Sexual Health at Princeton

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Project Description

According to recent surveys, a significant number of Princeton University students are engaging in sexual activity, yet they are not properly equipped to engage in such activities in a healthy way. In order to protect themselves from sexually transmitted infections, unwanted pregnancies, and other sexual issues, students must have easy access to sexual health resources on campus. However, since “sex” and “sexuality” are taboo topics on Princeton’s campus and in society at-large, many students may not feel comfortable actively seeking advice and information in person. Our easy-to-use system is designed to enable users to address sexual health concerns and questions in a private, individualized fashion. Additionally, since many of these tasks involve patient health information, the system will store data in a confidential way and allow users and relevant shareholders to interact with it discreetly.

Requirements Summary

The design is be constrained by what we consider to be high priority user values: privacy and discretion, ease of use, and easy access. Additional considerations include a discreet name for the product that would not appear out of the ordinary in a browser history or app launcher, in case the user does not want others to find out that they are consulting sexual health resources due to social stigma, along with a platform that is available to most people in our target population regardless of what devices they might own or their ability to go somewhere on campus in person.

Prototype Revisions

We made a number of changes to our prototype between GP3 and GP4 based on the in-class evaluation. As seen in Figure 1, a major change we made involved consolidating our two previous separate search functions to one search bar that appears on the main homepage. In our prototype, we had a keyword search functionality through the “Search Previous Questions” at the top of the page and a separate category search along the left side menu. We intended for these two to be unique different ways to search the previous questions: one by topic, and the other one by keyword. Now, the two functionalities both appear on the homepage, but we removed the side menu bar that allowed the user to browse different categories from the homepage. Instead, we added a separate tab designated for browsing questions to make the functionality of browsing more clear to the user, as shown in Figure 6. This replaces the “Search Previous Questions” tabs we had in our GP3 prototype.

Other widgets were removed from the homepage shown in Figure 1 as well to allow the user to focus on key features instead of extraneous graphic art/design. We consolidated the “Welcome to Princeton Private!” description text from the main homepage of our prototype to a

singular sentence, “The one-stop shop for all your sexual health resources at Princeton.” The “Recently Asked Questions” feature on the homepage was also removed and replaced with popular topics users might want to browse, allowing us to both consolidate the two search functionalities mentioned earlier, and de-clutter the appearance of the website. The resources referenced on the main page of our website were also moved to a separate menu tab, “External Resources,” shown in Figure 7.

We changed the page where users submit a question to clarify that the question would be anonymous, shown in Figure 3. Instead of saying “Ask a Question” at the top of the page, the header now says “Ask an anonymous question.” Additionally, we changed the color scheme of our website to make a clear distinction between the student view and the health professional view of Princeton Private. In our GP3 prototype, all portions of the website were blue. Now, pages of the website visible to health professionals are orange, as seen in Figures 10, 11, and 12. Pages of the website visible to students are blue, as shown in Figures 1-9. Finally, we added functionality for health professionals to endorse student answers, as seen at the bottom of Figure 6. This is similar to Piazza’s feature that lets professors endorse student answers to ensure all information provided is accurate.

The Improved Prototype

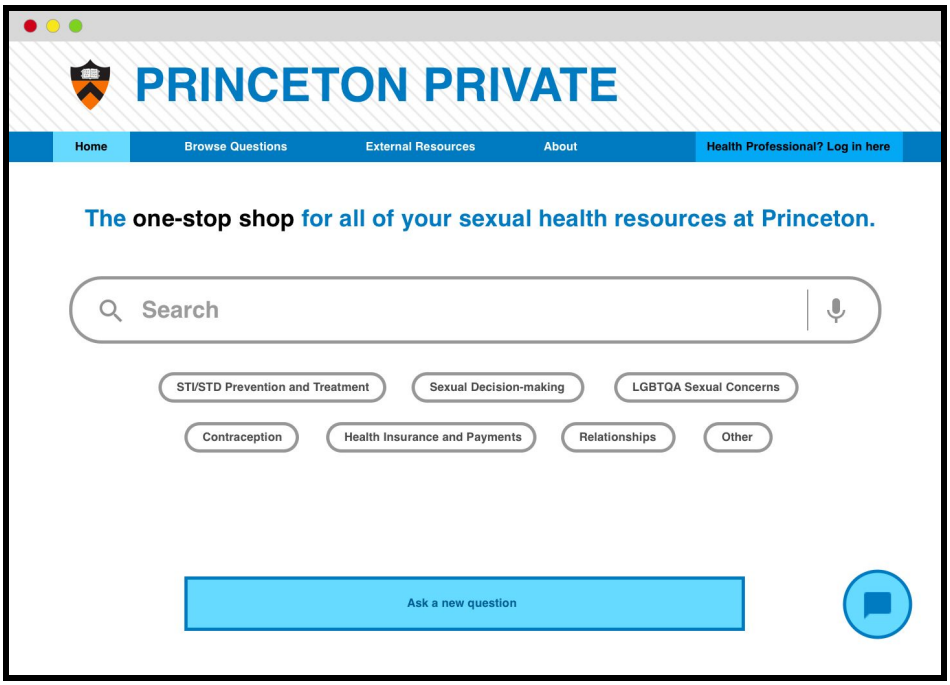

Figure 1: The homepage of Princeton Private in the student view.

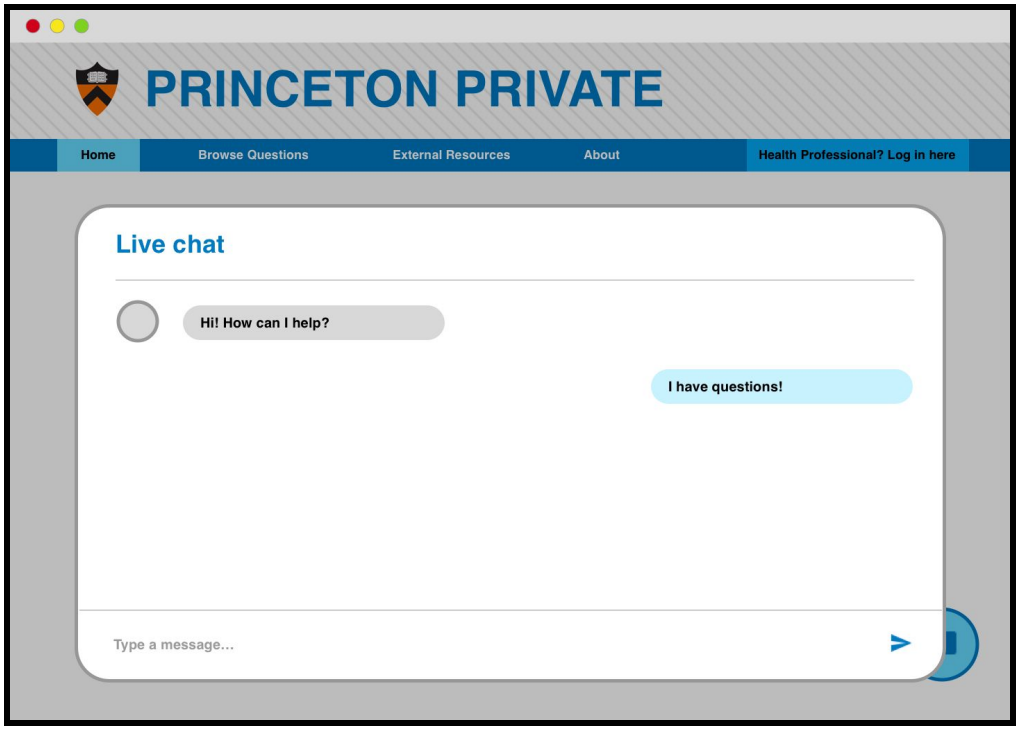

Figure 2: The live chat pop-up window of Princeton Private in the student view.

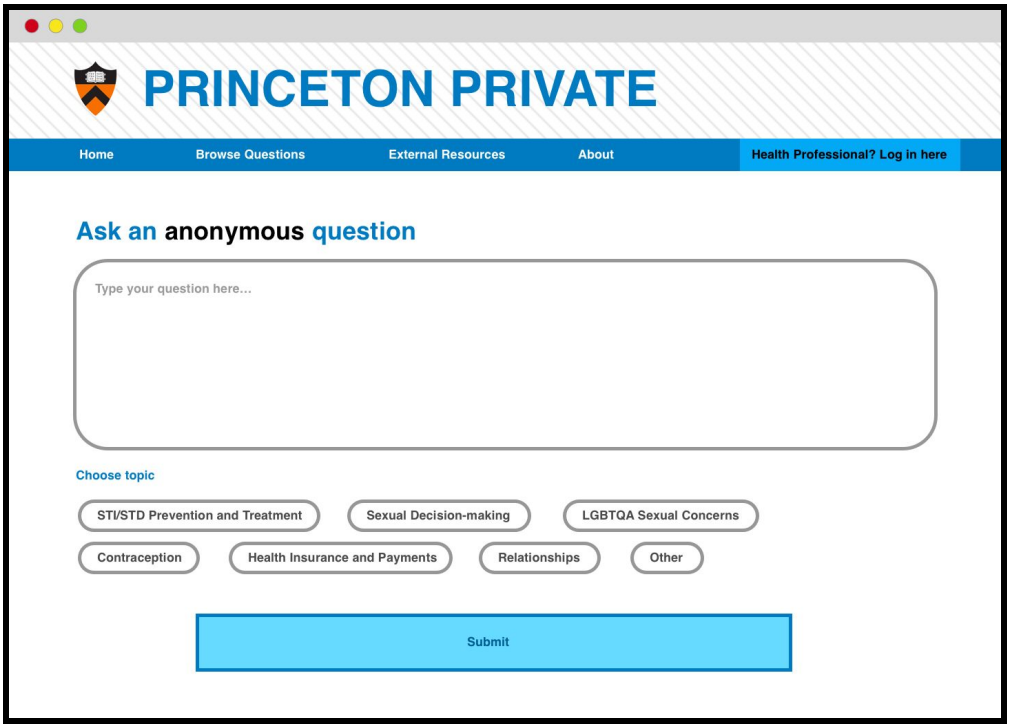

Figure 3: The “ask a question” page for the student view of Princeton Private.

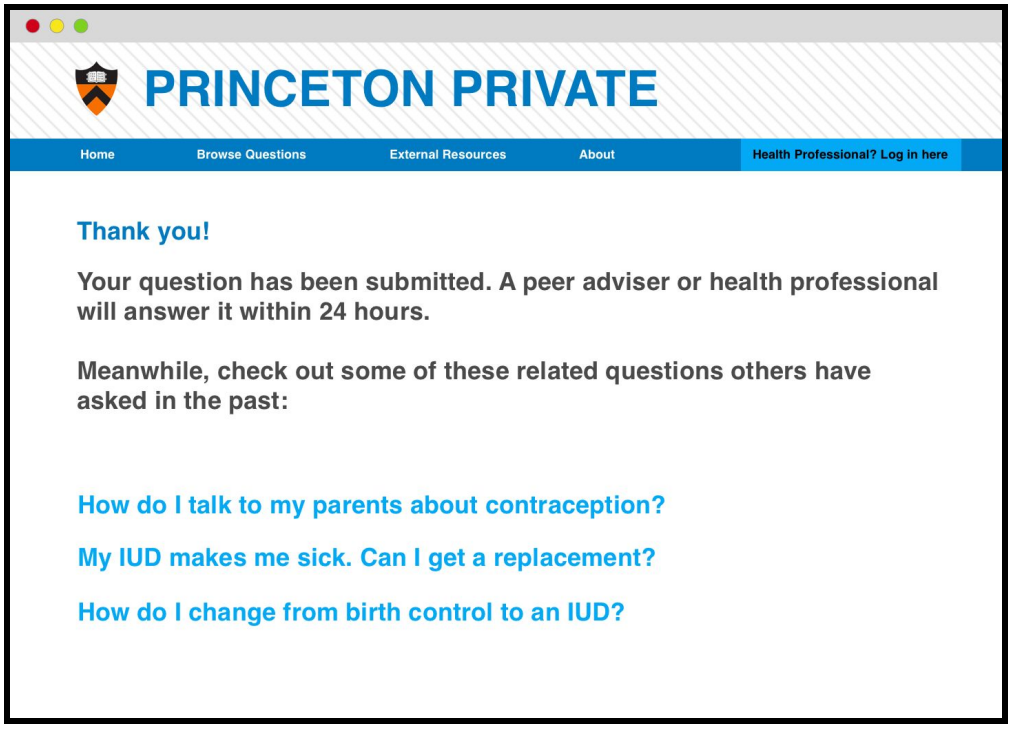

Figure 4: The question confirmation page for the student view of Princeton Private.

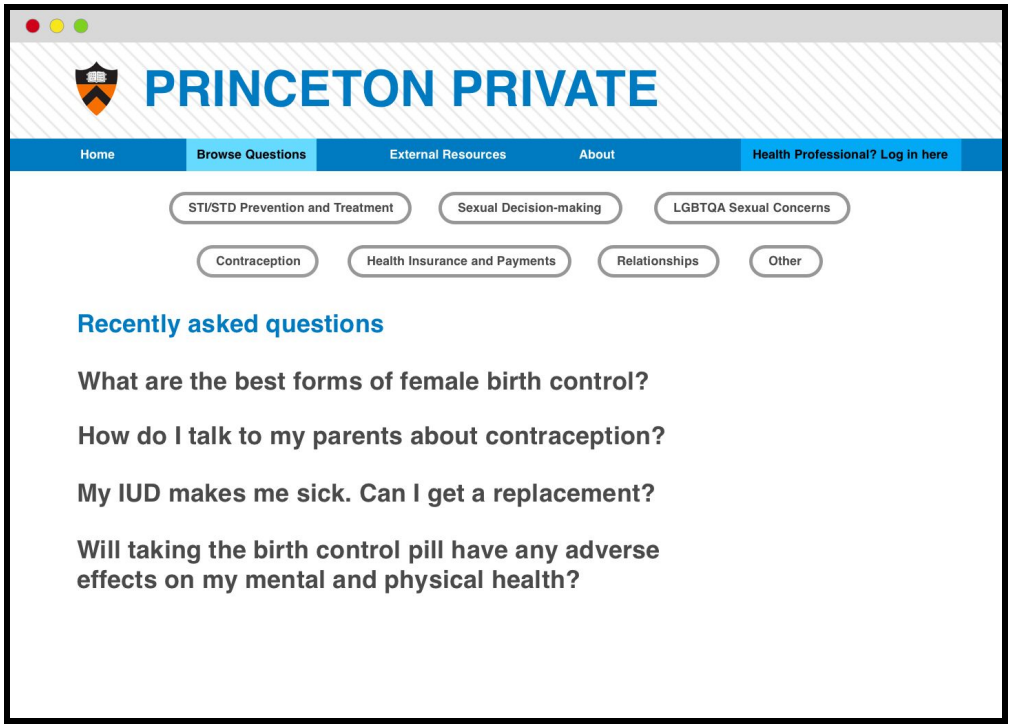

Figure 5: The “browse questions” page for Princeton Private.

Figure 6: The "browse questions" page for Princeton Private with the "contraception" topic button clicked. The answer for "I forgot to take my pill yesterday! Should I take two today?" is expanded.

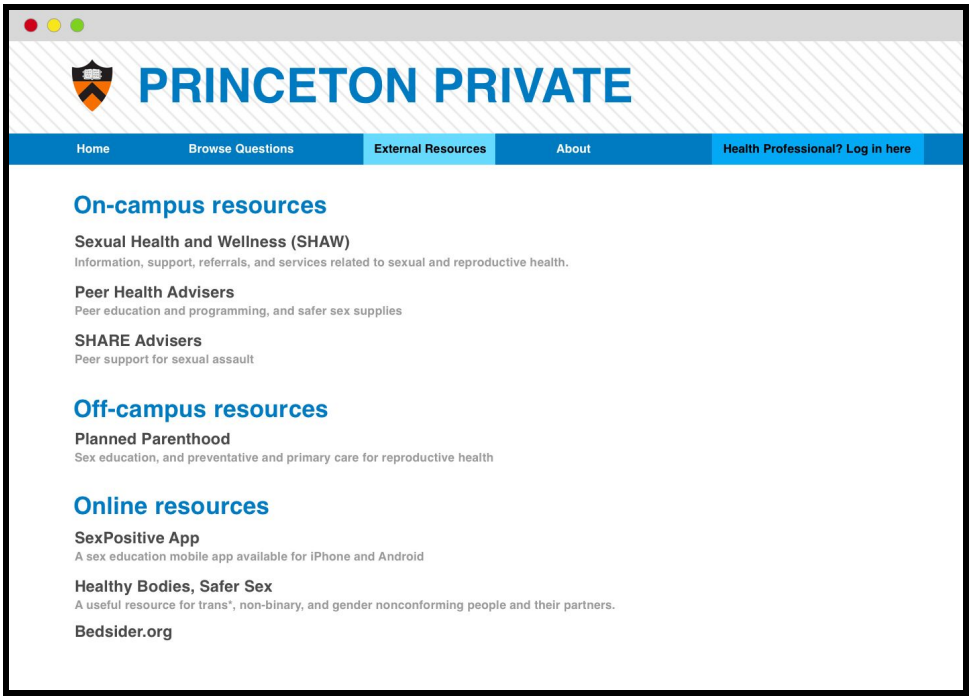

Figure 7: The "external resources" page for Princeton Private.

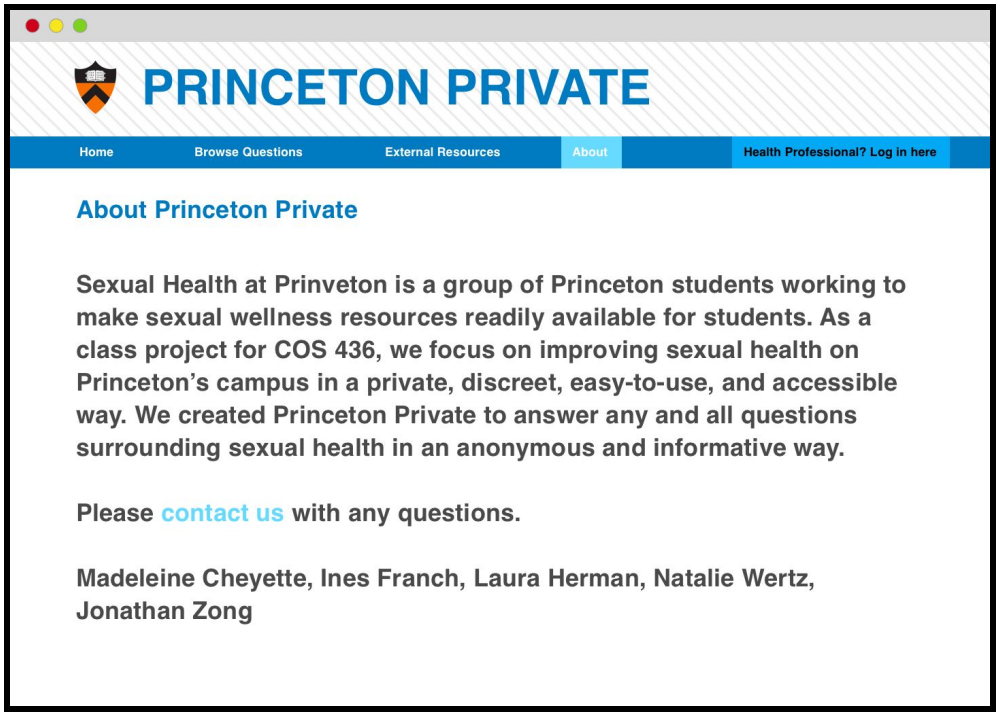

Figure 8: The " about" page for Princeton Private.

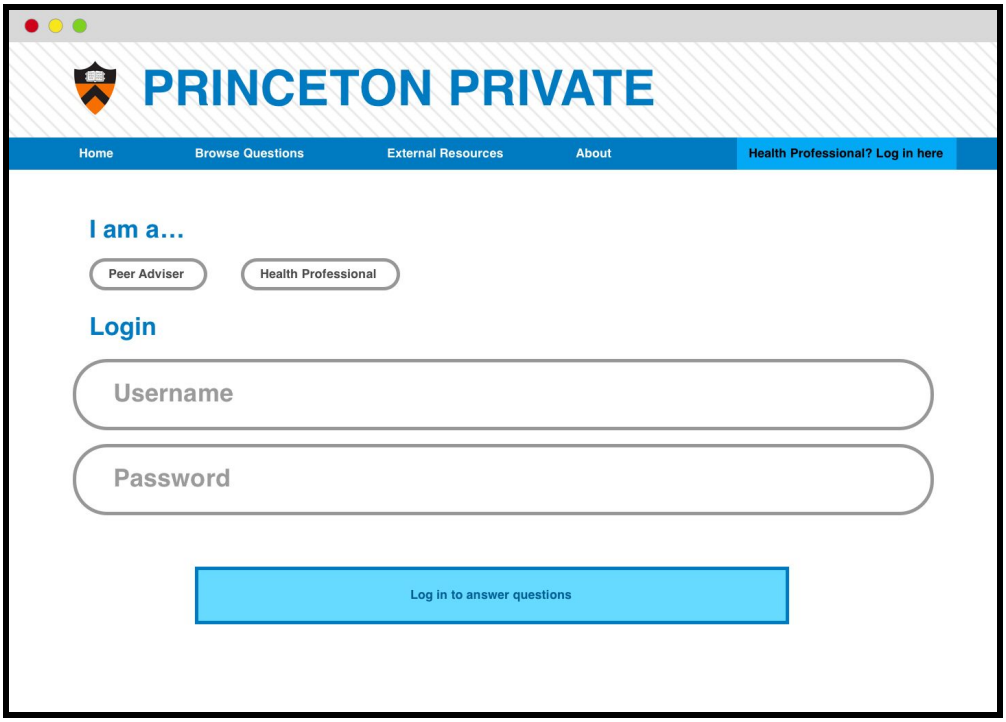

Figure 9: The "login" page for Princeton Private.

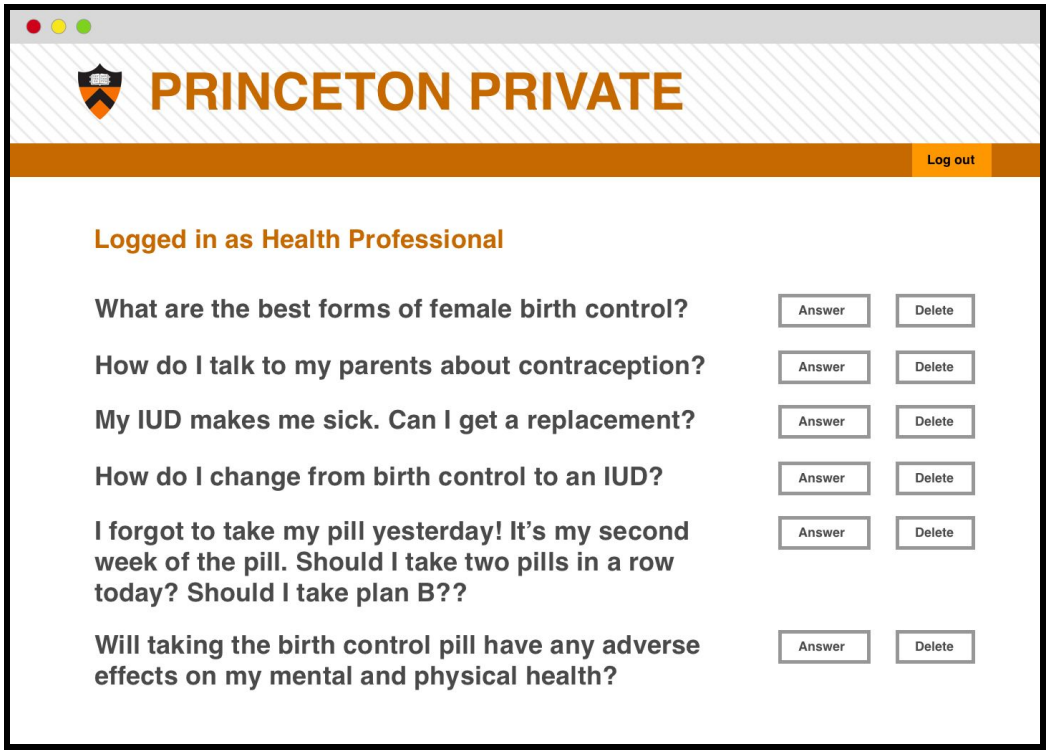

Figure 10: The health professional view of Princeton Private.

Figure 11: The "ask a question" page within the health professional view of Princeton Private.

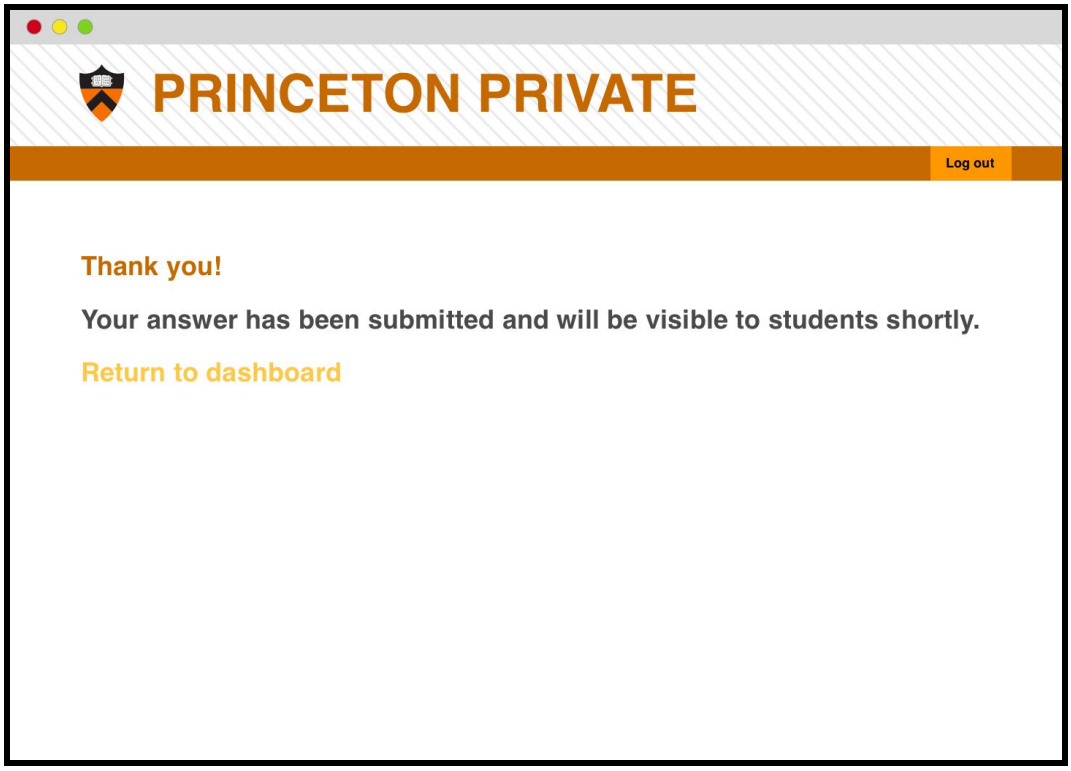

Figure 12: The confirmation page for an answered question in the health professional view of Princeton Private.

Design Rationale

We changed the structure of the search functionality after many of our in-class evaluators had trouble differentiating between the two. Some evaluators were immediately drawn to the “Search by Category” menu on the left side of our prototype, and others were immediately drawn to the “Search Previous Questions” tab in our prototype. When they saw both, they were confused about which feature they should use. Thus, we consolidated the two types of search into a singular search bar with popular topics appearing on the homepage, and replaced the “Search Previous Questions” with a “Browse Questions” tab to avoid confusion. Having the main purpose of the site, the search functions, clearly visible on the homepage makes the functionality obvious to users, and differentiating this with browsing questions avoids confusion between the two features.

Removing other widgets further emphasized the “search” feature by making it the main focus of the site, which in turn increased visibility and discoverability for the user. Removing clutter from the main page also follows minimalistic design principles, such as efficiency of space. Directing users *solely* to the menu at the top of the page instead of widgets on the main homepage also avoids redundancy.

We changed the header at the top of the page where users ask a question to “Ask an anonymous question” because some of our in-class evaluators stated the anonymity of the

questions was unclear. This way, all specifications around asking a question are clear to the user.

Changing the color of the website based on if the user is *answering* or *asking* a question also helps clarify to the user what part of the website they are using. Many of our in-class evaluators expressed confusion around the identity of the user and wanted clarification on the two different portions of the website; using different accent colors for each function allows us to differentiate between the two.

Lastly, we added a feature the enables health professionals to endorse student answers. Many of our in-class evaluators suggested we add this feature, as it could be used to verify the correctness of an answer, mark a student answer as wrong, or delete an answer if the health professional feels that that a wrong answer could be potentially damaging to some users, since the topics are sensitive, and sometimes life-threatening.

Evaluation with Users

In order to evaluate our results, we decided to use empirical methods since we found them the most appropriate for our product and the evaluation goals we had. We wanted to figure out user satisfaction with the current prototype and how to improve efficiency, so we decided that testing with real users was the best evaluation technique. Automated methods, formal methods and inspection-based methods would not have provided us with insights that only users could give. We selected users from our user group - Princeton students - and conducted the evaluation in the same setting for all of them in order to control the conditions. We performed usability testing and divided our evaluation into two different parts. In the first part, we observed the users while we asked them to carry out a fixed set of tasks. During this part, we focused on one metric: the number of mistakes made by every user. We added a mistake each time that a user clicked on a part of the page different from the one we devised. Going back to the home page after making a mistake was not counted as an additional mistake. We used this metric to evaluate efficiency, and also used this part of the evaluation to observe user effectiveness. In the second part of the evaluation, we interviewed the users about user satisfaction. We asked general questions about the prototype as well as questions related to their performance - for instance, why they decided to press button A instead of button B.

We elaborated a list of tasks that we would ask each user to perform. When deciding on the tasks, we focused on the main tasks that our future users would perform - such as asking and answering questions. We also aimed to have a breadth of actions that would require the users to interact with different parts of our prototype. We came up with the following tasks:

- Asking a question related to sexual health. This could be any question the users wished. We didn't feel the need to require all the users to ask the same question since we weren't timing the task, so the success of the task would not depend on the question asked. This required the users to understand the layout of our page and where to ask a question.

- Finding out what they should do if they missed a birth control pill. This meant looking up the answer to that question, which had already been asked and answered in a prototype. The phrasing of this task was different from the first task to emphasize the difference between asking a question and looking up an answer. There were two ways in which they could look up the answer: by clicking the button for the corresponding category (Contraception in this case) or by searching the question or terms in it to find the answered question.
- Locating external resources. This was a straightforward task that required the users to use the top menu bar.
- Logging in to the site as a health professional. This required the users to understand that the page had a double function: for students to ask and see the answer to questions, and for health professionals and peer advisors to provide the answer to questions. It also required them to locate the right button in the top menu.
- Answering a question about what the best forms of female birth control are. This was a question that had already been asked in our prototype and was available for logged in users to answer. It required the users to understand the dynamics of the question bank page. While the rest of the tasks were independent and we asked the users to go back to the home page after every task, this one depended on finishing the previous task. Users are only able to answer questions once they have logged in.

We performed our evaluation with 8 different real users. There were three tasks that all users were able to carry out in a quick manner and without making any mistakes. These were locating additional resources, logging in to the site as a health professional and answering a specific question as a health professional. The first one only required them to click the correct page on the top menu, and all users were able to do this quickly and without any issues. The second one also required clicking the correct option on the top menu and then understanding the layout of the login page. The third one was straightforward: after logging in, the users were shown a page with a list of questions and two buttons next to each question to either answer it or delete it. All users were able to locate the appropriate question and find the button to answer the question. The only suggestion we received regarding the last task was that a sentence at the top of the question bank page explaining the available functionalities would be helpful for health professionals. For all three of this tasks, our metric of the number of mistakes was 0 for all the users.

The first two tasks were much more insightful. We intended the first task to be performed in the following way: on the home page, the user would click the “ask a new question button”, and once there, would type the question in the text box, categorize it into a topic and then submit the question. None of the eight users categorized their question into a topic. After the evaluation, we interviewed them and ask about their reasoning behind this decision. Some users explained that they didn’t see that part of the page, since after typing the question they went straight to the submission button. Others explained that it did not seem like it was required before submission and they did not feel the need to categorize the question. Additionally, four of the eight users tried to ask a question by typing it into the search bar in the main page instead of clicking the “ask a new question button”. Some of their reasons behind it were that the search

bar was much larger than the button and it was also placed higher in the page - which made it seem like the main option - and that the search bar reminded them of the Google search bar which prompted them to ask a question there. The last point made about this task was the observation by one user that the page users are shown after submitting a question isn't clear about how to check the answer for the question. The user suggested adding a link to check back the question or numbering the questions so that users can check the answers based on the question ID. In terms of our metric for the number of mistakes, the minimum number of mistakes was 0, the maximum was 3 and the median was 1 for this task.

We also received varied feedback regarding the second task. Our prototype included three options for the users to find the answer to a question: by clicking "browse questions" on the top menu and then selecting the appropriate category, by using the search bar on the main page or by using the topic search buttons on the main page. Out of the eight users, five were inclined to use the category search buttons on the main page, two to use the search bar on the main page and one to use the "browse questions" option on the top menu. Several of the users remarked that the topic search buttons should be larger to highlight their function, and some also mentioned adding a short sentence on top of the buttons explaining that clicking on a button will show the previous answers for questions related to that topic. Several users were also confused by the recently asked questions showed in the "browse questions" page and suggested we remove them and only include the category search buttons in the page. For this task, the minimum number of mistakes was 0, the maximum was 1 and the median was 0.

Proposed Design Changes

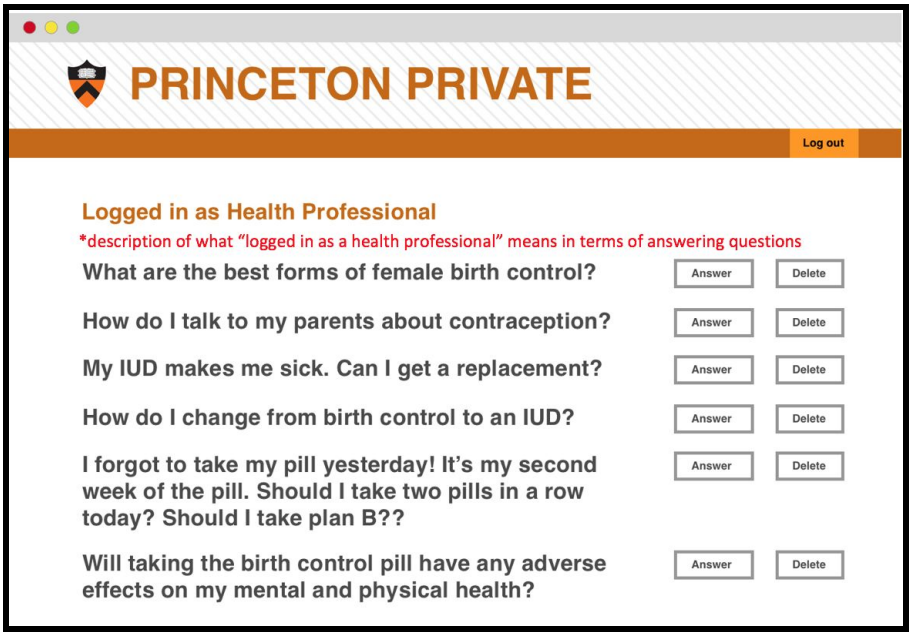

Figure 13: A one sentence description of what "logged in as a health professional" means in terms of answering questions, privacy, and identity should be added on the homepage of the health professional view of Princeton Private to clarify what view you are in.

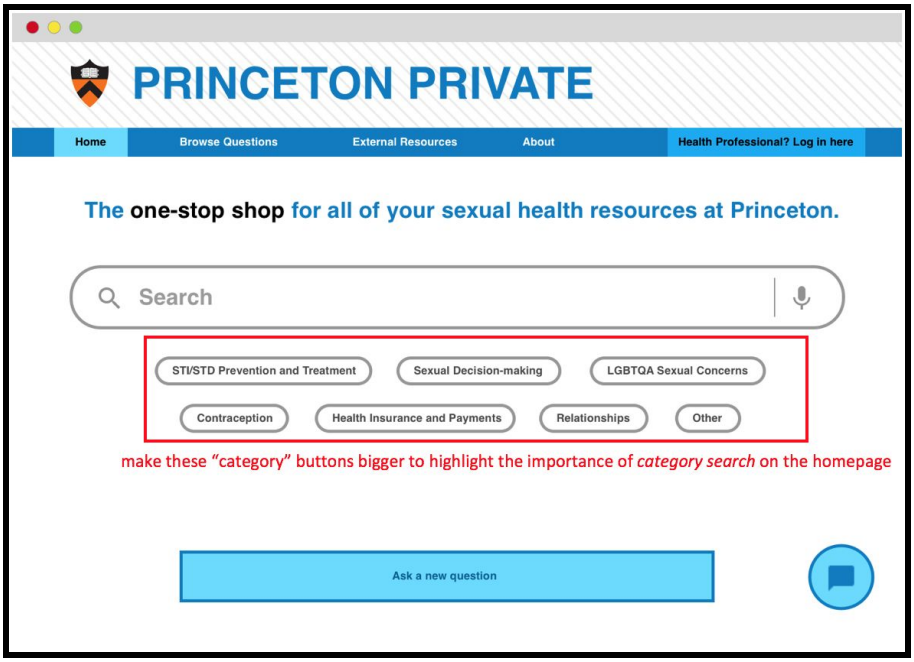

Figure 14: Category search buttons will be bigger to emphasize the feature's equal importance to the keyword search feature in the search bar.

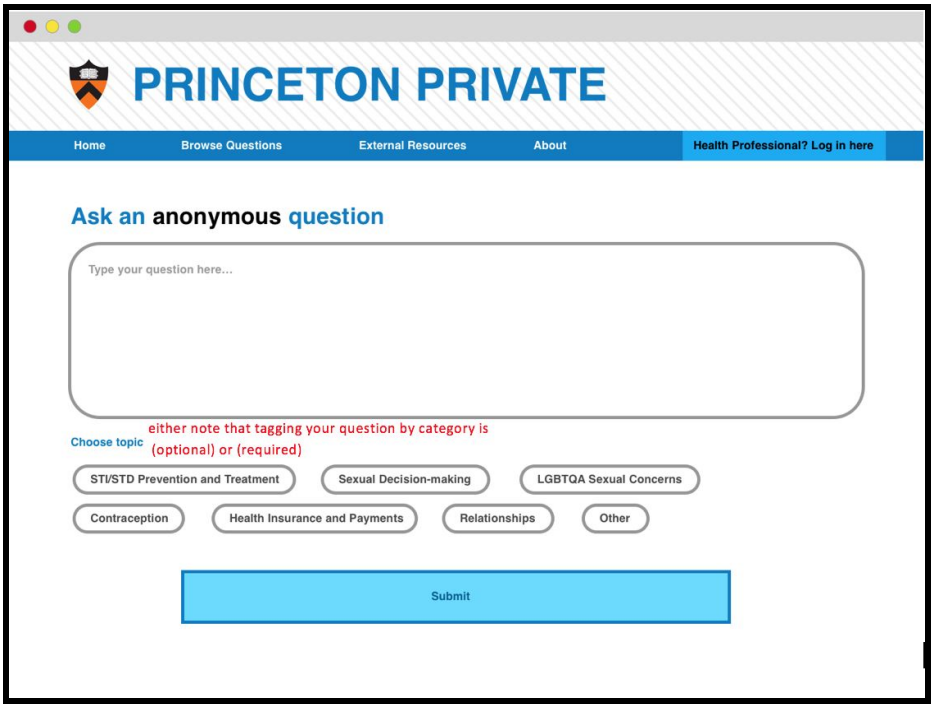

Figure 15: When asking a question, the topic tagging should be explicitly marked as optional or required, as many users glanced over it, and did not interact with it. We would decide if this feature is necessary based on the technical specifications required to actually implement Princeton Private, as well as user feedback in a potential follow-up survey. If the topic tagging feature is required to ask a question, if the user does not select at least one topic to categorize their question under, the section will be highlighted, and a message will appear saying “you must select a topic category for your question”.

Figure 16: As users are searching through previous questions, if they do not find the question they are looking for, there should be an easy way to quickly ask their own question. On the "browse questions" page, there will be a widget on the side that prompts the user to ask their own, unique question if they cannot see their question. Clicking on "here" will take them to the student "ask a question" page in Figure 3.

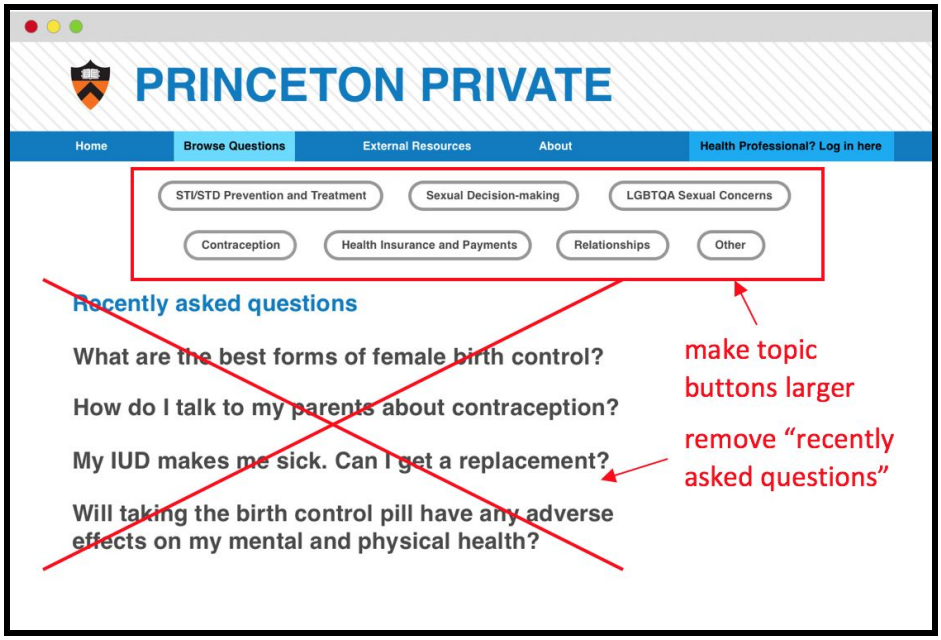

Figure 17: Users did not find the "recently asked questions" feature relevant or helpful, and instead found it extremely confusing. Thus, we would remove that feature and make the topic buttons larger to emphasize their importance since they will be the primary feature on this page.

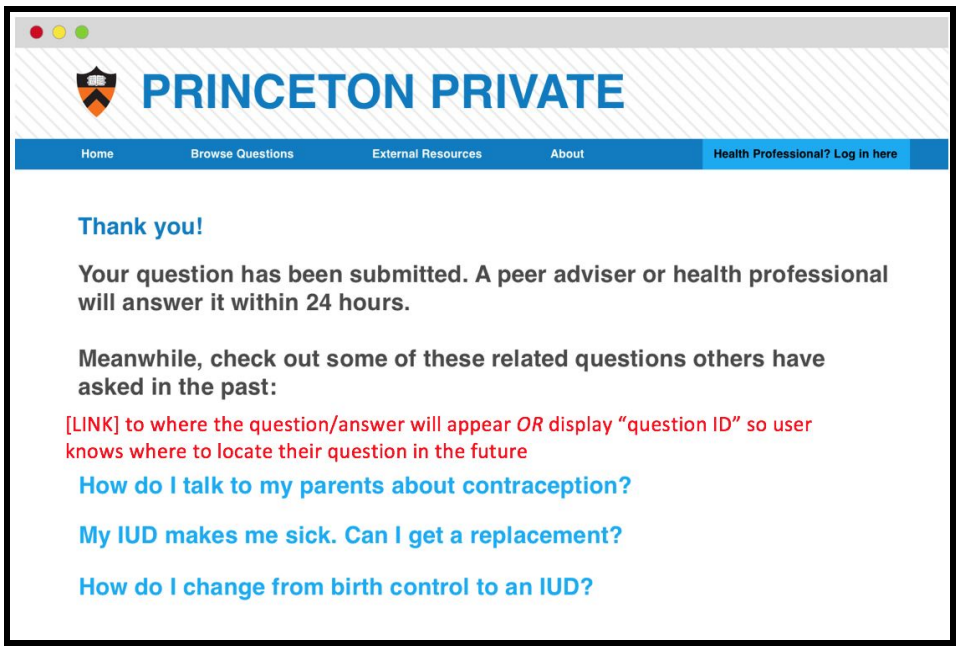

Figure 18: Users were often confused how they could locate their question and its answer 24 hours later since they are using the site anonymously. To solve this problem, we would either include a unique link to the question, or a question identification number, so the student could easily locate the question in the future. The text would either read: "Access your question and its answer here: [LINK]" *or* "Your unique question ID is [question ID]. Search for that question ID in the search box to find your question and its answer".

Reflection on Design and Evaluation Techniques

Overall, our group was immensely happy with the progression of our design throughout the semester, and our work together as a team as we performed multiple types of user research. In terms of our design techniques, we feel that we should have referenced the design schematics of popular sites and applications that users in our target user group interact with often. In our initial prototype, we tried to reinvent the wheel too much, which led to design decisions that were innovative, but not what our users wanted. In an initial user survey in the future, we could include a question such as "what are the top three web applications/websites you interact with on a daily basis?". Next, we could compile a list of the sites that users enjoy interacting with and use often, investigate the design patterns and schematics used on those sites, and make design decisions in accordance with our findings. This way, our user group for Princeton Private could receive unique information about sexual health at Princeton in a way they are already familiar and comfortable with. In terms of our evaluation techniques, we wish we would have rigorously pursued both qualitative *and* quantitative means of user evaluation throughout the entire design process. We received excellent feedback through our user interviews and user observation techniques, but did not measure any quantitative metric such as "time spent to complete a task" from start-to-end, and thus could not show improved user

metrics over time. However, we feel that this is more a product of the natural ebbs and flows that come with the design process; if we had more time to continually improve on our design, we would have implemented timing tests from this version of the prototype onwards. With these improvements, we feel that we would have a comprehensive and diverse set of user metrics to base our design improvements on.