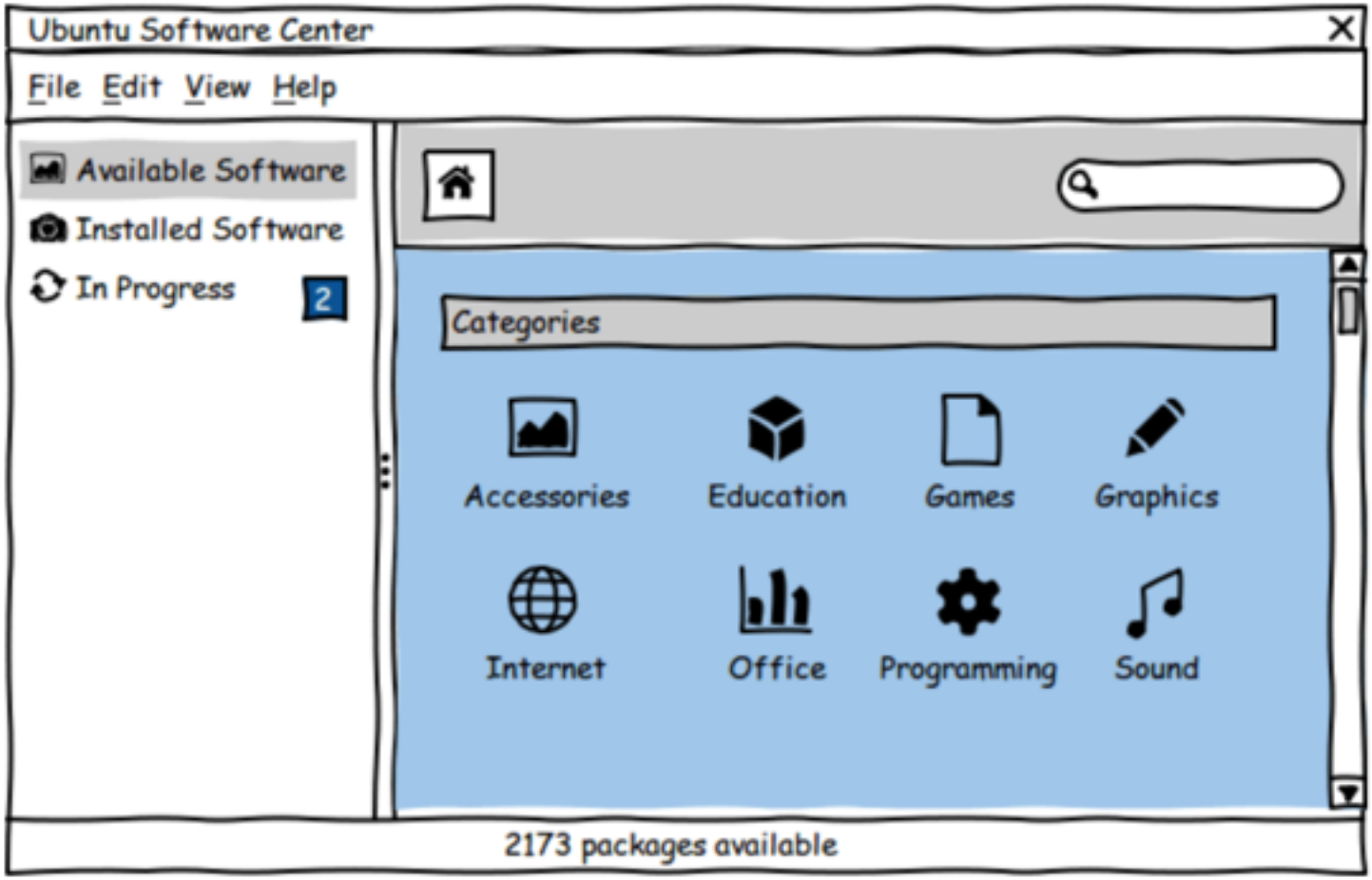
SE463

Software Requirements Specification & Analysis

Mockups

Mockups

Sketch the essence of a solution, and use to bait stakeholders into providing new requirements details



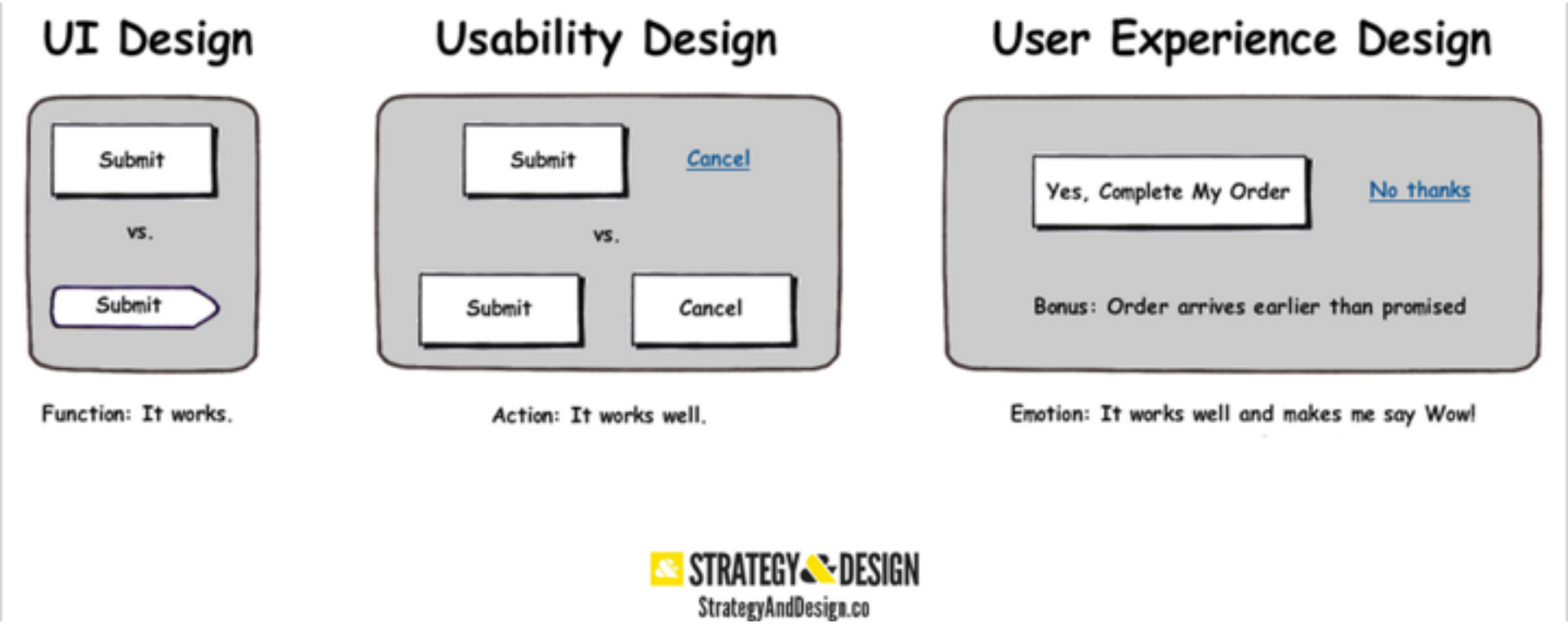
User Experience (UX)

User experience (UX) encompasses all aspects of a user's interaction with a company, its services, and its products.

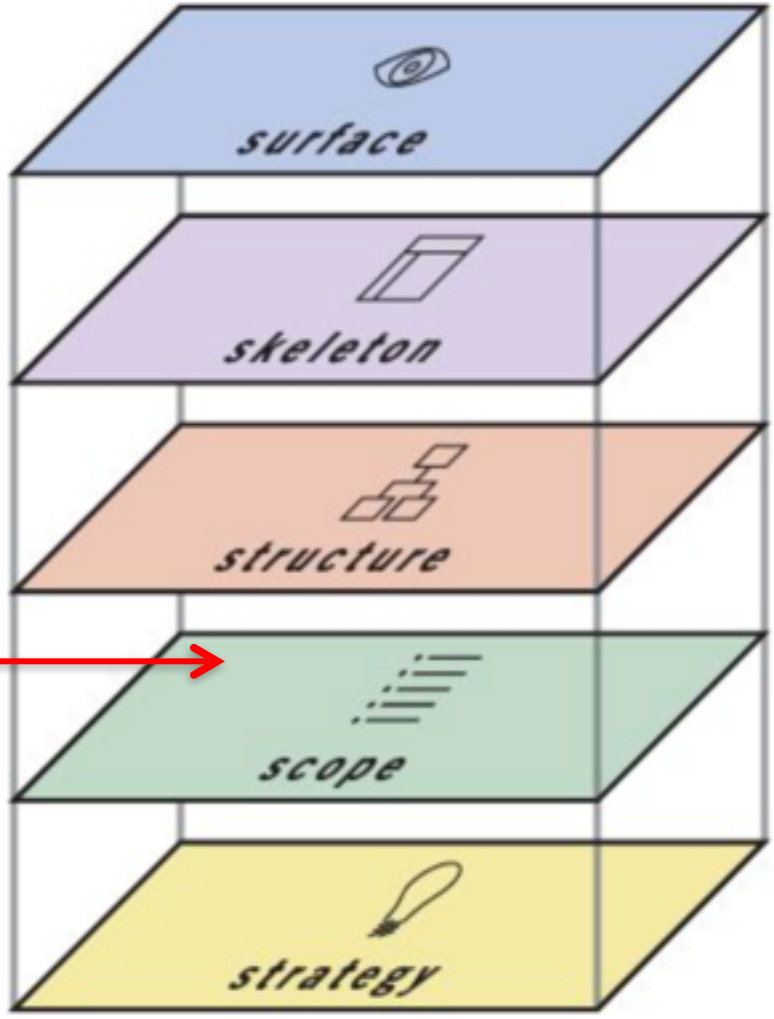
- Meet the exact needs of the customer
- Be simple, elegant, intuitive – a joy to own and use
- Be a seamless merging of services

User Experience (UX)

Not to be confused with usability, which is a quality attribute that concerns the product's ease of use, ease to learn, how efficient and productive users are, etc.



User Experience



You are here

Surface
Graphics
Images

Skeleton
Prototypes
Wireframes

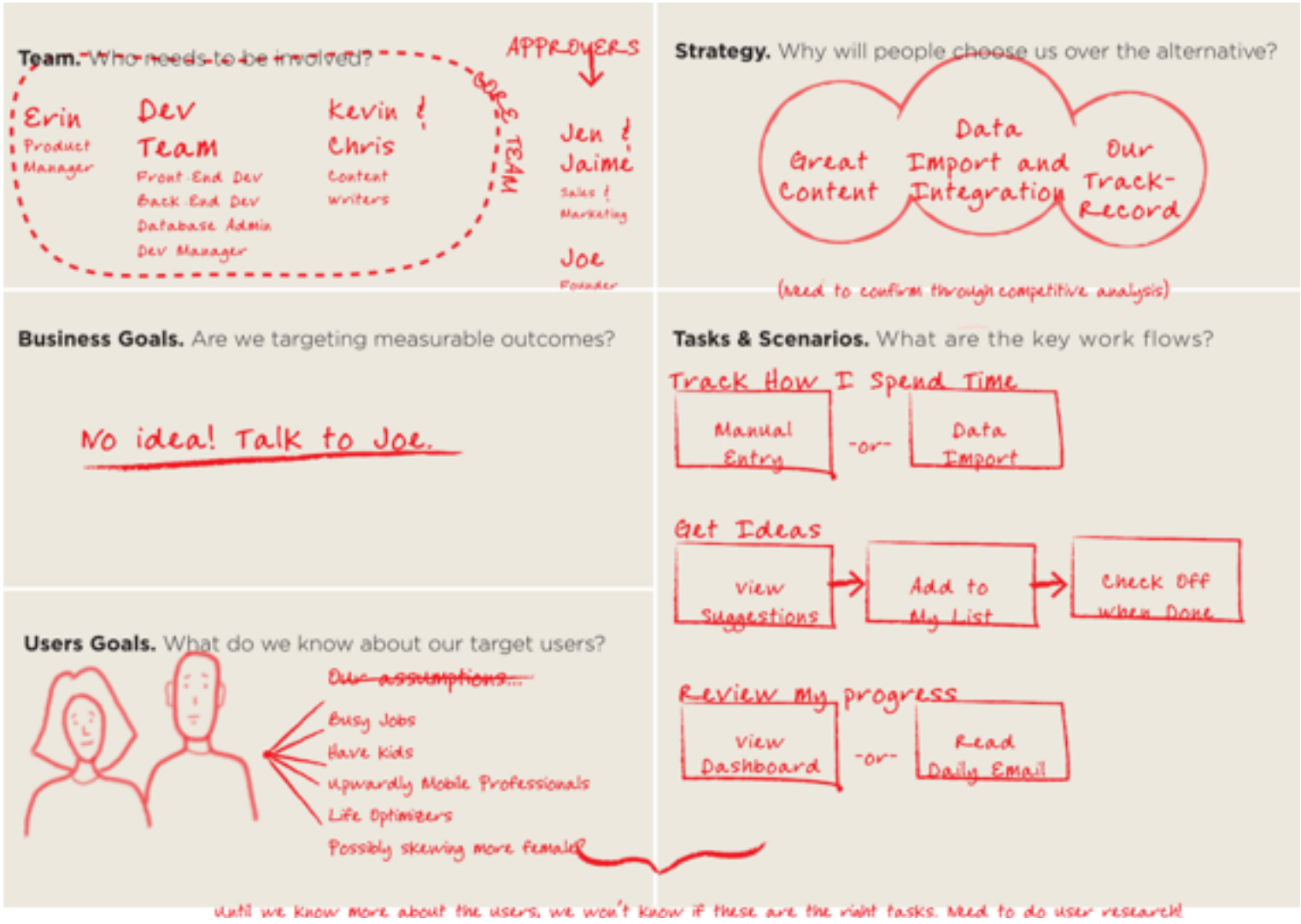
Structure
Sitemaps
Interactions

Scope
Requirements
Specifications

Strategy
User needs
Business goals

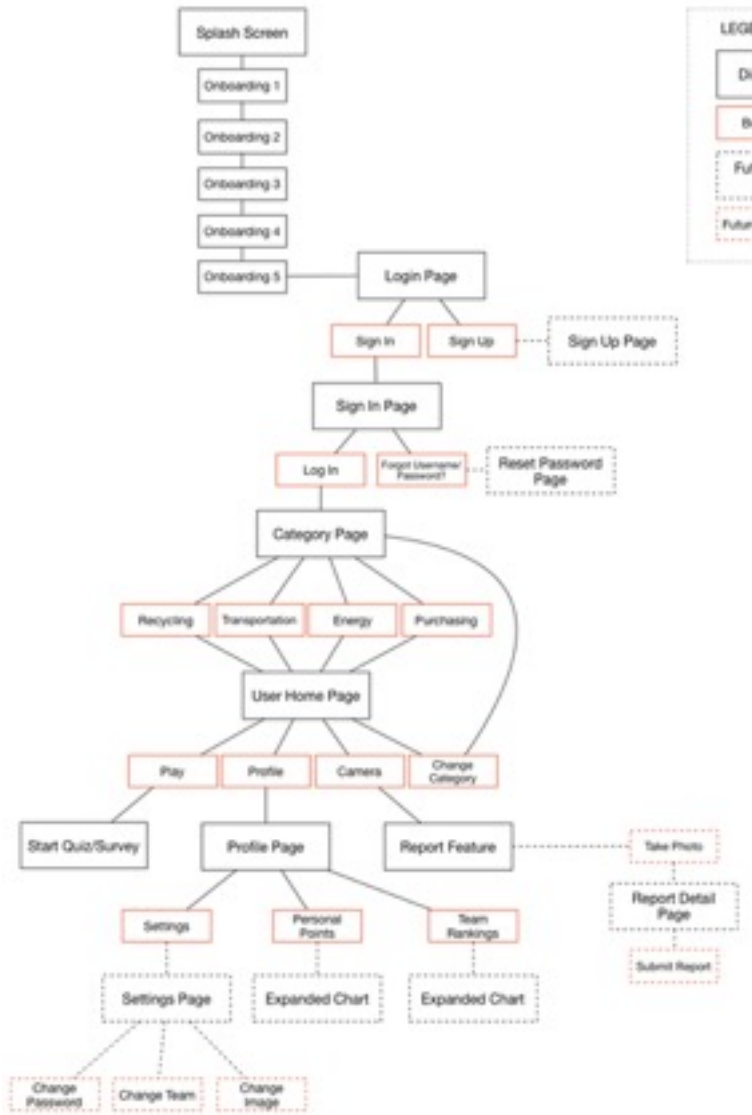
Jesse James Garrett, The Elements of User Experience, 2011

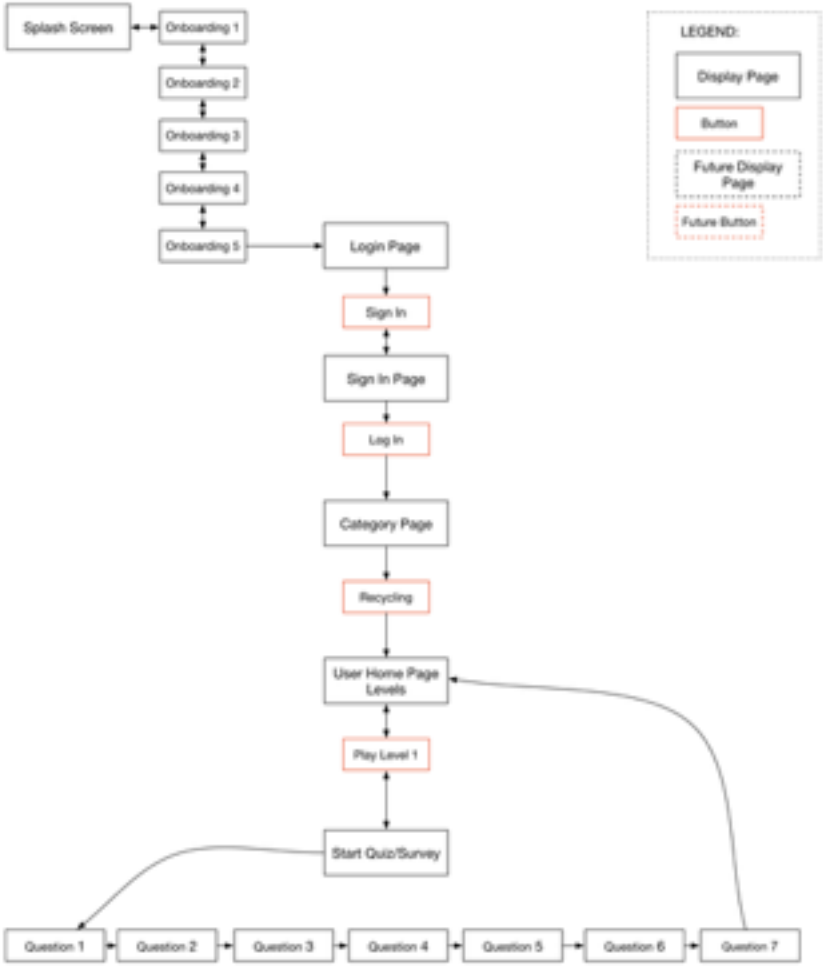
Starting Point



Rosenfeld, *The User Experience Team of One: A Research and Design Survival Guide*

Structure





http://www.alysegilbert.com/one-drop-interactive/

Sketching

Initial drafts of the UI should focus on content: the scope of what to include on a screen, and how to lay it out.

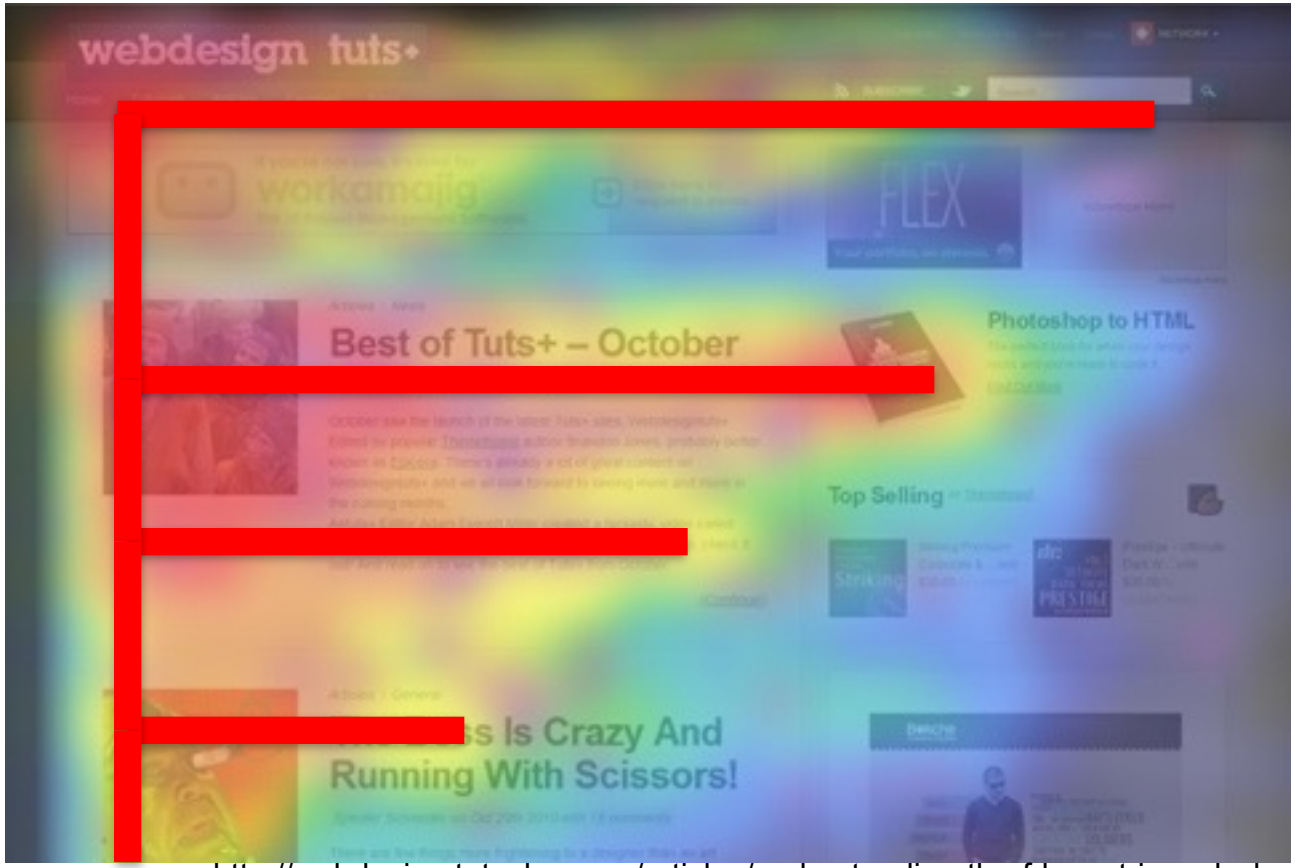
http://murdochcarpenter.com/portfolio/wireframes/

Wireframing

A wireframe is a visual representation or mock-up of a user interface, using only simple shapes

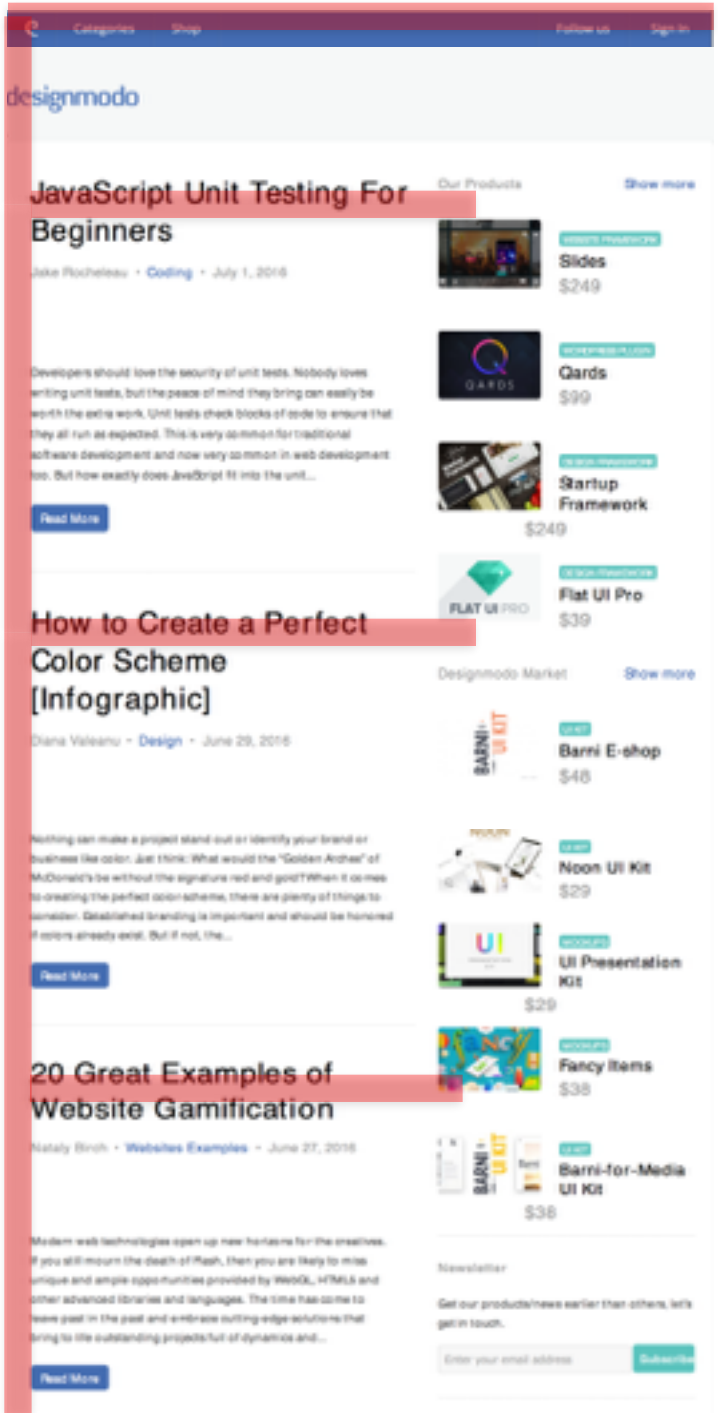
- focuses on content, information hierarchy and flow
- defers details about presentation (colour, fonts, images)

F-Layout Design



http://webdesign.tutsplus.com/articles/understanding-the-f-layout-in-web-design--webdesign-687

The heatmap shows where users tend to focus their gaze, reading left to right, and top to bottom (but less to the right the lower they gaze)


designmodo
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Jake Rocheleau • Coding • July 1, 2016
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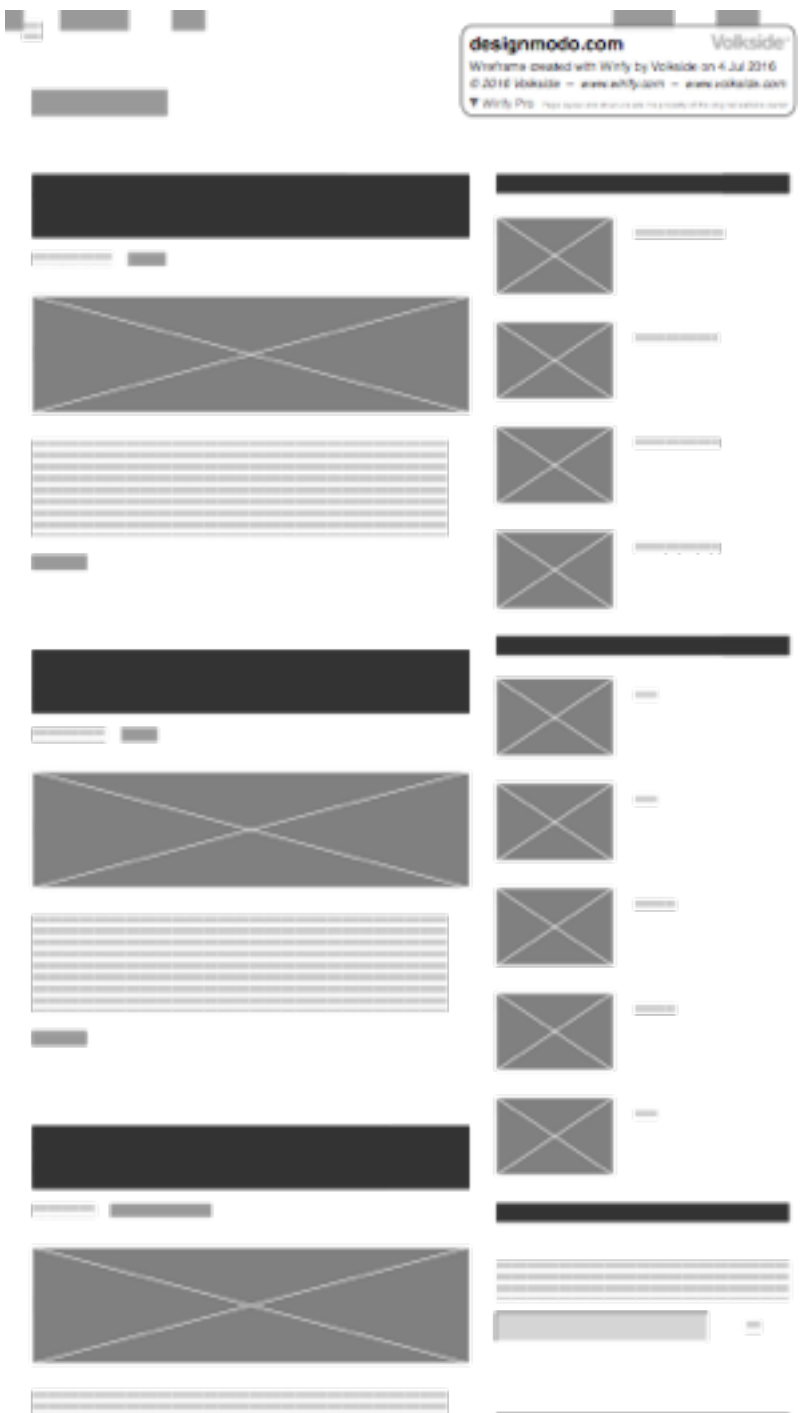
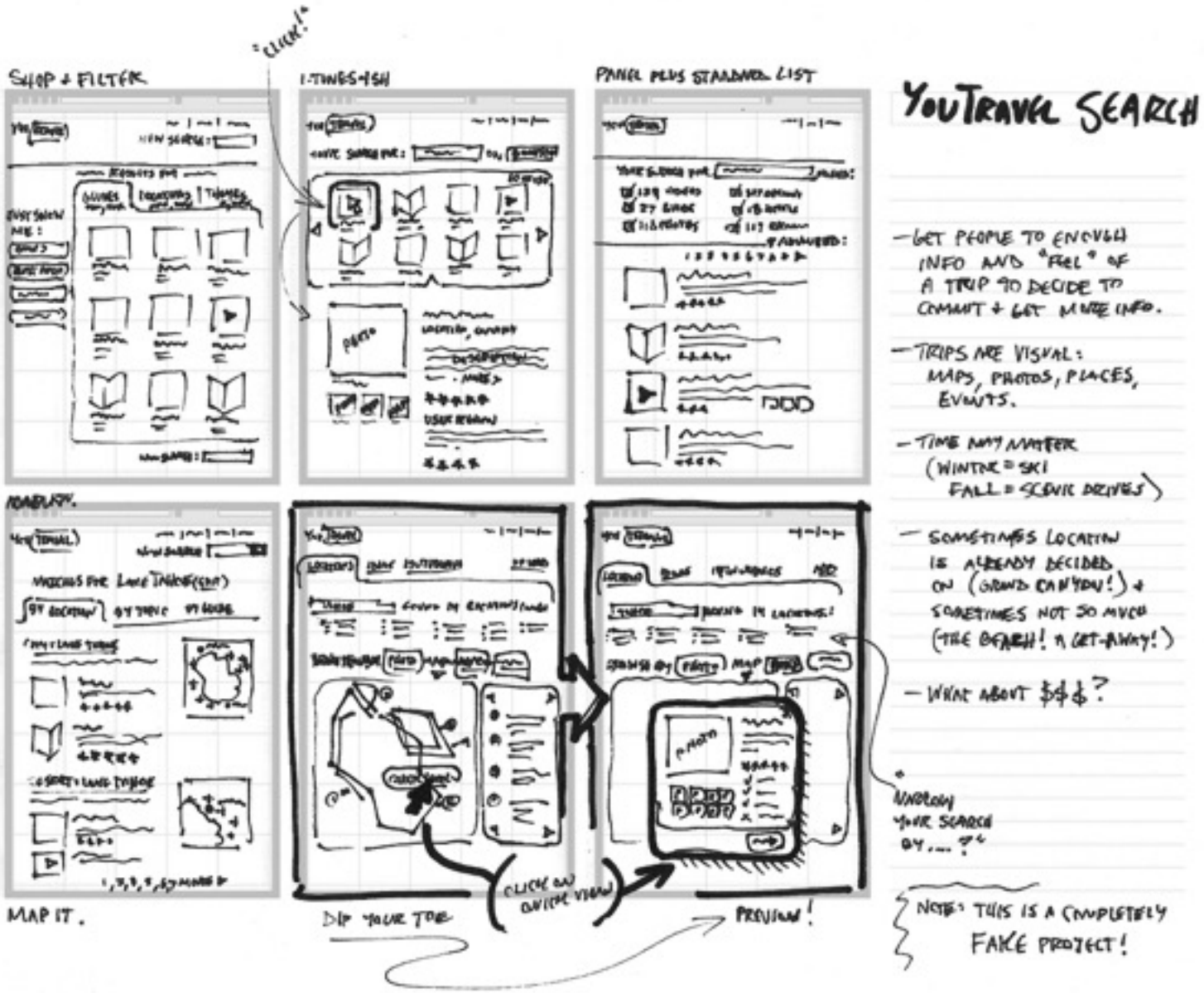

designmodo.com
Volkside
Wireframe created with Wirify by Volkside on 4 Jul 2016

Sketching vs. Low-Fid Wireframing

Sketching



Iterative Process

1 Sketched Wireframe,
Multiple Iterations

Paper/Interactive Wireframe,
Multiple Iterations

Visual Designs,
Multiple Iterations

Sketchboard

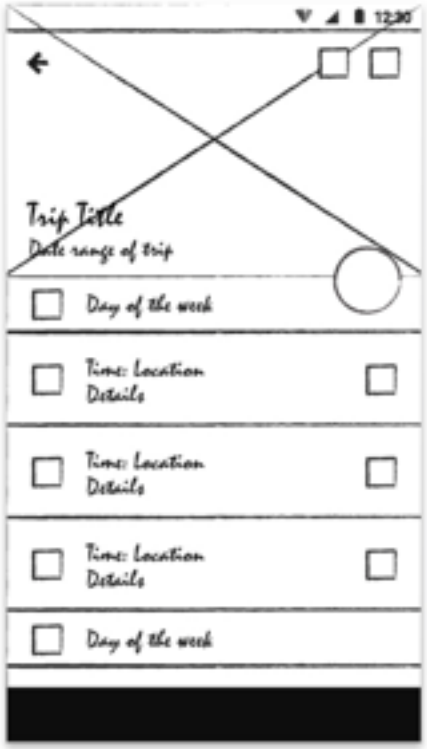
Sharing the Sketchboard

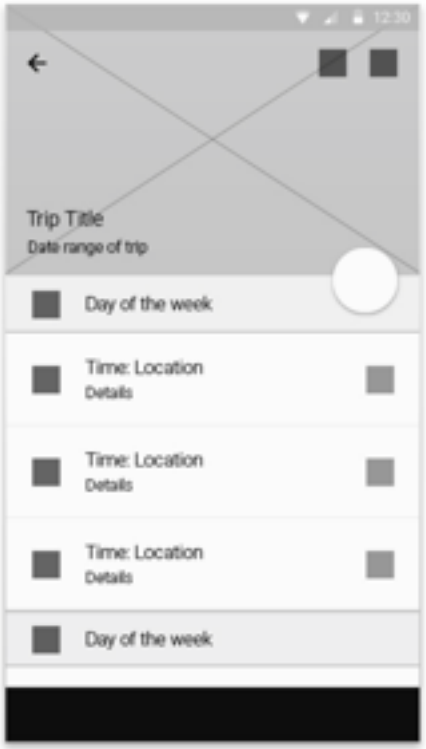
- Walk the team through the sketchboard, and present the sketches as potential starting points for solutions
- Can roll up the sketchboard and take it to clients and partners for walkthroughs, feedback, and suggestions for improvement
- Give reviewers pens to write comments
  - opinions, strengths, weaknesses, suggestions

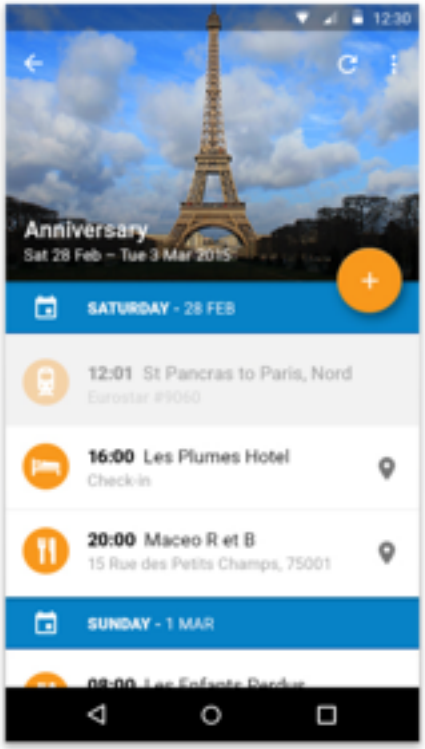
Apple's Design Process

- **Pixel Perfect Mockups**
- **10 to 3 to 1**. Apple designers start with 10 mockups for any product or feature, which they whittle to 3, refine those into one design
- **Paired Design Meetings**. Designers have two meetings each week.
  - *Crazy brainstorming*, where they let their imaginations run wild, with no constraints
  - *Production meeting*, work out how a crazy idea from the first meeting might work.
- **Designers have complete freedom.**

Sketching, Wireframing, Prototypes







http://murdochcarpenter.com/portfolio/wireframes/

Mockups

A mockup sketches the essence of a solution, in terms of screen contents and navigation among screens.

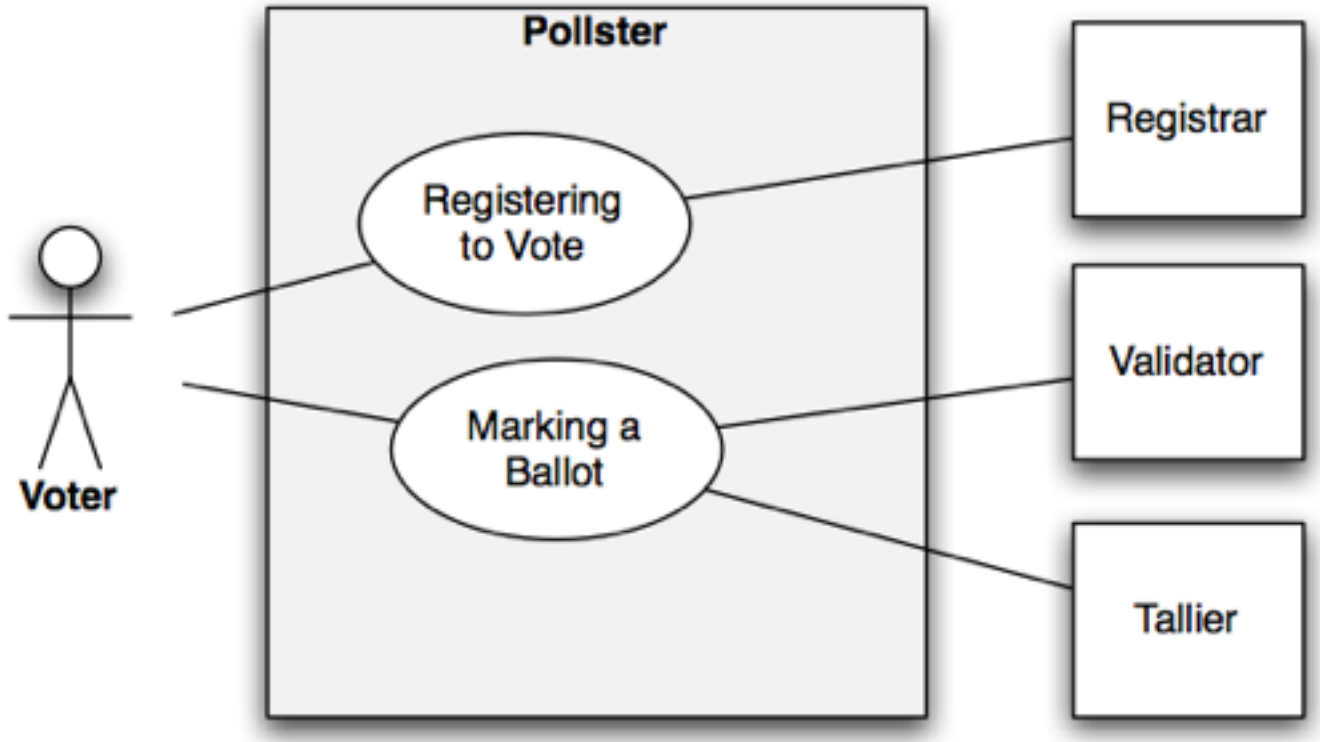
A paper mockup includes

- Sketches or wireframes of screen shots
- Descriptions of each UI widget
  - purpose of widget
  - effect of input event
  - how output events affect display screens
- Navigation diagram that shows how to navigate among the screens

Example: Electronic Voting

- Registrar: The Registrar registers voters prior to an election.
- Validator: The Validator ensures that only registered voters can vote, and that only one ballot is counted for each registered voter.
- Tallier: The Tallier tallies the results of the election or survey.
- Pollster: The Pollster acts as a voter's agent, assisting with voter registration, presenting human readable ballots to a voter, collecting the voter's responses to ballot questions, performing cryptographic functions on the voter's behalf, obtaining necessary validations and receipts, and delivering ballots to the ballot box.

Use Cases



UC "Registering to Vote"

Precondition: The voter has obtained a voter [identification number, token, and registration address] from the election administrators.

Voter «actor»	Pollster	Registrar «actor»
1. Voter invokes the *sensus* command, to run the Pollster.		
	2. Pollster displays a menu with options "register to vote" and "mark ballot". 1	
3. Voter selects the option "register to vote".		
	4. Pollster generates and shows a public/private key pair for Voter. 2	
5. Voter hits "ok" button.		
	6. Pollster prompts voter for his/her [identification number, token, and registration address]. 3	

UC "Registering to Vote"

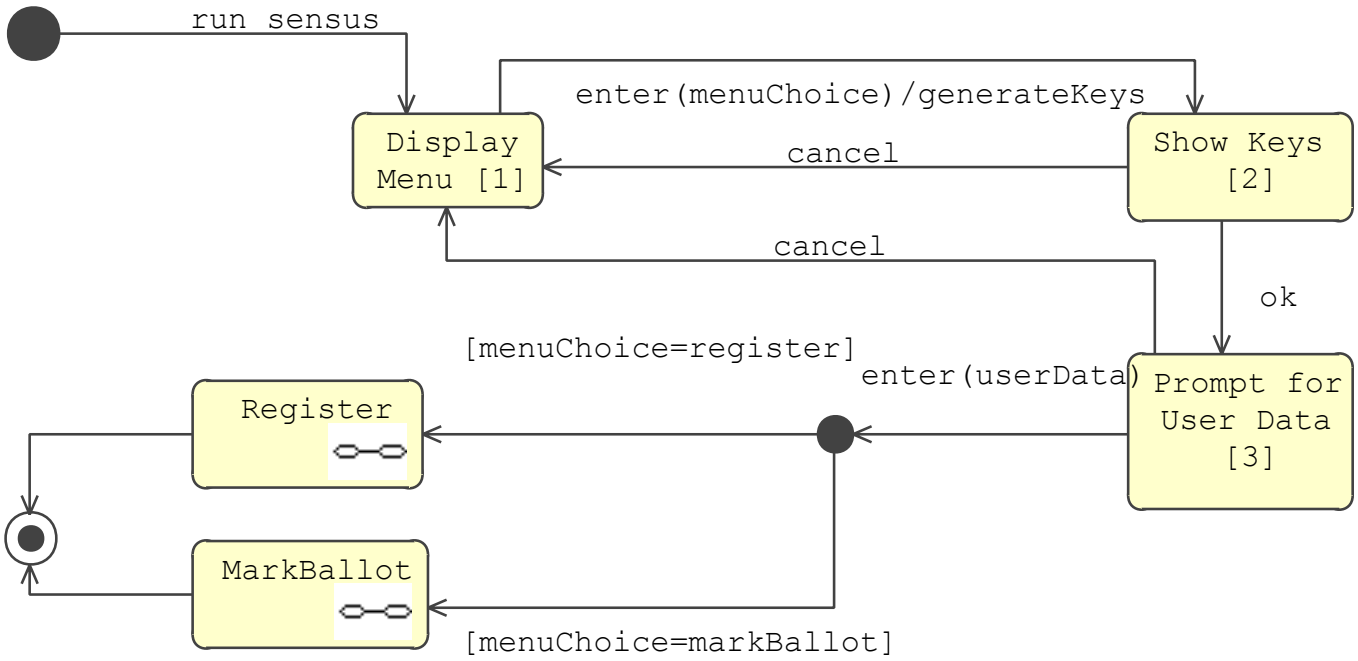
Voter «actor»	Pollster	Registrar «actor»
7. Voter types his/her [identification number, token, and registration address]. 8. Voter hits "ok" button.		
	9. Pollster prepares registration request on Voter's behalf. 10. Pollster submits registration request to registrar.	
		11. Registrar sends acknowledgement to Pollster within a few seconds.
	12. Pollster prompts Voter for a file name for saving his/her registration information. 4	
13. Voter types in a filename he/she will remember to Pollster; this name must be unique for the registration authority.		

Annotating State Machines

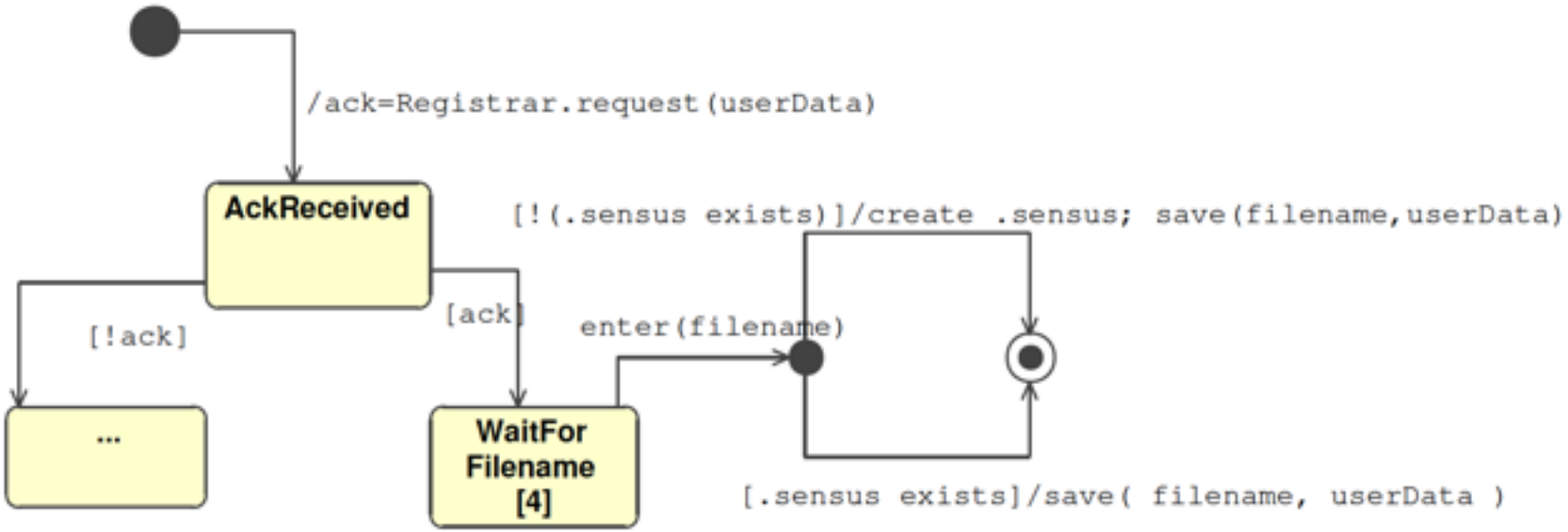
State machines can serve as an executable navigation diagram

- Inputs: Transitions are triggered by textual input, widget selection, or mouse clicks
- Outputs: UI screen shots are displayed as state or transition actions.

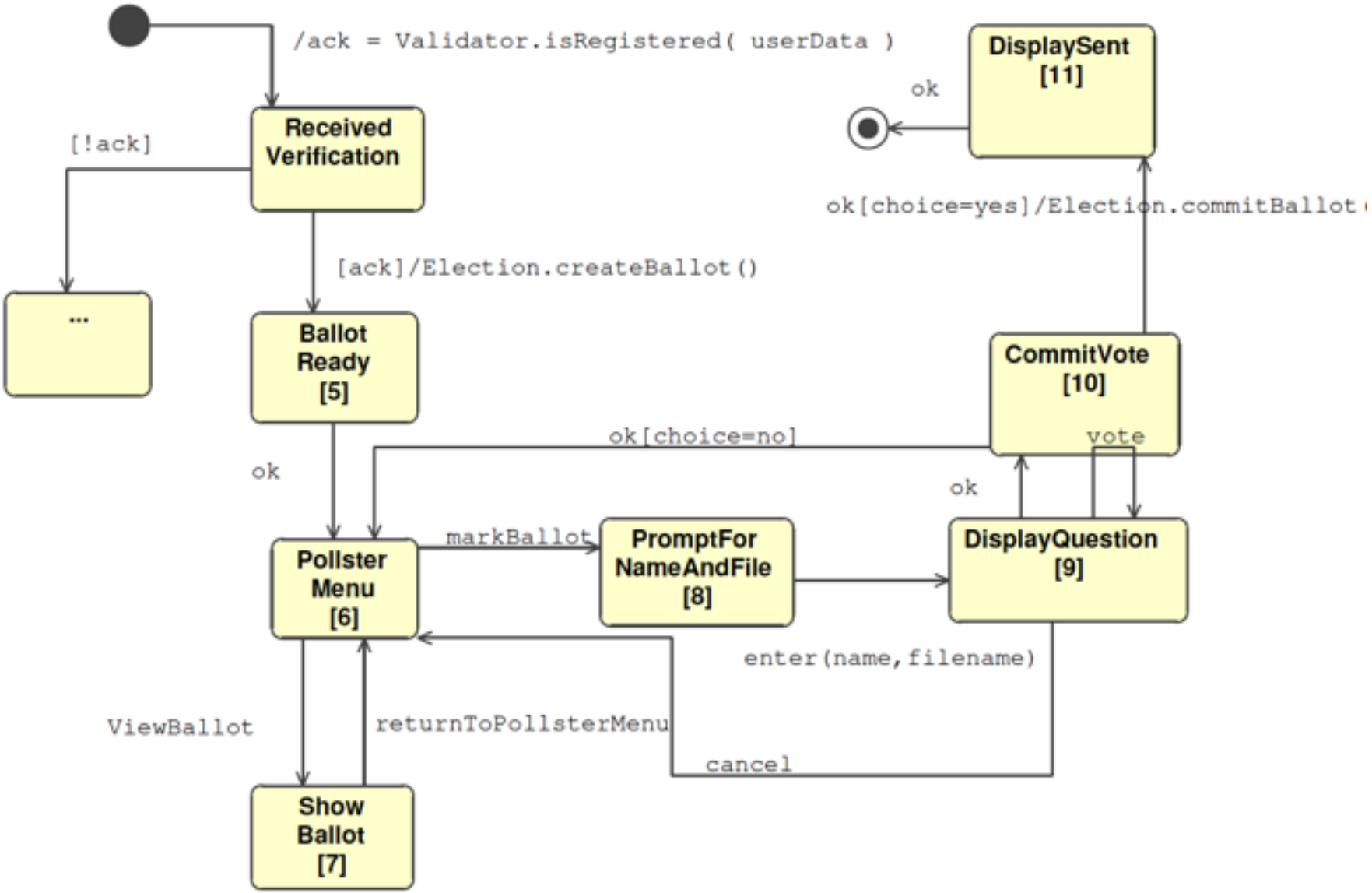
State Machine



“Register” Sub Machine



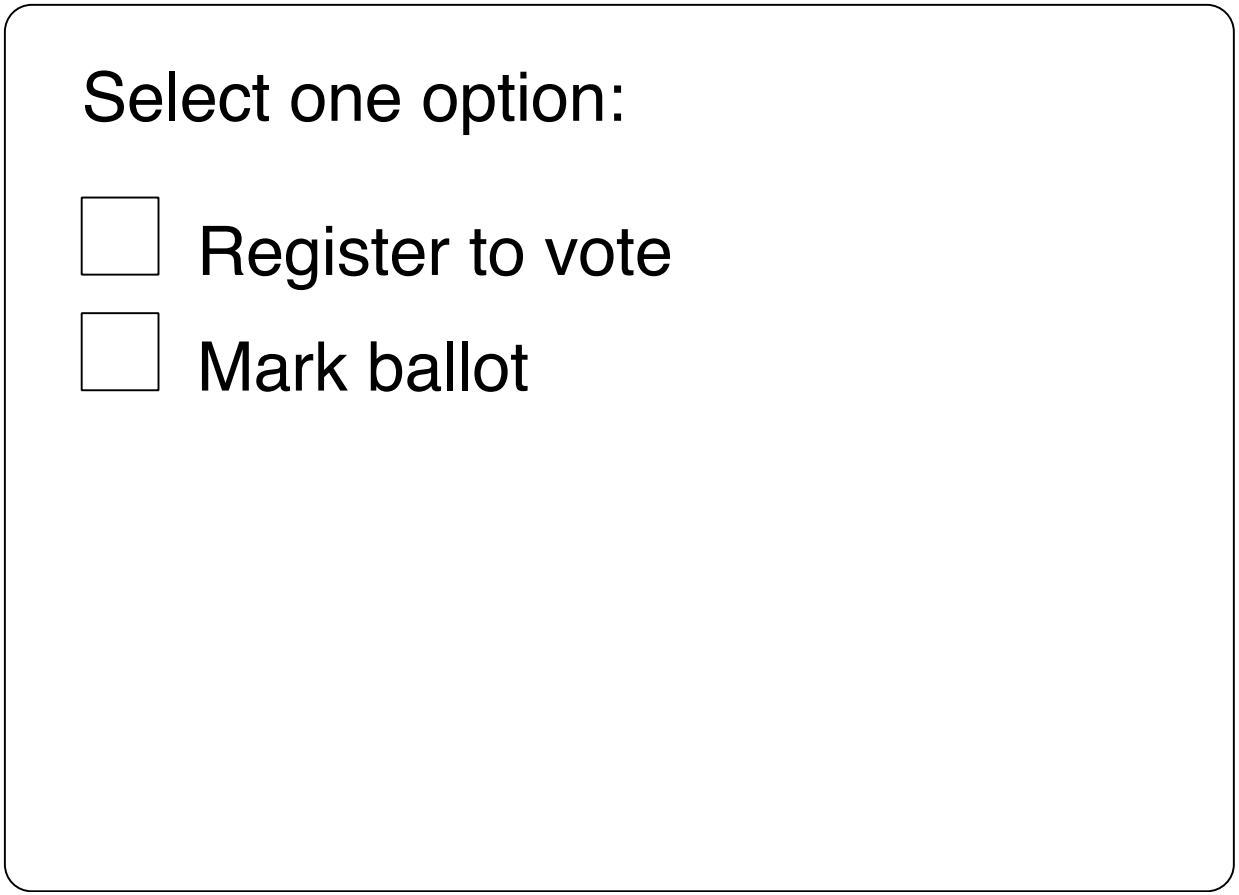
“Mark Ballot” Sub Machine



Screens

Wireframes of the screens follow this slide.

Menu of Options 1



Public/Private Key 2

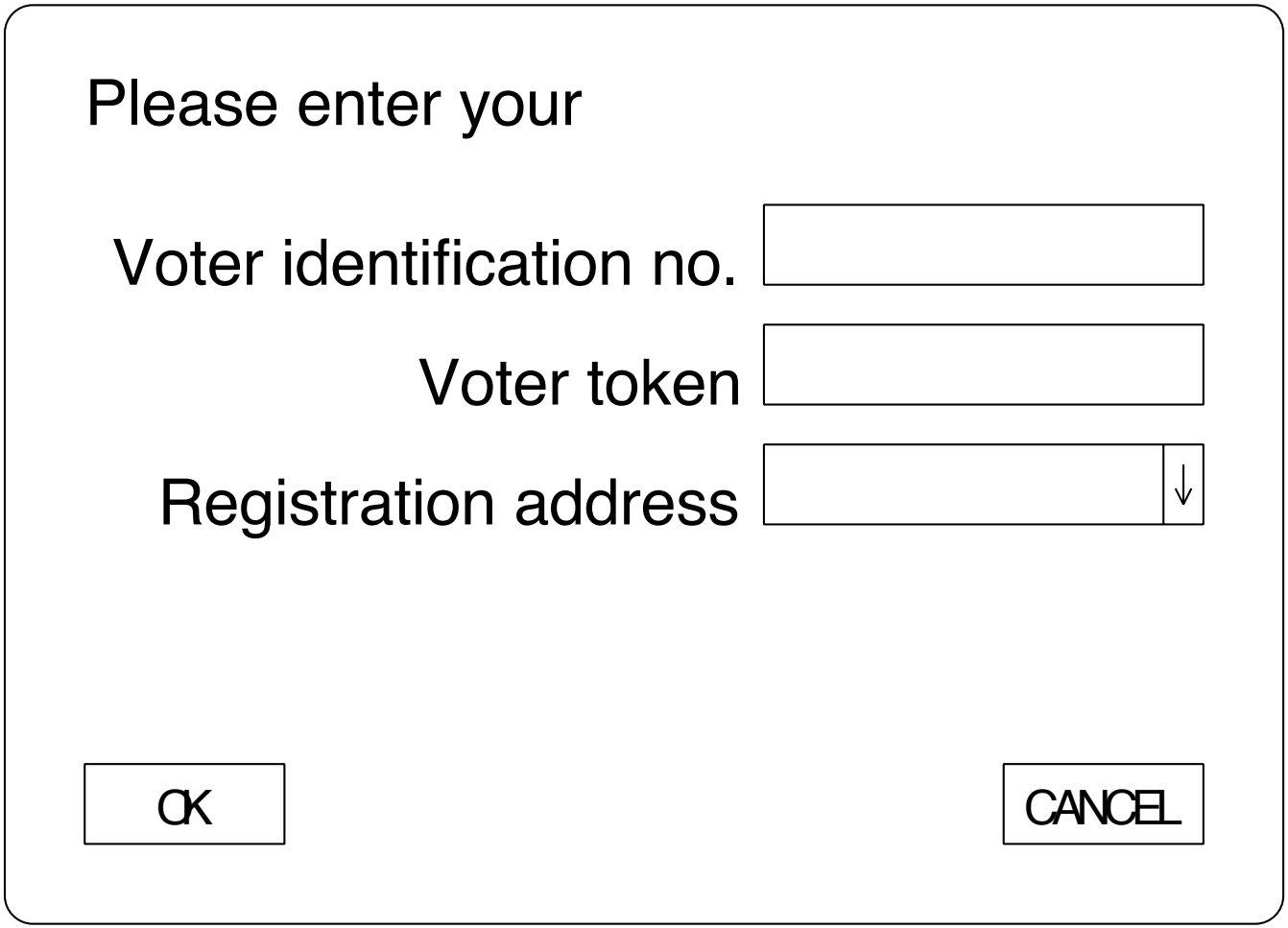
Your public/private key pair is:

55555555555555555555555555555/
66666666666666666666666666666

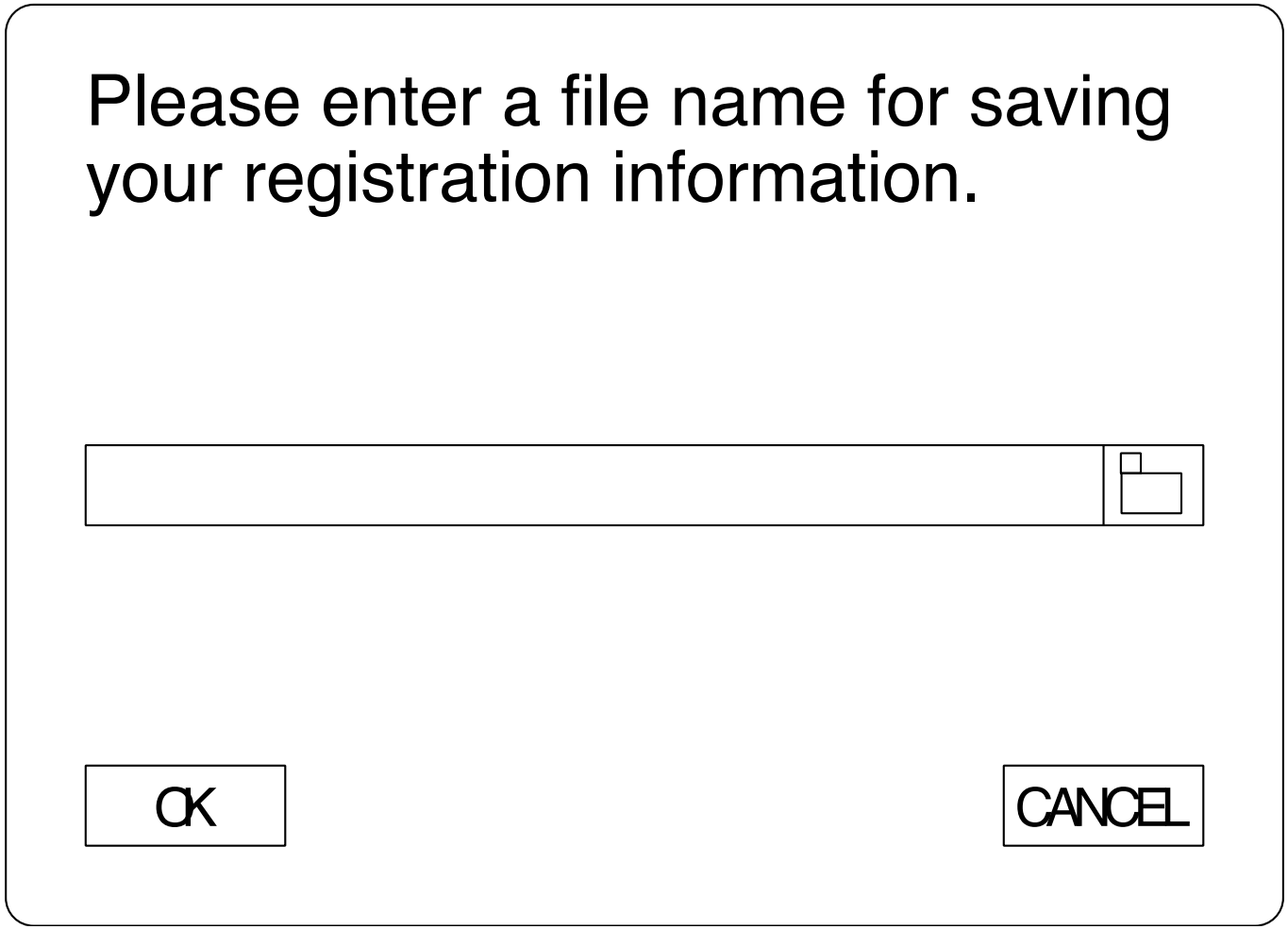
Don't forget it!

OK CANCEL

Registration Prompt 3



File Name Prompt 4



Send Unvoted Ballot 5

Your pollster has just been sent an unvoted ballot.

You may now choose to mark your ballot.

OK

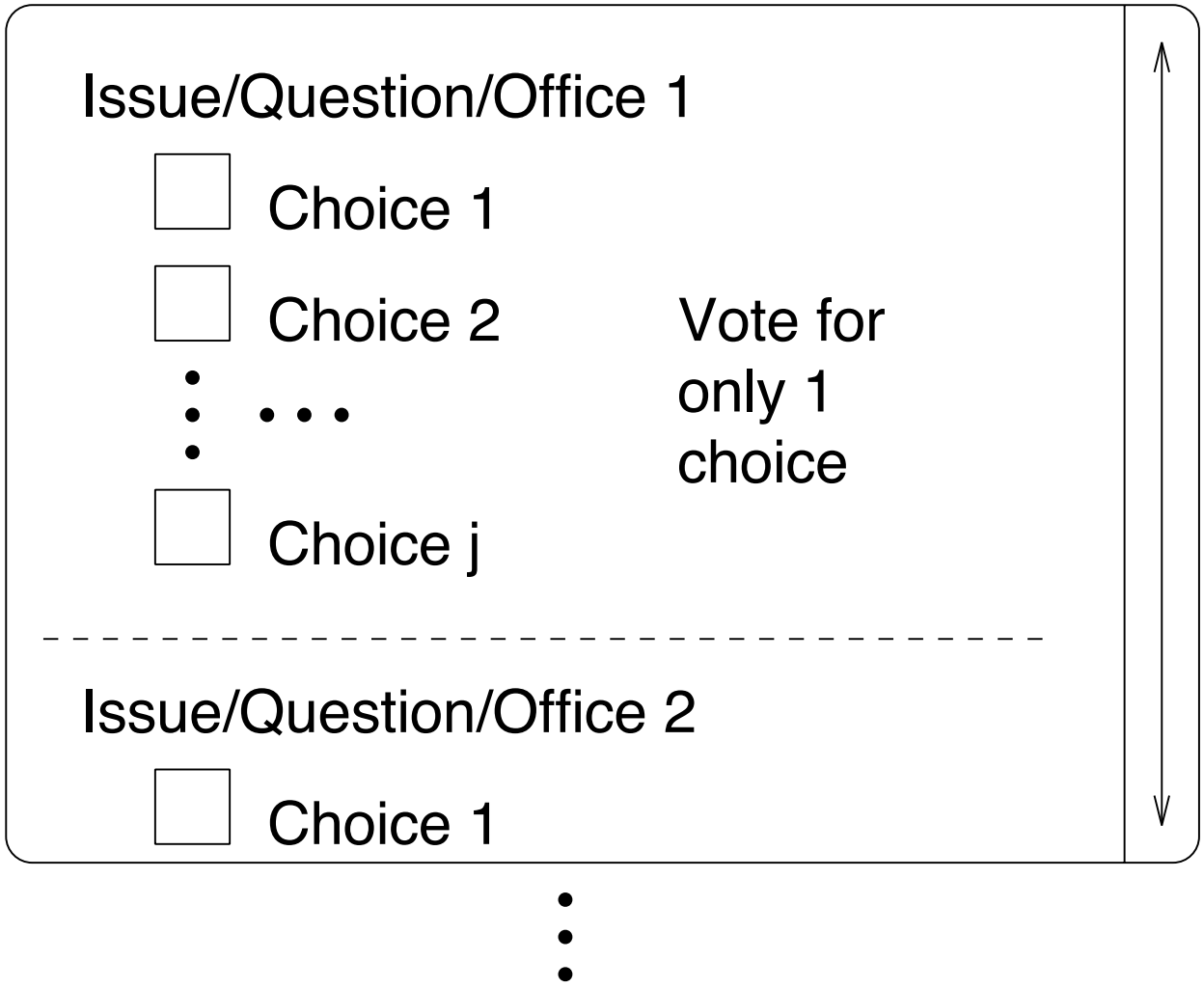
CANCEL

Pollster Menu 6

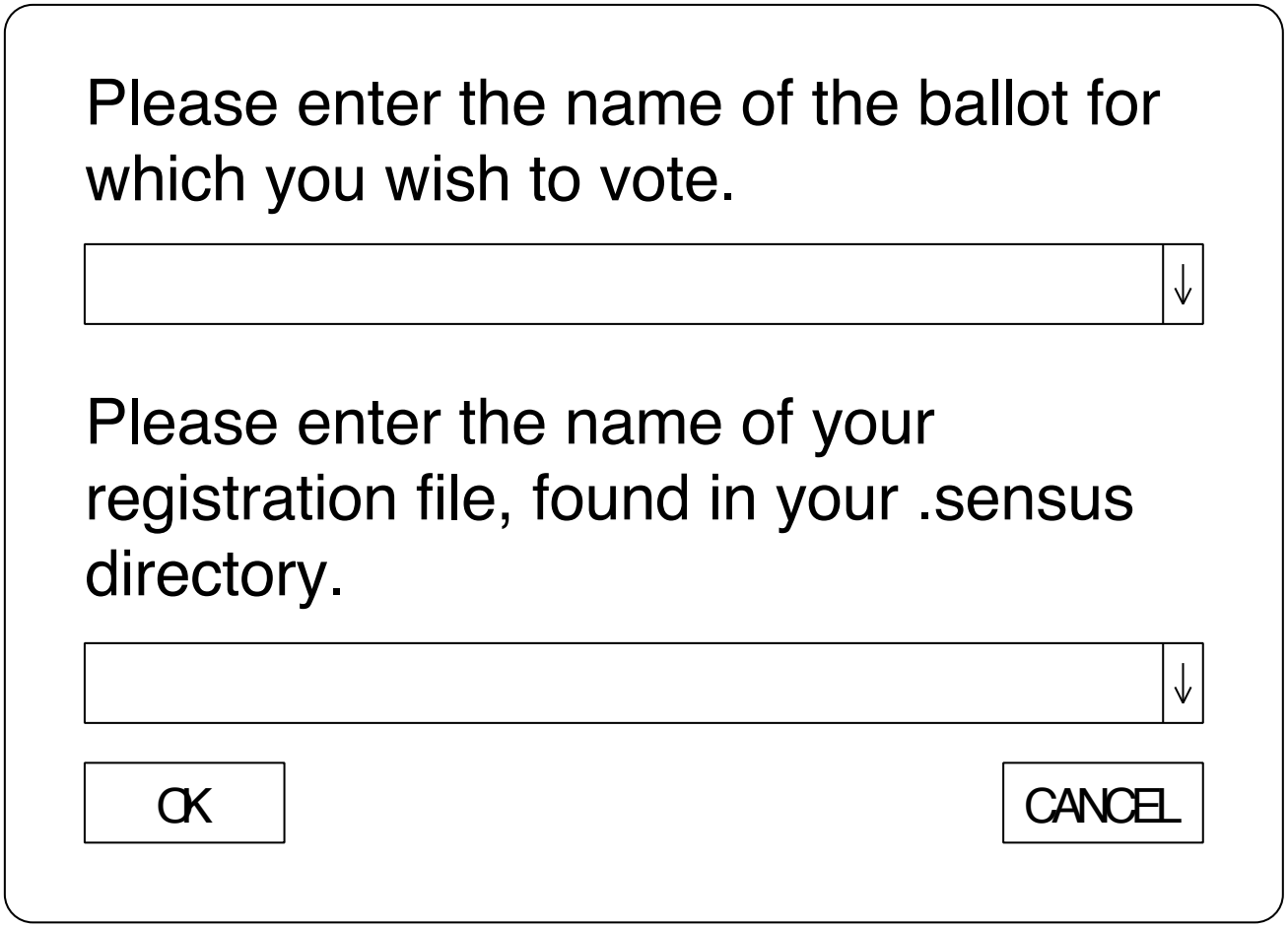
Select one command:

- [ ] View ballot questions and instructions
- [ ] Mark ballot

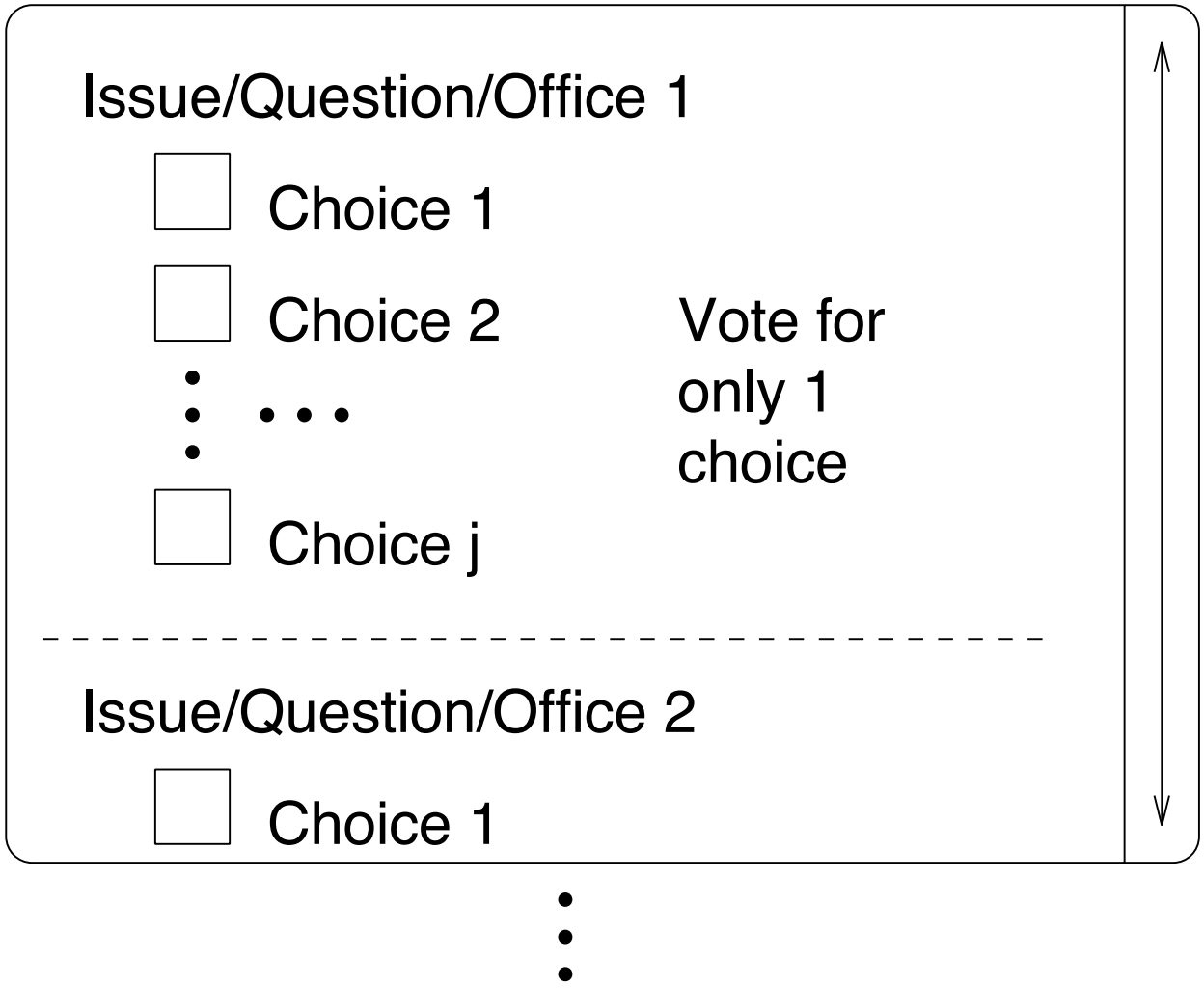
View Ballot 7



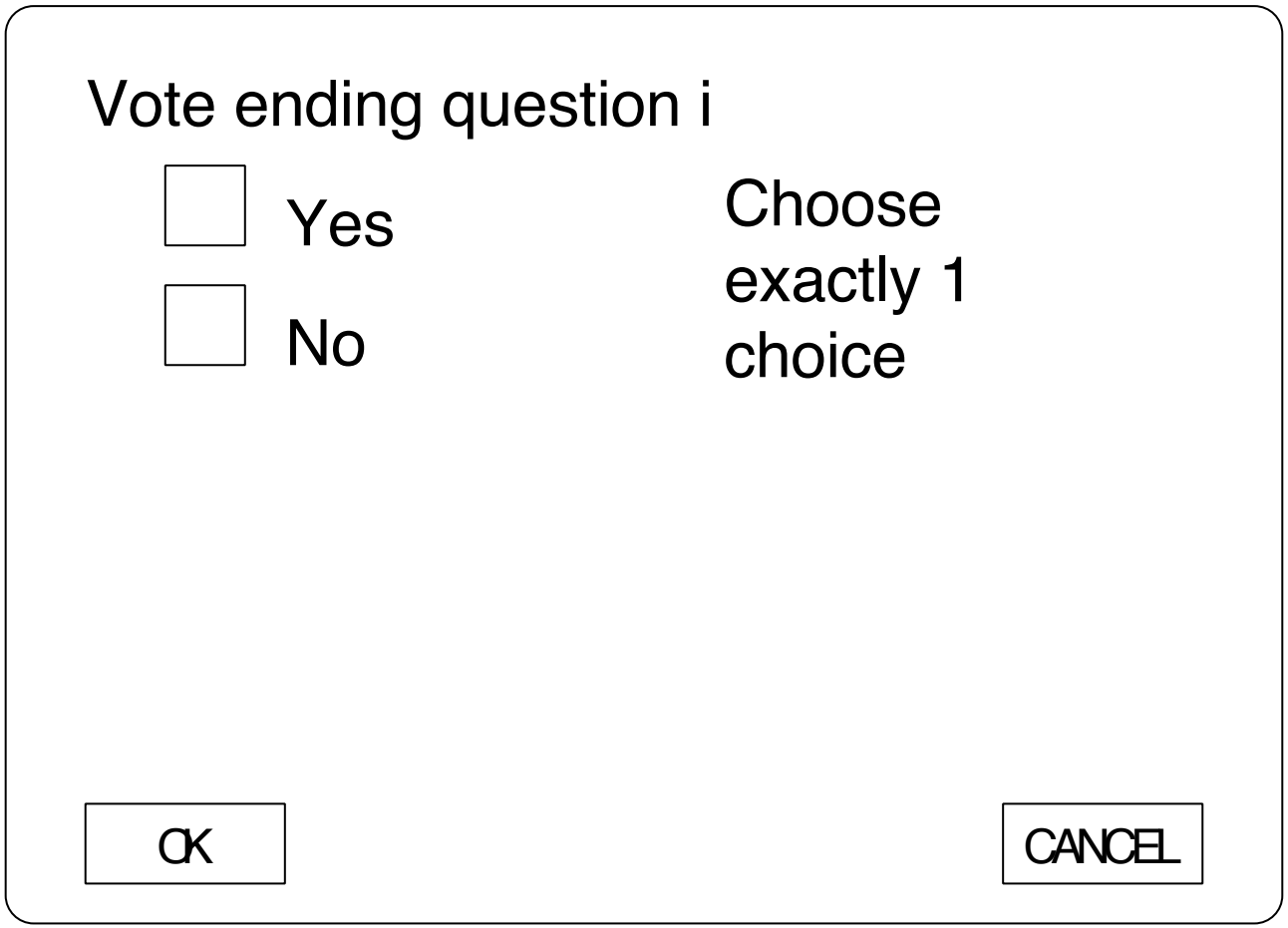
Name Ballot 8



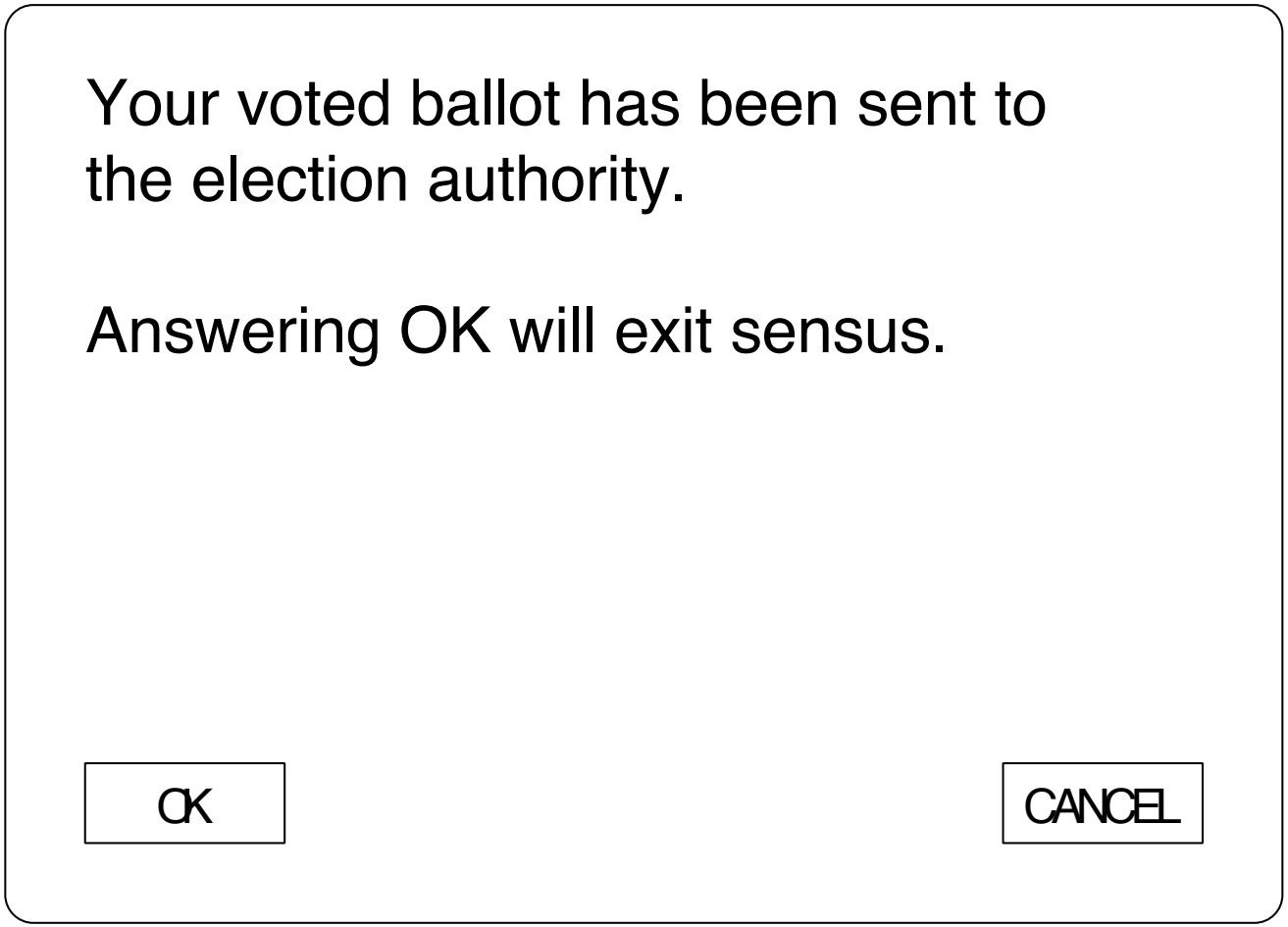
Display Ballot Question 9



Vote Ending Question 10



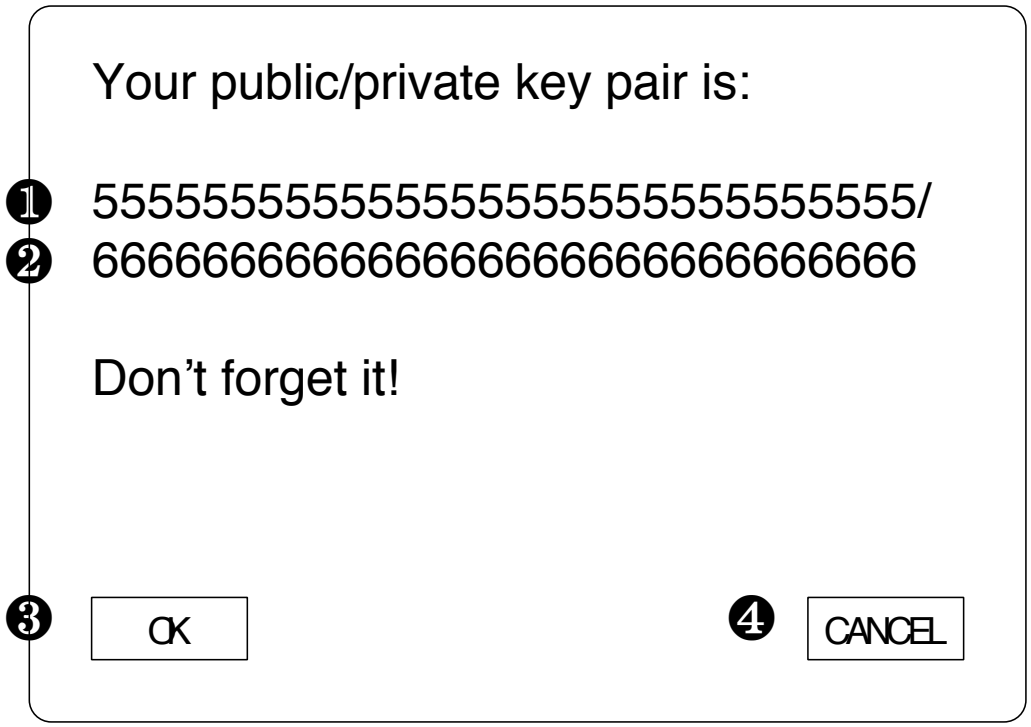
Voted Ballot Sent 11



Annotating Screens

- Annotate each UI widget (e.g., button, menu option)
- Describe the purpose of each UI widget
  - purpose of widget
  - effect of input event
- Describe effect of output events on window displays (1-2 line description)
- Describe how to navigate among windows

Example: Screen 2



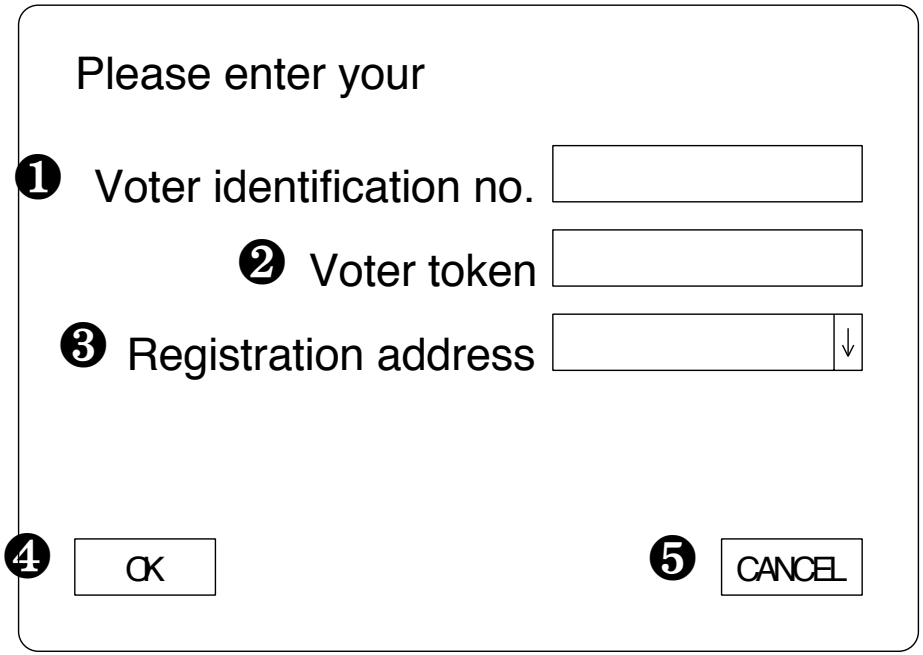
❶ **Public key (output text):** Voter's public key

❷ **Private key (output text):** Voter's private key

❸ **Ok button (input button):** moves the system to screen shot 3

❹ **Cancel button (input button):** moves the system to screen shot 1

Example: Screen 3



❶ **Voter Id no. text box (input text box)**: input field for voter id no.

❷ **Voter Token text box (input text box)**: input field for voter token

❸ **Registration address text box (input menu)**: pulldown list of possible registration addresses

❹ **Ok button (input button):** moves the system to screen shot 4 (if registering to vote) or screen shot 5 (if marking ballot).

❺ **Cancel button (input button):** moves the system to screen shot 1

GUI Dependent Annotations

GUI-dependent: annotate models directly with GUI events

- GUI events (e.g., button pressed) to trigger behaviour
- GUI actions (e.g., Display “OK”) as system reactions

The input events and transition actions in the Electronic Voting example are GUI dependent

GUI Independent Annotations

GUI-independent: annotate models with macro events and actions, which map indirectly to GUI events

- Declare macros for GUI events (e.g., button pressed)
- Declare macros for GUI actions (e.g., Display “OK”)
- Annotate models with macros

The screen outputs in the Electronic Voting example are GUI independent

GUI independent models take longer to create, but are easier to maintain (because changes to the GUI do not impact the model)

Summary

- Screen shots may be created using any method you like.
- Don’t get caught up with fancy features of a UI (e.g., colours, position on screen, type of button).
  - The screen shots in a UI specification are intended to show when different inputs are required and the form of the input (e.g., textbox, button, etc.)
  - Style will be added later in the product’s development.

Summary

- User Experience (EX) aims at the ultimate (visceral) positive reaction of users to products and companies
- Sketching enables rapid generation of alternative UI designs
  - Lots of ideas to work from
  - Multiple iterations and refinements
  - Active input from all stakeholders
- Mockups depict the essence of a solution, in terms of screen contents and navigation among screens.