forms in Bootstrap.[5]

As modeled in the Lab Wireframe, lab report sections will be divided into individual tabs. The jQuery™ UI library will be used to implement these tabs. The developers, however, will most likely override default styling with more customized styling to be consistent with their color schemes and design.[6]

1 Stannard, Kevan. DinoPass. 2013. Web. 3 February 2014.

2 PHP. The PHP Group, 2014. Web. 3 February 2014.

3 M. Heines, Jesse. 91.462 GUI Programming I. UMass Lowell Dept. of Computer Science, 2014. Web. 3 February 2014.

4 Zaefferer, Jorn. jQuery Validation Plugin, 2014. Web. 3 February 2014.

5 @mdo, @fat, et al. Bootstrap. v3.1.0. 2014. Web. 3 February 2014.

6 jQuery UI. The jQuery Foundation, 2014. Web. 3 February 2014.

USER DESCRIPTIONS

Early Birds has three target audiences/user bases: a primary, a secondary, and finally a tertiary audience who is not as important but still needs to be considered.

The primary audience will be elementary teachers for grades as low as 2nd to as high as 6th; although, the most involved grade levels will range from 3rd to 5th grade. This web application must first appeal to the teachers as they will be the ones who will adapt the software for classroom use.

The secondary audience will be elementary level students. Creating an effective interface for students in grade as low as 2nd to as high as 6th with a concentration on grade levels 3rd - 5th will be as equally important as making it usable for teachers. Creating a strong design for the students, however, will also increase the likelihood of teachers seeing the Web site as a viable aid in teaching.

The tertiary audience will be the parents. They will essentially be a byproduct of the student audience. The parents may want to have additional information available to them in the student interface that would not be applicable to the students. These elements, such as an 'About the Software' section or a 'Contact the Teacher' section, would have to be worked into the student interface without disrupting its simplicity.

Early Birds is intended for both male and female English speakers with computer and Internet access. All teachers, parents, and students should have remedial computer skills such as turning a computer on and off, using the Internet, and typing. Although

some students may not own computers, Early Birds could be used in schools with computer labs and Internet.

DISCUSSION OF ISSUES

1. Collaborative efforts between the developers building Early Birds are hindered because they work on two different operating systems, Windows and OS X/Linux. For example, using Git Command Line tools is significantly different on Windows. Although the OS X/Linux developer regularly uses Git, she is not well versed enough in using Git on Windows to provide assistance. Additionally, setting up the database locally on these platforms may differ.

   Ideally, the two developers should be working on the same operating system, which could be done by running a Virtual Machine. The developers, however, feel most comfortable working on their familiar setups. They plan to work together as much as possible to troubleshoot system-specific software issues, but they will also seek individual help from others who are better equipped to solve problems on their respective operating systems.

2. Several concerns are associated with the database. Early Birds developers are not expert database administrators. Although the database structure has been carefully designed to be as simple as possible to implement, it still requires challenging work.

Early Bird developers have made setting up the database their highest priority. After the project proposals are handed in, the developers plan to solely focus on setting up the database. They have allocated 3 weeks to reach this goal and anticipate to arrange meetings with experts if necessary. Members from the Engaging Computing Group at the University of Massachusetts Lowell are experienced in setting up databases and have also agreed to provide support.

3. Time is always an issue. The Early Birds developers have approximately 3 months before they have to release the Web site. Given their ambitious goals and fast approaching deadline, time is going to be problematic.

   The developers have set a very rigid schedule and plan to follow it. Additionally, they plan to keep in close contact to troubleshoot and work together to complete tasks. The developers spent a significant amount of time planning project implementation and intend on getting started as soon as proposals are turned in.

SCHEDULE

Note: The database implementation and skeleton of the web site are crucial to complete for the Alpha release on approximately 2/25. Additionally, Will and Kate will be working on several items at the same time since several items require both database and UI work.

Date	*Task*	*Will*	*Kate*
1/28	Name Software		
2/3	Design Logo		
2/4	Complete Proposal		
2/16	• Database tables locally and remotely in place to support teacher accounts, assignments, and labs • PHP programs for login/registration working locally		
2/22	• Database locally setup on both developers' systems (Will) • Verify database/login/registration remotely works (Kate)		
2/23	• Skeleton of Web site (all pages should be created, without styling) • Visual mock-ups of all pages		
3/1	Generating assignment codes using DinoPass API Generating assignments in database		
3/22	Students can manually save lab report data Teachers can access student labs Will: UI Kate: Database		
3/22	Giving student access to the labs they've been working on with lab ID numbers ('lab code') Will: UI Kate: Database		
3/29	jQuery™ Validation		
4/2	Styling validation messages using Bootstrap		
4/5	Adding information to Web site (About, Contact, How to Use Software, etc.)		
4/12	Create and post informational sheets teachers will need to distribute to classes on using Web site		

ACCEPTABILITY CRITERIA

Minimum Functionality for Release

Teachers will be able to:

- Create accounts (register/login)
- Generate assignments, which means an assignment code will be generated, e.g. Apple1
- View all assignments they've created
- View all the lab reports associated with assignments they've created
- View status of individual lab reports (in progress vs. completed)
- Print informational sheets regarding using the web site for students and parents without assignment code automatically inserted into it

Students will be able to:

- Use Next and Previous buttons to navigate through the formal lab report
- Save lab report information manually with a Save button
- Continue working on a specific lab report with a lab ID number ("lab code")
- Registration/Login validation with Bootstrap stying
- Impressively easy to use UI, especially for the students

Nice-to-have features that will be implemented if there's time

Teachers will be able to:

- Group their assignments by classes (entails adding another table to the database and implementing this element to the teacher UI)
- Delete assignments/lab reports
- Print informational sheet with assignment code inserted into it

- Add the “Resources” (article links, etc.) to a resources section on an assignment (entails adding resources field to the lab table in the database and student/ teacher UI changes)
- View lab reports as PDF, not HTML pages
- Time created field for assignments and labs to help teacher manage their assignments
- English Essay template introduced (entails adding another table to the database and incorporating this template into the student UI)

Students will be able:

- Alerted when they are trying to navigate away from their current page with unsaved data

Features that will most likely not be implemented but that might influence the design

- Mobile CSS on the student side of the website (mostly for schools that want to use iPads)
- Customizable template for assignments, which involves database and UI work; teachers will be able to choose what section they want in their assignment
- Teachers will able to add a class roster to their classes (if classes are implemented in version B release)
- Students’ information is saved automatically (like Google Docs)