Technical Design Document

Team 5

Hector Curi, John Politz, Nick Morris, Taylor Bishop, Tyler George

Executive Summary

This document will describe the technical information related to UPresent, the first software application developed by Team5. Our team is comprised of five members, two of them, Hector Curi and Nick Morris, designing and implementing the frontend of the application (GUI, mobile application, etc) and two others, Taylor Bishop and Tyler George, building the backend of the application (database, server-side, etc). The last member, John Politz, shares responsibilities between both sides of the application.

UPresent is a website where you can create and share interactive presentations, called UPresents. Through a very simple interface, users can upload their slides as a PDF files and add polls to each of them. Users can then invite other users to watch their UPresents, ask questions and participate in the polls.

The polls are basic multiple choice questions, but the innovative feature is that the input of all the viewers is immediately stored and has the option of being graphed on the next slide. When a presenter arrives to a polling slide, viewers will be able to click any of the buttons representing the answers and their input will be saved. When the presenter goes to the next slide, the poll will be closed and the graph will be displayed.

Additionally, the questioning system is very useful for presenter because viewers can activate their “I have a question” checkbox at any time, and the presenter will see a list of the viewers with questions on his screen. He can then pause at any point of the presentation and click on any or all of the viewers in the list, and answer their questions, thus avoiding the common “raising hand” interruption.

Another main selling point of UPresent is a feature that allows viewers to take notes about the presentation right on the website. These notes are automatically saved with the corresponding slide that was on display at the time, and the viewer is able to go back to the Upresent and see the slides with their own notes underneath. This feature is very useful for later study or review of the presentation.

The website also provides the ability to add users to a group, which can share UPresents in an easy and consistent manner between all members of the group. This would be useful for a class that requires every student to give a five minute presentation and needs a fast way to switch between them.

The contents of this document aren’t definite and may change through the development of the application. This will serve as a guide through the process and will be adapted if needed. A final revision of the technical design document will be provided at the end of the development process.

Software Requirements

Website Application

Creating Accounts

- Users will be required to create accounts to use the software. All users will be treated equally in terms of permissions and abilities
- Users can log in, and request to stay logged in
- Users can log out

Groups & Sessions

- Allow users to create a group
- Allow users to invite other users to join their group, through their account names or through email address notifications
- Allow users to accept invitations to future sessions within group
- Host can set time and date of session

Commenting & Questions

- Users can submit comments on presentations after they're given
- Comments will be timestamped, submitted on the entire presentation
- User can enable / disable question notifications on presentation

Notes

- Users can take notes on presentations being given, separated by slide

Google Drive Support

- Presentations will be put into a drive folder shared between all participants
- Users can choose to view presentation on Drive for download
- User-created notes on slides will be saved to drive

Create Presentations

- Parsing PDFs into their respective slides
- Adding live polling to certain slides
- Choose between bar graph / pie graph for poll results
- Enable / disable asking questions on presentation

Mobile Application

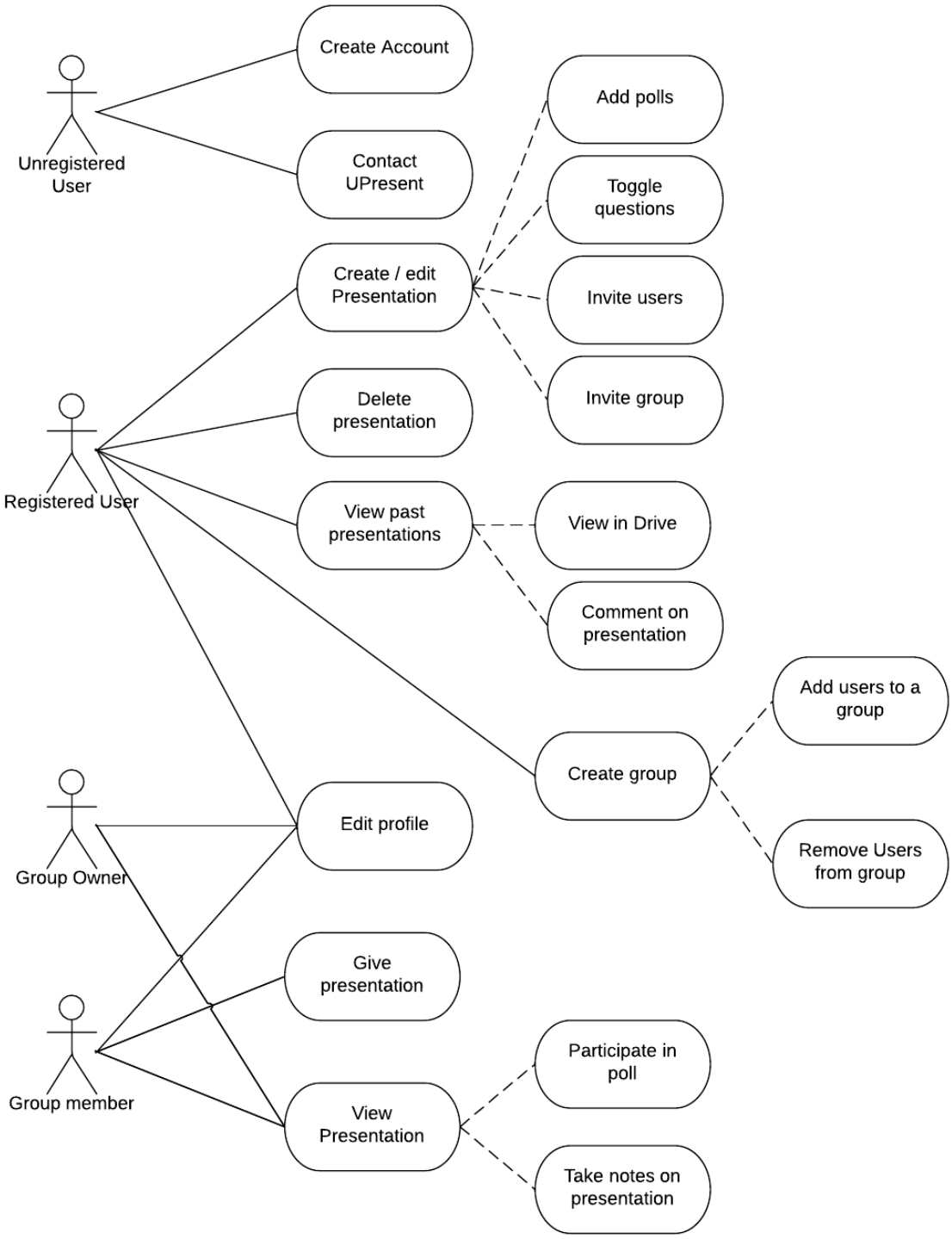
Presenting

- Users can choose from upcoming presentations they're giving
- Users can tap / slide back through slides in their presentation

Notifications

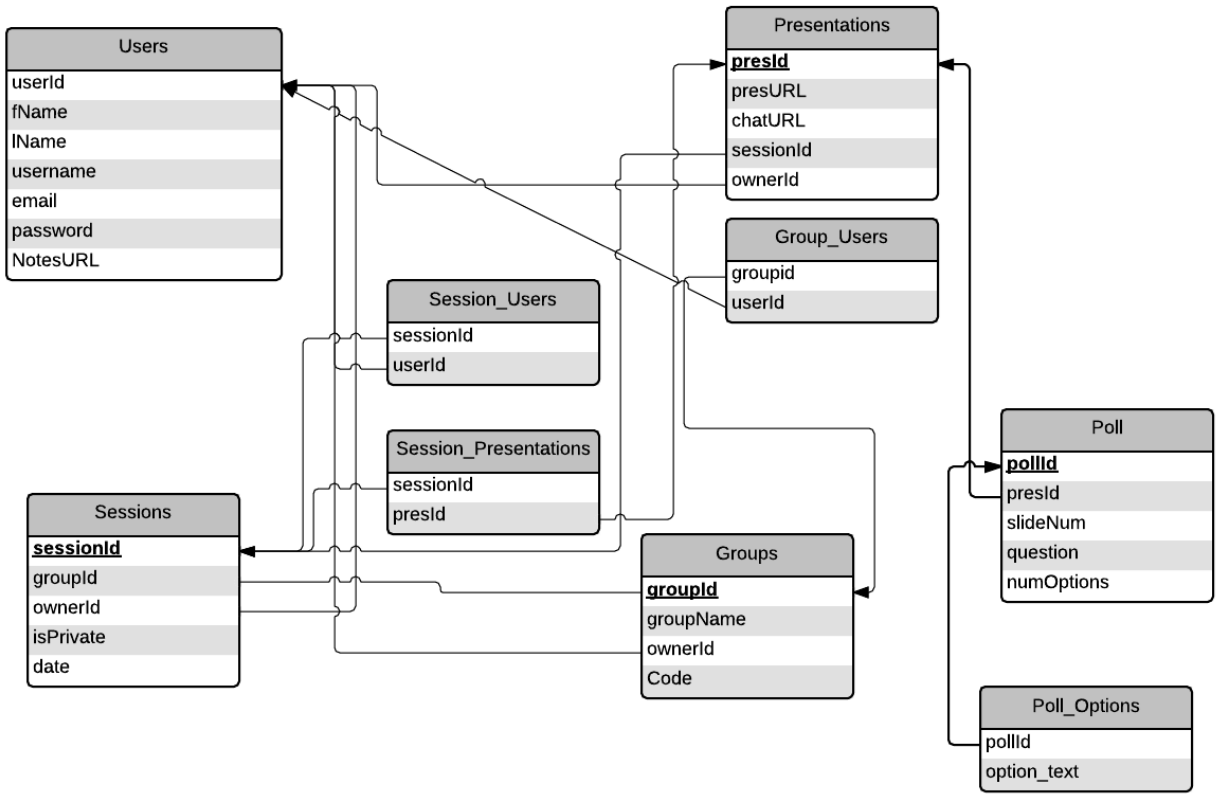
- Users will receive notifications for upcoming sessions an hour before they start
- Users can choose whether to receive email notifications

Use Case Diagram

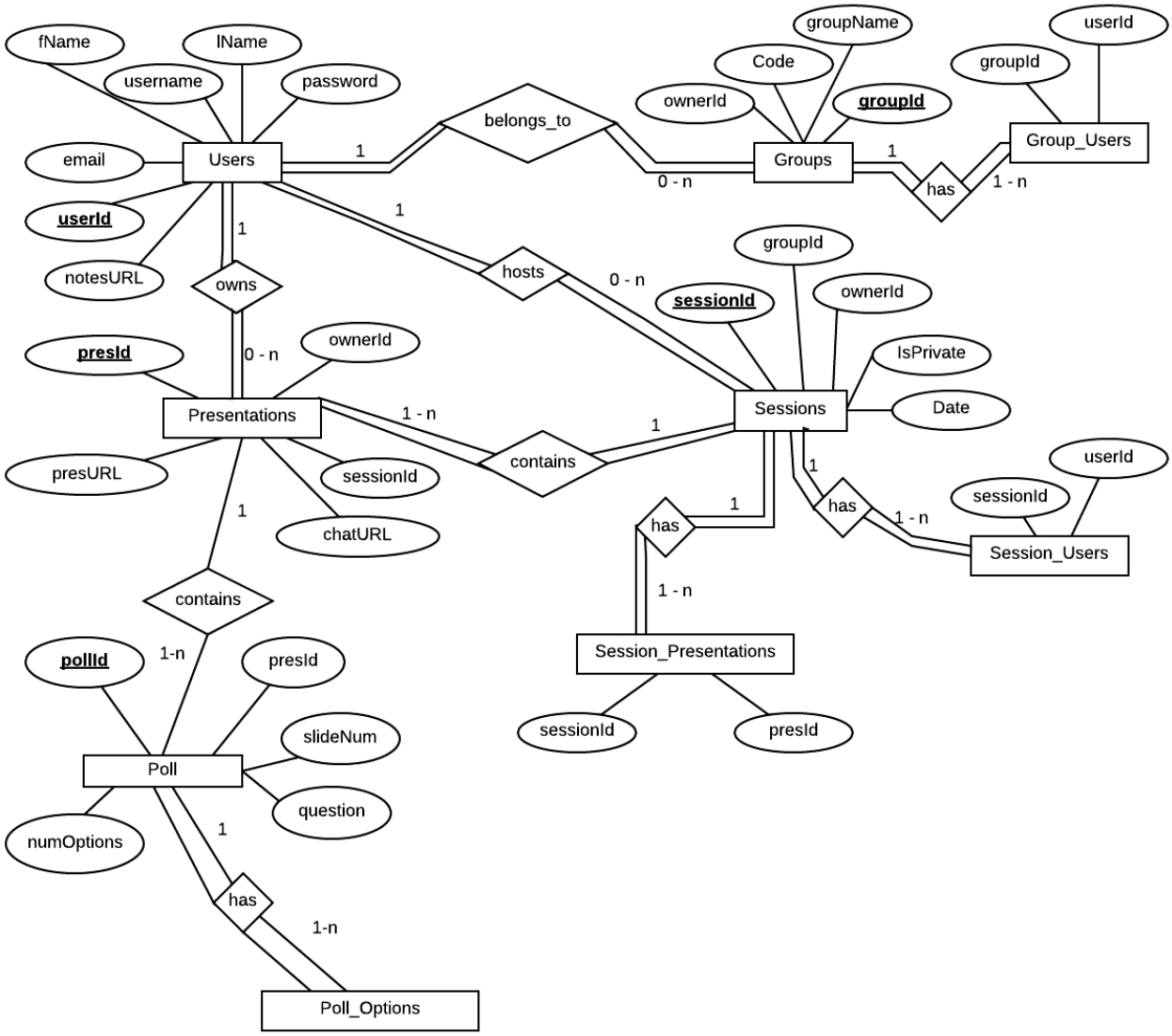


Database Model

Main Database Model



Entity Relationship Diagram



How UPresent Satisfies Software Requirements

Website Application

Creating Accounts

- Users table in the database holds all pertinent information for a user

Groups & Sessions

- Groups table holds all groups users have created. Users can find other users by the "university", "username", and "email" attributes in the Users table
- Sessions table contains all sessions within a group
- Session_Users table contains the second normal form link of sessions containing users
- Group_Users table contains the 2NF link of groups of groups containing users

UPresents

- UPresents are saved as PDF in a Google Drive folder using the Google Drive Parser
- Presentations table holds the URL for the PDF in Drive, while the Polls table holds the URL for the poll data in XML from Drive

Commenting, Questions, and Notes

- Questions are specific to a UPresent, and are not saved in the database
- Comments will be saved in Google Drive, with the URL to the Drive document saved

Notes

- Users can take notes on presentations being given, separated by slide

Google Drive Support

- Presentations will be put into a drive folder shared between all participants
- Users can choose to view presentation on Drive for download
- User-created notes on slides will be saved to drive

Google Drive Parser

- The Parser uses the Google Drive API to get and post documents to their respective folders, acting as an intermediary between the REST API and Goo[1]gle Drive

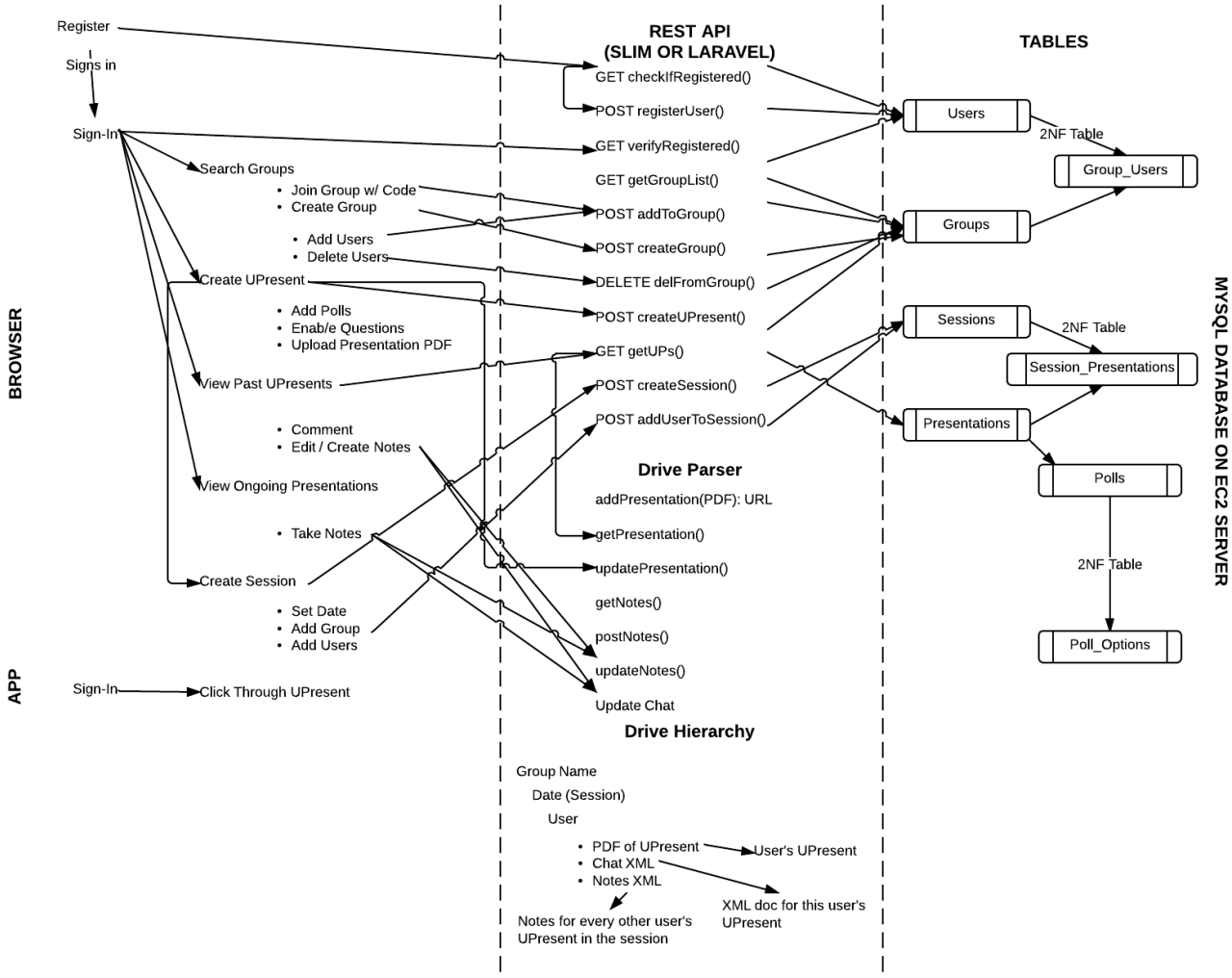
Drive Folder Hierarchy[1]

Drive will contain all of the following:

- All presentations submitted, divided between group it was given in and session it was done in
- A user's notes they have taken on other user's presentations, saved in one document in XML
- A document containing a user's presentation's chat log, saved in XML

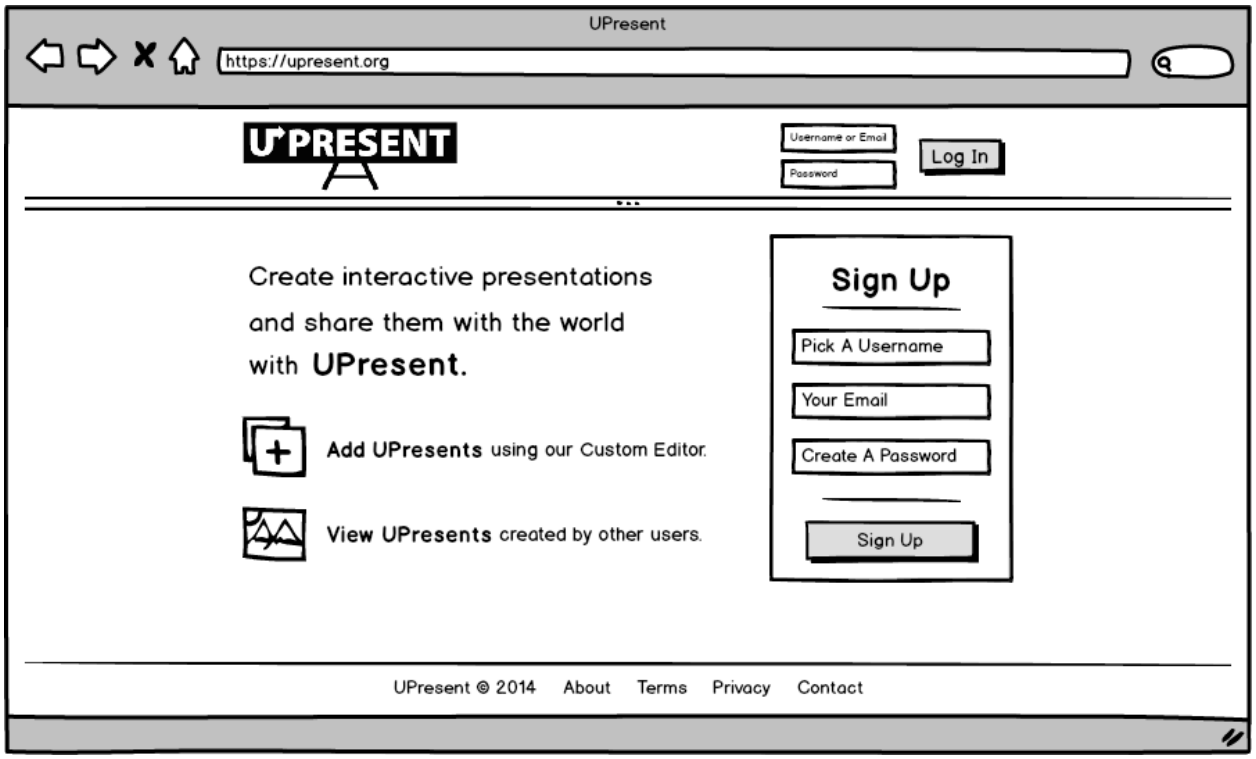
Detailed Software Architectural Diagram

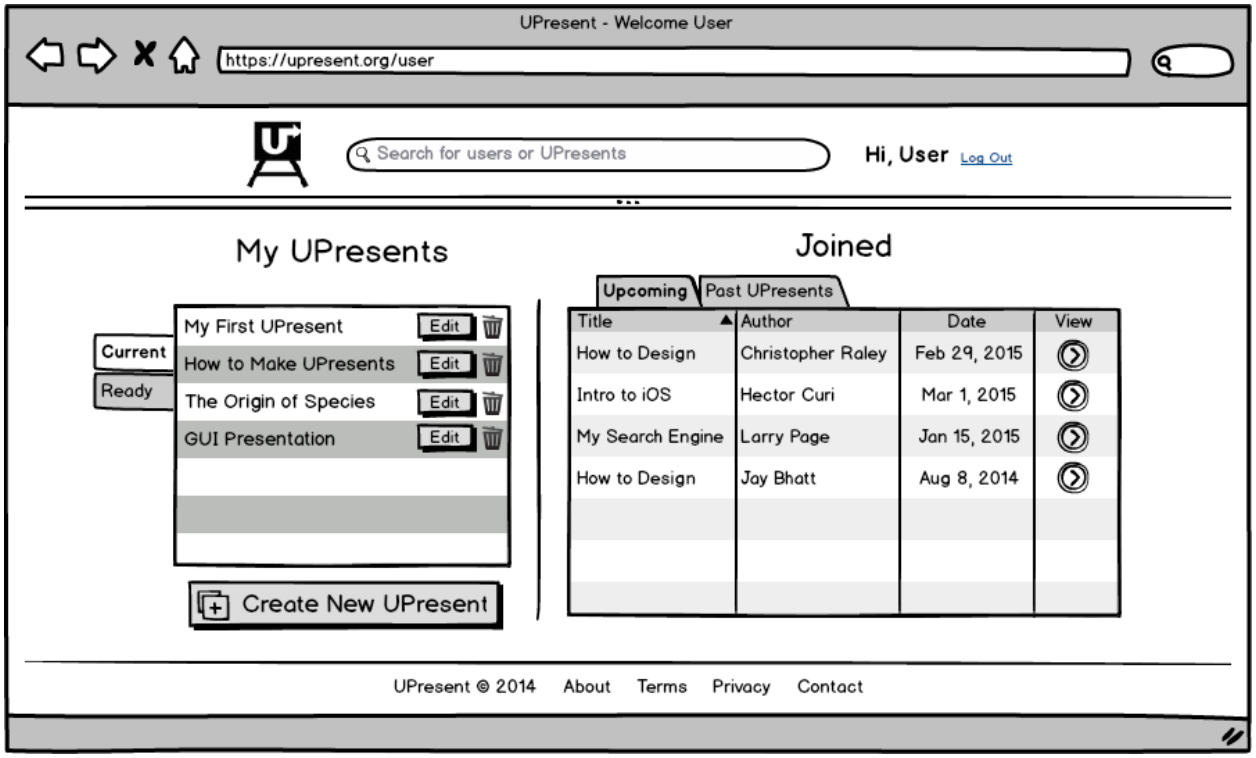
[1] The Drive folder hierarchy is illustrated in detail in the Software Architectural diagram

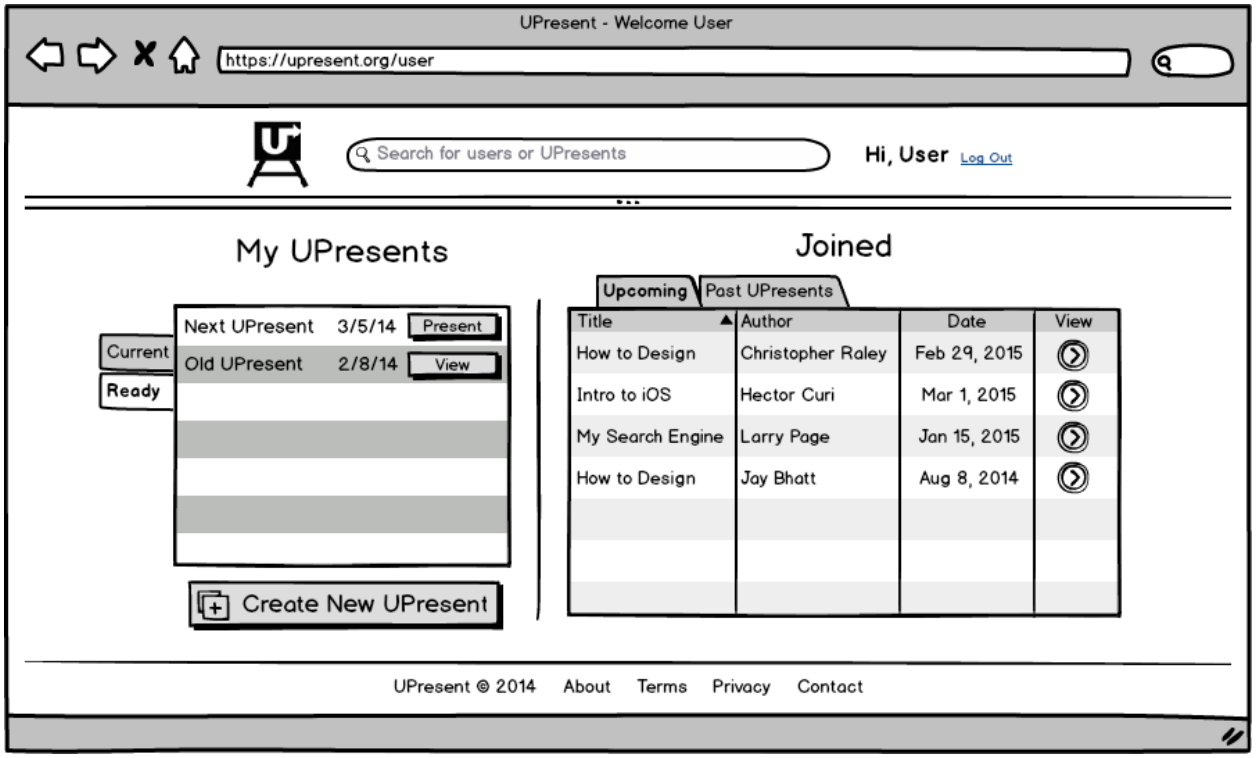

BROWSER
APP
Register
Signs in
Sign-In
Search Groups
• Join Group w/ Code
• Create Group
• Add Users
• Delete Users
Create UPresent
• Add Polls
• Enab/e Questions
• Upload Presentation PDF
View Past UPresents
• Comment
• Edit / Create Notes
View Ongoing Presentations
• Take Notes
Create Session
• Set Date
• Add Group
• Add Users
Sign-In
Click Through UPresent
REST API
(SLIM OR LARAVEL)
GET checkIfRegistered()
POST registerUser()
GET verifyRegistered()
GET getGroupList()
POST addToGroup()
POST createGroup()
DELETE delFromGroup()
POST createUPresent()
GET getUPs()
POST createSession()
POST addUserToSession()
Drive Parser
addPresentation(PDF): URL
getPresentation()
updatePresentation()
getNotes()
postNotes()
updateNotes()
Update Chat
Drive Hierarchy
Group Name
Date (Session)
User
• PDF of UPresent
• Chat XML
• Notes XML
User's UPresent
XML doc for this user's UPresent
Notes for every other user's UPresent in the session
TABLES
Users
2NF Table
Group_Users
Groups
Sessions
2NF Table
Session_Presentations
Presentations
Polls
2NF Table
Poll_Options
MYSQL DATABASE ON EC2 SERVER

Paper Prototypes

Webpage






UPresent - Welcome User
https://upresent.org/user
Search for users or UPresents
Hi, User
Log Out
My UPresents
Current
Ready
Next UPresent 3/5/14 Present
Old UPresent 2/8/14 View
Create New UPresent
Joined
Upcoming
Past UPresents
Title
Author
Date
View
How to Design
Christopher Raley
Feb 29, 2015
Intro to iOS
Hector Curi
Mar 1, 2015
My Search Engine
Larry Page
Jan 15, 2015
How to Design
Jay Bhatt
Aug 8, 2014
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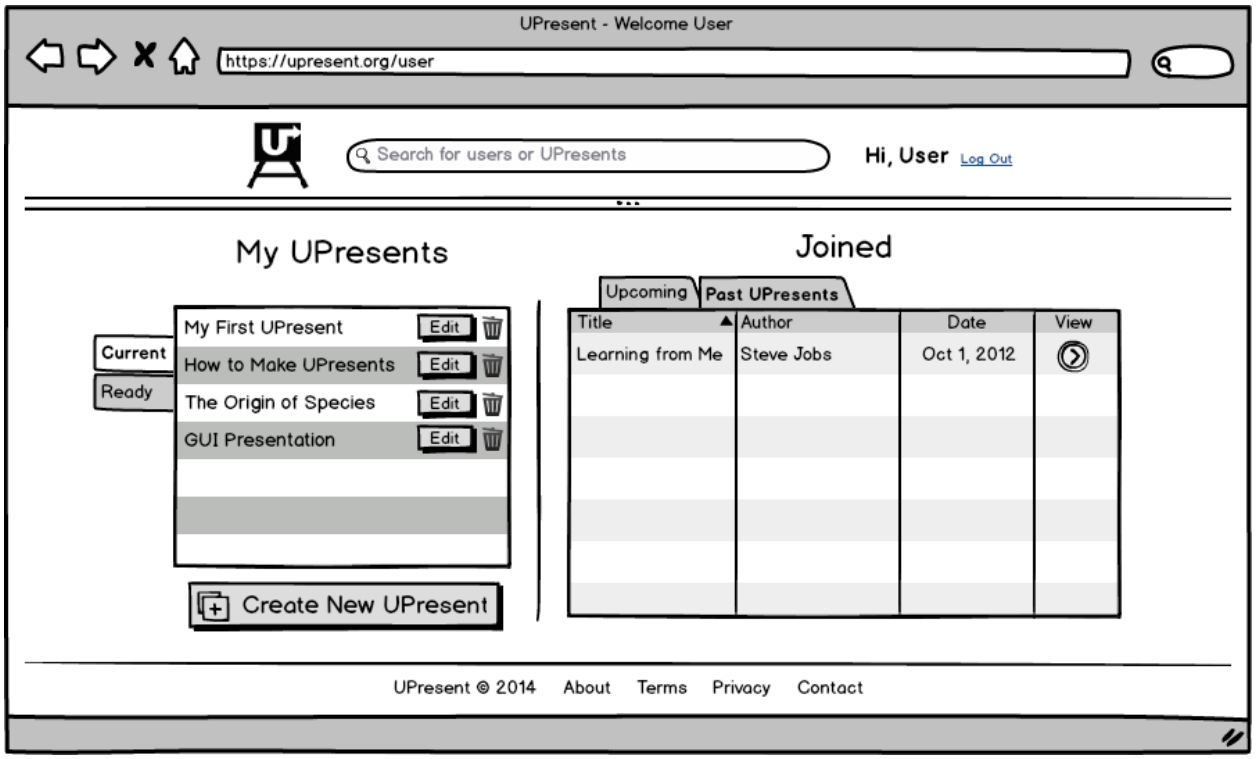
UPresent - Welcome User
https://upresent.org/user
Search for users or UPresents
Hi, User
Log Out
My UPresents
Current
Ready
My First UPresent Edit
How to Make UPresents Edit
The Origin of Species Edit
GUI Presentation Edit
Create New UPresent
Joined
Upcoming
Past UPresents
Title
Author
Date
View
Learning from Me
Steve Jobs
Oct 1, 2012
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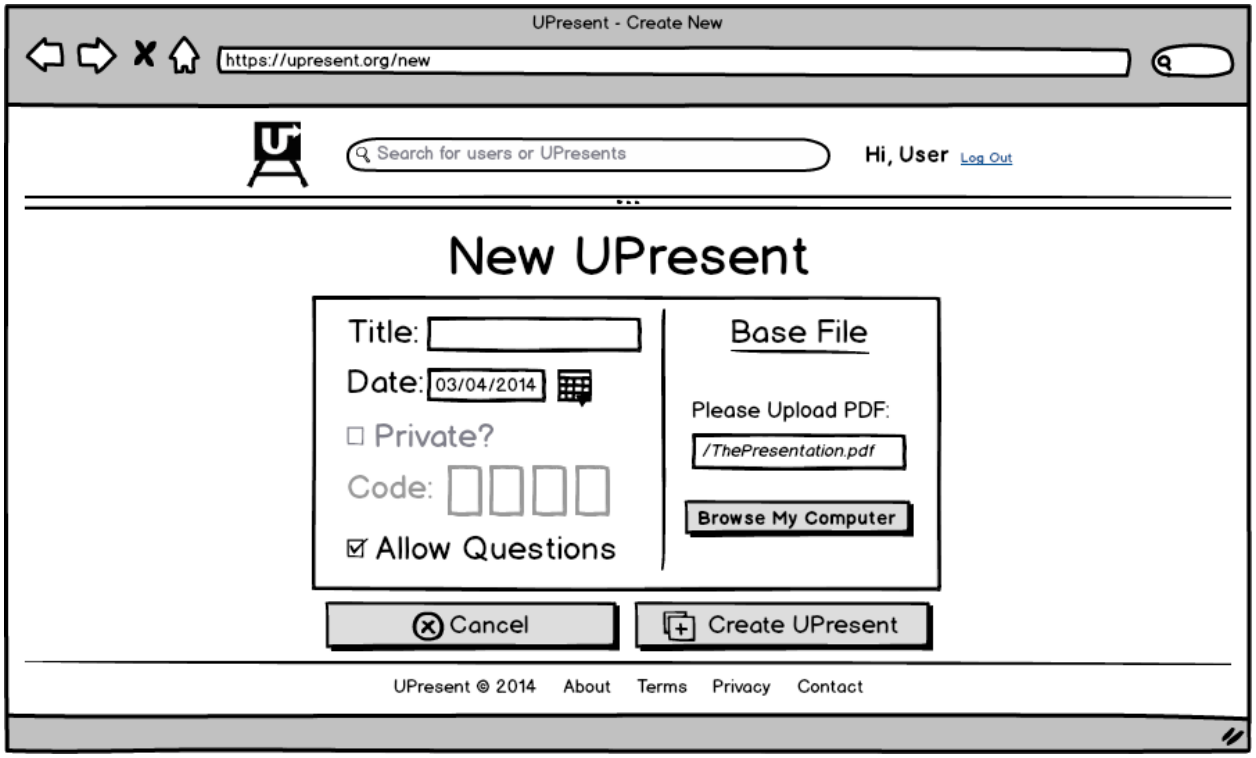
UPresent - Create New
https://upresent.org/new
Search for users or UPresents
Hi, User
Log Out
New UPresent
Title:
Date:
03/04/2014
Private?
Code:
Allow Questions
Base File
Please Upload PDF:
/ThePresentation.pdf
Browse My Computer
Cancel
Create UPresent
UPresent © 2014
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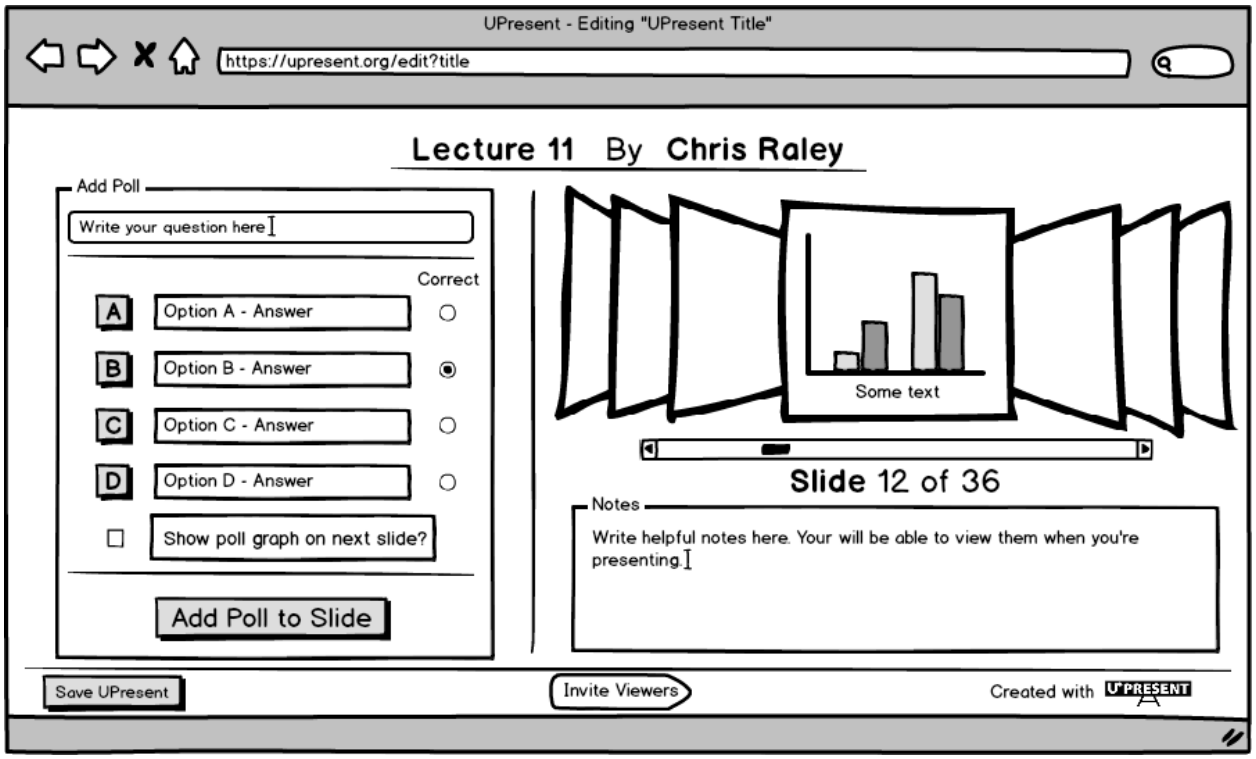
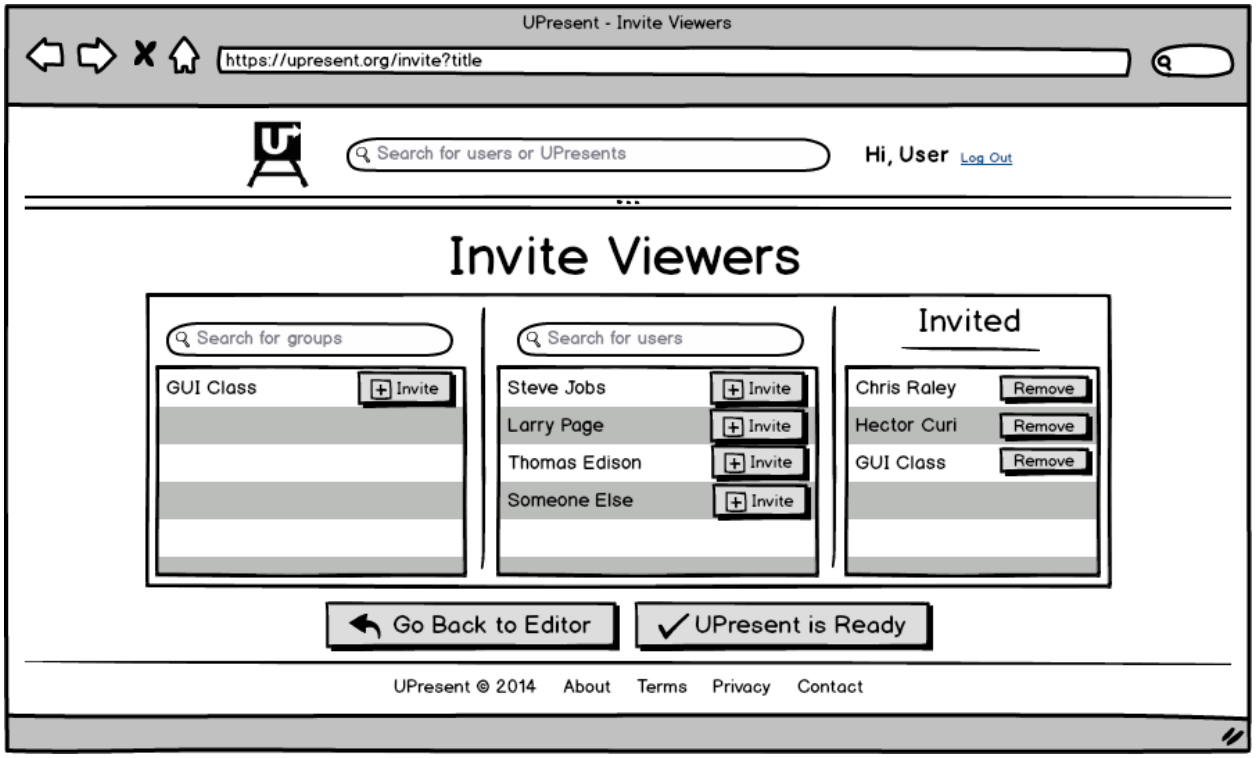

UPresent - Editing "UPresent Title"
https://upresent.org/edit?title
Lecture 11 By Chris Raley
Add Poll
Write your question here
Correct
A
Option A - Answer
B
Option B - Answer
C
Option C - Answer
D
Option D - Answer
Show poll graph on next slide?
Add Poll to Slide
Some text
Slide 12 of 36
Notes
Write helpful notes here. Your will be able to view them when you're presenting.
Save UPresent
Invite Viewers
Created with UPRESENT


UPresent - Invite Viewers
https://upresent.org/invite?title
Search for users or UPresents
Hi, User
Log Out
Invite Viewers
Search for groups
GUI Class
Invite
Search for users
Steve Jobs
Invite
Larry Page
Invite
Thomas Edison
Invite
Someone Else
Invite
Invited
Chris Raley
Remove
Hector Curi
Remove
GUI Class
Remove
Go Back to Editor
UPresent is Ready
UPresent © 2014
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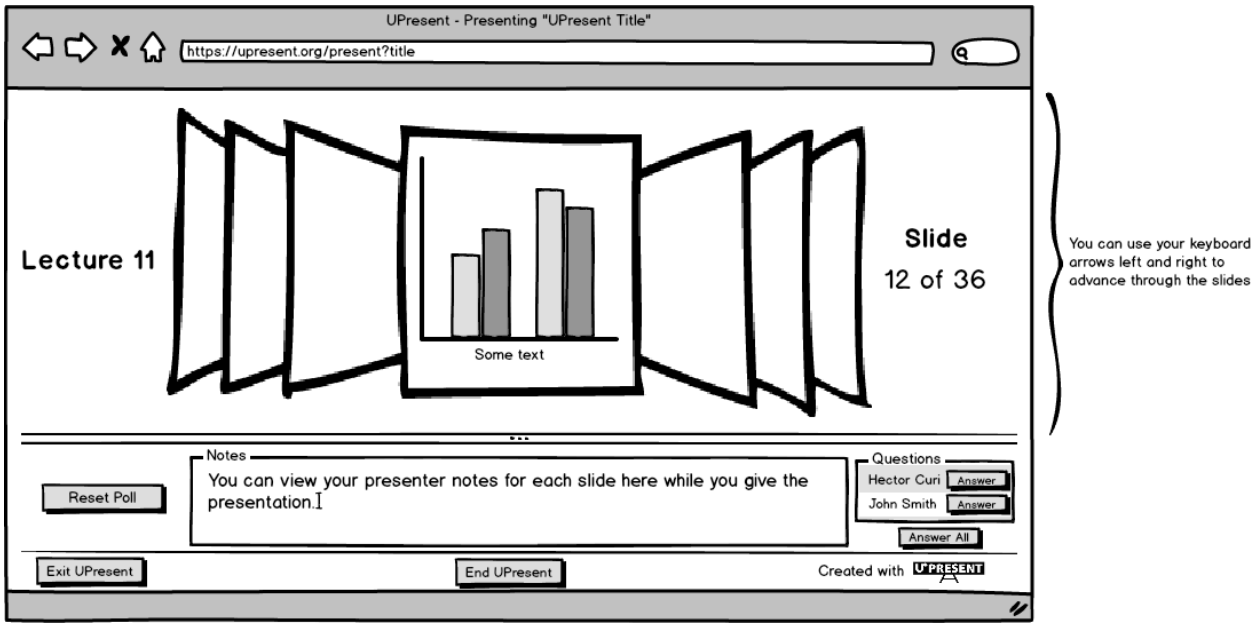
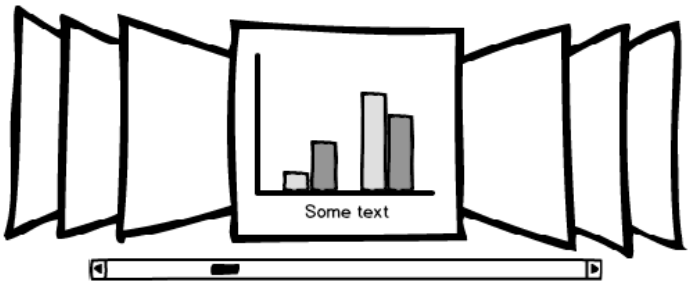

UPresent - Presenting "UPresent Title"
https://upresent.org/present?title
Lecture 11
Some text
Slide
12 of 36
You can use your keyboard arrows left and right to advance through the slides
Reset Poll
Notes
You can view your presenter notes for each slide here while you give the presentation.
Questions
Hector Curi
Answer
John Smith
Answer
Answer All
Exit UPresent
End UPresent
Created with
UPRESENT

UPresent - Presenter AfterView "UPresent Title"

(Back)

https://upresent.org/p-afterview?title

Lecture 11 By Chris Raley



Slide 12 of 36

Notes

You can still type or correct your notes here after you watch the presentation.
They will be stored automatically along the specific slide that you were viewing at the moment.

Viewers Chat

User1: I really liked Raley's UPresent

User2: Yeah, he's awesome!

User1: Did anyone take notes?

User2: I did, do you need them?

User1: Yes, please send them to user1@me.com

You can comment and chat here | Send

Exit UPresent

Created with UPRESENT

UPresent - Viewing "UPresent Title"

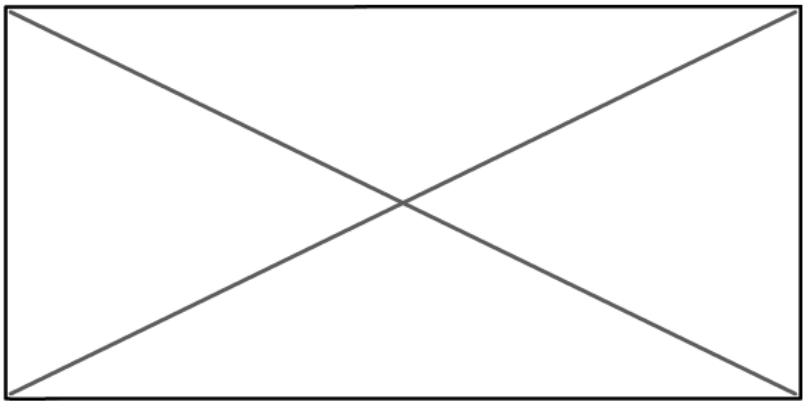
(Click After Presentation Ends)

https://upresent.org/view?title

Lecture 11

By

Chris Raley



Slide

12 of 36

☐ Question ?

Notes

You can type notes here while you watch the presentation.
They will be stored automatically along the specific slide that you were viewing at the moment.

Polling Options

A B C D

Exit UPresents

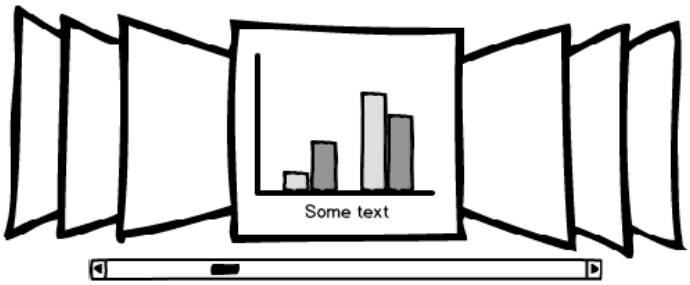
Created with UPRESENT

UPresent - AfterView "UPresent Title"

(Back)

https://upresent.org/afterview?title

Lecture 11 By Chris Raley



Slide 12 of 36

Notes

You can still type or correct your notes here after you watch the presentation.
They will be stored automatically along the specific slide that you were viewing at the moment.

Viewers Chat

User1: I really liked Raley's UPresent

User2: Yeah, he's awesome!

You can comment and chat here | Send

Download Slides

Contact Presenter

UPresents

Created with UPRESENT

UPresent - User Profile

https://upresent.org/user-profile

Search for users or UPresents

Hi, User Log Out

Public Profile

First Name: John

Last Name: Smith

Email: johnsmith@smu.edu

School/Organization: Southern Methodist University

School/Organization ID: 39247199

Profile Preview

John Smith

Username

SMU

Joined on Mar 3, 2014

Update Profile

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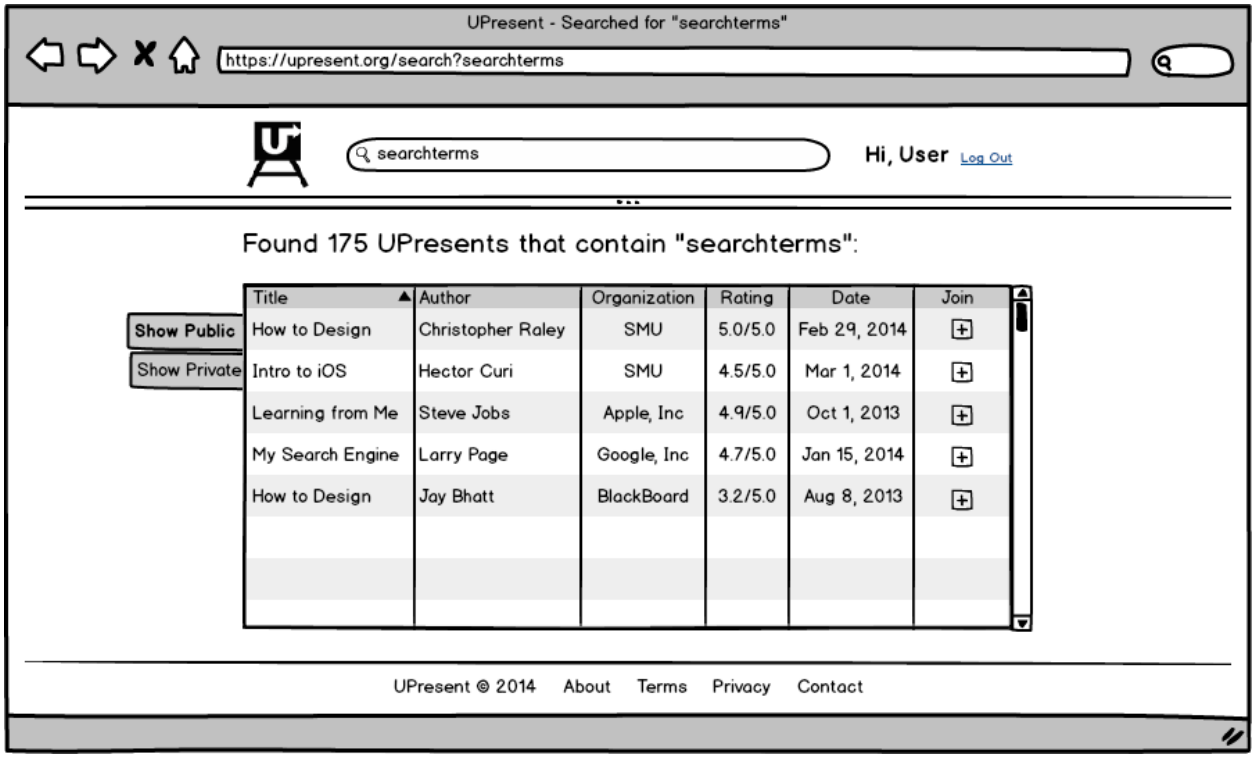
UPresent - Searched for "searchterms"
https://upresent.org/search?searchterms
searchterms
Hi, User
Log Out
Found 175 UPresents that contain "searchterms":
Show Public
Show Private
Title
Author
Organization
Rating
Date
Join
How to Design
Christopher Raley
SMU
5.0/5.0
Feb 29, 2014
Intro to iOS
Hector Curi
SMU
4.5/5.0
Mar 1, 2014
Learning from Me
Steve Jobs
Apple, Inc
4.9/5.0
Oct 1, 2013
My Search Engine
Larry Page
Google, Inc
4.7/5.0
Jan 15, 2014
How to Design
Jay Bhatt
BlackBoard
3.2/5.0
Aug 8, 2013
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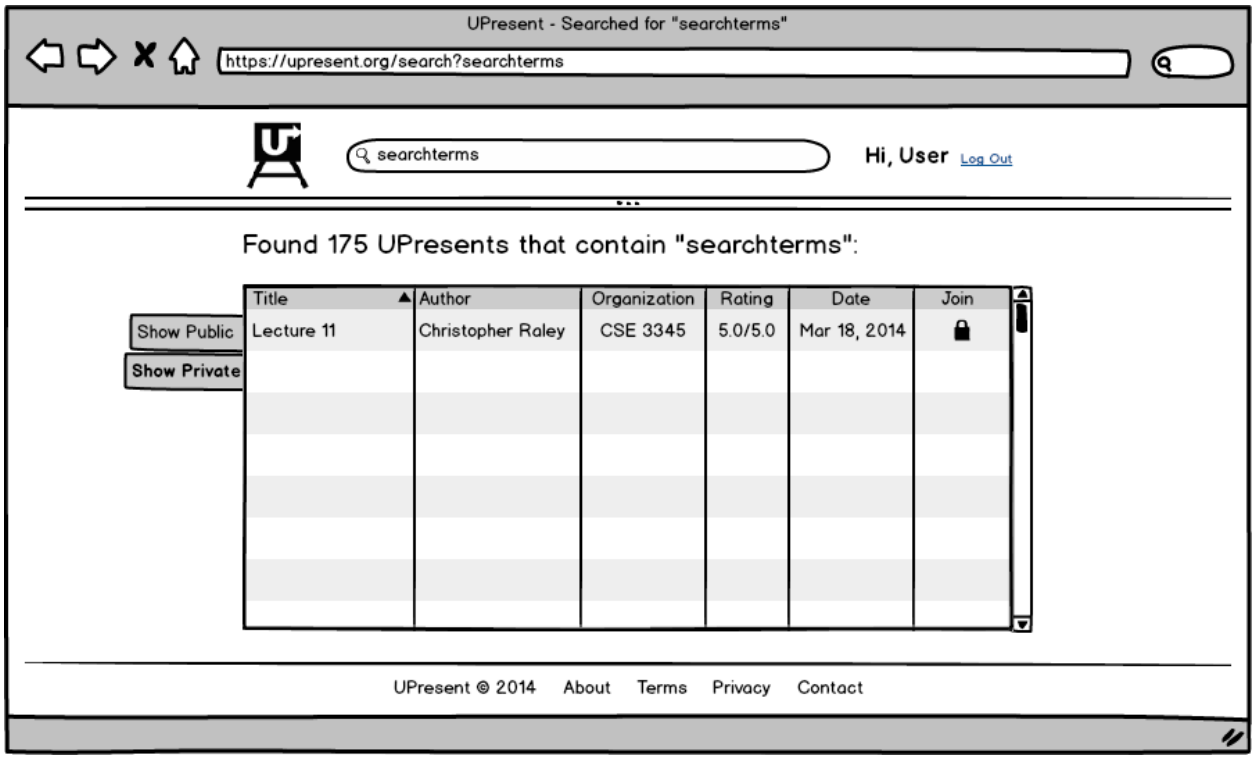
UPresent - Searched for "searchterms"
https://upresent.org/search?searchterms
searchterms
Hi, User
Log Out
Found 175 UPresents that contain "searchterms":
Show Public
Show Private
Title
Author
Organization
Rating
Date
Join
Lecture 11
Christopher Raley
CSE 3345
5.0/5.0
Mar 18, 2014
UPresent © 2014
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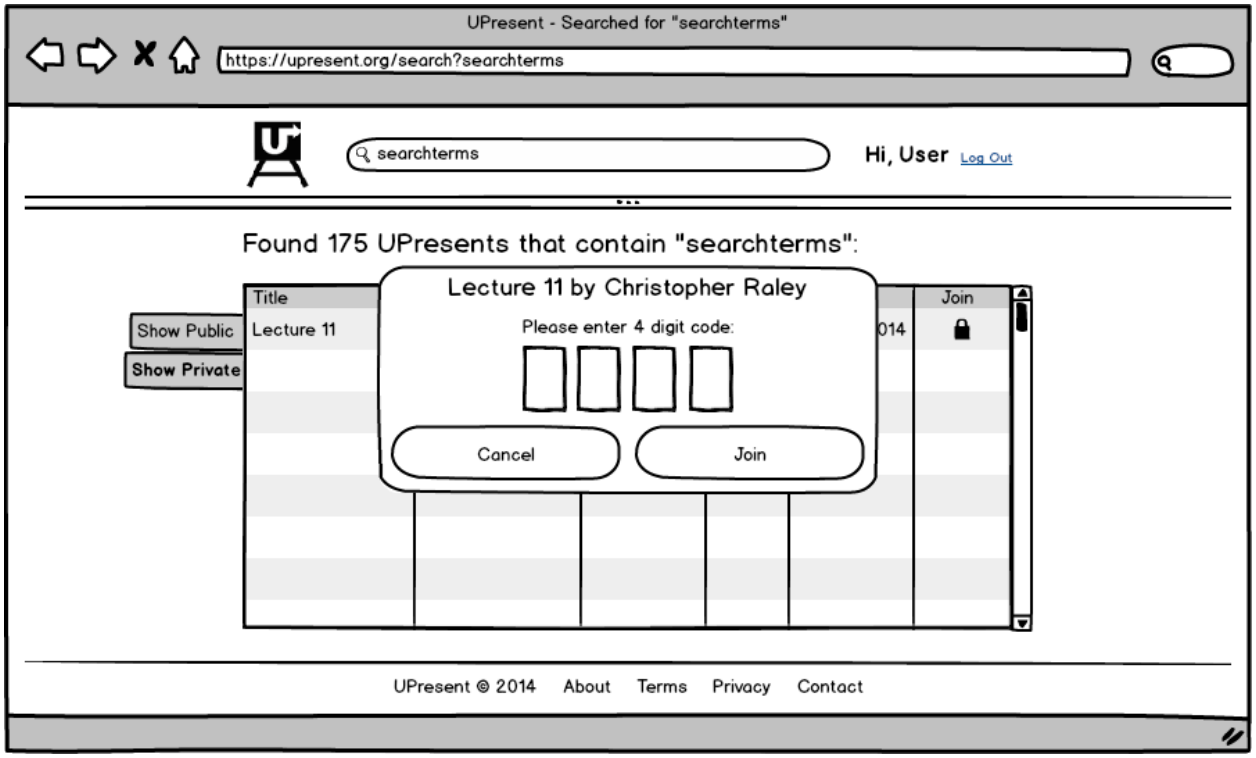
UPresent - Searched for "searchterms"
https://upresent.org/search?searchterms
searchterms
Hi, User
Log Out
Found 175 UPresents that contain "searchterms":
Show Public
Show Private
Title
Lecture 11
Lecture 11 by Christopher Raley
Please enter 4 digit code:
Cancel
Join
014
Join
UPresent © 2014
About
Terms
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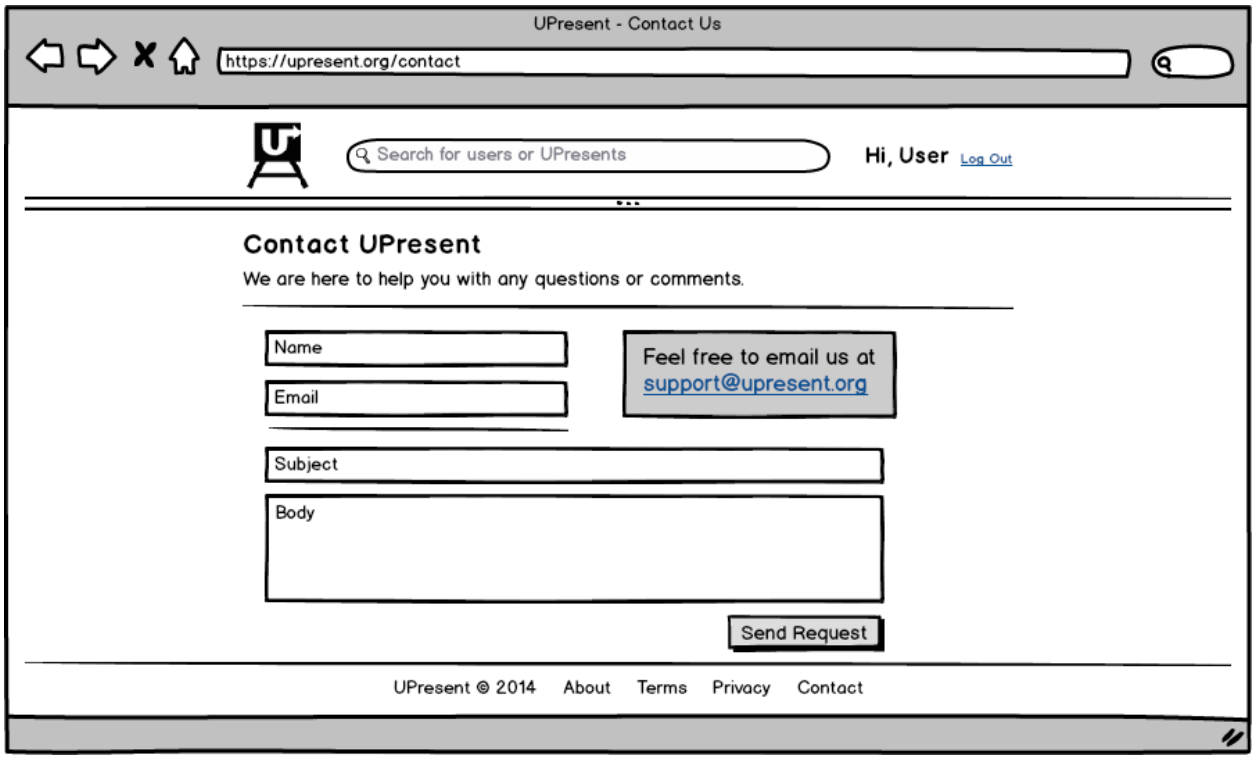
Contact


UPresent - Contact Us
https://upresent.org/contact
Search for users or UPresents
Hi, User
Log Out
Contact UPresent
We are here to help you with any questions or comments.
Name
Email
Feel free to email us at
support@upresent.org
Subject
Body
Send Request
UPresent © 2014
About
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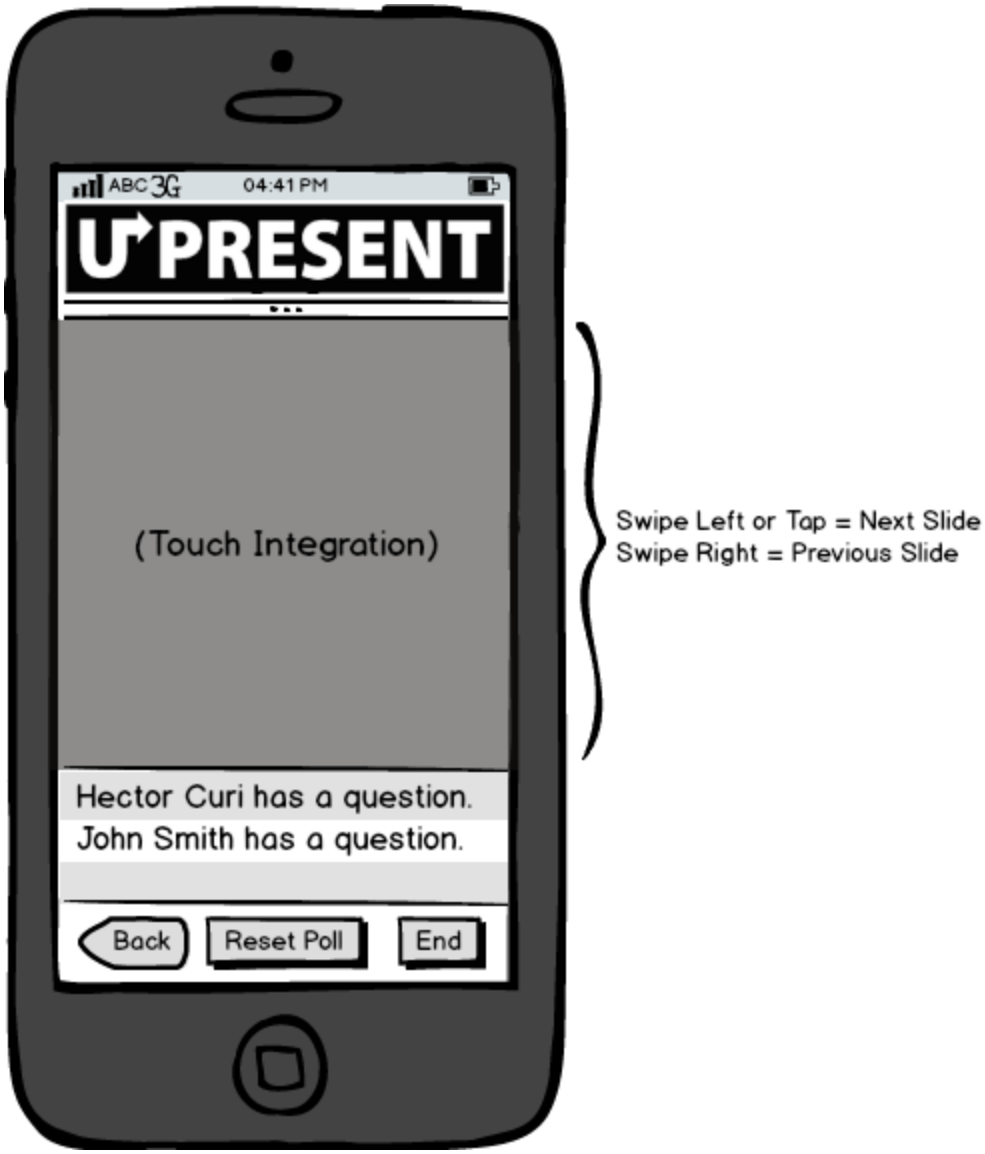
Privacy
Contact

Mobile

ABC 3G
04:40 PM
UPRESENT
Welcome!
Username or Email
Password
Log In

ABC 3G
04:41 PM
UPRESENT
My UPresents
How to Design
Intro to iOS
Origin of Species
Log Out


ABC 3G
04:41 PM
U PRESENT
(Touch Integration)
Hector Curi has a question.
John Smith has a question.
Back
Reset Poll
End
Swipe Left or Tap = Next Slide
Swipe Right = Previous Slide

User Profiles

User 1

- **Name:** Chris Raley
- **Education:** Master's degree
- **Profession:** Professor
- **Job Description:** Adjunct Professor at SMU
- **Computer Skill Level:** High
- **Familiarity with task domain:** Very familiar. Gives presentations to students frequently.

User 2

- **Name:** Catriona McClowry
- **Education:** High school graduate, some college
- **Profession:** College Student
- **Major:** Electrical Engineering
- **Computer Skill Level:** Medium High
- **Familiarity with task domain:** Very familiar. Has to give quick presentations when professors request them.

User 3

- **Name:** Mark Fontenot
- **Education:** Master's degree
- **Profession:** Professor
- **Job Description:** Professor at SMU
- **Computer Skill Level:** High
- **Familiarity with task domain:** Gives frequent presentations to classes, but doesn't typically use slideshow presentations.

Task Analysis

We have identified four main tasks for each User while using UPresent. In our task analysis, we detail steps Users must take to implement each task. We rank these tasks in order of relevance to the functionality of our application.

- Create UPresents
    1. Login to your account.
    2. Click “Create New UPresent” button on the lower left hand side.
    3. Type a title for the UPresent.
    4. Select the date when the UPresent will be presented.
    5. Choose to make UPresent private (optional).
    6. Add a four digit code to access private UPresent (optional).
    7. Choose to allow or disallow questions.
    8. Select a PDF file containing the slides and upload it.
    9. Click “Create UPresent”.
    10. In the Editor Screen, add notes to slides as necessary.
    11. Work on UPresent until it is ready to be presented.
- Share UPresents
    1. After creating a UPresent, within the edit page, the User should select “Invite Viewers” at the bottom of the screen.
    2. Within the invite page, the User has the option to “Search for Groups” or “Search for User”.
    3. After searching for a Group or User, the creating User can select the “Invite” button to invite that particular Group or User to view their UPresent in a Session.
    4. Click the “UPresent is Ready” button. This will send an email to the invited User, giving access to the UPresent via a 4-digit code.
- Note Taking
    1. In order to take notes on a UPresent, you must be a Group Member in an active Session.
    2. As the User types, the notes will be saved as corresponding to a particular slide.
    3. When a presenting User advances a UPresent to the next slide, the viewing User can continue to take notes and will not get cut off by the UPresent.
- Polling
    1. While you are in the editor screen you can add polling to any slide.
    2. To add a poll, fill in the question and answers and choose the correct answer.
    3. Choose to add a graph to the next slide.
    4. Use “Add Poll to Slide” button to add the poll.
    5. You can add as many polls as you want to the UPresent.
    6. Once you’re finished adding polls, click the “Invite Viewers” option.

Object/Action Analysis and Matrix

Identifying Objects, Actions and Attributes

Object	Attributes	Actions
User (as Presenter)	Username, Email, Password	Register, login, change password
Profile	Name, Last Name, Email, School/Organization, School/Organization ID, Picture	Edit, view, update
User (as Viewer)	Username, Email	Search, invite
Group	Name, Users	Create, add users, remove users, view, delete
UPresent	Title, Owner, Date, Viewers	Create, edit, add users, delete, view, present, search
Notes	Content, UPresent, Owner	Add, edit, delete, view
Poll	Question, Answers (options), Slide	Add, edit, delete
Questions	Active/Inactive, UPresent	Activate questions, deactivate questions
Group Chat	Members	Send message, view

Objects/Action Matrix

		Register	Login	Change Password	Edit	View	Update	Search	Invite	Create	Add Users	Remove Users	Present	Delete	Activate/Deactivate	Send Message	
User (as Presenter)		X	R	R													X=Everyone
	Username				R												R=Registered User
	Email				R												
	Password				R												
Profile					R	R	R										
	Name					R											
	Last Name					R											
	Email					R											
	School/Organization					R											
	School/Organization ID					R											
	Picture					R											
User (as Viewer)						R		R	R								
	Username					R		R	R								
	Email					R		R	R								
Group						R				R	R						
	Name				R	R											
	Users					R		R									
UPresent					R	R				R	R	R	R	R			
	Title				R	R											
	Owner					R											
	Date				R	R											
	Viewers					R					R	R					
Notes					R	R	R			R				R			
	Content					R				R				R			
	UPresent					R											
	Owner					R											
Poll					R	R	R			R							
	Questions				R	R											
	Answers (options)				R	R											
	Slide					R											
Questions					R	R	R								R		
	Active/Inactive					R									R		
	UPresent					R									R		
Group Chat						R										R	
	Members					R										R	

Software Lexicon

- *Afterview* -- This is the page a User can view after a UPresent is completed. A viewing User can review the UPresent as well as their Notes for each slide. The User can download the UPresent and participate in a group chat with other Users within the UPresent. The presenting User can view their UPresent and respond to the group chat as well.
- *Group* -- This is a collection of Users that can share UPresents with each other. In our initial prototype, this is intended to represent classes at academic institutions. A User(Group Owner) can create a Group and add other Users(Group Members) to this Group.
- *Group Member* -- This User is invited by a Group Owner to join a Group. A Group Member can view any UPresent that the Group has access to, and he/she can also present a UPresent.
- *Group Owner* -- This User manages a Group. Ideally, a Group Owner will be a professor or teacher in our initial prototype. The Group Owner can create a Group by inviting other Users to the Group.
- *Polls* -- These are useful tools that a User can add to a UPresent. They involve multiple choice questions that a Group of Users can answer (by selecting A, B, C, etc.). After a Poll is closed by a presenting User, the data can be displayed in a graph format visible to an entire Group.
- *Profile* -- Every registered User has a Profile. This includes a First Name, a Last Name, an Email Address, a Password, a School/Organization, a School/Organization ID, and a Picture. The User can edit this at any time, and every attribute excluding Email Address and Password is optional.
- *Question* -- This is a checkbox on the Viewing screen. The Users viewing a UPresent can check this box if they have a question, and a notification is sent to the mobile device of the presenting User. This person can see who asked the Question and respond accordingly.
- *Registered User* -- This person is registered with UPresent. They have an email address and a password that we can use to validate them. They can create, upload, edit, or delete UPresents. In addition, they can create a Group and add/remove other Users from this Group. They can also edit their own Profiles.
- *Session* -- A Group Owner can start a Session. This contains multiple UPresents, and a Group Owner can invite either an entire Group or selected Users to the Session. Everyone within the Session can follow along with a live UPresent.
- *Unregistered User* -- This person is not expected to stay unregistered for long. They can either register with UPresent (using a valid email address and password), or they can contact UPresent via email.
- *UPresent* -- This is a presentation, either uploaded or created by a User, that can be shared with a Group of Users in a Session. It is slideshow-based, and is interactive in nature. A creating User can add Polls to the UPresent to make it more interactive with the Group. A viewing User can take notes, answer Polls, and send Question notifications as the UPresent progresses.

Usability Test

We performed a usability test on three subjects and recorded all their inputs, usability problems and suggestions. The test consisted on a series of instructions that the test subject had to execute on the digital paper prototype with some guidance and their feedback was recorded. The test script was the following:

1. Explain to the test subject a general idea of the application, what its purpose is and who it is going to be aimed for.
2. Show them the “index screen” of our paper prototype, and explain how the test is going to be performed
3. Ask the user to login or create a new account
4. Explain the “home screen” for the user, left side being own content and right side being joined content
5. Ask the user for feedback on the home page
6. Ask user to create a new UPresent
7. Explain the “editor screen” to the user, remember to provide details on how the notes will be synced with each slide
8. Ask the user to add a poll and enable questions
9. Ask the user to go to “invite users screen”
10. Explain the searching function and how groups work
11. Ask user to invite a few users and ready up the UPresent
12. We are back at the “home screen”, ask the user to go and present the UPresent he just created
13. Explain the “presenting screen” and how the interface will change during the presentation
14. Ask user to end the UPresent
15. Explain “afterview screen”, ask user for feedback on the screen
16. Ask user to go back to “home screen”, explain how the can see the “afterview screen” again
17. Ask user to view one of the presentations he’s been invited to
18. Explain “viewing screen”, emphasize on the similarity with “presenting screen”
19. When the UPresent finished, the user are taken to the “afterview screen”
20. Explain “afterview screen” and buttons for downloading slides and contacting presenter
21. Ask user for feedback on “afterview screen”
22. Finally ask user to go to “home screen” and search for a UPresent
23. Explain “search screen” and how to join private UPresents
24. Go back to “home screen”
25. Ask for final feedback and suggestions
26. Thank them for their valuable input

Usability Report

Chris Raley was the first prospective user to test UPresent. As he walked through the usability test, he noticed a few problems with our product. For instance, in the view page, he predicted issues with moving slides while taking notes. He suggested a "move to current" feature with notes to keep the User in control of the UPresent. He believed that this seemed like "too much work for this semester". He thought that we "didn't need the bottom links" because they seemed superfluous. The Lock on UPresents in the user page is not indicative that those UPresents are available to join, and he suggested that we could add the word "Join" beneath the lock icon. He indicated that information on sides of media on the view page would be useful.

Catriona McClowry walked through the login page with no trouble. She clicked "Sign Up", and thought the home page "made sense". On the edit page, she thought that it would be helpful if the User could "make a presentation within UPresent", and that could be a nice alternative to uploading a slideshow presentation. She also thought that "recording someone speaking along with the presentation" would be a nice feature, especially for distance learning. She thought that on that page, we should change the location of the "Save UPresent" button. Within the user page, she thought that "In Progress" and "Completed" buttons would be preferable to "Current" and "Ready" buttons when selecting UPresents. She also mentioned that selecting a whole bar for a UPresent would be easier than pushing a smaller button, and that "highlighting would be nice." In the AfterView page, she liked the chat feature, but would like to have audio capability to actually talk to people in a chat. On the viewing User side of the AfterView page, she said she would have liked to see an "Email Slides" option in addition to a "Download Slides" option. She mentioned that having a way to request access to a UPresent if a User forgot a 4-digit code, such as a security question, would be a nice addition. She suggested that if a User received an invite in an email, UPresent could send the 4-digit access code that way. In addition, she liked our logo.

Mark Fontenot made various comments throughout the usability test. On the login page, he mentioned that "Pick a Username" implies a drop-down menu, and that something else would be preferable, such as simply "Username". He also asked what the rules for Passwords were, which we recognize would be very helpful for Users to see when they are signing up. In the user page, Fontenot questioned the difference between "Present" and "View", so we explained that "View" showed the AfterView of a UPresent. We recognize that differentiating between the two will be important moving forward. Fontenot recognized the redundance between "Create UPresent" in the user page and "Create UPresent" in the new page. In the edit page, Fontenot believed that "showing the results of the poll would be better". He wondered when he needed to click the "Save UPresent" button. He believed that "creation of UPresents needs to be separate from invitation" and that moving the "Save" and "Cancel" buttons to the right side of the screen would be more intuitive. On the present page, Fontenot thought that "the Question button is sort of forced", and that implementing that would be a bit

superfluous. The locations of "End UPresent" and "Exit UPresent" were also a bit confusing, as they were to the left and center of the screen at the bottom, instead of on the right side. In the AfterView page, he thought that we should "change 'Exit' to 'Home'", because exit implies leaving the site completely. On the Viewer Side of UPresent, he thought that "Joined" should be changed to "Invited". On the view page, he suggested that we have a column on the left side of the notes that indicates slide numbers, so that if a professor speaks at length about a subject on a given slide, and a student doesn't have a chance to take all the notes they need, they are not cut off by the UPresent and can keep taking notes. In the search page, he mentioned that "Title" seemed a bit boring, and that "UPresent" would be more catchy. He also indicated that changing the UPresents button to "My UPresents" would be something succinct and informative, indicating to the User that they would be going back to their homepage. Back on the user page, he mentioned that "Past UPresents" might need some new phrasing. He mentioned a nice feature would be saving who takes the poll, so that it would be a subtle way of taking roll for a professor. In general, Professor Fontenot believed that "Polling is more valuable than Questions notifications" and that "Polling analytics may be easier to implement than Questions". There were "too many steps" for lots of things, which could be helped with a progress bar at the top of the screen. He believed the most important implementation would be synchronizing notes with a UPresent, while the next most important implementation would be polling. He also thought having notes associated with images would be useful too. For example, if a professor drew a "binary search tree" on a whiteboard, a student could take a picture with their phone within the mobile app, and then the image could be synchronized into the notes within the UPresent.