CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 06:
Critique and
Task Analysis

James Fogarty
Eunice Jun
David Wang
Elisabeth Chin
Ravi Karkar

Tuesday / Thursday
10:30 to 11:50

Learning to Give and Receive Critique

You will learn to both give and receive critique

- Each is important
- Each is a skill developed through practice

Many activities will consist of group critiques

- Each group will present an artifact
- Other class members and staff will offer critique

Starting tomorrow with critique of
Assignment 2c: Design Research Check-In

Why Critique?

Critique helps evaluate early, often, and cheaply

- Applicable to artifacts of many types
- Compare to other expert inspection methods

You are not your own worst critic

- We collectively know more than any one of us
- It is hard to see past your own decisions
- Design requires getting past our own infatuation

A design can feel like our love, our baby…

Why Critique?

Critique is not just for design

- It applies to many artifacts and domains

Examples?

Why Critique?

Critique is not just for design

- It applies to many artifacts and domains

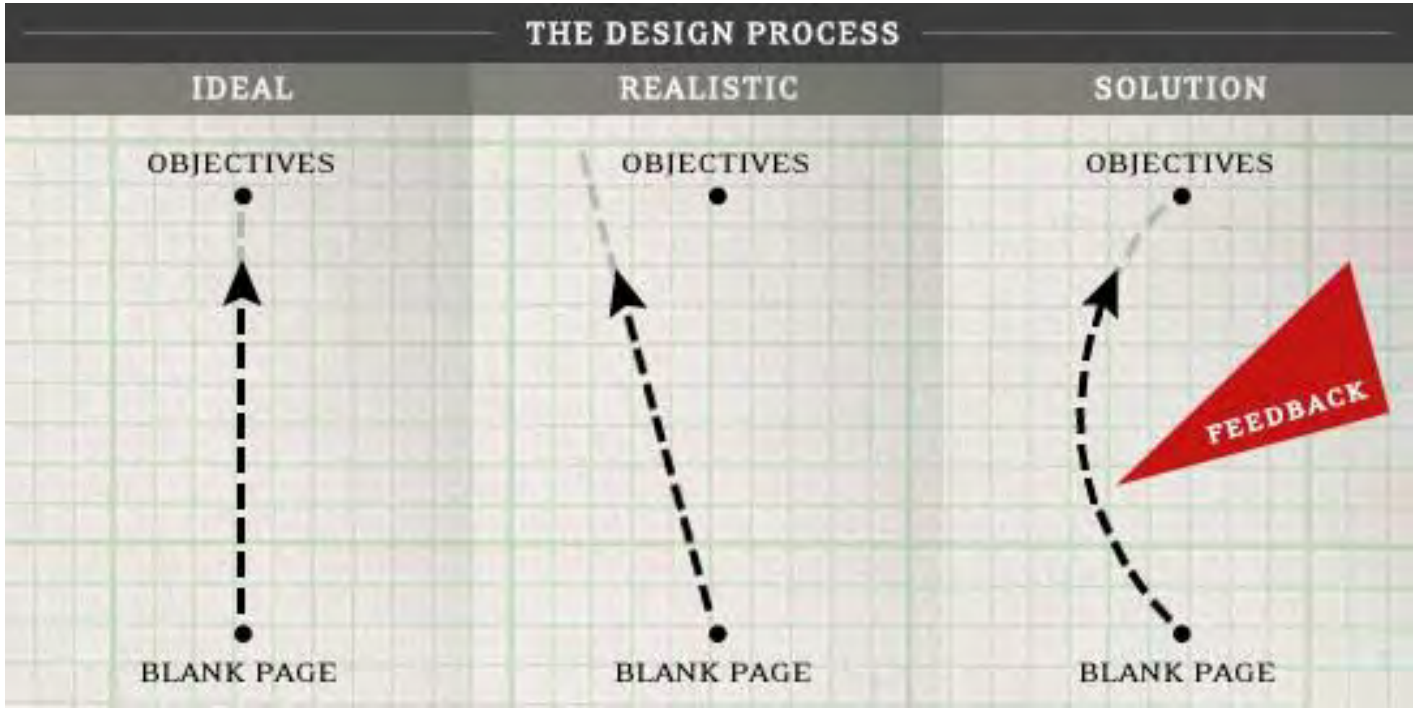
Examples?

- visual art, writing, design, code (i.e. code review)

Over time, you should gather people who can give you high-quality critique in everything you do

- You may meet some of those people in this class

Critique is About Improvement



http://alistapart.com/article/design-criticism-creative-process

What is Critique?

Critique is a method for feedback

It is not just a list of complaints

1. Presenters sit down with critics
2. Quickly explain their artifacts
   (e.g., less than 2 minutes)
3. Critics give feedback, ask questions
4. Presenters respond,
   take notes on what is discussed

Critique is Neither Criticism nor Design

Seriously, not just a list of complaints

Critics offer honest feedback

Both positive and negative

> Presenters should be able to learn *what works well* and *what is problematic* about their artifact

It is then presenter's responsibility to sort through feedback, decide what is important, how to act

> You must take notes for later review

Tips for Presenters

Critique can be hard, especially at first

Try to avoid being defensive

- You are not your work, separate yourself

Remember the expertise you bring

- Even if “the room” knows more about design, you know more about your problem / artifact and your rationale for the current design

Tips for Presenters

Taking advice is not giving up authorship

- You still make the final decisions
- A half-baked suggestion does not contain all the details of a finished solution

Design your critique

- What you show invites different forms of feedback
- Verbally indicate what kind of feedback you want, but also provide an artifact of appropriate form
- This course will guide you in a variety of forms

Tips for Presenters

- Keep an eye out for design rationale
  - You probably made some decisions without thinking through good reasons at the time
  - Critique can help give a rationalization for past decisions as you explain the artifact to others
- Exploit failure
  - A “failed” artifact should teach you about the design space, what won’t work, and why
  - The goal is to improve, this requires failure

Tips for Critics

There are many strategies for giving critique

- Hamburger method
- I like, I wish, what if
- Socratic method

These provide ways to give critique that can help the conversation go smoothly

- Can give you a question to ask when you do not have one, provide a way to ask that is productive and less likely to create defensive reaction

Tips for Critics: Hamburger Method

"Bun, meat, bun"

Bun:

Something fluffy and nice

Meat:

Criticism on how to improve

Bun:

Something fluffy and nice

Not a "shit sandwich"

Positives need to be genuine, enable learning from both positive and negative aspects of the artifact

Tips for Critics: I Like, I Wish, What If

I Like:

- Lead with something nice

I Wish:

- Some criticism, often leading from what you like

What If:

- An idea to spark further conversation, better than: “I think you should have…” or “Why didn’t you …”
- Gives the presenter benefit of the doubt if they did already think of your idea, can present rationale

Tips for Critics: Socratic Method

Identify an aspect of the design and ask “Why?”

- Can be good if unsure what else to say
- Forces presenter to give, or develop, explanations for design decisions, which can help build up the design rationale
- Not fundamentally negative, hard to get defensive

Tips for Critics

- Limit your use of personal pronouns (e.g., “you”)
  - Critique is about the artifact, not the designer
- A designer deserves honest feedback
  - Both positive and negative
  - Including clarity and rationale
- Help with actionable suggestions
  - But it is not your design
  - Perhaps several possible ways of thinking

Summary

- Fall out of love with the things you build
  - Let others help you see past the infatuation
- Get feedback early, often, and cheaply
- Focus on improvement
  - In brainstorming, we were not *criticizing*
  - In critique, we are not *defending*
- You will learn to both give and receive critique
  - If you are having difficulty, please come talk to us

Project Status

Looking Forward

- 2c: Design Research Check-In due Tonight
- 2d: Design Research Review due Tuesday 1/24
- 2e: Task Review due Friday 1/27
- 2f: Design Check-In (3x4) Due Tuesday 1/31
- 2g: Design Review (1x2) Due Friday 2/3

Other Assignments

- Readings to be Posted Soon

Design Research Reminders

- You are not doing science
  - You seek design insight, not knowledge or truth
- Do the best design work you can
  - May find that self-tracking is not the opportunity
  - We designed the project sequence, but be flexible
- Capture and keep your raw work products
  - Dedicate a note keeper, record if possible
  - Our collection is minimal, but you will want them

Structure of Section and Critique

Focus on peer feedback and learning

- Bring paper, keep the laptops put away
- Bring your artifacts, be ready to present them

Critique progression

- Reminder of your project
- What you have done
- What you have learned
  - about your project, about your method
- Your plan going forward
- Time for critique
- Questions you have for the group

Developing Insight Is Hard

Design research yields a lot of data

- Does not reduce to a statistical test

Need to get from data to design insight

But this is fundamentally difficult

Data

????

Insight

Affinity Diagrams

Generated during group session

Each observation, idea, note to a post-it

Notes are hierarchically organized into themes, based on project focus

Developing Models

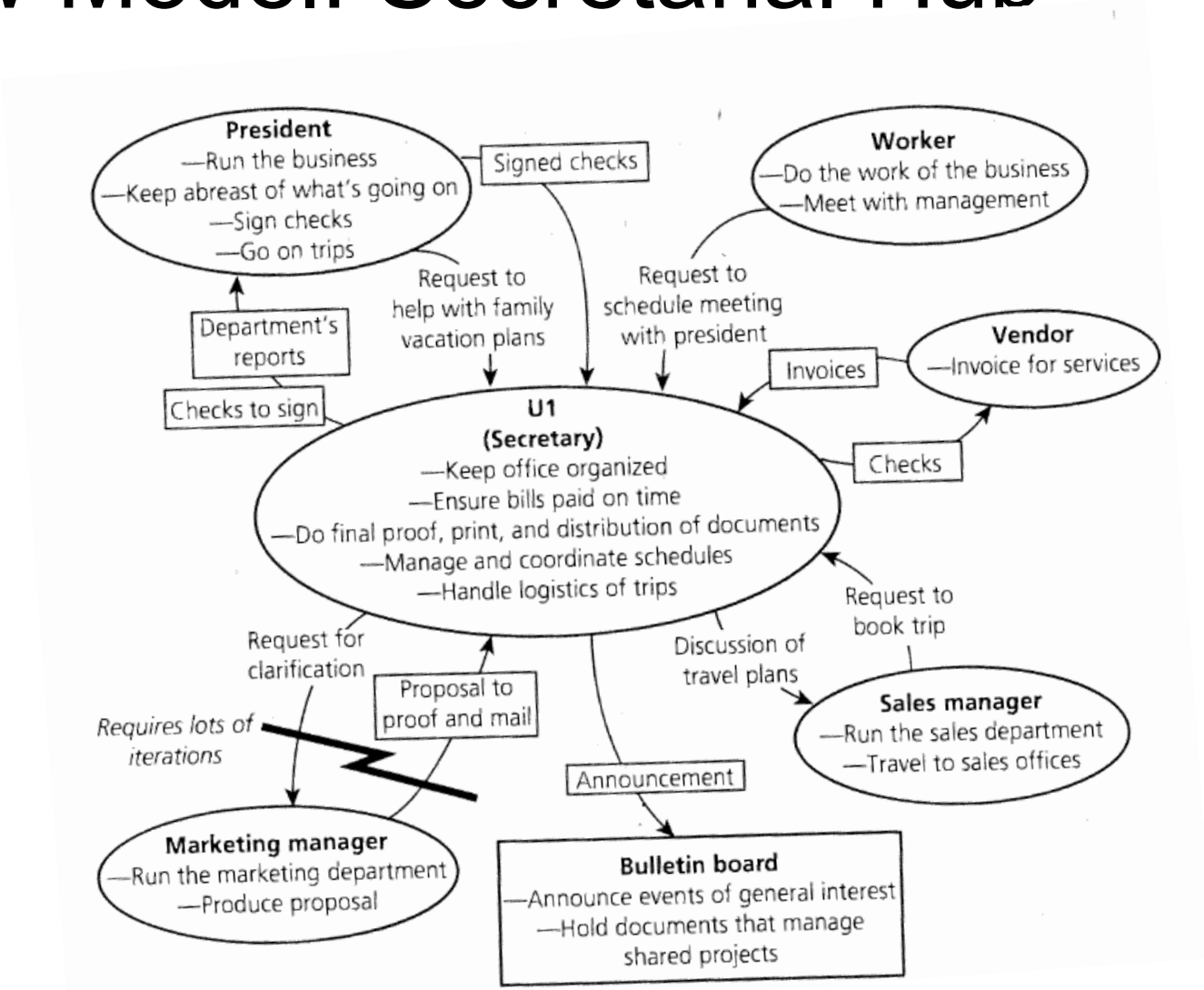
Distilling models that summarize data

- Highlights gaps in understanding
- Identify breakdowns and workarounds

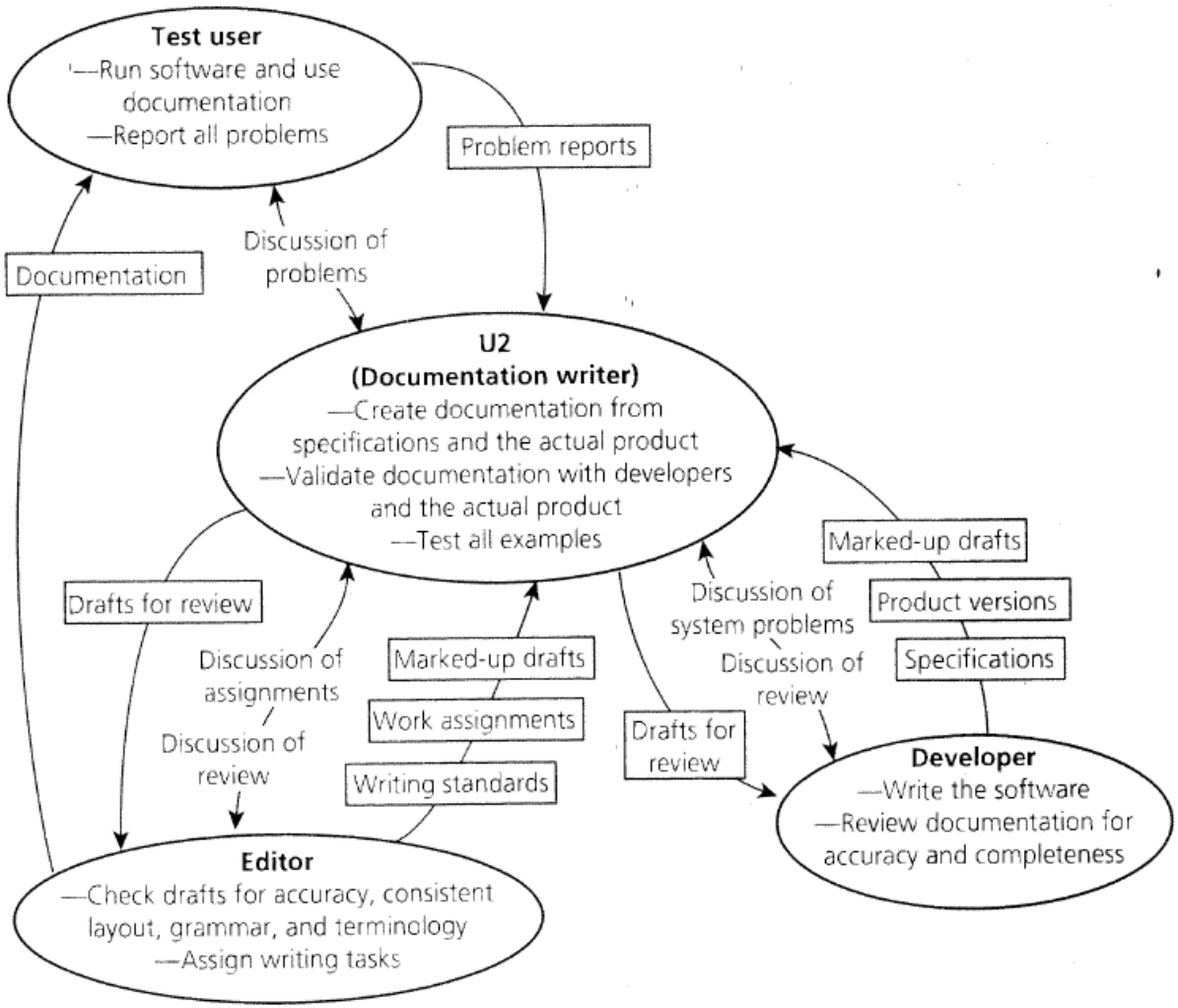
Many types of models

- e.g., Flow, Sequence, Artifact, Cultural, Physical
- None is perfect, they highlight different things

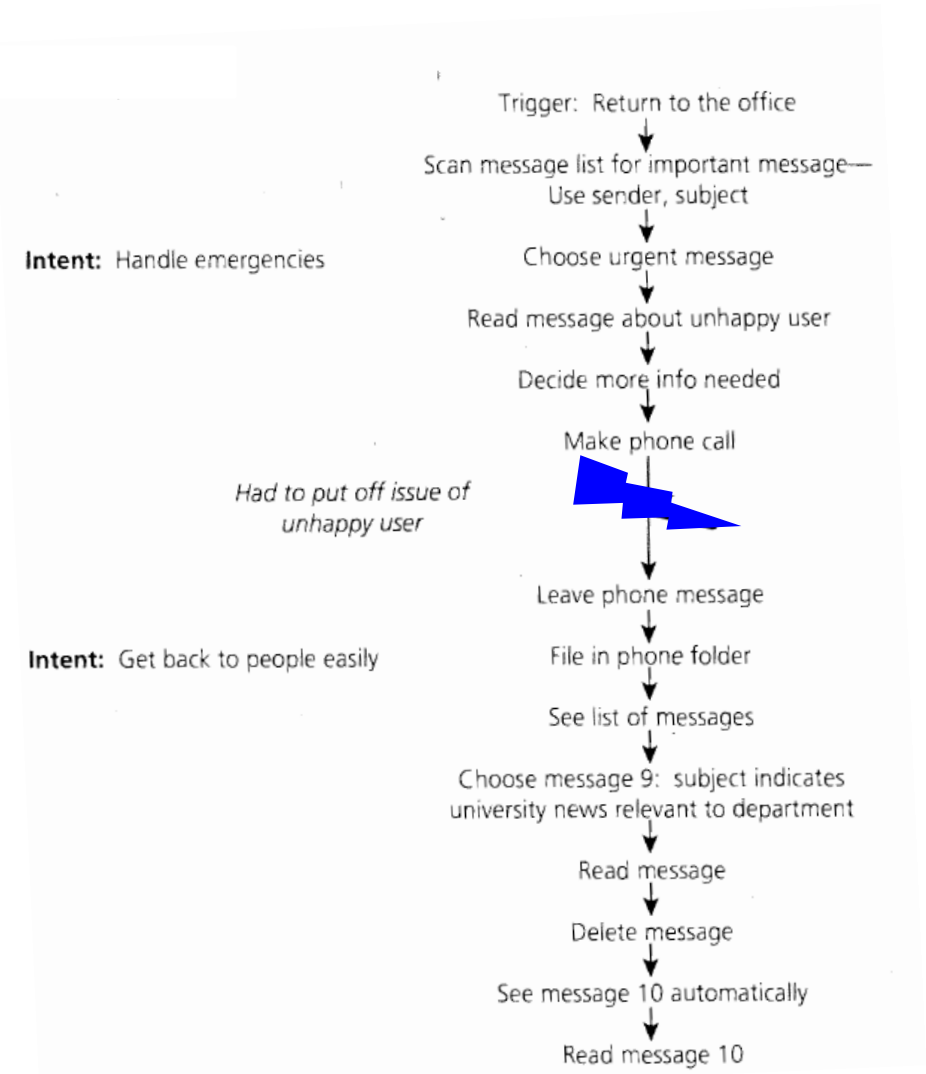
Flow Model: Secretarial Hub



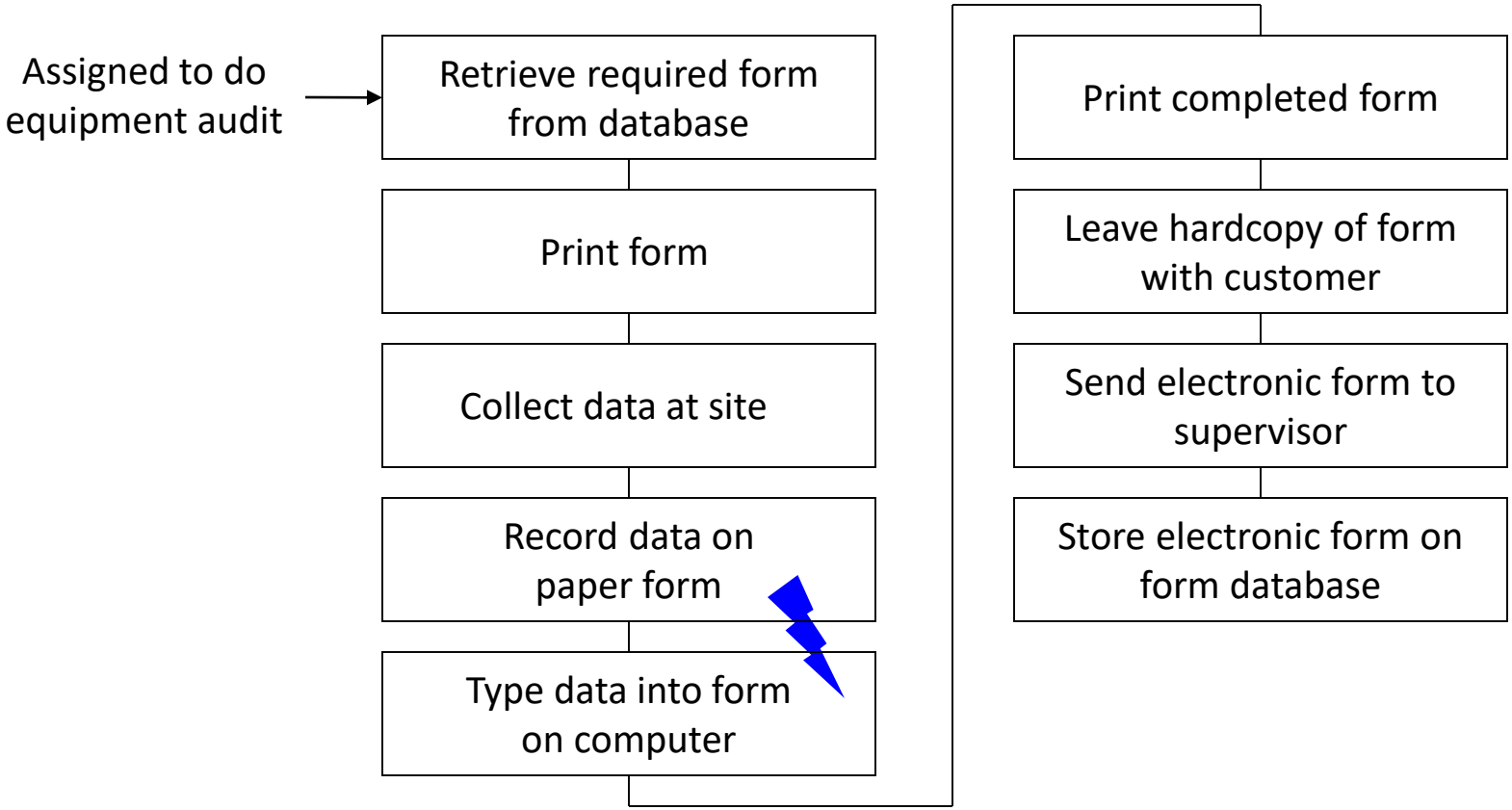
Flow Model: Creative Work



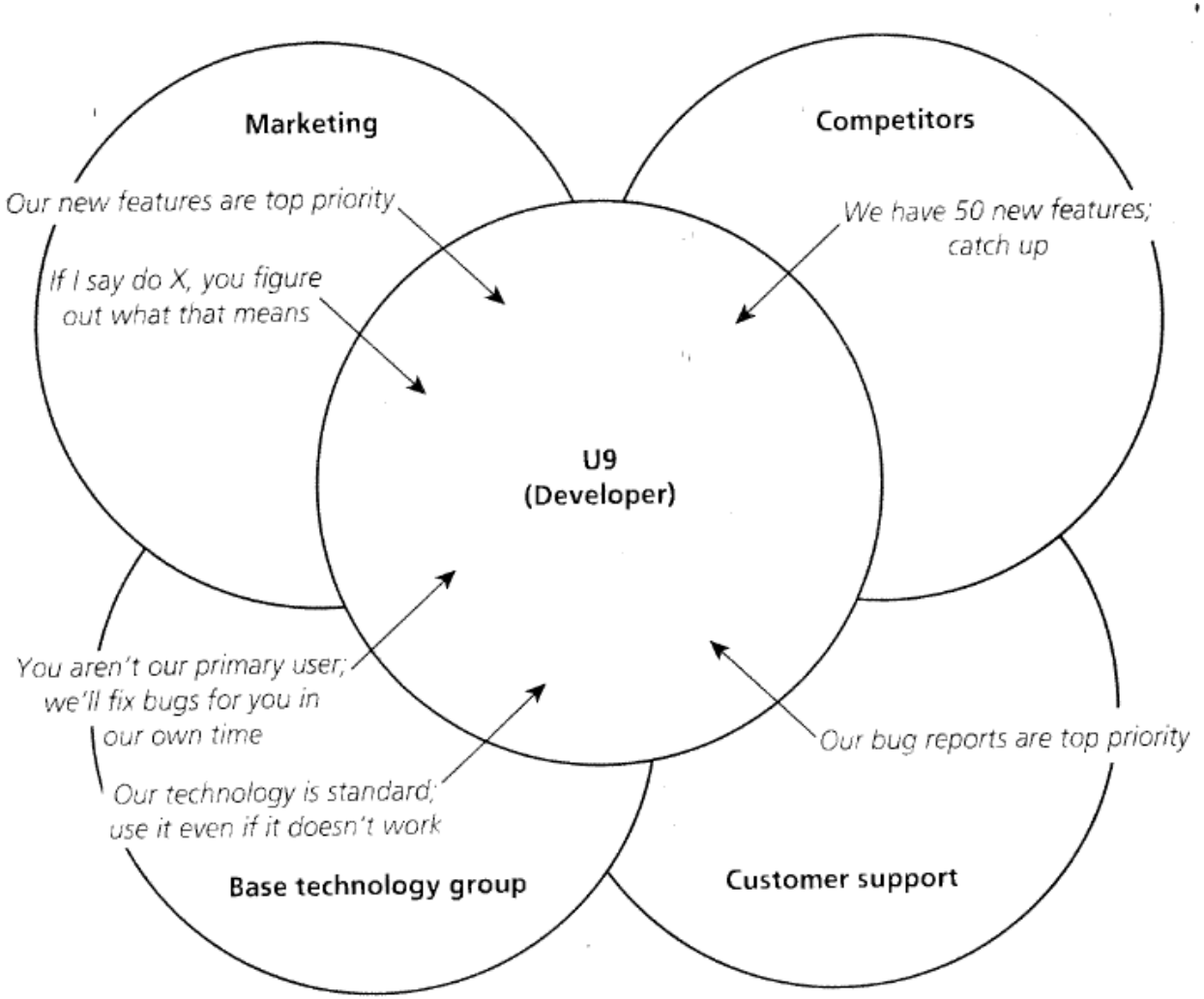
Sequence Model: Doing Email



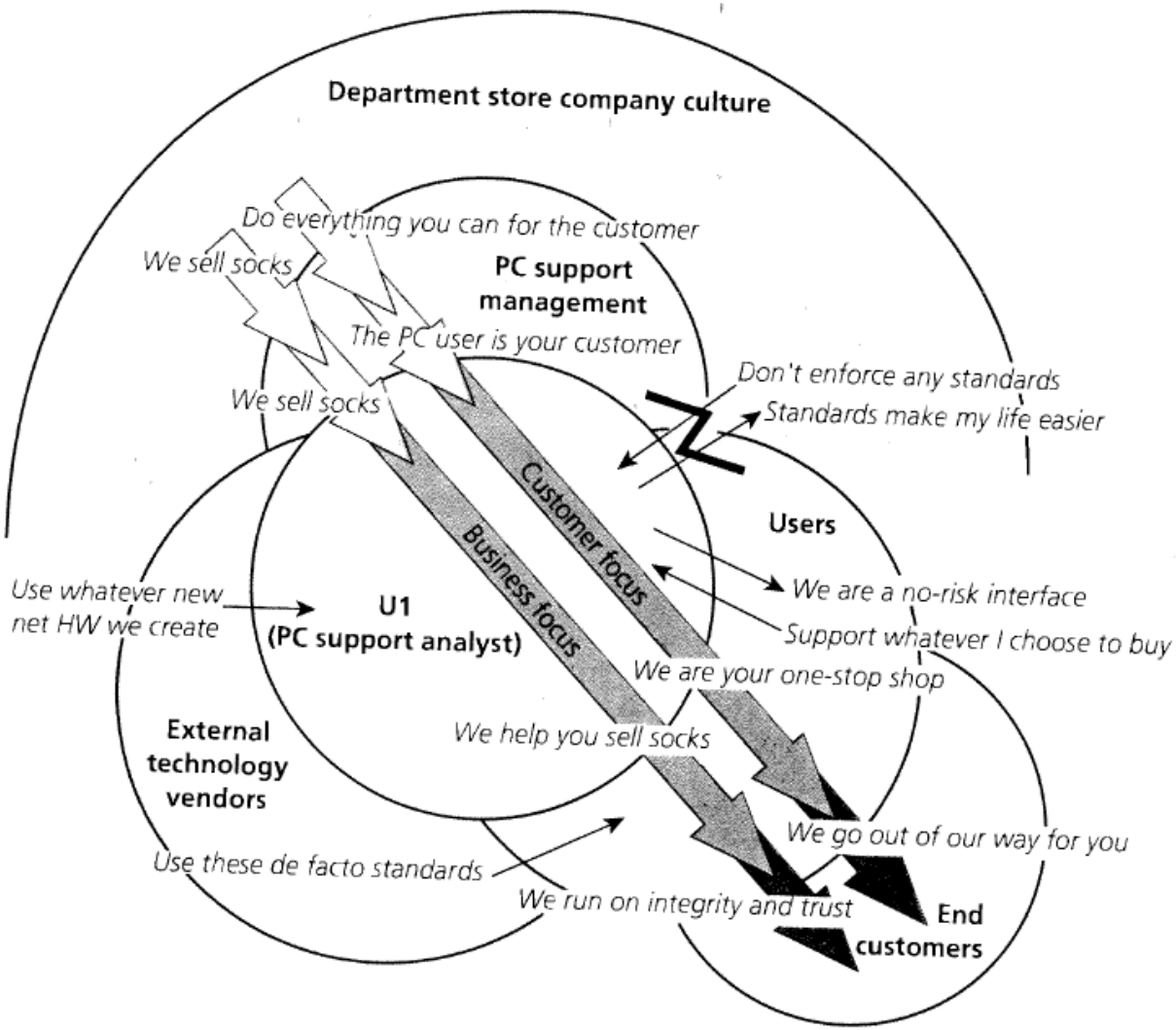
Sequence Model: Equipment Audit



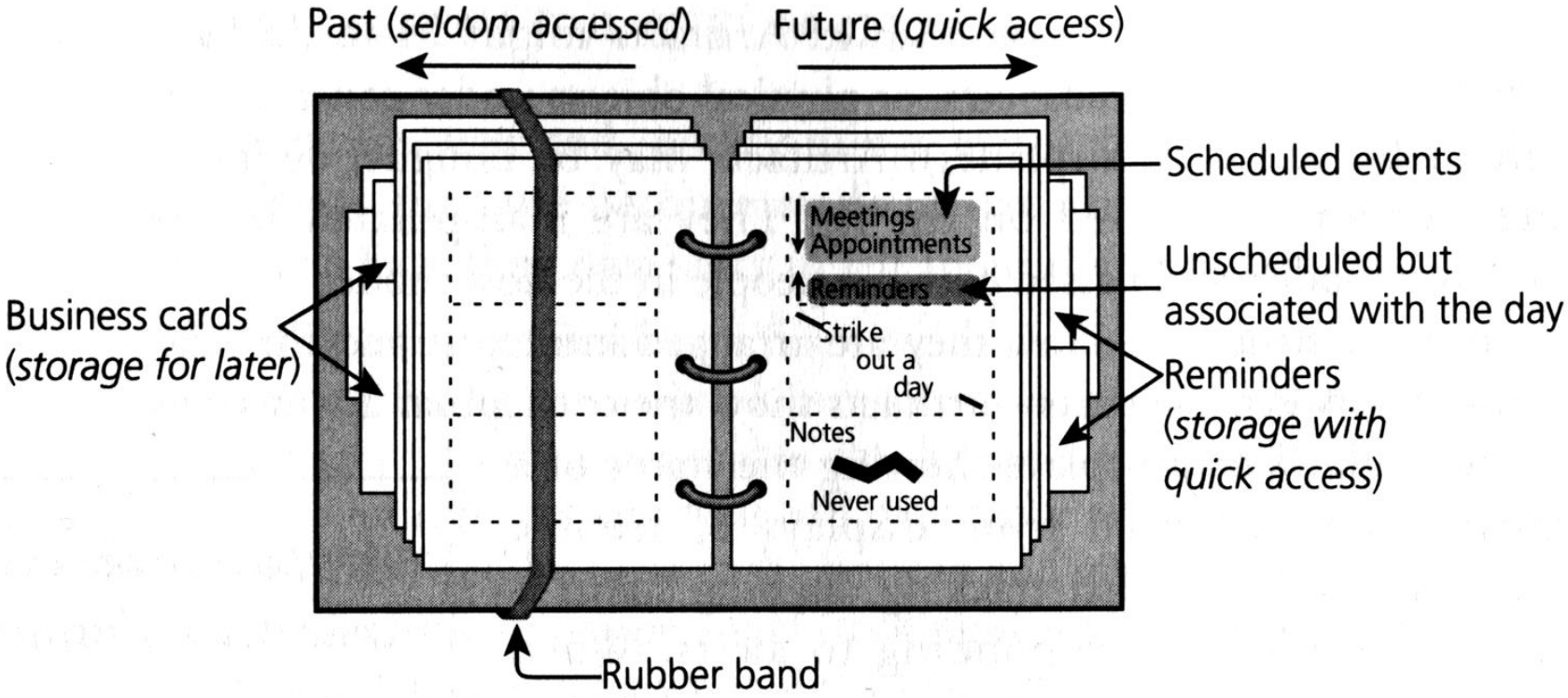
Cultural Model: Developer



Cultural Model: Department Store

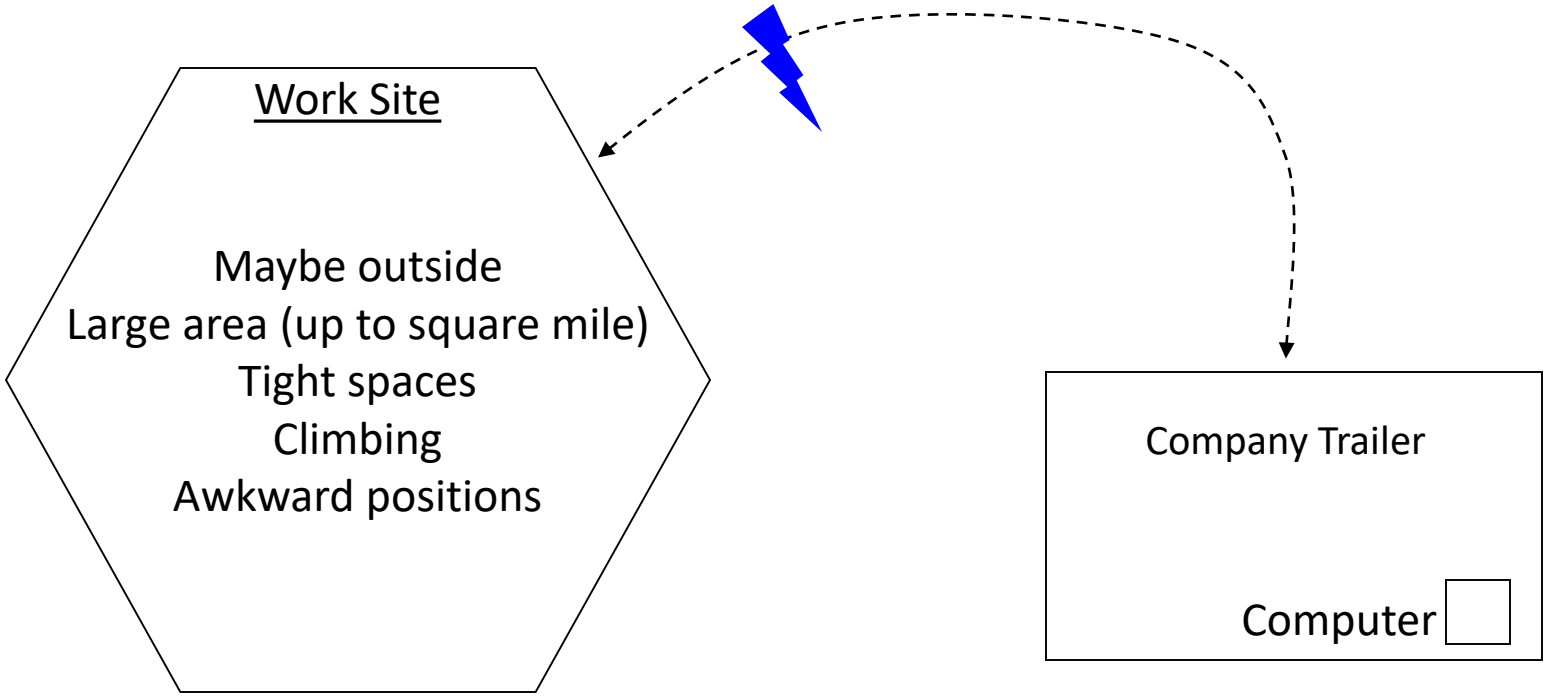


Artifact Model: Calendar



Physical Model: Work Site

Approximately a 5 minute walk. If doing an audit at a site under construction, then safe path frequently changes and may need to wait for construction equipment to pass.



Tasks Matter

System will fail if:

- It is inappropriate for the person
- It does not meet a person's needs

Your contextual inquiries will emphasize getting to know people and their needs

Can you then just make 'good' interfaces?

Why Task Analysis?

‘Good’ has to be interpreted in the context of use

- Might be acceptable in office, but not for play
- Infinite variety of tasks and customers

Guidelines are too vague to be generative

- e.g., “give adequate feedback”
- Can be used to critique, but not to generate

Design is often about tradeoffs

Why Task Analysis?

Task analysis is a lens on the information you obtain through design research methods

> Use what you learned in your research to answer the questions in the task analysis

Your assignments order the two, but in practice you should iteratively decide how to best draw upon all relevant methods throughout a process

11 Task Analysis Questions

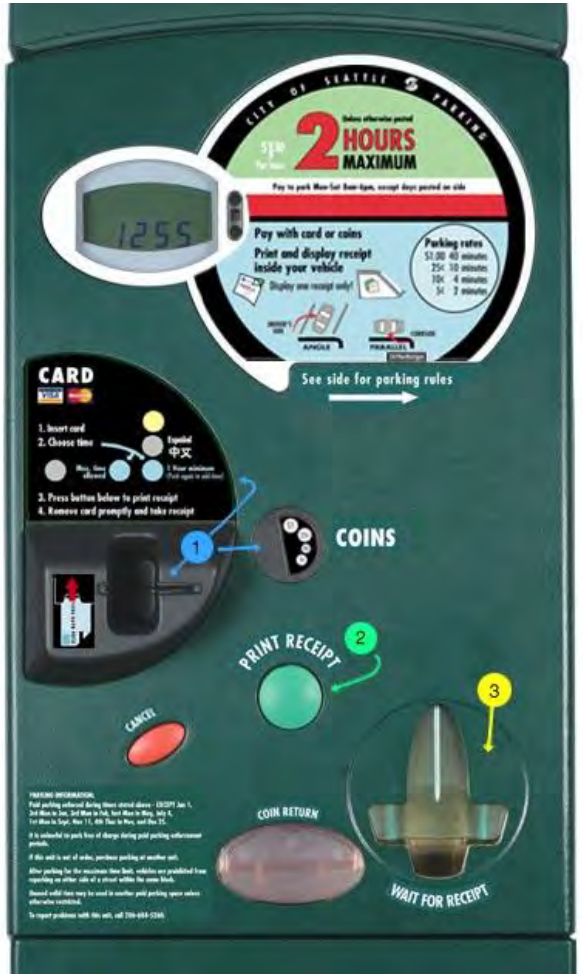
Who is going to use the system?
What tasks do they now perform?
What tasks are desired?
How are the tasks learned?
Where are the tasks performed?
What is the relationship between people & data?
What other tools do people have?
How do people communicate with each other?
How often are the tasks performed?
What are the time constraints on the tasks?
What happens when things go wrong?

Question 1

Who is going to use the system?

- Identity
  - In-house or specific customer is more defined
  - Broad products need several typical consumers
- Background
- Skills
- Work habits and preferences
- Physical characteristics and abilities


Cards
Coins


CITY OF SEATTLE PARKING
2 HOURS MAXIMUM
Pay with card or coins
Print and display receipt inside your vehicle
Parking rates
See side for parking rules
CARD
1. Insert card
2. Choose time
3. Press button below to print receipt
4. Remove card promptly and take receipt
COINS
PRINT RECEIPT
CANCEL
COIN RETURN
WAIT FOR RECEIPT

Seattle Parking Meter

Who is going to use the system?

Identity?

People who park in Seattle

Business people, students, elderly, tourists

Background?

Have used parking meters before

May have an ATM or credit card

Have used other fare machines before

Seattle Parking Meter

Who is going to use the system?

Skills?

May know how to put cards into ATM

Work habits and preferences?

Park several times a week, a month, a year

Physical characteristics and abilities?

Varying heights, do not make it too high or too low

Anything else?

PARK, PAY & DISPLAY

Parking Pay Station Instructions

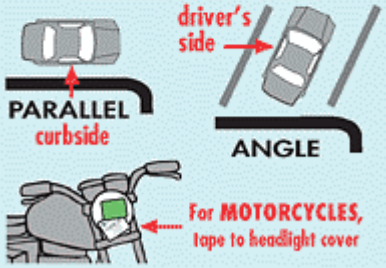
Insert card and push **BLUE** button to buy time **OR** **Insert coins** to buy time

Push **GREEN** button to print receipt

Remove card quickly wait for receipt and display properly

Display one receipt only to park in any meter or pay station space until your time expires

Use the removable backing to tape receipt to INSIDE of a front-seat side window



Questions? Call 684-ROAD (7623)
paystations@seattle.gov
SDOT
Seattle Department of Transportation

泊車、付款並顯示

泊車付費站使用說明

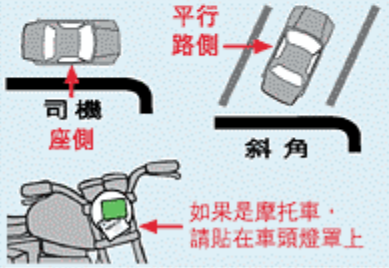
插入卡並按藍色按鈕購買時間，或投入硬幣購買時間

按**綠色**按鈕打印收據

迅速將卡取出等候收據並適當顯示

僅限顯示一張收據，以便在任何眯表或付費站的車位泊車，直到您的時間到期

請使用可剝離的背面，將收據貼在前座側車窗內側



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ĐẬU XE, TRẢ TIỀN & DÁN BIÊN NHẬN

Hướng Dẫn về Trạm Trả Tiền Đậu Xe

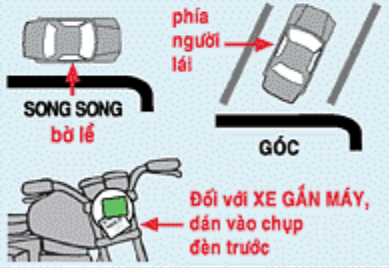
Đút thẻ vào và bấm nút **XANH** để mua giờ **HOẶC** **Bỏ tiền các** để mua giờ

Bấm nút **XANH** để in biên nhận

Rút nhanh thẻ ra chờ biên nhận và dán đúng cách

Chỉ dán một biên nhận để đậu xe tại bất cứ chỗ nào có đồng hồ hoặc trạm trả tiền cho đến khi hết giờ đậu

Dùng miếng dán mặt sau có thể gỡ ra để dán biên nhận vào MẶT TRONG cửa kính bằng trước



Thắc Mắc? Hãy gọi số 684-ROAD (7623)
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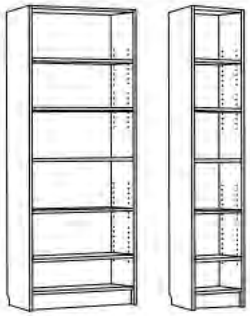
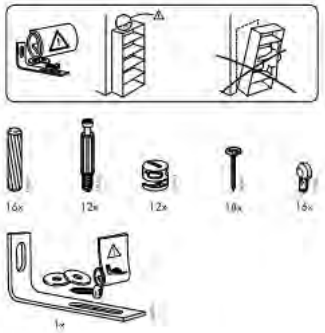
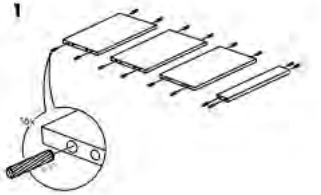
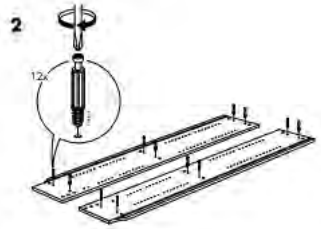
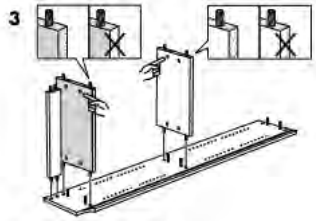
BILLY

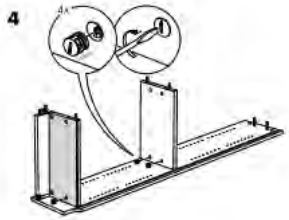


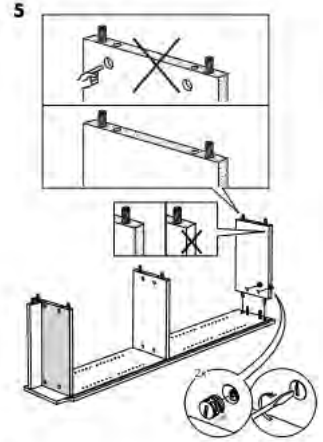


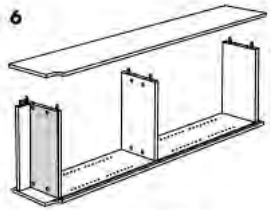


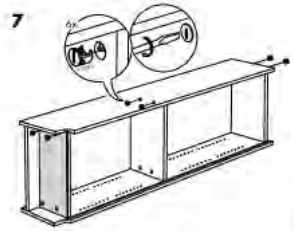


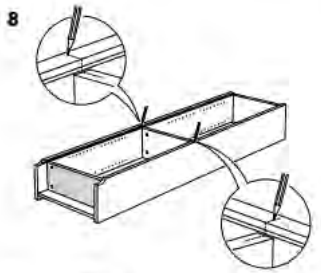


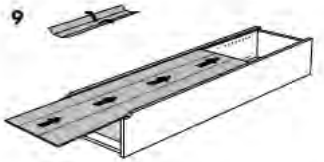


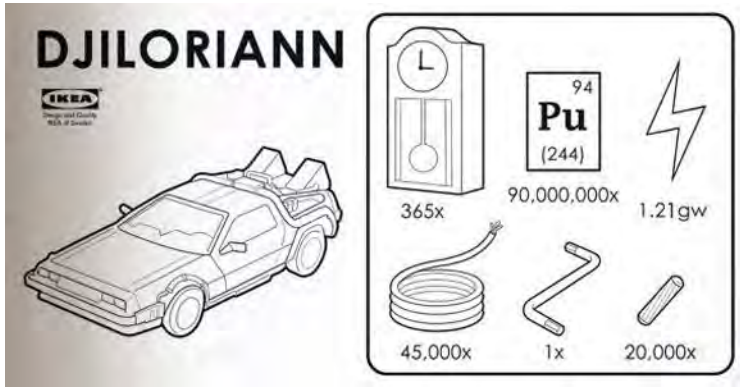








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1x
20,000x


HÖUSS
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1x
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7,450x
1x
1x

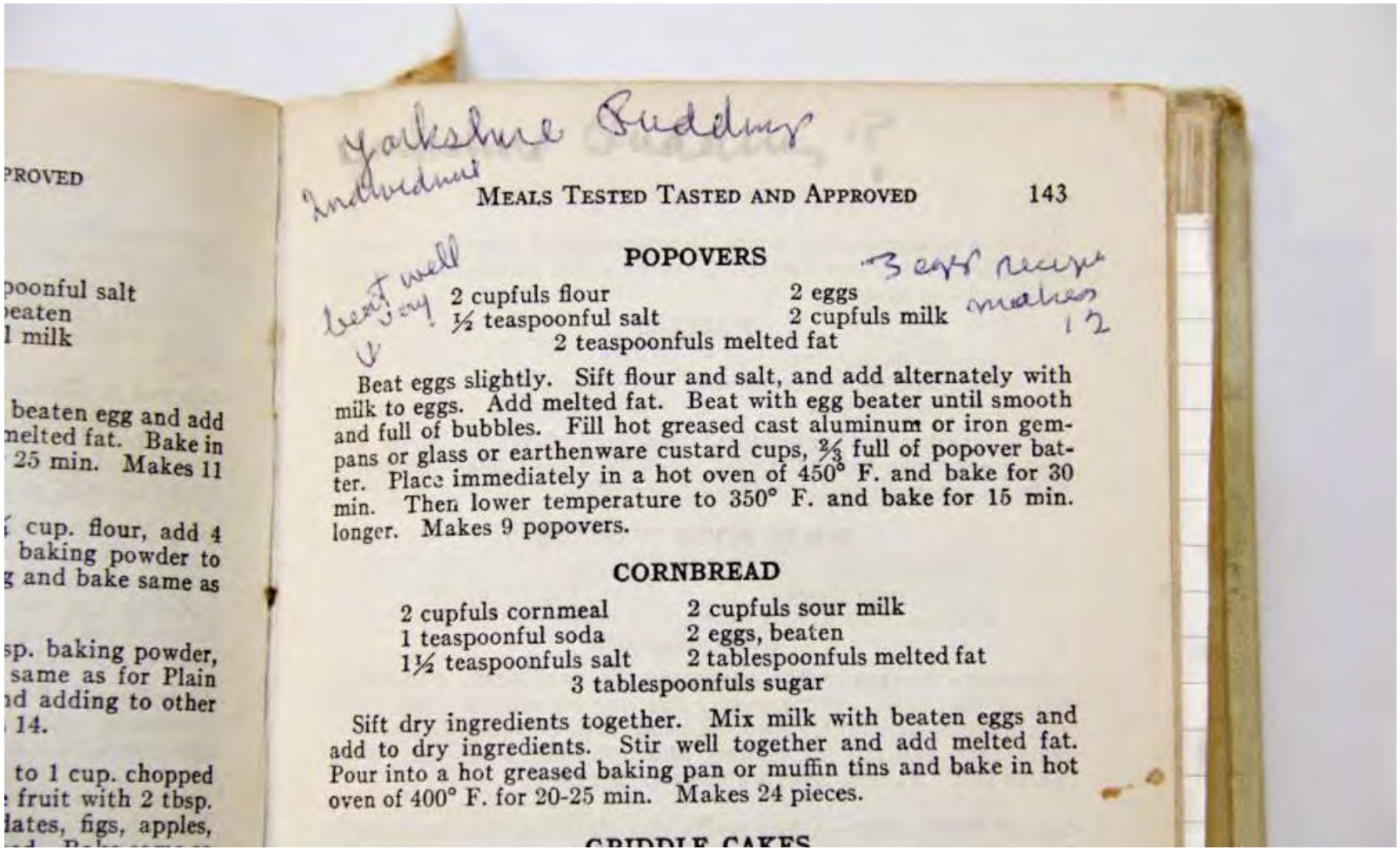
Question 2 and Question 3

What tasks do they now perform?
What tasks are desired?

Important for both automation and new functionality
Relative importance of tasks?
Observe people, see it from their perspective

Automated Billing Example

small dentists office had billing automated
assistants were unhappy with new system
old forms contained hand-written margin notes
e.g., patient's insurance takes longer than most



poonful salt
eaten
l milk

beaten egg and add
melted fat. Bake in
25 min. Makes 11

cup. flour, add 4
baking powder to
and bake same as

sp. baking powder,
same as for Plain
d adding to other
14.

to 1 cup. chopped
fruit with 2 tbsp.
lates, figs, apples,

Yorkshire Puddings
Individual

POPOVERS

3 eggs recipe makes 12

beat well

2 cupfuls flour
½ teaspoonful salt
2 eggs
2 cupfuls milk
2 teaspoonfuls melted fat

Beat eggs slightly. Sift flour and salt, and add alternately with milk to eggs. Add melted fat. Beat with egg beater until smooth and full of bubbles. Fill hot greased cast aluminum or iron gem-pans or glass or earthenware custard cups, ⅔ full of popover batter. Place immediately in a hot oven of 450° F. and bake for 30 min. Then lower temperature to 350° F. and bake for 15 min. longer. Makes 9 popovers.

CORNBREAD

2 cupfuls cornmeal
1 teaspoonful soda
1½ teaspoonfuls salt
2 cupfuls sour milk
2 eggs, beaten
2 tablespoonfuls melted fat
3 tablespoonfuls sugar

Sift dry ingredients together. Mix milk with beaten eggs and add to dry ingredients. Stir well together and add melted fat. Pour into a hot greased baking pan or muffin tins and bake in hot oven of 400° F. for 20-25 min. Makes 24 pieces.

GRIDDLE CAKES

Question 4

How are the tasks learned?

What does a person need to know?

Do they need training?

academic

general knowledge / skills

special instruction / training

Question 5

Where are the tasks performed?

Office, laboratory, point of sale?

Effects of environment on customers?

Are people under stress?

Confidentiality required?

Do they have wet, dirty, or slippery hands?

Soft drinks?

Lighting?

Noise?

Question 6

What is the relationship between people & data?

Personal data

Always accessed at same machine?

Do people move between machines?

Common data

Used concurrently?

Passed sequentially between customers?

Remote access required?

Access to data restricted?

Does this relationship change over time?

Question 7

What other tools does a person have?

More than just compatibility

How customer works with collection of tools

Automating lab data collection example:

how is data collected now?

by what instruments and manual procedures?

how is the information analyzed?

are the results transcribed for records or publication?

what media/forms are used and how are they handled?

Question 8

How do people communicate with each other?

Who communicates with whom?

About what?

Follow lines of the organization? Against it?

Question 9

How often are the tasks performed?

Frequent use likely remember more details

Infrequent use may need more help

Even for simple operations

Make these tasks possible to accomplish

Which function is performed

Most frequently?

By which people?

Optimizing for these will improve perception of performance

Careful about initial use scenario

Question 10

What are the time constraints on the tasks?

What functions will people be in a hurry for?

Which can wait?

Is there a timing relationship between tasks?

e.g., pregnancy in web search

Question 11

What happens when things go wrong?

How do people deal with

task-related errors?

practical difficulties?

catastrophes?

Is there a backup strategy?

What are the consequences?

Plantr Task Analysis

1. Who is going to use the system?

Anyone who owns indoor plants is a potential user of Plantr. All of the plant owners that we interviewed forgot to water their plants at some point regardless of age, experience, and background. Even Lucy, who spent most of her time at home because she worked from home, struggled with timely watering.

Plantr Task Analysis

2. What are the currently possible tasks?

When people purchase a plant, they often look up information about the proper lighting and temperature conditions for their plants. Additionally, people must find out how much and how frequently to water and fertilize their plants.

Plantr Task Analysis

3.What are currently unavailable, desired tasks?

People want a way to remember to water and care for their plants. Forgetting to water plants was the most cited reason for plant death, and the only task that participants in our inquiries mentioned completing on a regular basis.

Plantr Task Analysis

4.How are tasks learned?

Most people learned how to take care of their plants through trial and error. Some consulted the Internet, nursery staff, or friends for more information on plant care.

Plantr Task Analysis

5.Where are the tasks performed?

Tasks like watering and fertilizing are performed at the plant's location. People keep plants in their workplace, like Jack, or at home, like Lucy and Caroline. Getting information about plant care was performed in a variety of places. People who consult the Internet could be anywhere with a platform that supports web browsing. Those who go to the nursery to talk to plant experts are required to go to a specific location to talk to someone in person.

Plantr Task Analysis

6.What is the relationship between a person and data?

We identified three different types of data: a plant's current state, information about plants, and data that reflects the person's plant care history.

A plant's current state is data on the moisture level of its soil and the general appearance of the plant (e.g., color, stiffness/limpness of leaves). People use this information to determine the plant's needs. Caroline and Lucy watered their plants when the soil felt dry or the leaves began to droop.

Plantr Task Analysis

6.What is the relationship between a person and data?

People consulted various plant care information databases when they wanted to know how to care for their plants.

People used their personal history of plant care to determine how to take care of plants. Caroline said that she used to underwater plants, but she learned from her mistake and now tries to water them more often. People also base their buying decisions based upon their plant care history. Caroline noted that she tries to buy plants that require minimal water.

Plantr Task Analysis

7.What other tools do people have?

Caroline, Lucy, Jack, and Kacy all have phones and computers.
People also have a water source, pots, and soil for their plants.
Most people probably have access to a nursery or library.

Plantr Task Analysis

8.How do people communicate with each other?

Plant owners communicate on online forums and message boards. People who happen to be in the nursery at the same time might talk to each other about plant care. Likewise, people who have friends with indoor plants may share plant care tips.

Plantr Task Analysis

9.How often are the tasks performed?

Watering is performed with a frequency between twice a week (Jack) and twice a month (Caroline). Fertilizing is performed less frequently, between once every two weeks to once every three months. Plants do not become sick often enough to make a good estimate about how often people try to get help.

Plantr Task Analysis

10. What are time constraints on the tasks?

Plants must be watered with some regularity, so if people do not water their plants for long enough, the plants will start to die. Likewise, if plants are in need of attention for other reasons - pH imbalance, environment too dry - and they do not receive attention within some amount of time, they will die. Watering, caring, and learning how to care for a plant takes time. People who are very busy might not have the time or attention required for plant care.

Plantr Task Analysis

11. What happens when things go wrong?

When plants became "sick", people take action, seek help, or ignore the problem until the plant dies. When people forget to water plants, they usually notice that the plant needs water and give it water. Sometimes people may not realize that a plant needs water until it is too late.

Selecting Tasks

Real tasks people have faced or requested

- collect any necessary materials

Should provide reasonable coverage

- compare check list of functions to tasks

Mixture of simple and complex tasks

- easy tasks (common or introductory)
- moderate tasks
- difficult tasks (infrequent or for power use)

What Should Tasks Look Like?

- Say what person wants to do, but not how
  - allows comparing different design alternatives
- Be specific, stories based in concrete facts
  - say who person is (e.g., using personas or profiles)
    - design can really differ depending on who
    - give ‘names’ (allows referring back with more info later)
    - characteristics of person (e.g., job, expertise)
  - story forces us to fill in description with details
- Sometimes describe a complete “accomplishment”
  - forces us to consider how features work together

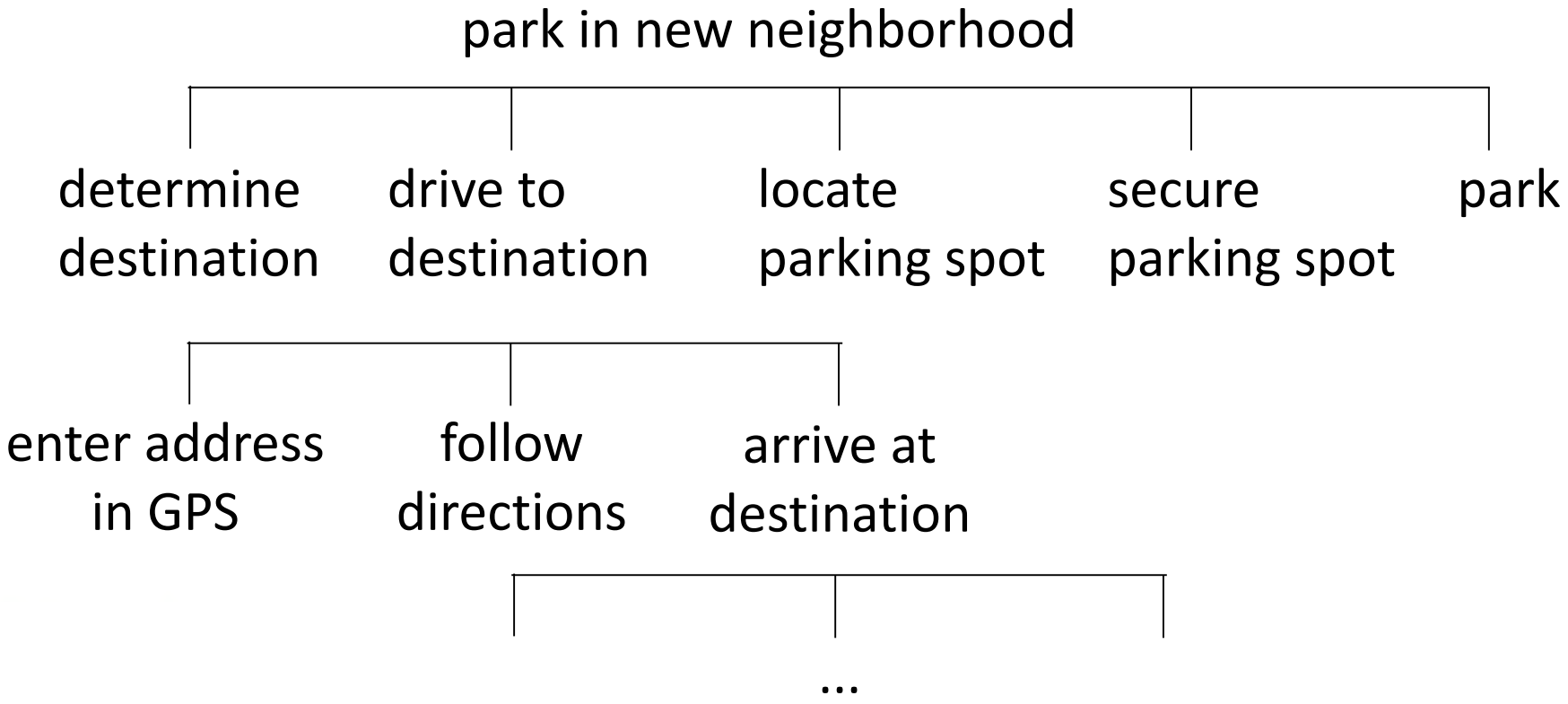
filename task example

Task: Park in a New Neighborhood

Peter is going to brunch on a Sunday with his roommates. He is trying a new place he found on Yelp. He has the address for the place and he is using his phone's GPS for directions. He leaves the apartment with his roommates at 8:30am and he wants to beat the crowd so they won't have to wait in line. He is driving a Toyota Corolla that he has owned for five years. It is a rainy day and he doesn't have an umbrella.

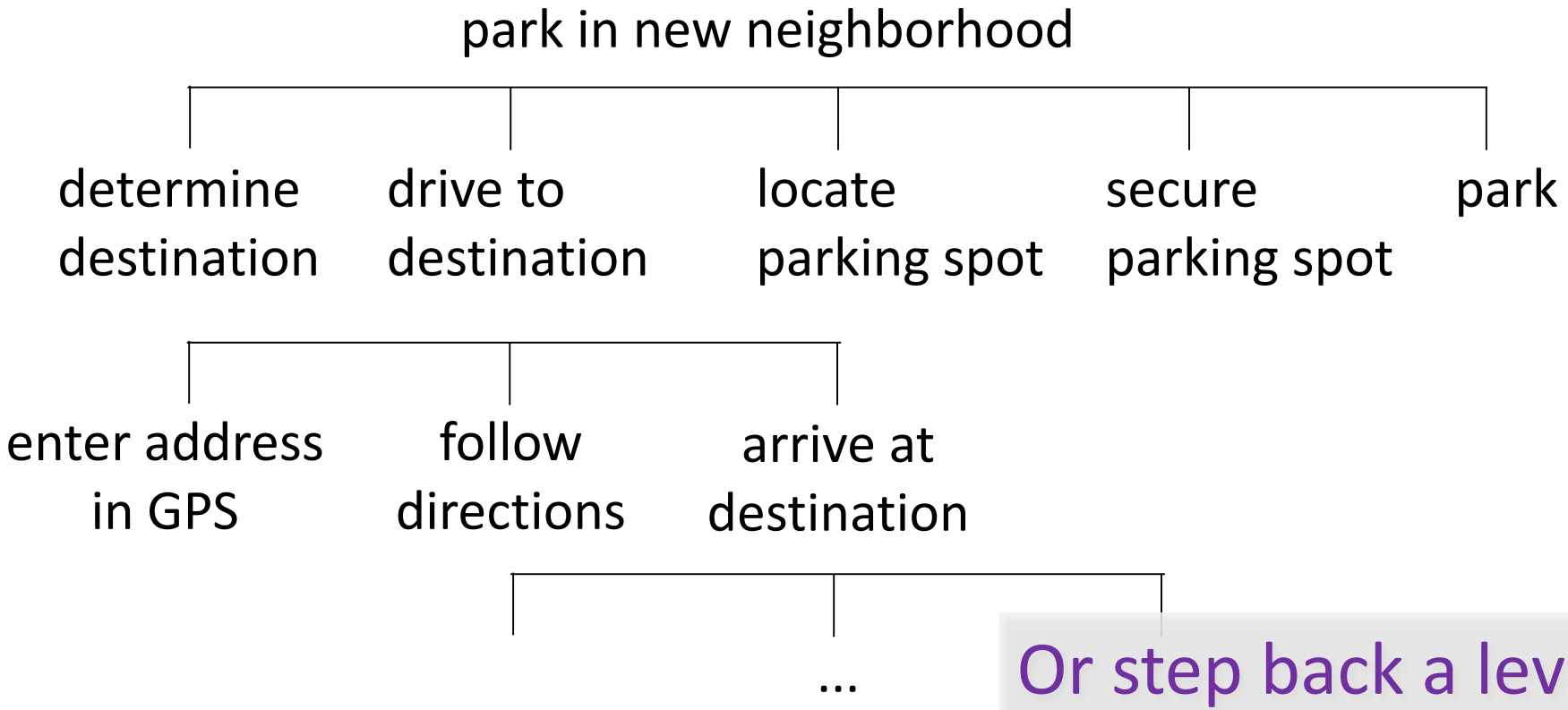
Hierarchical Task Analysis

Steps of the task execution (detailed in a hierarchy)



Hierarchical Task Analysis

Steps of the task execution (detailed in a hierarchy)



Using Tasks in Design

Write up a description of tasks

formally or informally

run by people and rest of the design team

get more information where needed

Manny is in the city at a restaurant and would like to call his friend Sherry to see when she will be arriving. She called from a friend's house while he was in the bus tunnel, so he missed her call. He would like to check his missed calls and find the number to call her back.

Using Tasks in Design

Rough out an interface design

discard features that do not support your tasks

or add a real task that exercises that feature

major elements and functions, not too detailed

hand sketched

Produce scenarios for each task

what person does and what they see

step-by-step performance of task

illustrate using storyboards

Scenarios

Scenarios are design specific, tasks are not

Scenarios force us to

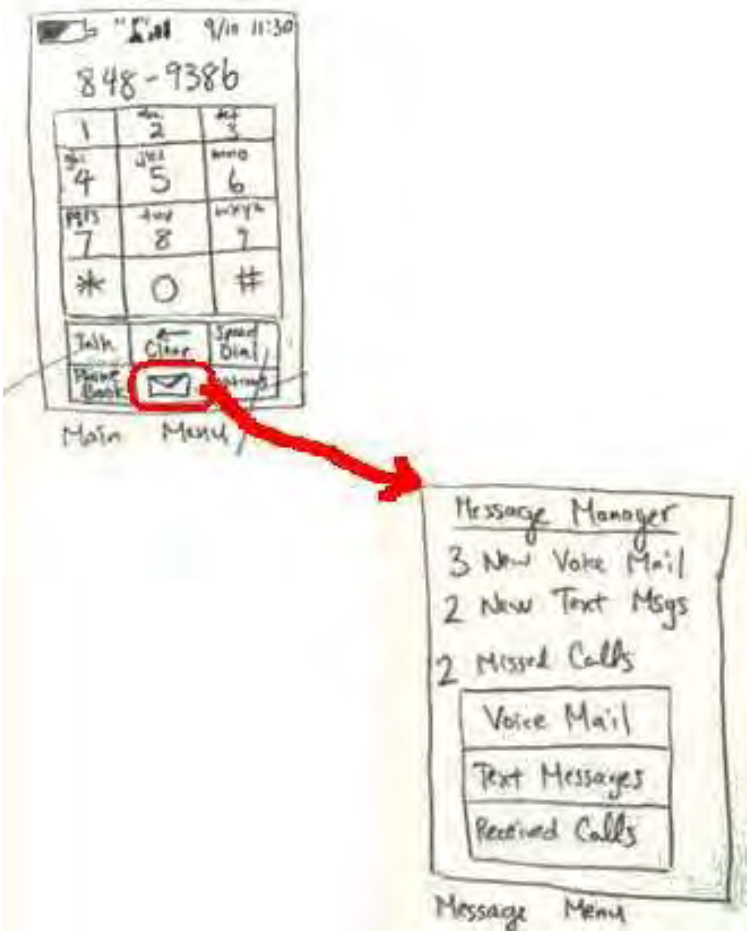
show how things work together

settle arguments with examples

but these are only examples,
and may need to look beyond flaws

Show people storyboards

topic for Tuesday



Tasks, Personas, and Scenarios

Task: a design-agnostic objective

Persona: a fictional person with a backstory

Scenario: narrative that demonstrates a persona completing a task using a particular design

Use Case: in software engineering, describes requirements using one or more scenarios

Tasks in Your Projects

Say what is accomplished, not how

Real tasks that people currently encounter,
or new tasks your design will enable

Reasonable coverage of the interesting aspects
of your problem and your design space

Range of difficulty and complexity

- Park at the zoo
- Park Friday night in Ballard
- Park at the airport

Combine with Other Methods

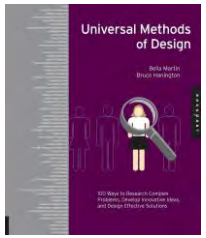
Personas

Concept Mapping

Competitive Analysis

“If you want to create a product that satisfies a broad audience …, logic will tell you to make it as broad in its functionality as possible to accommodate the most people. Logic is Wrong.”

Method 63



Combine with Other Methods

Personas

Concept Mapping

Competitive Analysis

Example Personae:

Parent concerned about safety

Carpenter transporting tools

Executive wants a sporty car

More specific is effective

Give the person detail

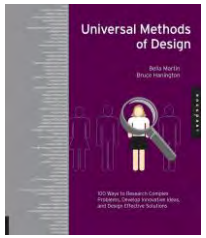
Give them a name

Make it believable

Careful of stereotyping

Web littered with examples

Method 63



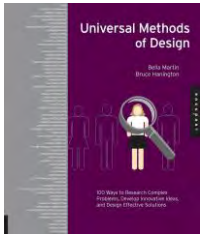
Combine with Other Methods

Personas

Concept Mapping

Competitive Analysis

Method 16

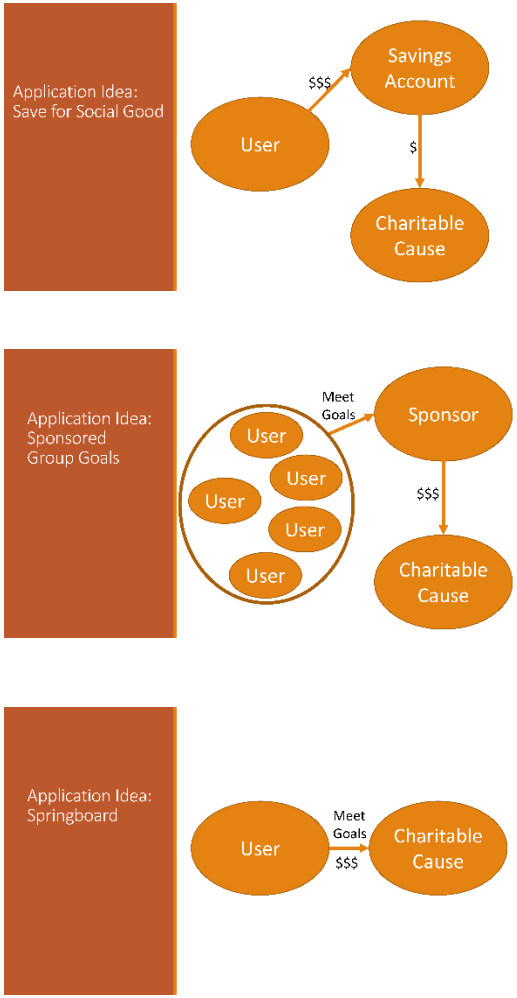


Combine with Other Methods

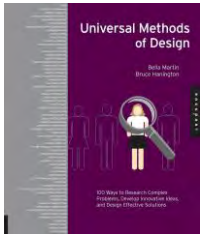
Personas

Concept Mapping

Competitive Analysis



Method 16

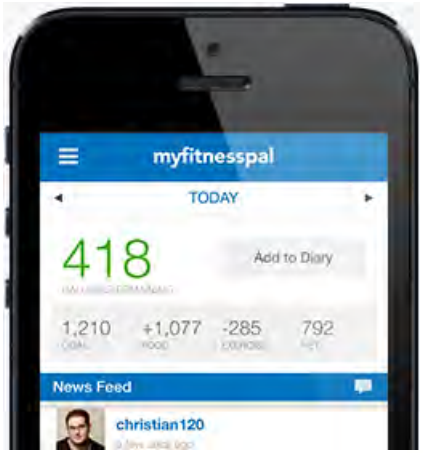


Combine with Other Methods

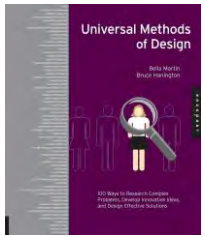
Personas

Concept Mapping

Competitive Analysis



Method 15



CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation

Lecture 06:
Critique and
Task Analysis

James Fogarty
Eunice Jun
David Wang
Elisabeth Chin
Ravi Karkar

Tuesday / Thursday
10:30 to 11:50