IxD210: Systems

Term Project Phase II: Prototyping

**I. Concept & Persona Models**

**April 7**

*Overview*

In the generative design phase of this project, your first step is to define clearly what you are designing and for whom.

The ‘for whom’ part will be completed via a personas. Personas represent behaviorial models and are a common method design professionals use to get entire teams on the same page with respect to design requirements.

You will create a high level definition of ‘the what’ with a concept diagram. This tool creates a concise definition of value in terms of input, workflow and output.

*Instructions*

1. Create a persona document describing for whom you are designing a solution. The persona documents should contain
   1. A name
   2. A photo or visual representation
   3. Role/Position
   4. Brief summary of level of expertise
   5. Role in the system (a few bullet points or short paragraph)
   6. Wants (a few bullet points or short paragraph)
   7. Needs (a few bullet points or short paragraph)
   8. Dreams (a few bullet points or short paragraph)
   9. Challenges (a few bullet points or short paragraph)
2. Create the simplest possible sentence you can that describes how your software system will provide value to your persona. Present this information in the form of a concept diagram where the nouns, or concepts live inside bubbles and the actions, or verbs, are represented by annotated arrows.

*Submission*

Submit a PDF containing your concept map and persona document to Edmodo by start of class on April 7.

*Rubric - Persona*

| **Quality** | **Pass (1)** | **Fail (0)** |
| --- | --- | --- |
| Appearance | Layout, organization and graphic design of the information contributes to an ease of consumption of the information | Information is poorly organized, the graphic design is sloppy or inappropriate and the information contained is difficult to parse. |
| Content | The persona is complete (includes every bullet point listed above), and provides a clear summary of the type of person this project is intended to help. | The persona is incomplete (not every bullet point included) and/or the descriptions don’t make complete sense. |

*Rubric - Concept Model*

| **Quality** | **Pass (1)** | **Fail (0)** |
| --- | --- | --- |
| Appearance | Layout, organization and graphic design of the information is appropriate and contributes to an ease of consumption of the information | Information is poorly organized, the graphic design is sloppy or inappropriate and the information contained is difficult to parse. |
| Content | The problem should be understandable, worth solving (a high leverage point) and could conceivably be mitigated through software. | The problem is not articulated and/or seems trivial and/or seems impossible to solve via software. |

**II. The Object Model**

**April 9**

*Overview*

The Object Model describes the distinct logical elements in your software with which your persona can interact.

*Instructions*

During your phase I research you identified all the physical objects in your system. Now you will consider which of those objects, along with any new ones, need to exist within your proposed software solution. Present this information in both a tabular and graphic form.

Returning to your concept diagram & persona, imagine how your persona would achieve the goal described in the concept model. What help would he require along the way? What kinds of information would he need to see, what kinds of information would he need to store, what kinds of calculations or data transformations would he require?

At every point where you imagine the persona exchanging information with the system (getting or giving feedback) he will be interacting with an object. Catalog these objects, give them simple names, identify their attributes (the metadata that make specific instances distinct from the general case) and their abilities or functions. Capture these decisions in a table with columns for name, attributes, and functions.

Next produce a diagram showing these same objects graphically, with arrows representing the transmission of information, organized to communicate how the objects relate to each other and the persona.

*Submission*

Submit a PDF containing two equivalent descriptions of your object model as a table and a graphic to Edmodo by start of class on April 9.

*Rubric - Object Model*

| **Quality** | **Pass (1)** | **Fail (0)** |
| --- | --- | --- |
| Presentation | Layout, organization and graphic design of the information is appropriate and contributes to an ease of consumption of the information | Information is poorly organized, the graphic design is sloppy or inappropriate and the information contained is difficult to parse. |
| Content | There is both a tabular and graphical representation of the relevant objects and their relations to each other. The objects that were chosen relate to each other and relate problem stated in the concept model. | The tabular and/or graphical representation is missing and/or the objects you have chosen do not relate to the problem stated in the concept model. |

**III. The Data Model**

**April 16**

*Overview*

The data model defines the information currency in your software system. It specifies what data is passed between objects and how that data is organized. It defines a taxonomy--a controlled vocabulary organized into a hierarchical inheritance structure--for your system.

*Instructions*

Return to your object model and consider carefully the attributes and operations you defined for them. For each object, ask yourself three questions:

1. to set its attributes, what data does it need from other objects?
2. in order to execute its operation, what data does it need from other objects?
3. as it executes its operations, what information will it produce that other objects will need to execute their respective operations?

Answer these questions for each object in your system, eliminate duplicates, and this the data that is moving around in your system, this is the system currency, this is the data model.

Present this data model explicitly in two ways. First, as a glossary for your controlled vocabulary in the form of a table with three columns: name; description; sample values.

Second, using only the names in your vocabulary, organize them into a hierarchical list that defines how inheritance works in your system. For example if your data model involves accounts defined by an id and a password and events defined by a name, type and date then you’d show that as:

* account
  + id
  + password
* event
  + name
  + date

*Submission*

Submit a PDF containing two presentations of your data model, as a glossary table and as a hierarchical list, to Edmodo by start of class on April 14

*Rubric - Data Model*

| **Quality** | **Pass (1)** | **Fail (0)** |
| --- | --- | --- |
| Appearance | The presentation is clean, neat, orderly and easy to understand | The presentation is unattractive or sloppy. |
| Content | There is both a tabular and hierarchical presentation of a data model that efficiently addresses the information space required for the solution | The model appears either incomplete or too complex. |

**IV. The Interaction Model**

**April 16**

*Overview*

To help you think through how to organize your prototype, you need to map how users will interact with it in terms of workflows made up of steps.

*Instructions*

Define an interaction model for your solution that consists of at least 4 workflows, each of which:

* has at least 3 and no more than 9 steps, or tasks
* has a clear narrative with a defined beginning, middle and end
* connects to at least one other workflow
* when taken together with all the other workflows you’ve defined, completely addresses expectations created by your concept model

Some of your workflows may be rather generic, such as ‘log in,’ or ‘edit profile’ but others will be specific to the particular purpose of your solution.

Present your interaction model as a set of flow diagrams, one for each of your workflows, from the point of view of your key users. Each step in the workflow should be defined concisely with text in a box, with connections between the steps represented by arrows, and branch points to other workflows indicated by labels.

*Submission*

Submit to Edmodo by start of class on April 16 a PDF consisting of the following:

1. A title page listing
   1. The name of your solution
   2. Your concept model as a sentence
   3. Your name, the date
2. An index page with a numerical list of each workflow in the order they are presented on the following pages
3. A page for each of your workflows containing
   1. the name of the workflow
   2. a flow diagram showing each step in the workflow

*Rubric - Interaction Model*

| **Quality** | **Pass (1)** | **Fail (0)** |
| --- | --- | --- |
| Appearance | Layout, organization and graphic design of the information is appropriate and contributes to an ease of consumption of the information | Information is poorly organized, the graphic design is sloppy or inappropriate and the information contained is difficult to parse. |
| Content | The flow(s) are understandable, logical and relevant to the problem stated in the concept model. | The flow(s) are confusing and/or illogical and/or unrelated the problem stated in the concept model. |

**V. Wireframes**

**April 23**

*Overview*

At this stage you will deliver a set of wireframes that represent your workflows, and the steps they define, as a set of screens, one for each step.

*Instructions*

You will deliver your draft prototype as a set of screens organized into simple, linear flows. The format must be digital and static, but the screens can be created from hand drawn sketches, keynote slides, artwork from any drawing program or screenshots of html pages. Regardless of how you produce your screens, you need to capture static digital versions of each one and arrange them into a linear slideshow, one section for each workflow.

Bear in mind that at this stage the critical step is translating your interaction model into screen layouts. Therefore you need not worry about applying a final visual design, but you do need to create realistic layouts that include UI objects for task execution, navigation and application branding. Also you do not need to represent every possible state of each screen, but just the representative key frame.

*Submission*

Submit to Edmodo by start of class on April 23 a PDF consisting of the following:

1. A title page listing
   1. The name of your solution
   2. Your concept model as a sentence
   3. Your name, the date
2. An index page with a numerical list of each workflow in the order they are presented on the following pages
3. A section for each of your workflows containing
   1. a section title page giving the name of the workflow
   2. a page for each key frame, or step, in the workflow

*Rubric - Wireframes*

| **Quality** | **Pass (1)** | **Fail (0)** |
| --- | --- | --- |
| Appearance | Layout, organization and graphic design of the submission is appropriate and contributes to an ease of consumption of the information | Information is poorly organized, the graphic design is sloppy or inappropriate and the information contained is difficult to parse. |
| Interaction Design | Each flow consists of an appropriate set of keyframes which in turn capture the critical steps in the execution of the flow and represent the labeling, and affordances required to execute the step | The logic of the flows are of variable quality, keyframes are missing, affordances or labels are missing so that it is difficult, when stepping through the flows to understand the interaction model |
| Interface Design | All the screens share a consistent grid and affordances and use scale, position and contrast effectively to communication the function and utility of the screen | Screens are inconsistent within or across flows, or visual design principles are not used effectively to highlight the interactive areas of the screens |

**VI. Prototype & Final Presentation**

**May 7**

*Overview*

In this final phase of your term project you will not only need to prototype your solution, but also prepare, rehearse and give a public presentation that explains, to people entirely unfamiliar with your project, the topic you chose, and how the research and analysis you did helped you identify a leverage point for which you designed a solution that you can demonstrate as a prototype.

*Instructions*

Your first step in completing this phase will be to build your prototype.

**To build a successful prototype:**

1. Write a compelling narrative about how your persona uses your system to be successful.
2. Identify each of the distinct steps in that narrative.
3. Select a final prototype format. Acceptable options are:
   1. Keynote
   2. HTML
   3. Quicktime (using whatever medium you wish to create the artwork in the movie)
4. Create one high resolution screenshot for each of those steps. These screenshots are your keyframes. Organize them in the order of the steps in your narrative
5. Design the transitions between each one to smoothly tell your story
6. Animate those transitions in the format of your choice

Next you will turn your attention to how you will communicate your term project during the final presentation.

**You will each be allotted 12 minutes to present, 7 minutes for you to speak, 5 minutes for you to listen and respond to questions.** You must plan and practice how to use this time to explain your project, demonstrate your prototype and respond to questions about your work.

**Your public presentation must include a slideshow explaining:**

1. the topic you chose to research
2. a description of that topic as a system in terms of
   1. system purpose
   2. actors, objects & environmental constraints
   3. challenges
   4. the leverage point that was your focus
3. the primary persona you chose, and that persona’s needs
4. the concept model for the solution you designed to meet the primary persona’s needs
5. how you define success for your solution and why your solution meets that criteria

**Your public presentation must include a demonstration of your prototype.**  It is your choice if you wish to demonstrate the prototype live or with a video.

**Your public presentation must allow for the audience to ask questions and provide critique about your project.** Think about what reactions are likely and how you will address them.

**You must practice delivering your part of the presentation in 7 minutes.**

*Submission*

Submit to Edmodo by 4 pm on May 7 the following:

1. Your complete public slide presentation containing all of the pieces listed above
2. Your prototype. These may be files, a link to an HTML prototype or a link to video. It must be apparent how to use the prototype. **If running your prototype requires user actions, you must also include instructions for use.**

*Rubric - Prototype & Final Presentation*

| **Item** | **Excellent (4)** | **Good (2-3)** | **Poor (1)** |
| --- | --- | --- | --- |
| Presentation | The presentation is particularly compelling, well designed, well delivered and reaching the level of performance | The presentation is organized, practiced and easy to understand. Higher scores for better quality visuals and ease of delivery | The presentation is confusing, unpracticed or unprepared |
| System Analysis | A particularly elegant or thorough analysis of the problem space, or an insightful and innovative vision for the solution opportunity. | A clear and believable narrative of how research led to a definition of the scope and purpose of the system, its actors, constraints, significant relationships and the leverage points for improvement. Higher scores for richer and more nuanced observations. | The system description is vague, or generic or disconnected from the research. The leverage points for change are unclear or implausible |
| Solution Design | The prototype demonstrates particular elegance with respect to layout, navigation, workflow efficiency or other elements of user experience. | The prototype tells a compelling story about how it addresses the needs of the primary persona. Higher scores for better production quality and visual design. | The prototype does not meet all of the functional requirements, has poor production quality or is too simple to be believable. |

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