



Graphical Password Strategy

Presentation by: Brittney Desroches, Luke Hruda, Peter Levine



Project Description and Strategy

- The graphical password strategy is a system for password entry that maximizes password space while being more secure than traditionally typed in password.
- For this system, the idea is to create a password space of a 10x10 matrix of images (100 choices).
- Additionally, each of these photos will be distinctly different to help avoid confusion and to increase user-password retention.

Objectives

- For the Graphical Password Authentication system, the three main attributes that will serve as our objectives include:
 - Security
 - Reliability
 - Usability
- The overall goal is to make a password system that is not only more secure than conventional ones, but a system that also improves user retention across most groups of people

Security

- Security is the main purpose of redesigning a method for password input. The intent behind the Graphical Password Authentication system is to increase the security for users while also making the system easy to use.
- In traditional text based passwords, there is a password space of 68 characters to choose from for each place in a password. This means a password of 8 characters long would have a possible 68^8 different combinations.
- With this new system of a 10x10 matrix of pictures, a 8 picture password in a 100 option password space would lead to 100^8 different combinations making it exponentially more difficult to break for hackers.
- The system can allow people with the same password as this may be a possibility, however there will be no two individuals with the same username/email to access the system. This means that two individuals are fine to have the same password so long as their main identifier is differentiable.

Reliability

- The GUI and the authentication process of this system needs to be reliable to ensure that there is no extra risks to the security of the system.
- The system must reliably enter the correct users based on their username and the password that matches the database.
- The system should take about the same amount of time to authenticate the passwords and usernames as the traditional typed password and efficiently handle wrong entries.
- The images should also be scrambled each time the user opens the system to ensure that there is no patterns forming that would alert hackers of how to enter the users account.

Usability

- A core audience that this password system is geared towards is those who do not understand the importance of a long, complicated password, or those with language and illiteracy issues. This system will allow them a simpler means of securing information while creating a system that is much more difficult to break into.
- The images that appear on the screen should be distinctly different to avoid any confusion. If the user chose a picture of a lake and there was a similar picture of a lake somewhere else in the array of images, it may be hard to differentiate which photo they are supposed to choose.

Measures of Success

- Goal: Create a password system that is more secure and more user-friendly

Measures of Success:

- The images in the password space are easily differentiable
- The images are in a new order upon opening the system
- High customer satisfaction with the system

- Goal: The system performs reliably and swiftly

Measures of Success:

- The authentication time is at most equal to that of the typical typed in password
- The system only lets individuals into their own accounts, even if two individuals have the same password

Hardware and Resources

- Since this is a Web Development project, no specific software will be required. Since we are replacing an already existing system, the hardware infrastructure will already be in place, including the DBMS system on the web server, so these will only need to have software updates applied to them
- Each team member will require a laptop with a basic text editor installed for HTML, CSS, JS, and PHP programming to be done

Risks and Mitigation Strategies

- Risk: Unrealistic time estimates

Mitigation Strategy:

- Tasks are scheduled in parallel when requirements are not connected
- Tasks will be given a reasonable time cushion such that quality is not compromised
- Cushion time also banks time in the case of a requirements change

- Risk: Gold plating

Mitigation Strategy:

- Requirements will be the main focus of the project
- The focus will be on functional, working code and not special features
- Only requirements changes coming from the customer may be worked into the plan

- Risk: Staff may be incompetent and lazy

Mitigation Strategy:

- Staff recruitment will be done rigorously and with technical based questions
- Some incentives may be proposed to work finished early with the required quality

Risks and Mitigation Strategies (cont.)

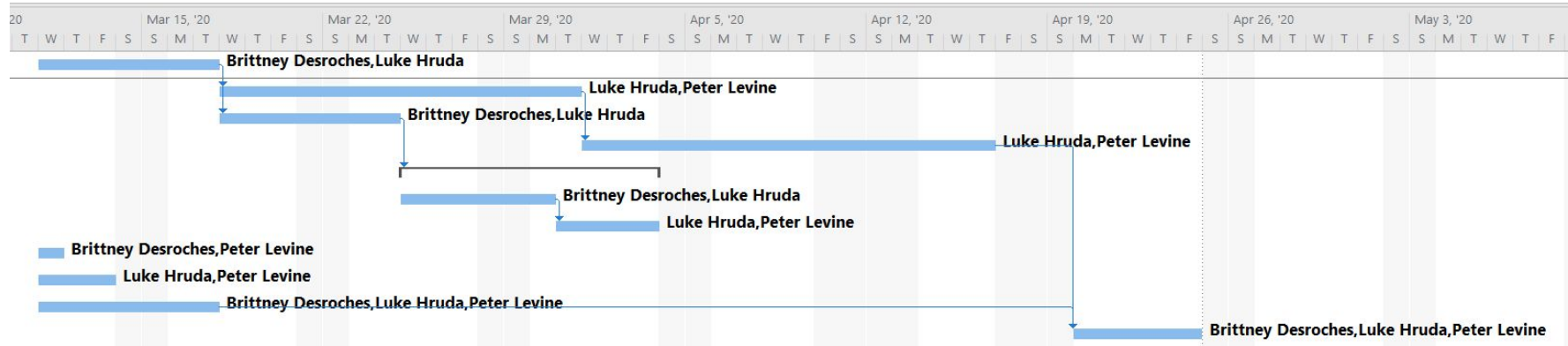
- Risk: The risk with testing the software would lie in the conversion between Image list to Hash value, where the string builder would have an error.
 - The flow would be “onclick function -> addToQueue(Doc.getInnerHTML(Image.id));”
 - Then the image ids would be concatenated into a string
 - Then the corresponding string would be hashed
- Mitigation Strategy: Ensure proper unit testing is coded into the system along with the actual application.

Activity Plan

Task Name	Duration	Start	Finish	Predecessors	Resource Names
Recruit/Train Staff	1 wk	Wed 3/11/20	Tue 3/17/20		Brittney Desroches,Luke Hruda
Hardware Selection	2 wks	Wed 3/18/20	Tue 3/31/20	1	Luke Hruda,Peter Levine
Software Selection	1 wk	Wed 3/18/20	Tue 3/24/20	1	Brittney Desroches,Luke Hruda
Hardware Installation	2 wks	Wed 4/1/20	Thu 4/16/20	2	Luke Hruda,Peter Levine

Software Development	8 days	Wed 3/25/20	Fri 4/3/20	3	Brittney Desroches,Luke Hruda,Peter Levine
Password Logic	4 days	Wed 3/25/20	Mon 3/30/20		Brittney Desroches,Luke Hruda
Server Implementation	4 days	Tue 3/31/20	Fri 4/3/20	6	Luke Hruda,Peter Levine
Stakeholder Confirmation	1 day	Wed 3/11/20	Wed 3/11/20		Brittney Desroches,Peter Levine
Compatibility Testing	3 days	Wed 3/11/20	Fri 3/13/20		Luke Hruda,Peter Levine
Software Testing	1 wk	Wed 3/11/20	Tue 3/17/20		Brittney Desroches,Luke Hruda,Peter Levine
Integration Testing	1 wk	Fri 4/20/20	Thu 4/24/20	4,10	Brittney Desroches,Luke Hruda,Peter Levine

Gantt Chart



*Note that Good Friday and Easter Monday (April 10th and 13th) are being considered as team holiday's as we are our own project managers and want a four day weekend

**April 17 is family Day Holiday