Lecture 7: October 8

Project Design, User Experience

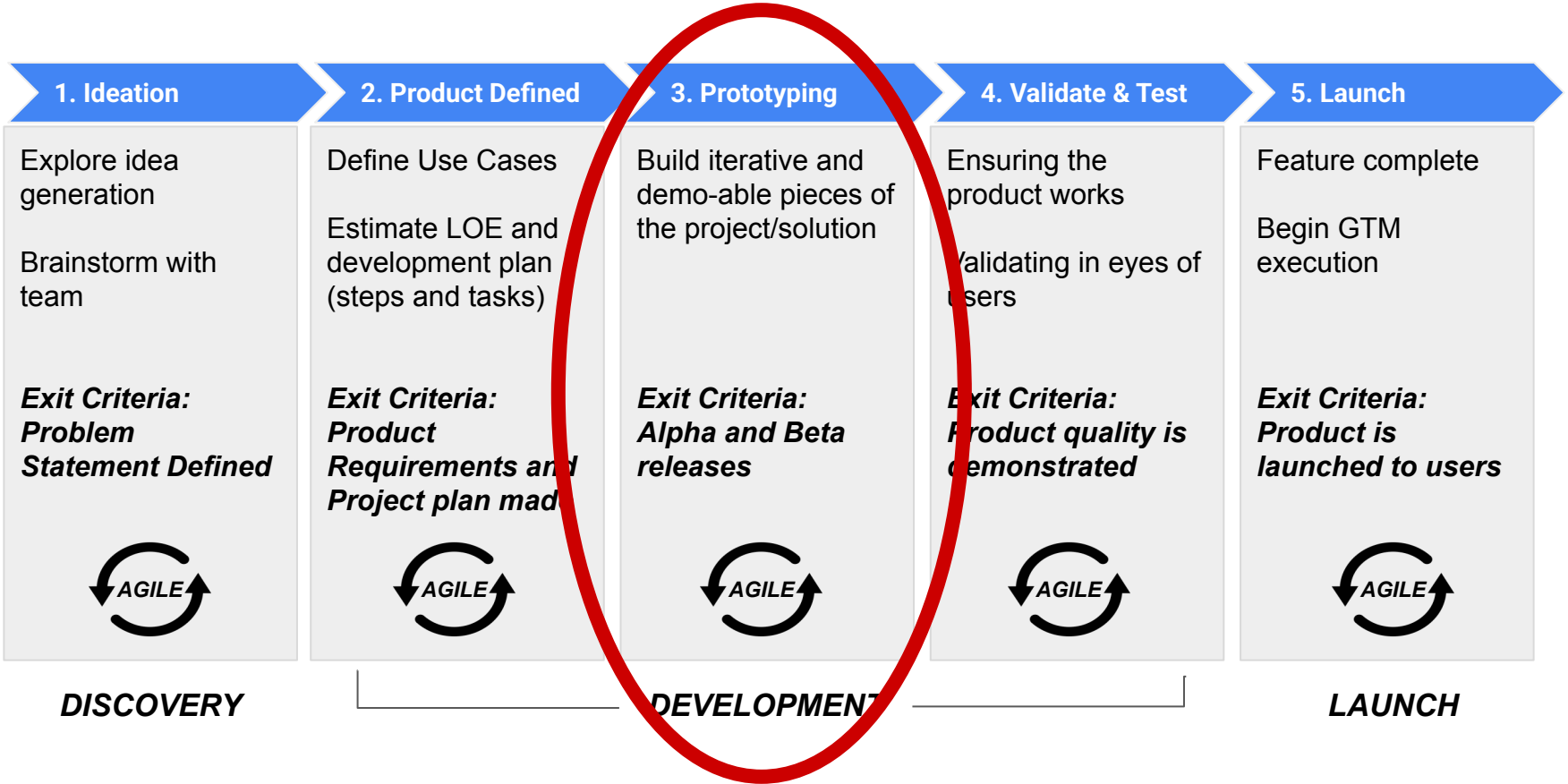
Agenda

- Writing 1 feedback
- UI / UX Project Design (relevant for presentation 2, writing 3)
  - UI Design Systems
  - UX Flow Diagrams
  - System Architecture Design
- PRD writing setup, how everything fits together
- Upcoming Assignments
  - Presentation 1
  - Writing 2
- For next week

Agenda

- Writing 1 feedback
- **UI / UX Project Design (relevant for presentation 2, writing 3)**
  - **UI Design Systems**
  - UX Flow Diagrams
  - System Architecture Design
- PRD writing setup, how everything fits together
- Upcoming Assignments
  - Presentation 1
  - Writing 2
- For next week

Product Definition Phase



UI Design System

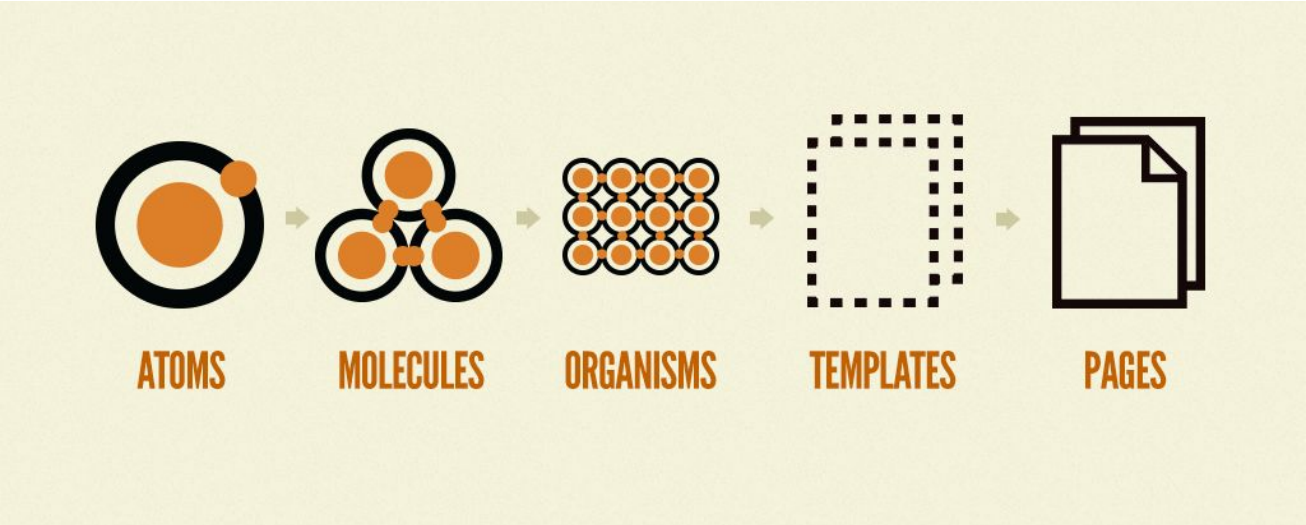
- **What**
  - Set of standards to manage design at scale by creating a shared language using reusable components and patterns
- **Why**
  - Reduces redundancy on Design and Engineering in order to build quicker
  - Creates unified language across cross-functional teams
  - Increases visual consistency across different pages and channels
  - Learning tool for new Designers
- **Atomic Design Theory** has been created to support Design System creation
  - Established by Brad Frost

UI Design System

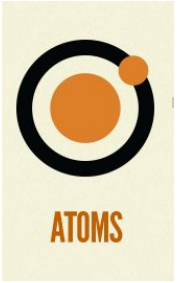
What's included

- **Style guide**
  - Typography, colors, logos, etc
- **Component Library**
  - Reusable UI elements
- **Pattern Library**
  - Similar to Component but more high-level collections of components
- **Design System Team**
  - Team establishing and maintaining the Design System
  - Made of Product Designers, Visual Designers, and Engineers

Atomic Design

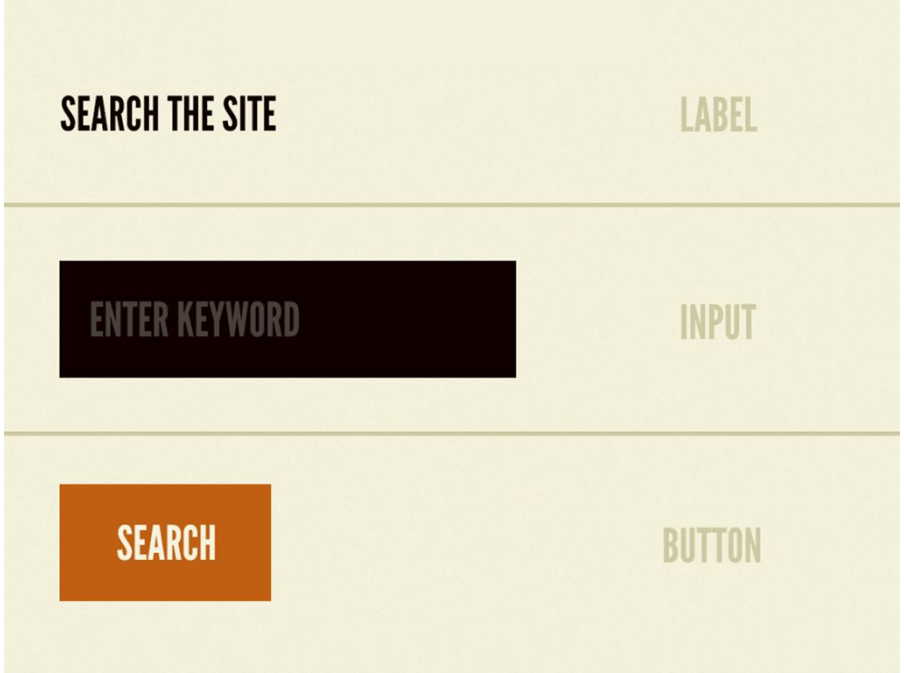


Atomic Design - Atoms

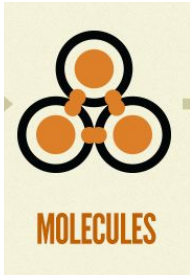


Atoms: Basic HTML Elements

Examples: form labels, inputs, buttons, and others that can't be broken down any further without ceasing to be functional.

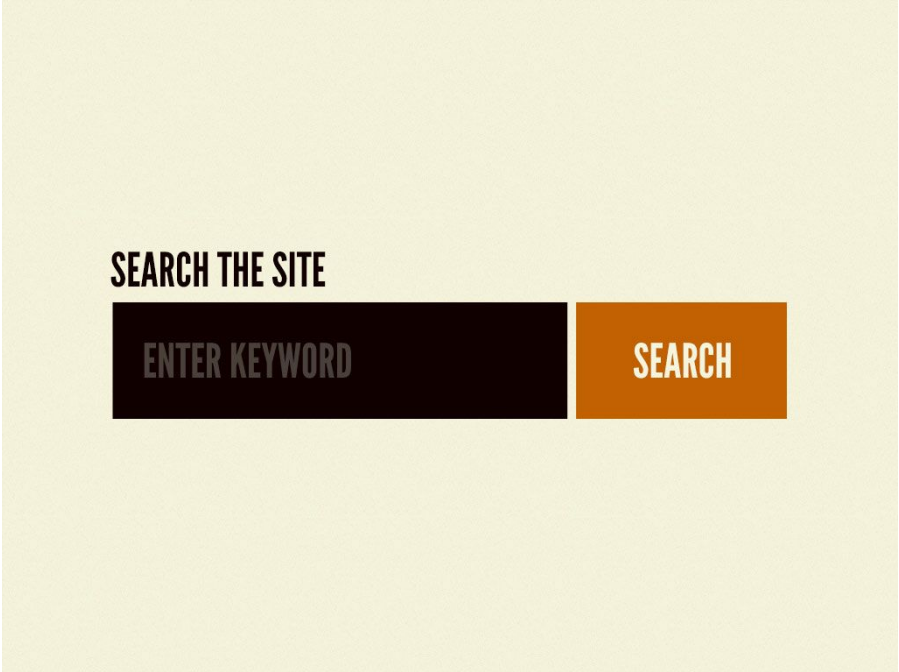


Atomic Design - Molecules



Molecules: Combination of Atoms

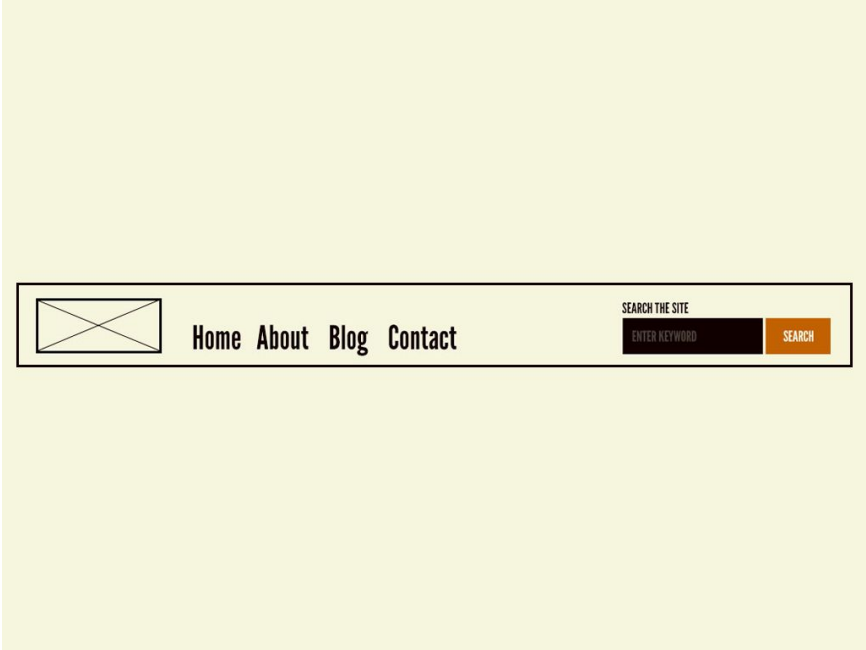
Examples: form label, search input, and button can join together to create a search form molecule



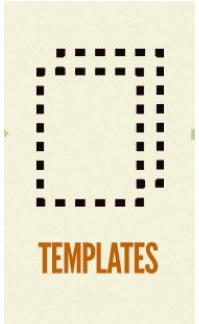
Atomic Design - Organisms

Organisms: complex UI components composed of groups of molecules and/or atoms and/or other organisms

Examples: header navigation, footer navigation, menu panels

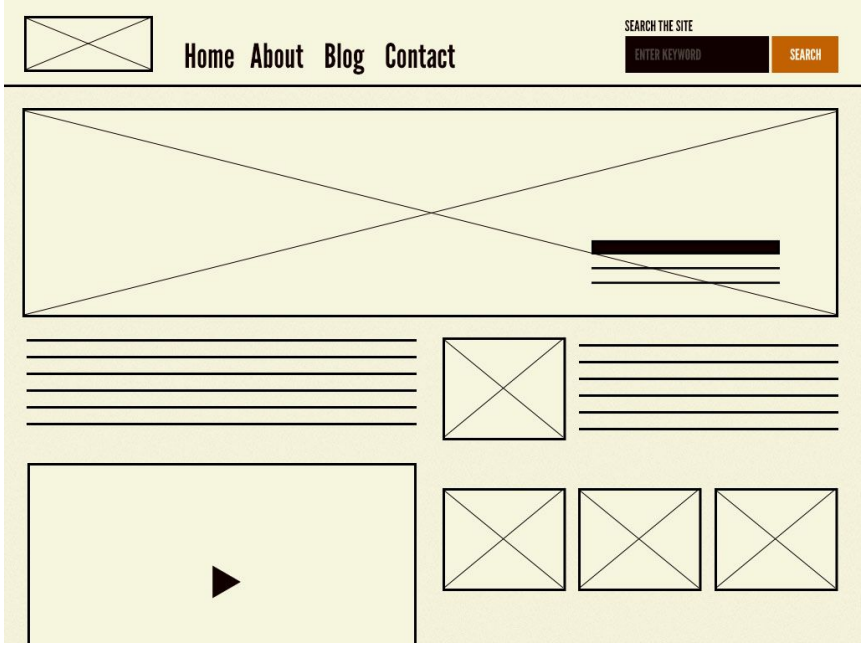


Atomic Design - Templates



Templates: page-level objects that place components into a layout and articulate the design's underlying content structure

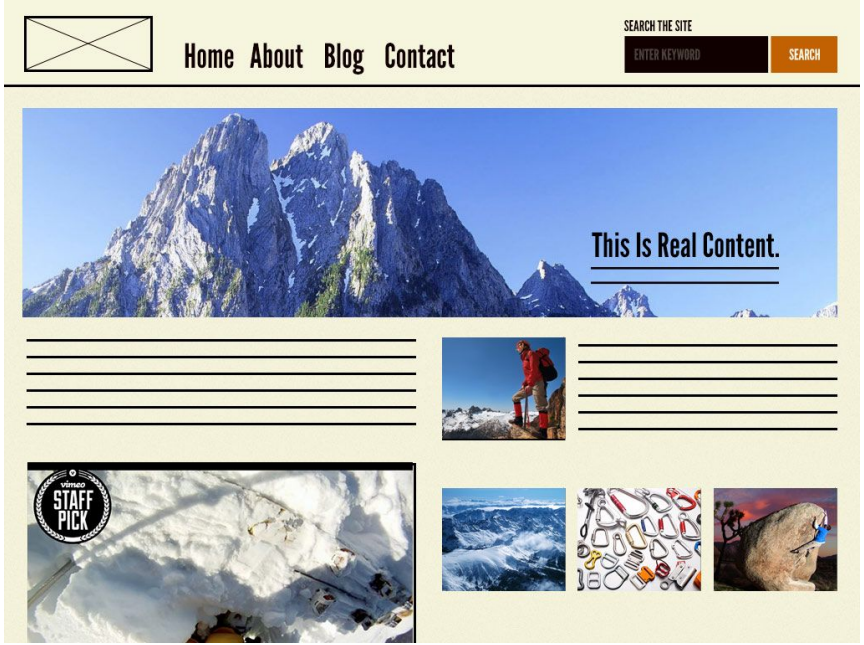
Examples: Header combined with visual content with descriptions and action buttons - all laid out in one repeatable space



Atomic Design - Pages

Pages: specific instances of templates that show what a UI looks like with real representative content in place

Examples: Home page, Contact Us page, etc



Example Design Systems

- https://developer.apple.com/design/human-interface-guidelines
- https://m3.material.io/foundations
- https://www.ibm.com/design/language/

Design Tools

- Figma
- InVision

Agenda

- Writing 1 feedback
- **UI / UX Project Design (relevant for presentation 2, writing 3)**
  - UI Design Systems
  - **UX Flow Diagrams**
  - System Architecture Design
- PRD writing setup, how everything fits together
- Upcoming Assignments
  - Presentation 1
  - Writing 2
- For next week

UX Design and User Flows

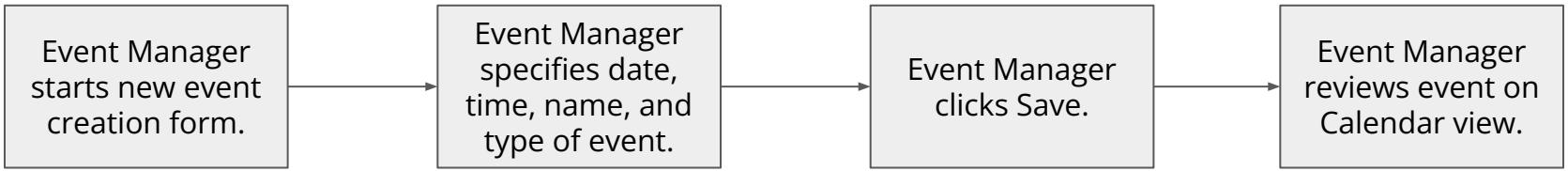
- Built off of User Stories / Use Cases
- Creates high-level app flow

You'll need this for Writing 3

UX Design

- Built off of User Stories / Use Cases

As a Event Manager, I would like to schedule events so that people can see which events are available to register for.



UX Design

- Built off of User Stories / Use Cases

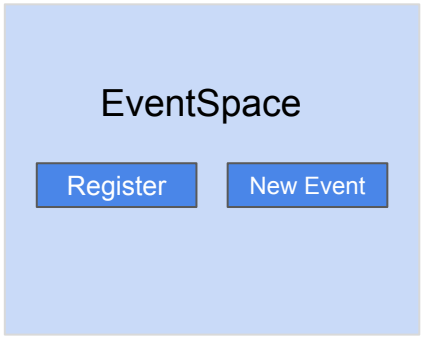
As a Event Manager, I would like to schedule events so that people can see which events are available to register for.

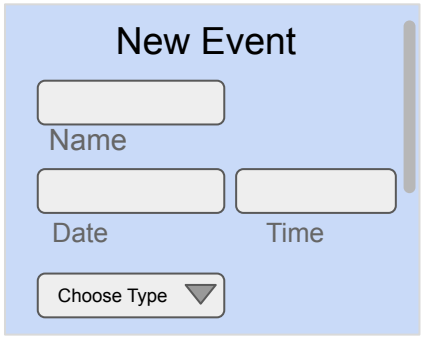
Event Manager starts new event creation form.

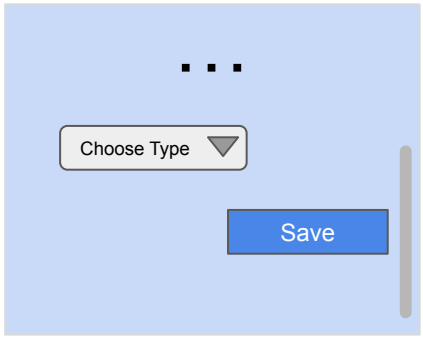
Event Manager specifies date, time, name, and type of event.

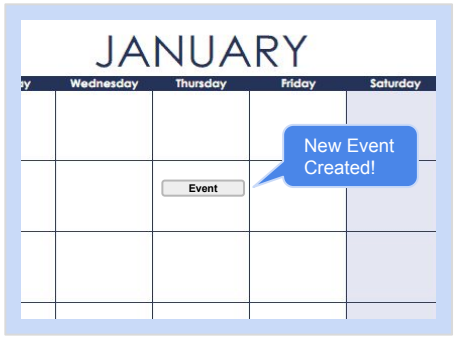
Event Manager clicks Save.

Event Manager reviews event on Calendar view.









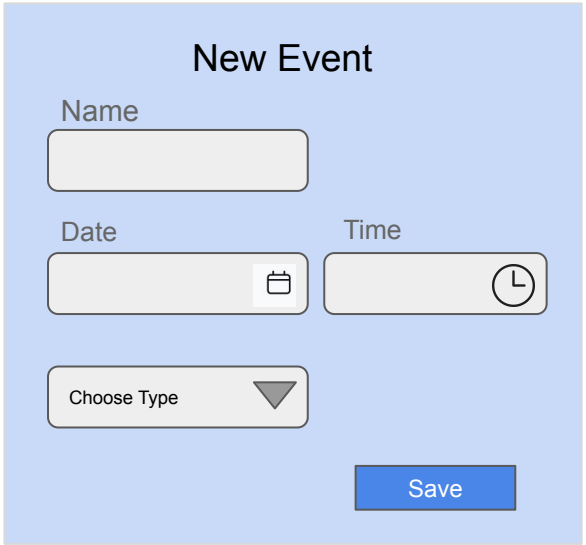
Atomic Design Components

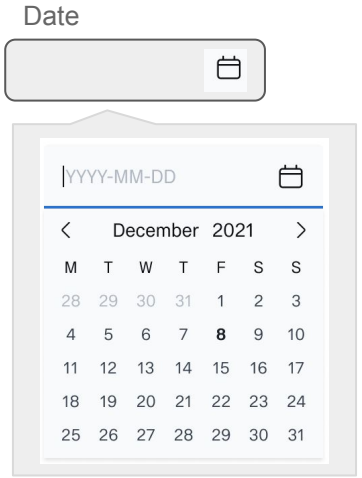
Event Manager starts new event creation form.

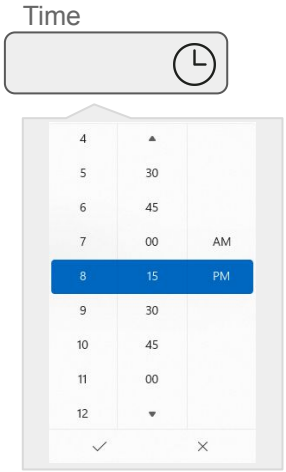
Event Manager specifies date, time, name, and type of event.

Event Manager clicks Save.

Event Manager reviews event on Calendar view.

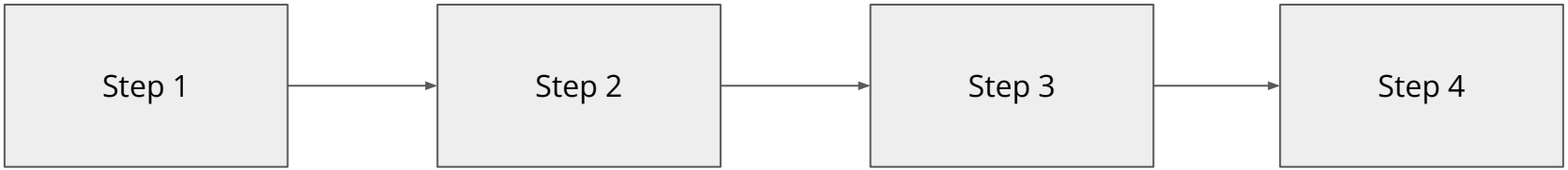






Product and Design Specifications

As a [persona], I would like to [action] so that [benefit].



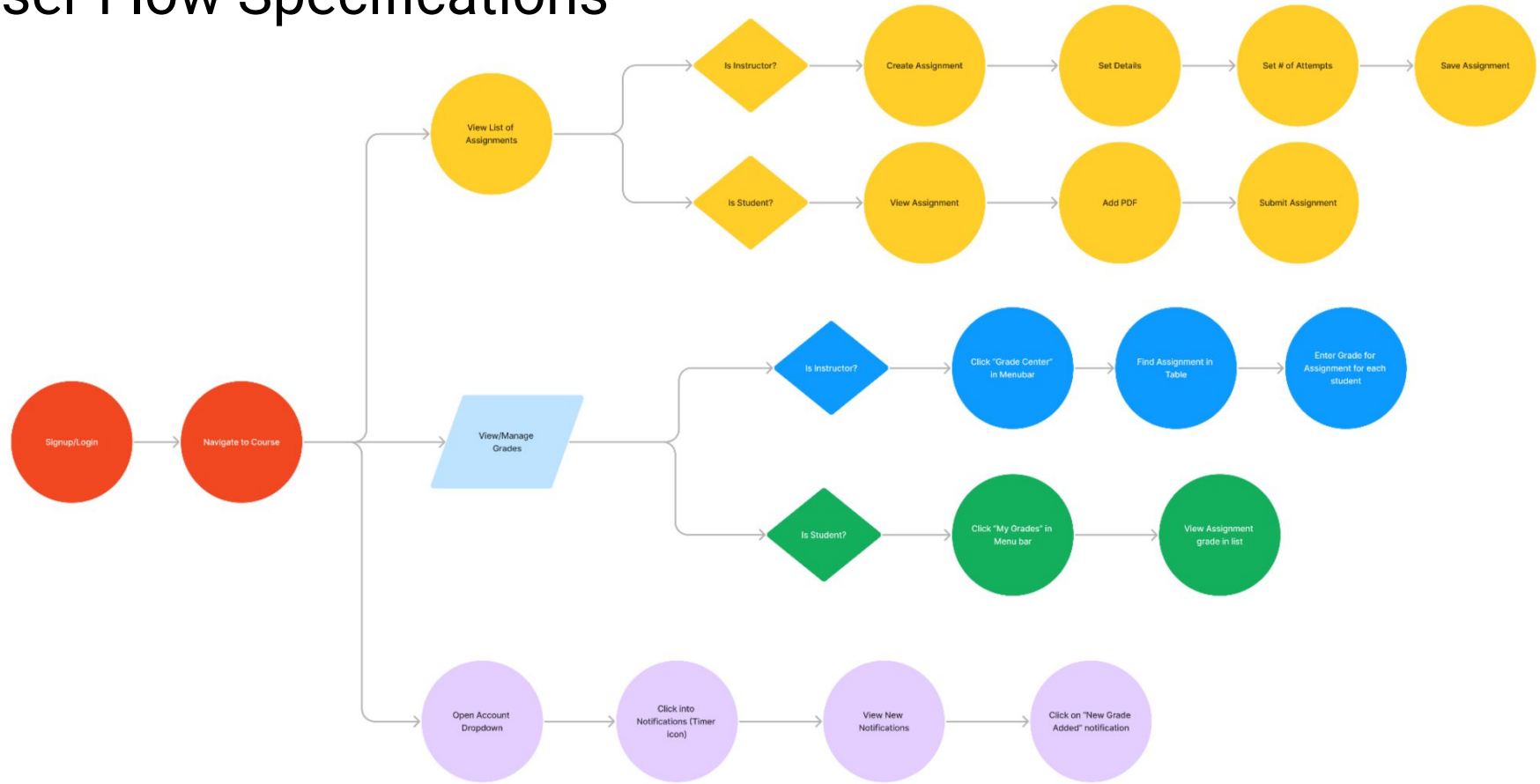
Wireframe 1

Wireframe 2

Wireframe 3

Wireframe 4

User Flow Specifications



UX Design for APIs

As a Event Manager, I would like to schedule events so that people can see which events are available to register for.

Event Manager starts new event creation form.

Event Manager specifies date, time, name, and type of event.

Event Manager clicks Save.

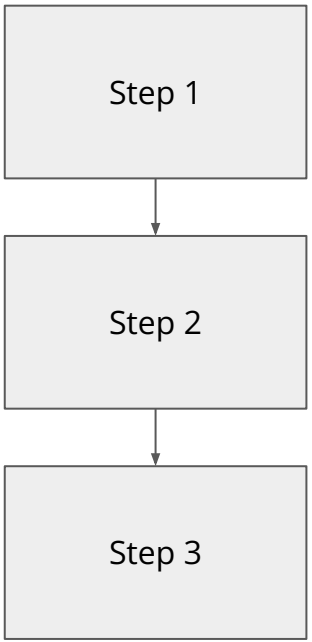
```
POST http://eventSpace.api.com/new_event

{
      “name”: “Smith Engagement Party Planning”,
      “type”: “Planning”,
      “start”:{
            “date”: "2015-05-28",
            “time”: "09:00:00-07:00"
      }
      “end”:{
            “date”: "2015-05-28",
            “time”: "17:00:00-07:00"
      }
}
```

Event Manager reviews event on Calendar view.

```
GET http://eventSpace.api.com/calendar_events
```

UX Design for APIs

As a [persona], I would like to [action] so that [benefit].



API Documentation

URL (internal/external)

/name_of_api_call

Request Type

POST, GET, PUT, DELETE

Header Parameters

Authentication, if applicable

Request Body Schema

Details passed into call

Agenda

- Writing 1 feedback
- **UI / UX Project Design (relevant for presentation 2, writing 3)**
  - UI Design Systems
  - UX Flow Diagrams
  - **System Architecture Design**
- PRD writing setup, how everything fits together
- Upcoming Assignments
  - Presentation 1
  - Project Website
  - Writing 2
- For next week

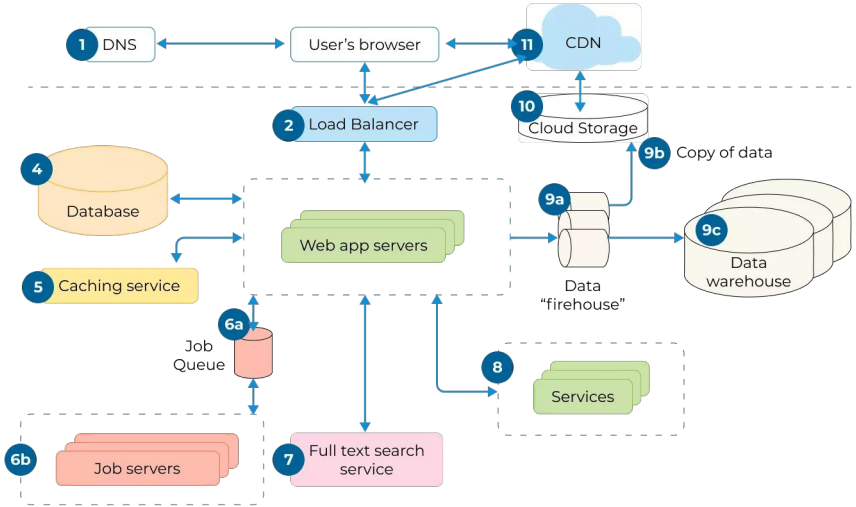
Architecture/System Design

- Diagrams
- Internal/External APIs and Frameworks
- Main Algorithms of System

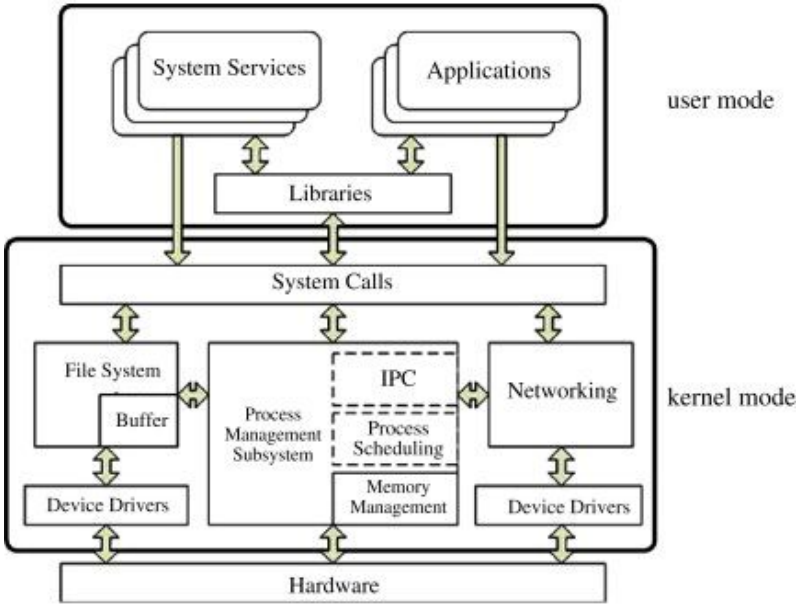
You'll need this for Presentation 2 & Writing 3

Architecture/System Design

- Diagrams



Web App Architecture



Linux Architecture

Diagram tools

- LucidChart
- Excalidraw
- Draw.io

Architecture/System Design

- Internal/External APIs and Framework details

Twitter API

Goal:

Get all tweets to generate sentiment analysis

Endpoints Used:

GET
/tweet/sentiment/{happy}

Internal Backend API

Goal:

Register new user for service

Endpoints Used:

POST
/register/

```
{
    first_name: XXX
    last_name: YYY
    …
}
```

AWS

Goal:

Serves as a hosting platform for the application to run

Details to note:

- Instance
- Credentials
- Etc.

Architecture/System Design

- Main Algorithms of System

Sentiment Classification Algorithm (ML)

Goal:
Train system on the 10,000 tweets generated by the samplings pulled from Twitter's API to classify sentiment.

Description:
First starting with traditional nlp techniques + xgboost for classification. Measure performance against precision, recall, accuracy, latency.

[Name] Algorithm

Goal:
[Purpose of this algorithm for the system]

Description:
Detailed description of how this algorithm works within the project

Agenda

- Writing 1 feedback
- UI / UX Project Design (relevant for presentation 2, writing 3)
  - UI Design Systems
  - UX Flow Diagrams
  - System Architecture Design
- **PRD writing setup, how everything fits together**
- Upcoming Assignments
  - Presentation 1
  - Project Website
  - Writing 2
- For next week

Product Requirements Document: Why?

- All writing assignments are building towards a PRD for your senior design project

- We want to highlight which sections you've already completed, and what's coming up next

Product Requirements Document

Section 1: Proposal

Section 2: Specs

Section 3: Considerations, Constraints, Dependencies

Section 4: Open Questions

Product Requirements Document

Section 1: Proposal...

- Project Summary - Writing 1 ✅

Section 2: Specs...

- Technical Summary - Writing 2 **(Due Oct 26)**
- Product Specifications - Writing 3 **(Due Nov 16)** – covered in lab 7
  - User stories, mockups, flow diagrams
- Technical Specifications - Writing 3 **(Due Nov 16)** – covered in lab 7
  - Languages, architecture design, frameworks & apis

“Putting it all together + Refinement” ... Writing 4 **(Due Dec 14)**

Agenda

- Writing 1 feedback
- UI / UX Project Design (relevant for presentation 2, writing 3)
  - UI Design Systems
  - UX Flow Diagrams
  - System Architecture Design
- PRD writing setup, how everything fits together
- **Upcoming Assignments**
  - **Presentation 1**
  - Writing 2
- For next week

Presentation 1: Elevator Pitch

- **Due Date: 10/15**
- **Goal**
  - Convince us that what you are building is a great idea, and that you have a way to make it a reality
  - Build off of writing 1 & project proposal
  - Audience: non technical (investors, upper management, etc)
- **Requirements**
  - **4 minutes long** + 2 mins for questions
  - What are you building and why? Who are you users? What are the goals? How is it different from current products/research?
  - Be prepared to answer non-technical questions
  - Grade is primarily based on presentation skills!

Upload slides to shared google drive prior to presentation day

Agenda

- Writing 1 feedback
- UI / UX Project Design (relevant for presentation 2, writing 3)
  - UI Design Systems
  - UX Flow Diagrams
  - System Architecture Design
- PRD writing setup, how everything fits together
- **Upcoming Assignments**
  - Presentation 1
  - Writing 2
- For next week

Agenda

- Writing 1 feedback
- UI / UX Project Design (relevant for presentation 2, writing 3)
  - UI Design Systems
  - UX Flow Diagrams
  - System Architecture Design
- PRD writing setup, how everything fits together
- **Upcoming Assignments**
  - Presentation 1
  - **Writing 2**
- For next week

Writing 2: Technical Summary

- **Due Date: 10/26, Individual Submissions**
- **Goal:** Writing 1's project summary explained your project's value. Now convince us of it's technically feasible and that you have a plan forward. The reader has technical ability, but does not want to see unnecessary details.
- **Requirements**
  - Limited to 1000 words
  - Focus on the technical component that you are responsible for
  - **Technical innovation:** what tech is going into your project? What is novel? How does this compare to what already exists?
  - **Key objectives**: What will you accomplish during the project, what open questions need answered to determine the technical feasibility?
  - **Technical Feasibility**: What existing tools and technologies can you use? How can you be confident that it's doable?
  - **Costs, risks, risk mitigation**: What is the development cost? What are the milestones and rough timeline?

Agenda

- Writing 1 feedback
- UI / UX Project Design (relevant for presentation 2, writing 3)
  - UI Design Systems
  - UX Flow Diagrams
  - System Architecture Design
- PRD writing setup, how everything fits together
- Upcoming Assignments
  - Presentation 1
  - Writing 2
- **For next week**

For Next Week

Weekly Focus

- Presentation 1

Mentor Meetings

- [Team]: Review presentation 1 slides w/ mentor

Deadlines

- [Team]: Presentation 1 (**Oct. 15**)
- [Individual]: Writing 2 (**Oct. 26**)

Reminders

- Don’t forget to post weekly updates