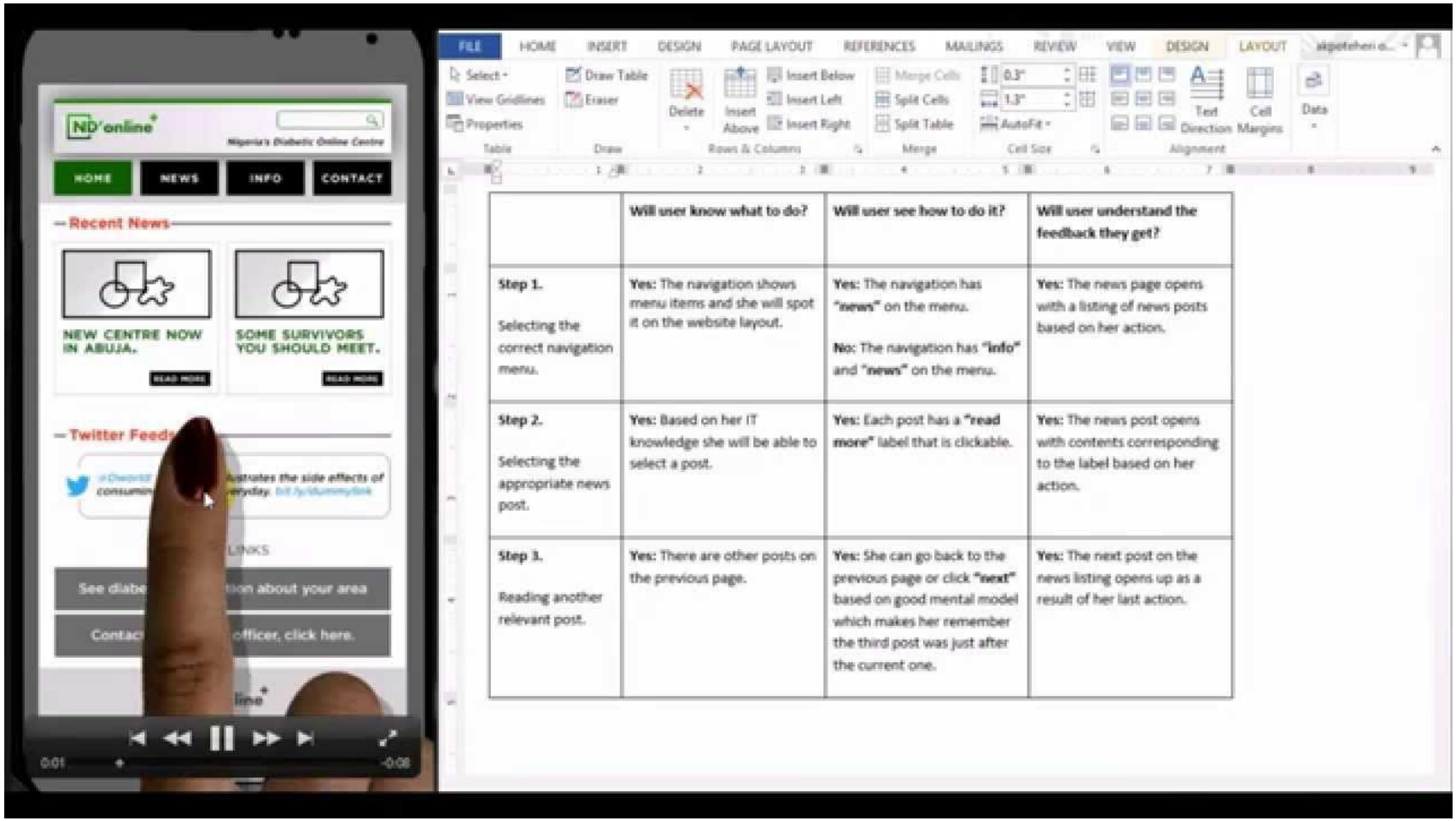
Cognitive Walkthrough (*CW Supplement)*



	Will user know what to do?	Will user see how to do it?	Will user understand the feedback they get?
Step 1. Selecting the correct navigation menu.	**Yes:** The navigation shows menu items and she will spot it on the website layout.	**Yes:** The navigation has **"news"** on the menu. **No:** The navigation has **"info"** and **"news"** on the menu.	**Yes:** The news page opens with a listing of news posts based on her action.
Step 2. Selecting the appropriate news post.	**Yes:** Based on her IT knowledge she will be able to select a post.	**Yes:** Each post has a **"read more"** label that is clickable.	**Yes:** The news post opens with contents corresponding to the label based on her action.
Step 3. Reading another relevant post.	**Yes:** There are other posts on the previous page.	**Yes:** She can go back to the previous page or click **"next"** based on good mental model which makes her remember the third post was just after the current one.	**Yes:** The next post on the news listing opens up as a result of her last action.

https://i.ytimg.com/vi/SpmTHdsQq8k/maxresdefault.jpg

Please click in…

Norman on the tendency to make up stories

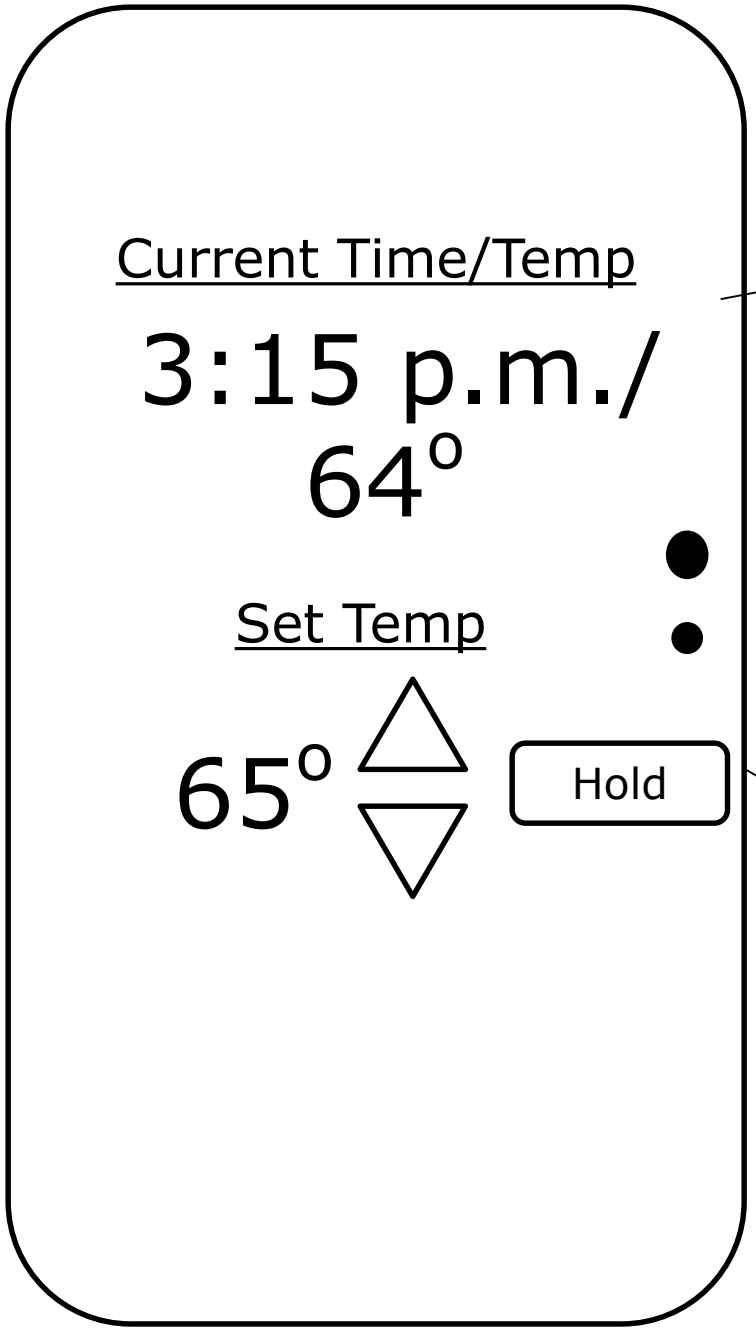
"People are innately disposed to look for causes of events, to form explanations and stories. Everyone forms stories (conceptual models) to explain what they have observed. In the absence of external information, people can let their imagination run free as long as the conceptual models they develop account for the facts as they perceive them." (p. 57)

This Class is about Quickly Evaluating Designs (CW Supplement)

Today's Agenda

1. Programmable thermostat design
2. The cognitive walkthrough
3. Design Studio: Presentation of IA #2 Designs

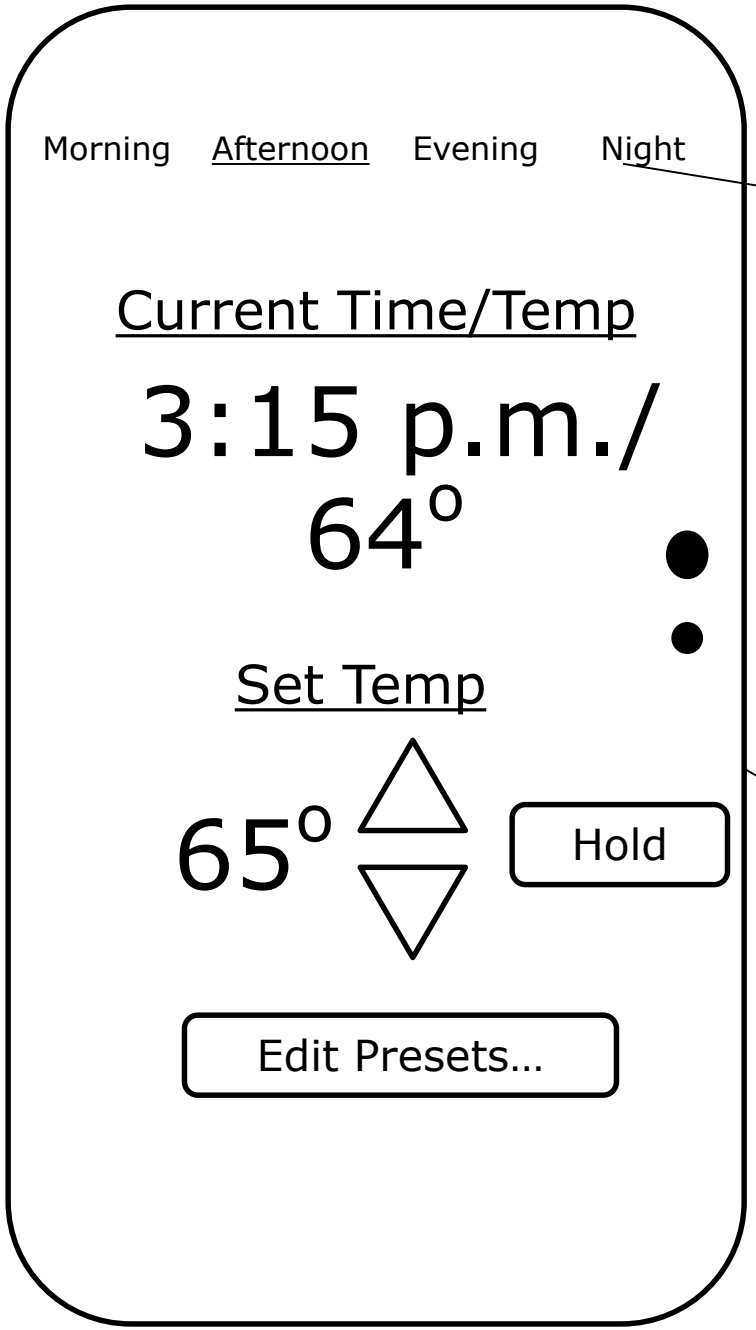
SCREEN #1
(Design 1)



Display toggles between current time and current temp (every 2 sec)

Button color changes when pressed to indicate it is on. Pressing again unholds

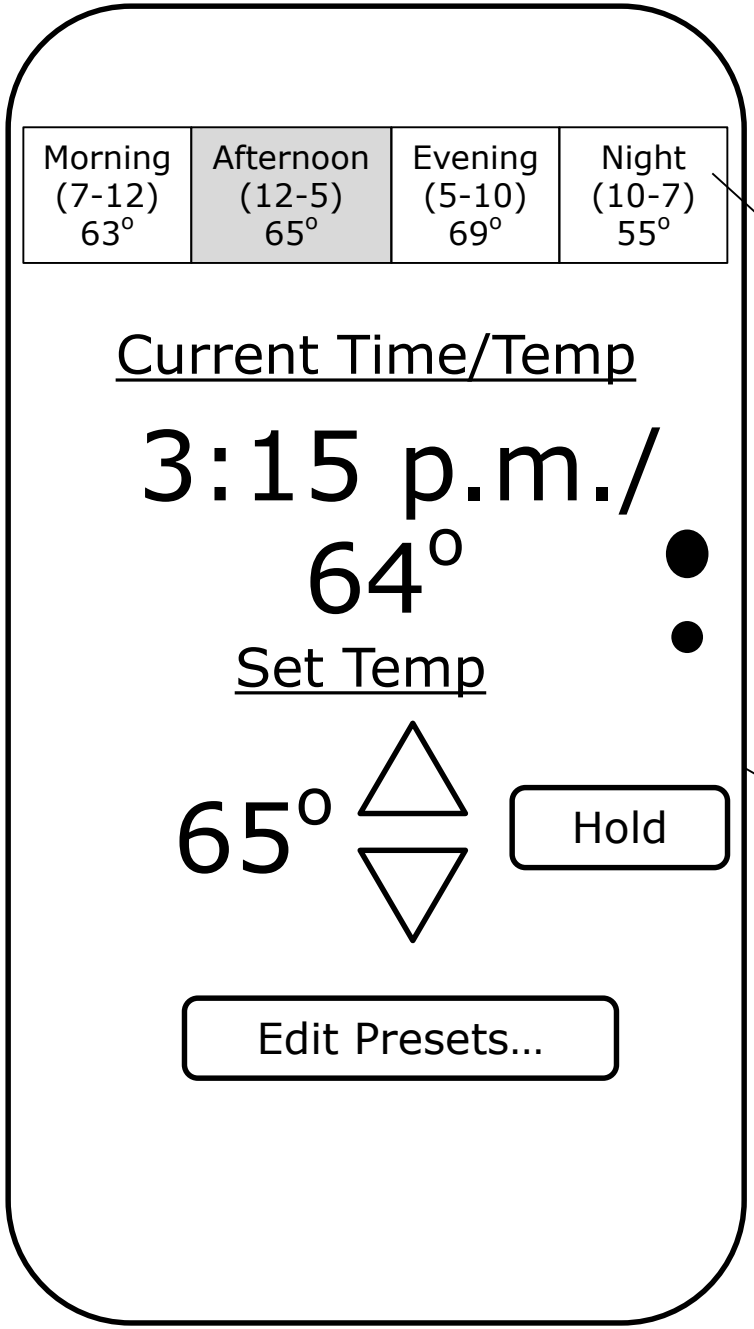
SCREEN #1
(Design 2)



These labels could be replaced with appropriate icons

Button color changes when pressed to indicate it is on. Pressing again unholds

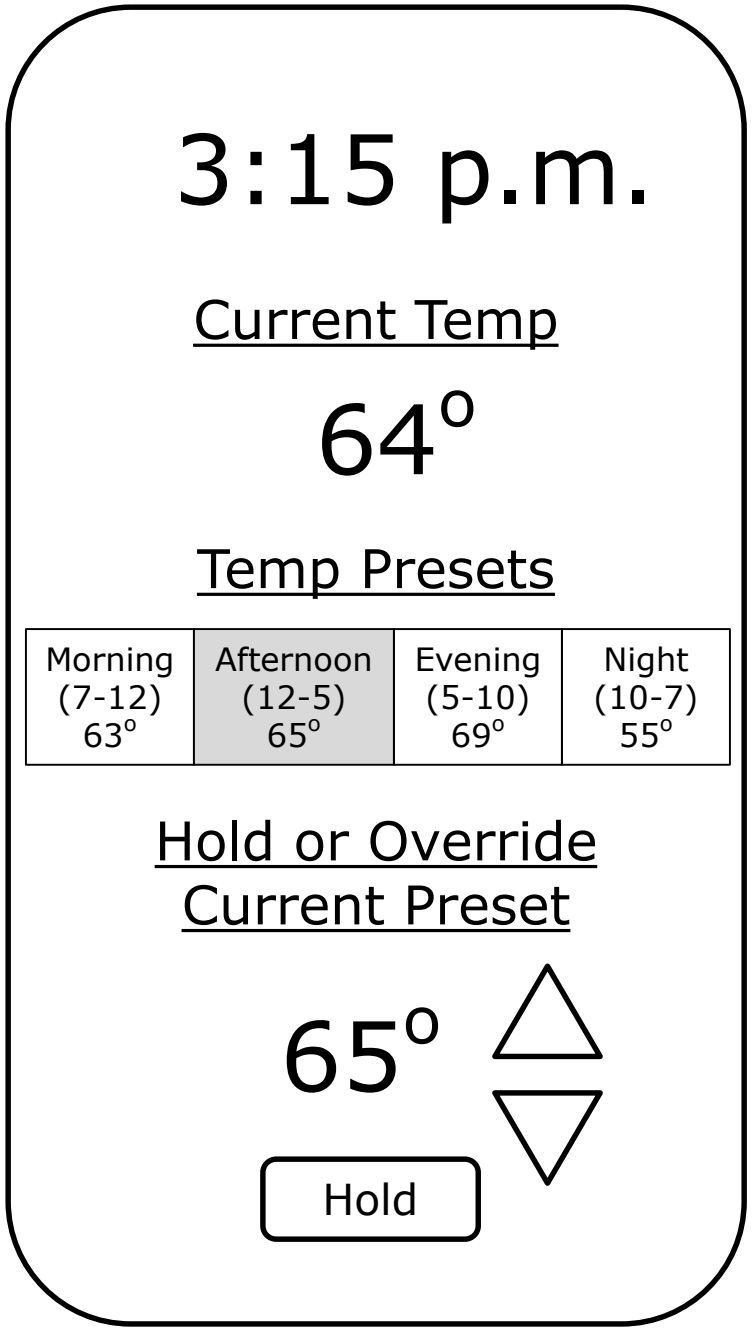
SCREEN #1
(Design 3)



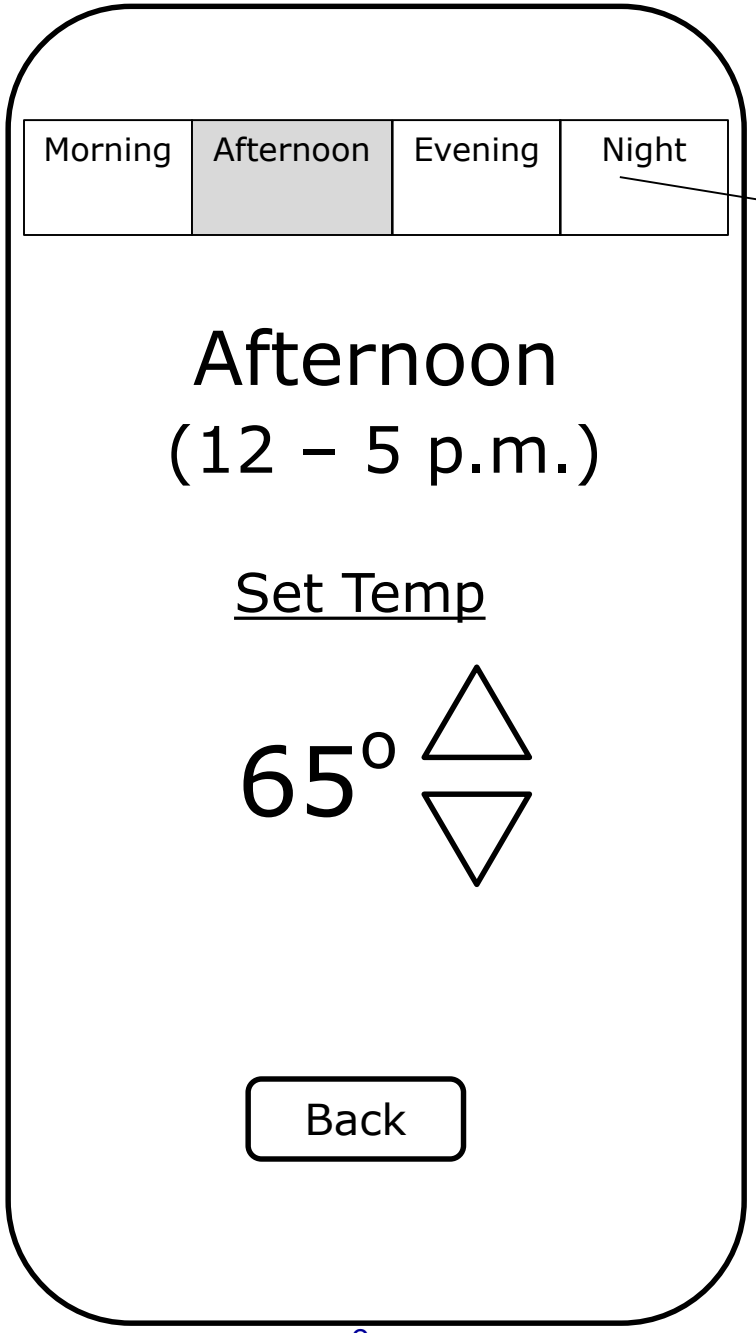
These labels could be replaced with appropriate icons

Button color changes when pressed to indicate it is on. Pressing again unholds

SCREEN #1
(Design 4)

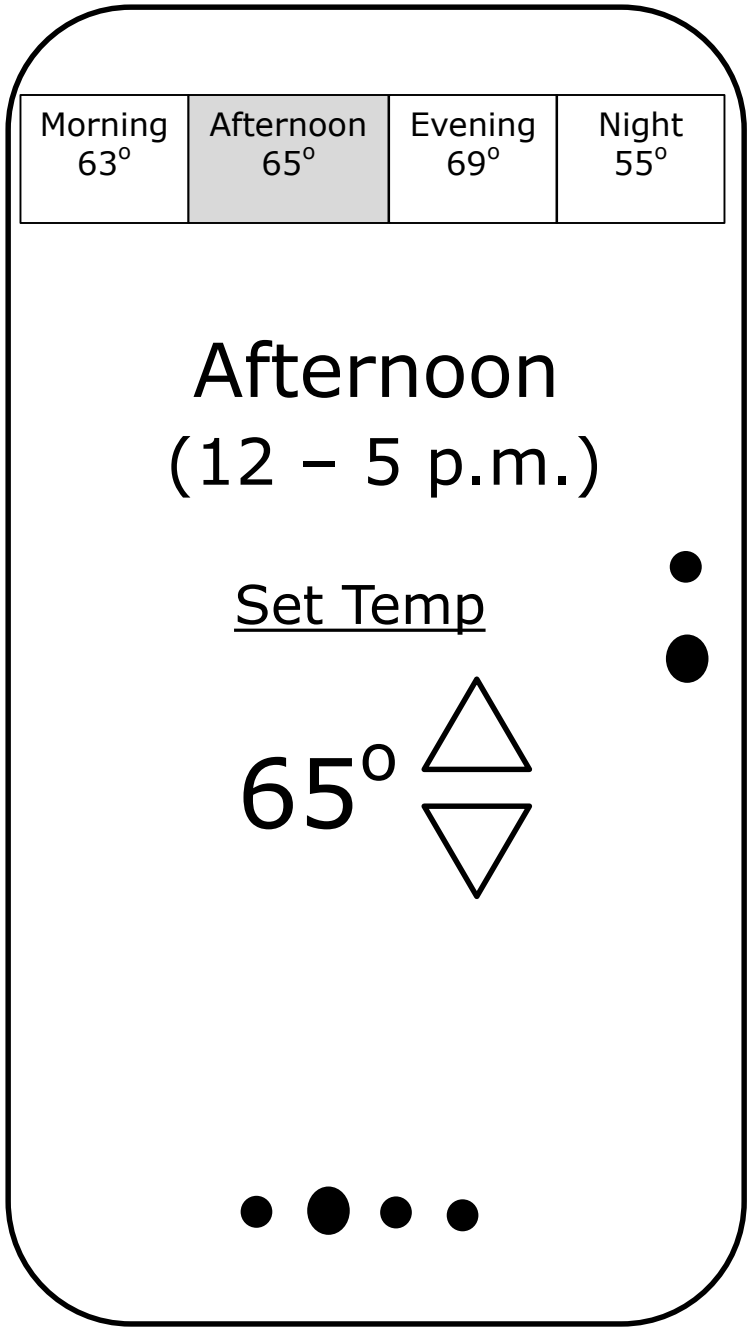


SCREEEN #2
(Design 1)

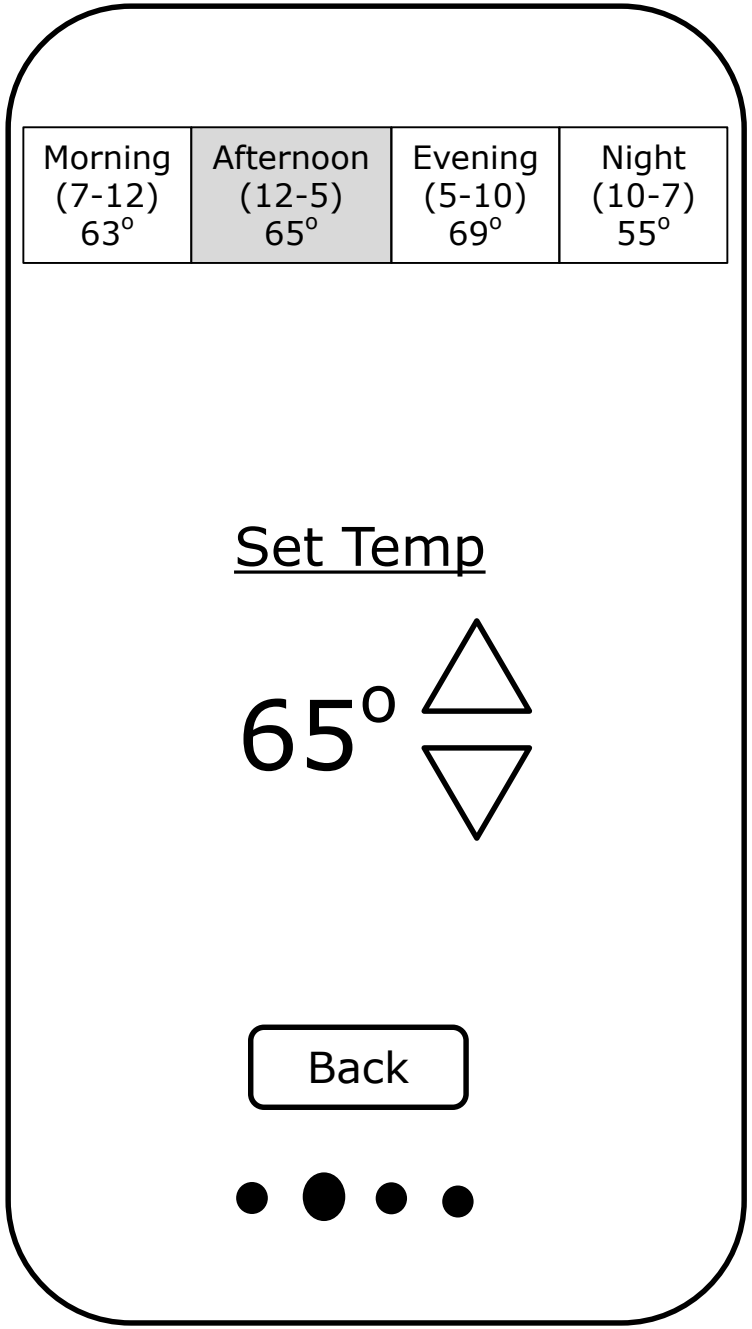


These labels could be replaced with appropriate icons

SCREEN #2
(Design 2)

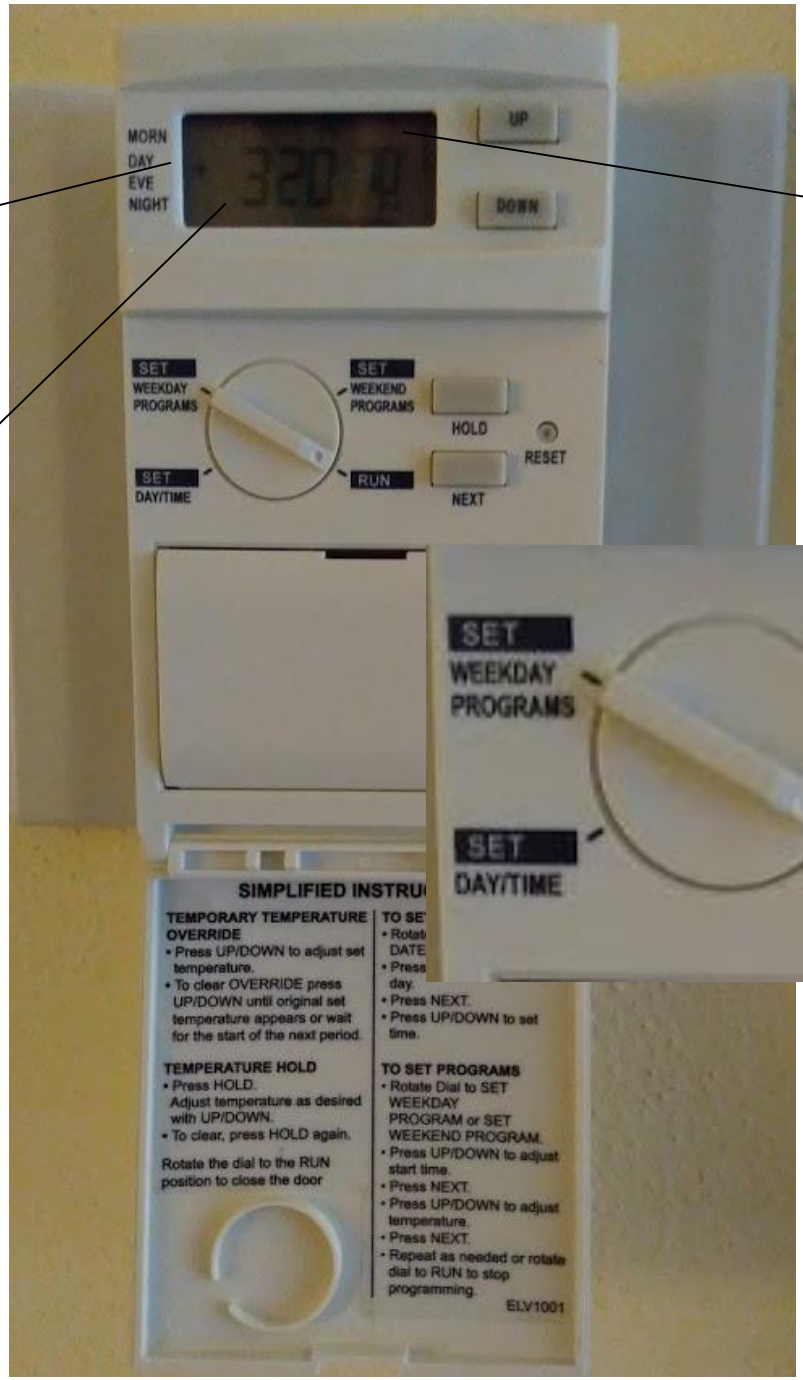


SCREEN #2
(Design 3)



Arrow indicates current preset zone

Display cycles between current time and current temp (every 2 sec)



"Override" or "Hold" appears here

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Cognitive Walkthrough can be seen as an application of Norman's "seven stages" model

- An individual or group simulates a user completing tasks with a user interface
- Goals
  - Identify potential usability problems
  - Generate ideas for improving user interface design
- Advantages:
  - No real users needed
  - Can be performed at any stage of development
- Disadvantages
  - Value depends on skill of evaluator(s)
  - Analysis can be narrow and superficial
  - Does not estimate severity or scope of problems identified

How to Do a Cognitive Walkthrough

1. Gather materials
   - Description of characteristics of typical users
   - List of core tasks that focus on areas of design that need to be evaluated.
   - Correct sequences of actions for each task
   - Representation of user interface to be evaluated
2. Walk through correct action sequences from perspective of typical users, asking the following questions at each step:
   - Will the user know what to do next to achieve task? (Form correct goal?)
   - Will the user notice how to perform the correct action? (Gulf of execution?)
   - Will the user interpret the system response correctly? (Gulf of evaluation?)
3. Record successes, failures (and why the interface fails), design suggestions, and comments
4. Brainstorm potential solutions to problems identified

Cognitive Walkthrough Process

- **Application**: The ALgorithm VIsualization Storyboarder (ALVIS)
- **Step 1a: Identify core users and tasks**
  - Core Users: First-semester computer science students who are learning to program algorithms
  - Core task: Designing array-iterative algorithms by
    - creating and placing variables and arrays
    - Writing control and iterative logic in SALSA language
- **Step 1b: Specify task sequences**
  - We'll focus on the following task: *Create an array with five cells containing randomly-generated integers between 1 and 50 in descending order*

Cognitive Walkthrough Process
(cont.)

- **Step 1b: Specify task sequences**
  - Step 1: Create an array with five cells
    - Click on “Create Array” button
    - Position cursor on animation canvas
    - Drag out array with five cells
  - Step 2: Modify default properties of “populate" tool
    - Double-click on populate tool
    - Modify “value” field to “1 and 50”
    - Click on >> next to “ordering” field and choose “descending”
    - Choose “Apply”
  - Step 3: Populate array
    - Click on any cell in the array

Cognitive Walkthrough Process
(cont.)

- **Step 2:** Walk through correct action sequences, asking the following questions at each step:
  - Will the user know what to do next? (Form correct goal?)
  - Will the user notice how to perform the correct action? (Gulf of execution?)
  - Will the user interpret the system response correctly? (Gulf of evaluation?)
  - Use provided worksheet!

Cognitive Walkthrough Process (cont.)

- **Step 3: Summarize results**
  - Identify aspects of the design that worked
  - Identify potential usability issues
  - Where possible, use concepts from class to explain usability issues
- **Step 4**: Suggest design changes
  - For each usability issue, suggest a concrete change to remedy the issue
  - Use annotated screen sketches to illustrate your suggested changes, as appropriate.

How to fix problems identified by Cognitive Walkthrough

- If user doesn't know what to do next to make progress…
  - Eliminate task sequence step
  - Prompt user for correct action
  - Change another part of the task sequence so that step isn't necessary
- If user fails to notice how to perform the correct action…
  - Make action more obvious (e.g., label buttons using language familiar to users)
  - Lead user back on right path by anticipating what user might attempt, and providing hints

How to fix problems identified by Cognitive Walkthrough (cont.)

- If user fails to interpret system response correctly…
  - Provide better feedback (duh!)
  - Confirm *what* happened

Individual Assignment #3: Cognitive Walkthrough

- You will complete the cognitive walkthrough begun in class by considering the task of writing a "find max" algorithm to find the largest value in the populated array.
- See IA #3 prompt for the details
- Your solution is due at beginning of class Tuesday (I will go over a possible solution in class next Tuesday)

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IA#2 Presenters

- Sandra
- Sayonsom
- Wai Lok
- Shyam
- Ryan
- Dara

Announcements

- Read Johnson Ch. 1-3 for Thursday
- Complete IA#3 by next Tuesday