basic UI design in 3 easy lessons!

- one-by-one
  - WIMPish Elements
- putting them together
  - screen layout and design
- the big picture
  - navigation and dialogue

one-by-one - WIMPish Elements

widgets - bits that make the GUI

- what do they do
- what are they good for

widgets?

- individual items on a GUI screen ...
  - checkboxes, menus, toolbars, buttons etc.
- three aspects:
  - appearance - what they look like
  - interaction - how they behave
  - semantics - what they mean

appearance includes words

- verbs - action words
  - quit, exit, embolden, italicise
- adjectives - description/state words
  - bold, italic
- nouns - usually as a form of description
  - Times New Roman, US Letter
- beware of mixes ...
  - embolden + italic !?!
behaviour

• some bits the toolkit does for you
  – but is it right?
• some you control
  – e.g. drawing, interactions between widgets
• beware timing issues
  – e.g. large selections under Windows apps.

behaviour ... ctd.

semantics

• menus, buttons, ...
  …, etc.
• do things ...
  … lets make it **bold italic**

YOU say what it means

• semantics usually up to you
  – although widgets may link direct to database
  – even then, you say what links
• think separately:
  – meaning first - what you want it to do
  – then appearance - how you do it
• choose the widget for the job

what do you want?

• actions
  – usually menu, buttons, or toolbar
• setting state/options
  – usually checkbox, radio button, combi-box
• but ...
  – menus can be used to set state etc. ...

how many?

• one of several options
  – radio buttons, selection menu
• zero, one or more options
  – checkbox, multi-choice menu
• free choice
  – offer recent/typical shortcuts
  – one line text boxes often terrible!
and more ...

- number
  - fixed e.g. bold, italic, underline
  - variable e.g. font list
  - scrolling through telephone list ...
- liveness
  - grey out inactive options
- dynamic interactions
  - some choices dependent on others

Putting them together
screen layout and design

- basic principles
  - grouping, structure, order
  - alignment
  - use of white space

• Putting them together
  screen layout and design

basic principles

- ask
  - what is the user doing?
- think
  - what information, comparisons, order
- design
  - form follows function

available tools

- grouping of items
- order of items
- decoration - fonts, boxes etc.
- alignment of items
- white space between items
grouping and structure

logically together ⇒ physically together

<table>
<thead>
<tr>
<th>Billing details</th>
<th>Delivery details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name</td>
</tr>
<tr>
<td>Address</td>
<td>Address</td>
</tr>
<tr>
<td>Credit card no</td>
<td>Delivery time</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Order details</th>
<th>item</th>
<th>quantity</th>
<th>cost/item</th>
<th>cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>size 10 screws</td>
<td>boxes</td>
<td>7</td>
<td>3.71</td>
<td>25.97</td>
</tr>
<tr>
<td>……</td>
<td>……</td>
<td>…</td>
<td>…</td>
<td>…</td>
</tr>
</tbody>
</table>

order of groups and items

• think! - what is natural order
• should match screen order!
  - use boxes, space etc.
  - set up tabbing right!
• instructions
  - beware the cake receipe syndrome!

decoration

• use boxes to group logical items
• use fonts for emphasis, headings
• but not too many!!

<table>
<thead>
<tr>
<th>decoration</th>
<th>decoration</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABCDEFGHIJKLMNOPQRSTUVWXYZ</td>
<td>ABCDEFGHIJKLMNOPQRSTUVWXYZ</td>
</tr>
</tbody>
</table>

alignment - text

• you read from left to right (English and European)
  ⇒ align left hand side

<table>
<thead>
<tr>
<th>alignment - text</th>
<th>alignment - text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willy Wonka and the Chocolate Factory</td>
<td>boring but readable!</td>
</tr>
<tr>
<td>Winston Churchill - A Biography</td>
<td></td>
</tr>
<tr>
<td>Wizard of Oz</td>
<td></td>
</tr>
<tr>
<td>Xena - Warrior Princess</td>
<td></td>
</tr>
<tr>
<td>Willy Wonka and the Chocolate Factory</td>
<td></td>
</tr>
<tr>
<td>Winston Churchill - A Biography</td>
<td></td>
</tr>
<tr>
<td>Wizard of Oz</td>
<td></td>
</tr>
<tr>
<td>Xena - Warrior Princess</td>
<td></td>
</tr>
<tr>
<td>fine for special effects</td>
<td></td>
</tr>
<tr>
<td>but hard to scan</td>
<td></td>
</tr>
</tbody>
</table>

alignment - names

• Usually scanning for surnames ⇒ make it easy!

<table>
<thead>
<tr>
<th>alignment - names</th>
<th>alignment - names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale</td>
<td>Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale</td>
</tr>
</tbody>
</table>

alignment - numbers

• think purpose!

<table>
<thead>
<tr>
<th>alignment - numbers</th>
<th>alignment - numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>532.56</td>
<td>which is biggest?</td>
</tr>
<tr>
<td>179.3</td>
<td>256.317</td>
</tr>
<tr>
<td>15</td>
<td>73.948</td>
</tr>
<tr>
<td>1035</td>
<td>3.142</td>
</tr>
<tr>
<td>497.6256</td>
<td></td>
</tr>
</tbody>
</table>
alignment - numbers

visually:
long number = big number
align decimal points
or right align integers

multiple columns

• scanning across gaps hard:
  (often hard to avoid with large data base fields)

| sherbert  | 75  |
| toffee    | 120 |
| chocolate | 35  |
| fruit gums| 27  |
| coconut dreams | 85 |

multiple columns - 2

• use leaders

| sherbert  | 75  |
| toffee    | 120 |
| chocolate | 35  |
| fruit gums| 27  |
| coconut dreams | 85 |

multiple columns - 3

• or greying (vertical too)

| sherbert  | 75  |
| toffee    | 120 |
| chocolate | 35  |
| fruit gums| 27  |
| coconut dreams | 85 |

multiple columns - 4

• or even (with care!) 'bad' alignment

| sherbert  | 75  |
| toffee    | 120 |
| chocolate | 35  |
| fruit gums| 27  |
| coconut dreams | 85 |

white space - the counter

WHAT YOU SEE
white space - the counter

WHAT YOU SEE

space to separate

space to structure

space to highlight

• the BIG picture
  navigation and dialogue
recap - levels

• widget choice
  – menus, buttons etc.
• screen design
• application
• environment
  – other apps, O/S

the web too

• widget choice
• screen design
• application
• environment

• elements and tags
  – <a href="...">
• page design
• site navigation
• the web
  – external links

think about structure

• within a screen
  – previous lecture ...
• local
  – looking from this screen out
• global
  – structure of site, movement between screens
• wider still
  – relationship with other applications

think about use

• who is going to use the application?
• how do they think about it?
• what will they do with it?
  .... games?

local

from one screen looking out
four golden rules
• knowing where you’ve been
  – or what you’ve done
• knowing where you are
• knowing what you can do
• knowing where you are going
  – or what will happen

goal seeking

start

progress with local knowledge only ...

... but can get to the goal

beware the big button trap

things
other things

more things
the thing from outer space

... try to avoid these bits!
**global**

between screens within the application

**hierarchical diagrams**

- the system
  - info and help
  - management
  - messages
  - add user
  - remove user

**hierarchical diagrams ctd.**

- parts of application
  - screens or groups of screens
- typically functional separation

**think about dialogue**

what does it mean in UI design?

- Minister: do you name take this woman ...
- Man: I do
- Minister: do you name take this man ...
- Woman: I do
- Minister: I now pronounce you man and wife

**network diagrams**

- main screen
  - remove user
  - confirm
  - add user

**network diagrams ctd.**

- what leads to what
- what happens when
- including branches
- more task oriented
return to scenarios

- user presses ‘on’ button
- login prompt appears
- user enters user name and password
- top level menu page appears
- user selects ‘maze’

... ...

scenarios ctd.

Pros:
- easy to understand
- concrete (errors less likely)

Cons:
- one route through the system
- no branches, no special conditions

So:
- use several scenarios
- use several methods

wider still

between applications
and
the world wide web ...

between applications

- style issues:
  - platform standards, consistency
- functional issues
  - cut and paste
- navigation issues
  - embedded applications
  - links to other apps ... the web

web structure

- knowing what is there
  - 3 million web sites!
  - countless pages
- so much to see and so little time
... but when did you last search the entire Library of Congress?

the geometry of the web

- links
  - extrinsic geometry (inxight)
- content
  - intrinsic geometry (alexia)
  - searching and finding
- people
  - recommendation