

Human-Centered Computing for Health

Week 7 - Team Project and Storyboarding

HC4H - Spring 2022
Nadir Weibel, PhD

HC4H Design Projects







Human-Centered Design Projects

- Mixed student teams (3 students with similar interests, but complementary skills)
- At least 1x student from CSE 190 and 1x from CSE 291
- Will prototype one solution addressing one specific health or healthcare problem
- Can be inspired from personal experiences or from the site-visits
- Instructors will be available as coaches
- Students are encouraged to work with domain-specialists
- Student teams are expected to work together outside of class

Human-Centered Design Projects

- Design prototypes developed during weeks 7-10 should be based on Human-Centered Design techniques
- Create a web site and a video to visually demonstrate your prototype solution
- Do not need to develop fully functional solution
- Present your project and video in week 10

Step-by-step Design and Web-site Development

⋮		Project Web Page #1: Topic and Team Due May 13 at 11:59pm 10 pts
⋮		Project Web Page #2: Use Cases and User Stories Due May 15 at 11:59pm 10 pts
⋮		Project Web Page #3: Initial Prototype Due May 22 at 11:59pm 10 pts
⋮		Project Web Page #4: Expert Feedback Due May 22 at 11:59pm 10 pts
⋮		Project Web Page #5: Video Prototype Draft Due May 25 at 11:59pm 10 pts
⋮		Final Project Web Page Due May 29 at 11:59pm 50 pts

Week 7

Project Web Page #1: Topic and Team

✓ Published

Edit



Create a Google sites we page for your project and team and add a separate "About" page that contains the following information:

- The general topic of what your team would like to address for your group project.
 - Please be as specific as possible.
 - What problem are you trying to solve (i.e., problem space)?
 - How would your general solution address the problem (i.e., solution space)?
 - How would you refine your solution?
 - As you progress through the quarter, you might want to change your topic. This is OK!
- Add information about your team.
 - You can be creative with the layout and types of information.
 - Make sure to include names, pictures, and academic status (e.g., Undergraduate vs. Graduate).

<https://canvas.ucsd.edu/courses/35522/assignments/472491>

Project Web Page #2: Use Cases and User Stories

✓ Published

Edit



In the last assignment, you identified broad problem and solution spaces. Now we want you to highlight (very) specific use cases of your group's problem and solution. Your scenario has to contain both problem and solution components.

To shape your scenarios, sometimes it is helpful to assign some members to be the devil's advocates! Eventually, you want to be your own devil's advocate. For now, if member A comes up with a scenario, members B and C have to critically examine both the problem and solution of member A's scenario. Repeat with all members' scenarios. One helpful question to ask is "is this solution the simplest solution"? Most often, fancy solutions can be interchangeable with much simpler solutions. If this is the case, rinse and repeat: what problems arise from this "simple" solution? How can you address these problems?

Once you have identified your use cases, it is time to produce a cohesive user story. User stories are one way of communicating the "who", "what", "how", and "why" of your scenarios. Storyboards are an example of producing step-by-step user stores. Make sure to clearly demonstrate

- who is your user,
- what does your user need to achieve,
- how does your solution address your user's needs, and
- why does your solution work.

Prepare **at least two** user stories. The more you do, the more you can get feedback. Submit the URL that contains your user stories.

<https://canvas.ucsd.edu/courses/35522/assignments/472492>

Week 8

Project Web Page #3: Initial Prototype

✓ Published

Edit



This week you will produce an initial prototype of your solution. Prototypes convey the main functionalities of your solution with little emphasis on the technology. Remember that you are solving a problem, more than introducing a "novel" solution.

In class, you learned about low-fidelity (e.g., sketch) vs. high-fidelity (e.g., fully functioning applications) prototypes. Where your prototype lies on the fidelity spectrum depends on your specific solution. Generally, the more interactive prototypes can spark deeper insights from stakeholders. However, lower-fidelity representation can also be very helpful. If a sketch adequately conveys the functionality of your solution, go for it. If you need to develop a simple HTML website, do that. Choose the modality that fits your context.

Remember to post the website URL for your prototype.

<https://canvas.ucsd.edu/courses/35522/assignments/472493>

Project Web Page #4: Expert Feedback

✓ Published

Edit



For this assignment, you need to engage your main stakeholder with the prototype you developed last week. Your stakeholder can be a physician, technologist, or patient. For this assignment:

- describe your expert: who they are and what makes them an expert in your project,
- explain and justify the protocols you used in your interaction: for instance, you might want to provide specific tasks vs. follow a semi-structured interview, you might want your expert to give feedback while they interact with your prototype (i.e., concurrent think-aloud) vs. afterward (retrospective think-aloud),
- list the main feedback points you received from your experts, and
- list your main takeaways from the feedback (i.e., how do these takeaways inform the design of your prototype).

Submit your website URL that contains information about your user session, including your answers to the prompts above.

<https://canvas.ucsd.edu/courses/35522/assignments/472494>

Week 9

Project Web Page #5: Video Prototype Draft

✓ Published

✎ Edit



As the final sub-task of your project, submit a video prototype of your project that demonstrates the problem you are addressing and your solution for it.

- You video should be 3-5 minutes long. The problem section of your video should briefly highlight the main challenges faced by your stakeholder in 1 minute or lesser. The rest of your video should focus on the solution: clearly point out different functionalities of your solution, and how users interact with these features.
- Your video should show the current design for your project - this does **not** have to be the final design as you will continue to iterate on it before the final submission for this quarter.

Upload this video on your project website, and submit the URL for this assignment.

<https://canvas.ucsd.edu/courses/35522/assignments/472495>

Week 10

Final Project Web Page

✓ Published

✎ Edit



Build on the weekly submissions and the website you already have to build the final website for your project.

Also, include a final project video on the website. This video should be a maximum of 5 minutes long and should cover:

- Background, Problem, and Impact: 1 minute
This includes general information on your topic, an explanation of what the problem is, why you chose to focus on it, as well as the potential impact of your solution.
- Features: 3 minutes
This is where you will talk about the different features of your solution. Ensure these features address your problem and provide a feature by feature explanation with visual examples shown via mock-up or other prototyping activities.
- Conclusion and Future Work: 1 minute
Here you should summarize up your solution/product idea and end with a strong “selling” point.

For this assignment you will submit the final URL of your project website. Ensure your it includes the following:

- Solution name
- Team members and contact information
- Solution description
- Key features
- Embedded final video
- Any other information that will be needed for question & answer session at the end of your final presentation

HC4H Project Example

Superman in a Box

[Home](#) [History](#) [Problems](#) [Solution](#) [Features](#) [Video Player](#) [More](#)

SUPERMAN IN A BOX

RETHINKING ULTRASOUND IMAGING

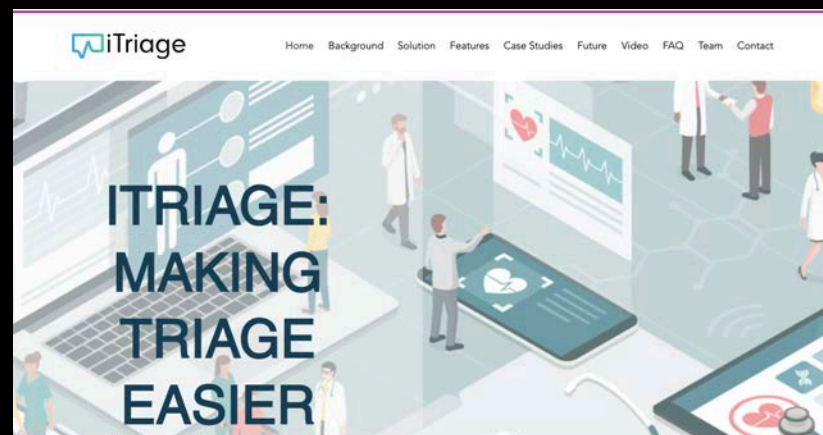
Douglas Howry, one of the pioneers of ultrasound, had the ultimate goal of producing a more sophisticated instrument that was "*in a manner comparable to the actual gross section of structures in the pathology laboratory.*" Howry's dream is finally becoming a reality with modern technology.

[Learn More](#)

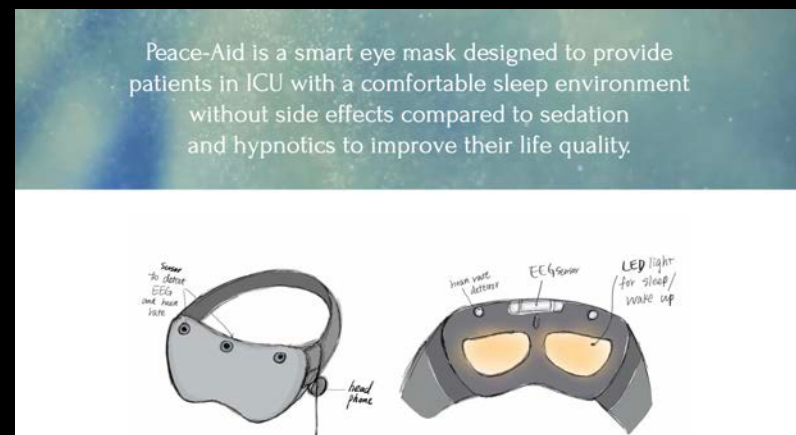
<https://ewschmit.wixsite.com/superman-in-a-box>

hc4h.ucsd.edu

HC4H Project Examples



<https://shashankpasumarthi.wixsite.com/itriage>



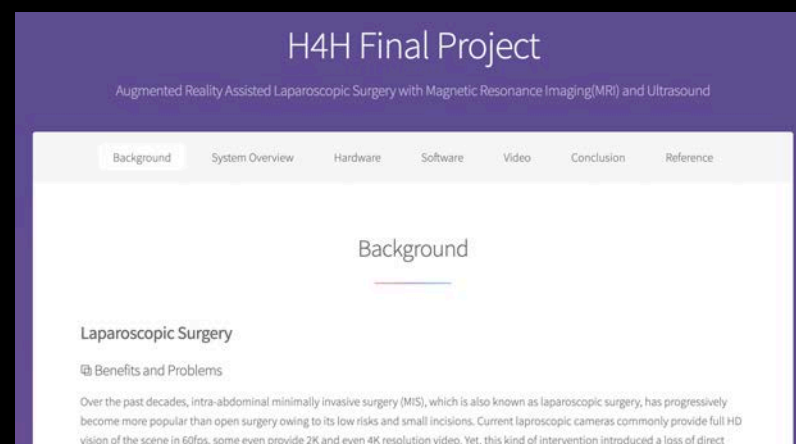
<https://helenhanqing.wixsite.com/groupb>



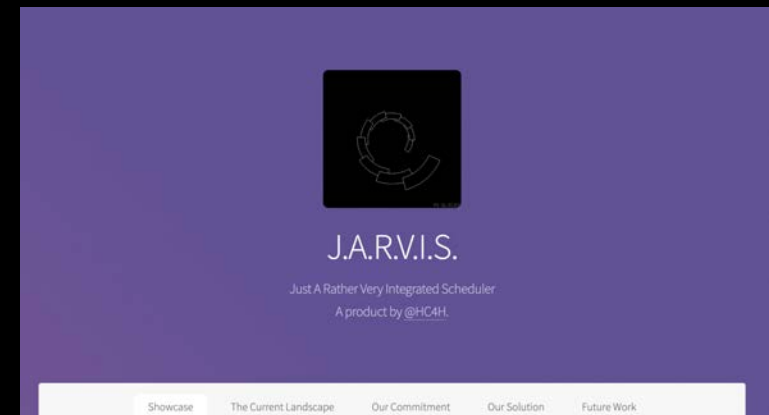
<https://sites.google.com/view/hc4h-teamc-w2020>



<https://serenealarms.weebly.com/>

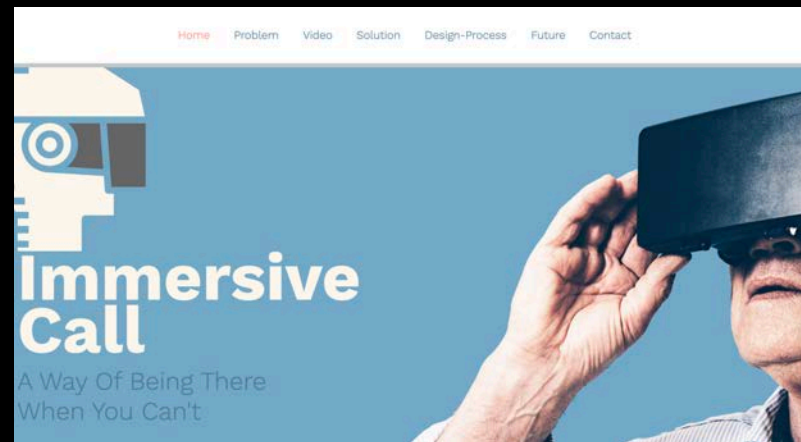


<https://zhangmenghe.github.io/h4h/index.html>

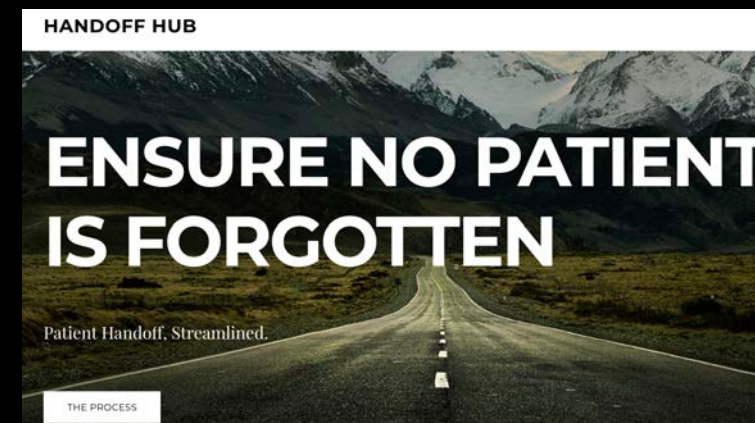


<https://udayan12167.github.io/hc4h/>

HC4H Project Examples



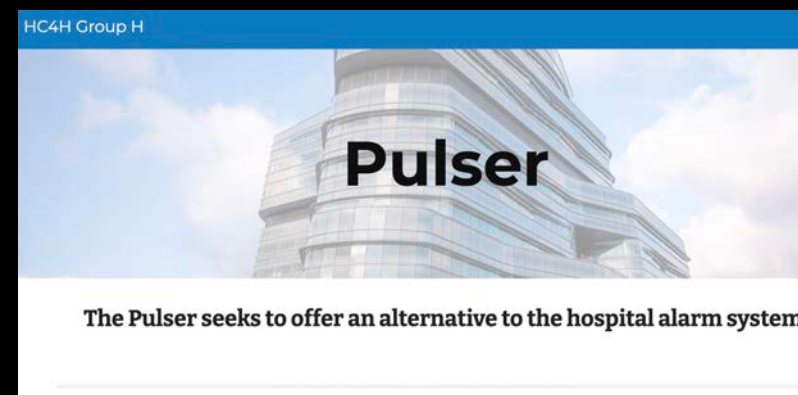
<https://ax006687.wixsite.com/hc4h-teamj-w2020>



<https://handoffhub.weebly.com/>



<https://k1tseng.wixsite.com/wearabell>



<https://hc4h.appma.kr/>



<https://sites.google.com/eng.ucsd.edu/kibanlabs/home>


HC4H Methods

User Stories and Storyboarding

User Stories - What are they?

Captures how an end-user will use what you are building.

It's a very short story - about 1 sentence long:



“As a _____, I want _____, so that _____

User Stories - What are they?

As a **user** I want to be **able to assign different privacy levels to my photos** so I can **control who I share which photos with**.

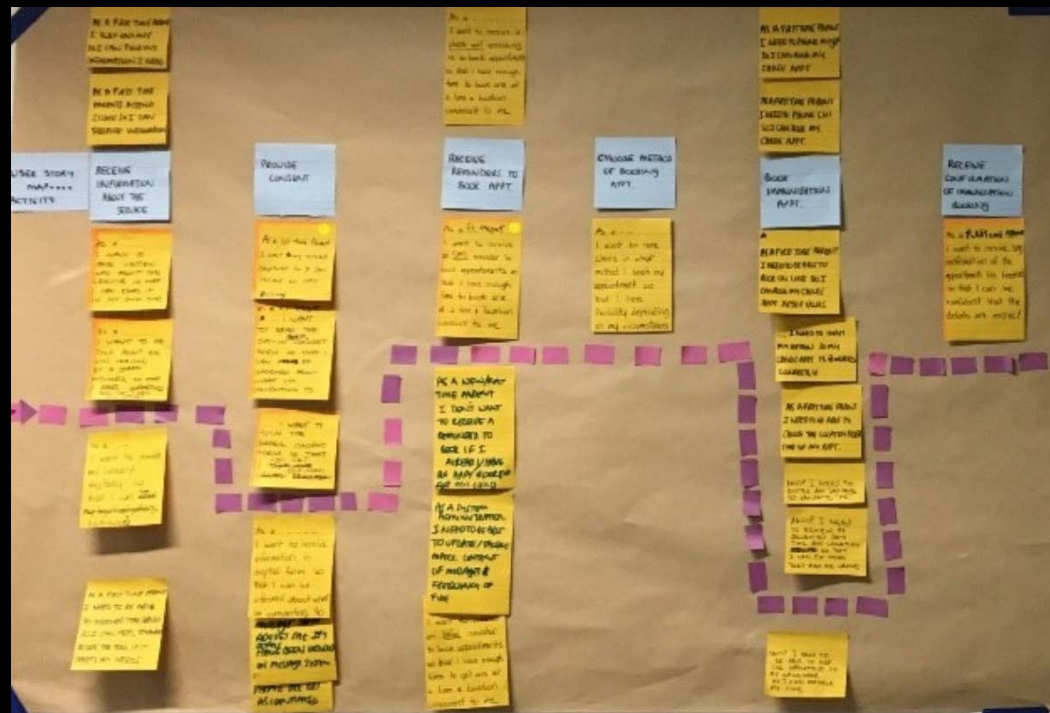
Who is the user? **As a <type of user / role>**

What is the intention? **I want <some goal / objective >**

What value does it bring? **So that <benefit, value>**

Why use User Stories?

- Forces you to think of the end-user.



- Captures (main) functionality and can be implemented in finite time.
- Great for planning/prioritization - can be modified / deleted as time goes on.
- Prevents getting stuck in details - you only get to details when you start working on a story.

Storyboards - What are they?

A storyboard illustrates an interaction between a user and a product in narrative format.

Similar to user stories - but usually at a higher level.

What you're trying to understand is:
Is your intuition right? Are there real user needs? Does it meet them?



Storyboards - What are they?

- Start with the **setting** (user / environment etc) and a **need**.
- Show **how** your application can help **satisfy the needs**.
- Don't need to draw well - use stick figures and chat bubbles.
- Don't show visual aspects of the interface - that's for later.



Combining the two

- Storyboards are a great way to give character to (epic) stories.
- Keeps user stories from becoming dull descriptions - mapping a storyboard to a user story is a great way of making sure you have thought the whole thing through.
- They complement each other - especially at a higher level. Use it in a way that makes sense for your specific case.

More on Storyboards

Storyboarding

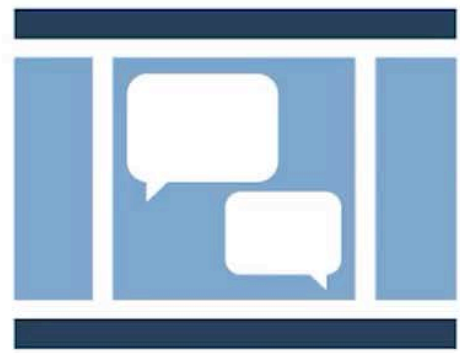


Please Watch: <https://www.youtube.com/watch?v=12OpiFIF26Y>

Team Work

**Storyboarding
YOUR project ideas**

StoryboardThat



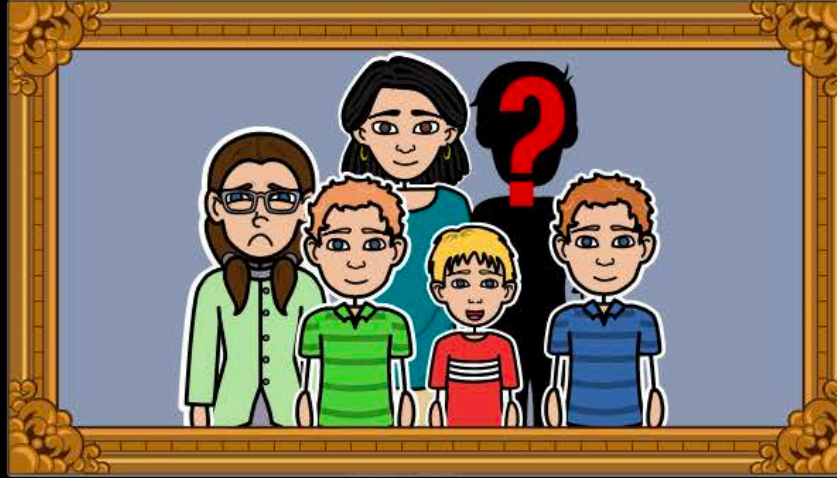
StoryboardThat

EXPOSITION



High schooler Meg Murry is a social misfit who lives with her mother, twin brothers Sandy and Dennys, and precocious four-year-old brother Charles Wallace. Although she has a high IQ, Meg gets poor grades at school, fights with the other students, and is frequently in trouble.

CONFLICT



Mr. Murry has been missing for months, following an attempt to tesser, by traveling through a wrinkle in the space-time continuum.

RISING ACTION



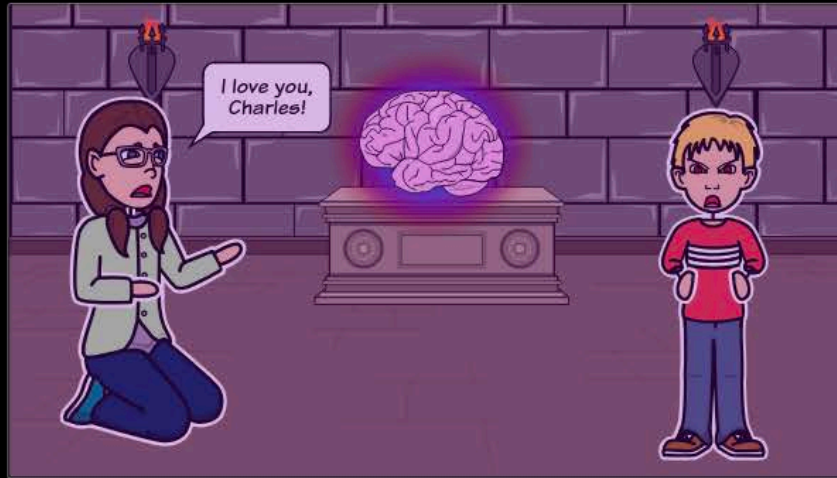
Three creatures, Mrs. Whatsit, Mrs. Who, and Mrs. Which, take Meg, Charles Wallace, and Calvin to several different planets by tessering. They show the children the evil force threatening Earth and bring them to the planet Camazotz, where the Dark Thing has imprisoned Mr. Murry.

CLIMAX



Meg, Charles Wallace, and Calvin find Mr. Murry who is trapped by the Dark Thing, represented on this planet by IT. Meg manages to free her father, but loses Charles Wallace to the power of IT.

FALLING ACTION



Meg returns to Camazotz alone and uses her love for Charles Wallace to break his connection with IT.

RESOLUTION



Meg, Calvin, and Charles Wallace tesser safely home to Earth with their father.

Create User Stories and Storyboards

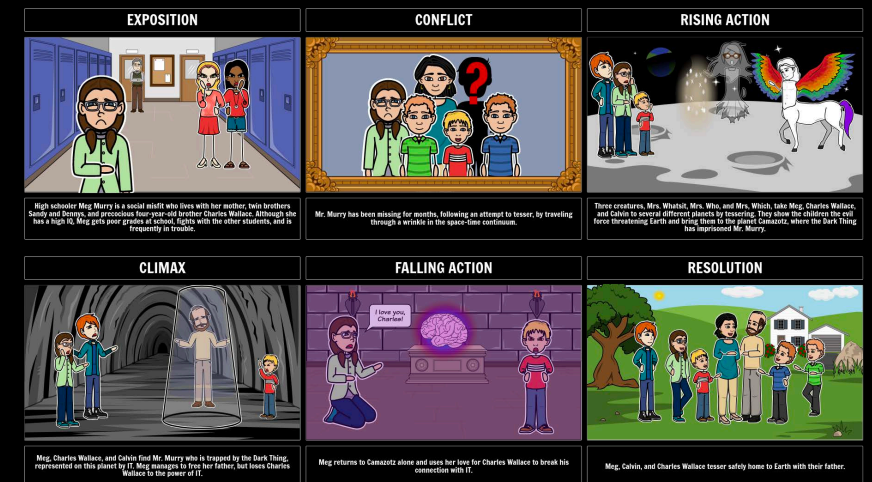
- Finalize Teams and core focus of your project (what problem are you trying to solve)

—> *Project Web Page Assignment #1*

- Create 1x short User Stories on a shared Google Doc with your team
- Join storyboardthat.com and start creating your storyboards
 - 1 person takes the lead and shares the screen
 - Everyone participates
 - Continue working on your storyboards outside class

—> *Project Web Page Assignment #2*

“As a _____, I want _____, so that _____”



Next

Assignments

- **Project Web Page #1: Topic and Team**

- What problem are you trying to solve (i.e., problem space)?
- How would your general solution address the problem (i.e., solution space)?
- How would you refine your solution?
 - > Create an “About Page” that describes the Project’s Overall Topic
 - > Add Team information : include names, pictures, and academic status

- **Project Web Page #2: Use Cases and User Stories**

- who is your user,
- what does your user need to achieve,
- how does your solution address your user's needs, and
- why does your solution work
 - > Create a “User Stories” page and add at least two stories (Textual Description and visual from storyboardthat.com)

Week 8

- Tuesday - HC4H Methods #3: Rapid Prototyping
- Thursday - HC4H Methods #4: Wizard-of-Oz Evaluations, User feedback and User Studies
- Project Web Page
 - Initial Prototype (Assignment #3)
 - Expert Feedback (Assignment #4)

Summary

8	Tuesday	5/17/2022	-HC4H Methods #3: Rapid Prototyping		-Project Web Page #3: Initial Prototype [due 5/22/2022]	
	Thursday	5/19/2022	-HC4H Methods #4: Wizard-of-Oz Evaluations, User feedback and User Studies		-Project Web Page #4: Expert Feedback [due 5/22/2022]	
9	Tuesday	5/24/2022	-HC4H Methods #5: Video Prototyping		-Project Web Page #5: Video Prototype Draft [due 5/25/2022]	
	Thursday	5/26/2022	Instructors Feedback		-Project Web Page #6: Final Project Web Page [due 5/29/2022]	
10	Tuesday	5/31/2022	Final Presentations 1/2		-Project Presentation [due 5/30/2022]	
	Thursday	6/2/2022	Final Presentations 2/2			

Thanks