Interaction Design Basics

- design:
  - what it is, interventions, goals, constraints
- the design process
  - what happens when
- users
  - who they are, what they are like ...
  - using personas in design
- scenarios
  - rich stories of design
- navigation
  - finding your way around a system
- iteration and prototypes
  - never get it right first time!

What is design?

Design is achieving goals within constraints

- goals - purpose
  - who is it for, why do they want it
- constraints
  - materials, platforms, cost, development time
- Making trade-offs

Golden rule of design: understand your materials

- Understand computers
- Understand people

To err is human

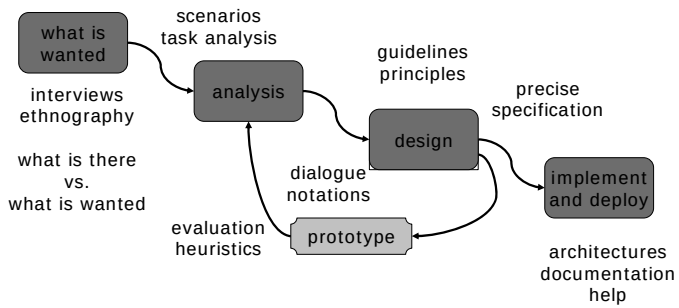
Is it wrong to treat people as materials? No

- accident reports ...
  - air crash, industrial accident, hospital mistake
  - enquiry ... blames ... 'human error'
- but ...
  - concrete lintel breaks because too much weight
  - blame 'lintel error' ?
    ... no – design error
    we know how concrete behaves under stress
- human 'error' is normal
  - we know how users behave under stress
  - so design for it!
- treat the user at least as well as physical materials!

Simplified interaction design process

- For now we'll look at four main phases, plus iteration
  - Requirements - what is wanted
  - Analysis – the results of observation and interview
  - Design – moving from what you want to how to do it
  - Prototype and Iterate – don't expect to get it right the first time
  - Implement and deploy – OK now write code, make hardware or whatever and install it, train, and generally get ready to use it

The process of design



Steps ... but how can I do it all ?!

- You can't!
- limited time ⇒ design trade-off
- usability
  - finding problems and fixing them
  - deciding what to fix
- a perfect system is badly designed
  - too good ⇒ too much effort in design
    - 'Acceptable' is better than 'too late'

User Centred Design

know your user

- who are they?
- probably **not** like you!
- talk to them
- watch them
- use your imagination
- read about them – you may not be able to study them in depth, but someone else may have already done so

persona

- A precise descriptive model of the user, what he/she wishes to accomplish and why
  - They are composite archetypes
  - They must have motivations
  - They must have goals
- use as surrogate user
  - what would Betty think? (and feel)
- details matter
  - makes her 'real' (even though the not every detail is necessarily relevant to the requirements)
  - You should personify and *empathize*

Creating a persona

- Give him/her a name
- And a *relevant* life
- Set him/her in an environment or context
- Set some motivations and goals

- A persona is provided for Assignment 1

Scenarios (story-board)

- Stories for design
  - communicate with others
  - validate other models
  - understand dynamics
- Linearity
  - time is linear - our lives are linear
  - but don't show alternatives

scenarios ...

- what will users want to do?
- step-by-step walkthrough
  - what can they see (sketches, screen shots, pictures)
  - what do they do (keyboard, mouse etc.)
  - what are they thinking?
- For mobile devices it is especially important to consider the context of use
  - Am I using my phone in my private office or the lecture?
  - Actually context is *always* important (e.g., noise, distractions, timeframe)
- use and reuse throughout design

also play act ...

- mock up device – the mock up works **best** if it is **not** to polished
- pretend you are doing it
- internet-connected swiss army knife ...

use toothpick as stylus

but where is that thumb?

... explore the depths

- explore interaction
  - what happens when
- explore cognition
  - what are the users thinking
- explore architecture
  - what is happening inside

use personas and scenarios to ..

- communicate with others
  - designers, clients, users
- validate other models
  - 'play' it against other models
- express dynamics
  - screenshots – appearance
  - scenario – behaviour

linearity

Scenarios – one linear path through system

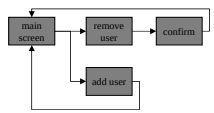
Pros:
- life and time are linear
- easy to understand (stories and narrative are natural)
- concrete (errors less likely)

Cons:
- no choice, no branches, no special conditions
- miss the unintended

- So:
  - use several scenarios
  - use several methods

navigation design

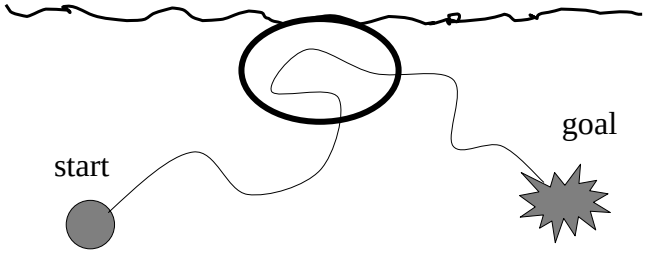
local structure – single screen
global structure – whole site



think about structure

- within a screen
  - Widgets, layout, word choice – we'll cover this later …
- local
  - looking from this screen out
- global
  - structure of site, movement between screens
- wider still
  - relationship with other applications

goal seeking



Use will take an indirect path to their goal (in fact, they may form a clearer or changing idea of their goal as they go)

Just be sure they can find their way

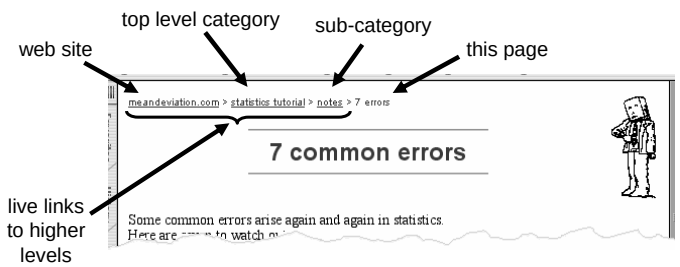
four golden rules

- knowing where you are
- knowing what you can do
- knowing where you are going
  - or what will happen
- knowing where you've been
  - or what you've done

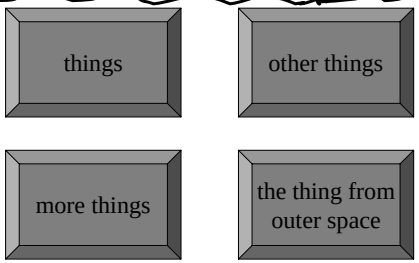
- How often do you get lost on a web page or spend time looking for something in an application menu?

where you are – breadcrumbs

shows path through web site hierarchy



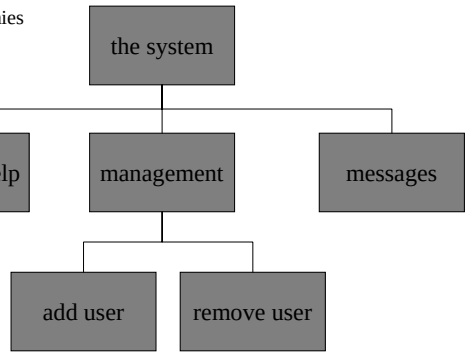
beware the big button trap



- where do they go?
  - lots of room for extra text!

hierarchical diagrams

People find hierarchies easy to grasp



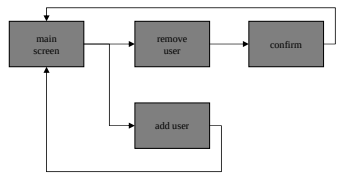
Use them to understand your system and sometimes as the literal presentation

navigating hierarchies

- deep is difficult!
  - People get lost in deep hierarchies
- misuse of Miller's 7 ± 2
  - Refers to short term memory, not menu size
  - A visual scan can efficiently cover perhaps 60 items
- optimal?
  - many items on each screen
  - but structured within screen

network diagrams

- show different paths through the system
- what leads to what
- what happens when
- including branches
- more task oriented than hierarchy



User-Centered Design

- Read “Applying User-Centered Design to Mobile Application Development”
  - Great ‘war stories’ of UI design

Picture Scenarios

- Review the Picture Scenario
  - Rich storyboard of the interaction context