



Umm Al-Qura University



6001333-3 Human Computer Interaction

Lecture 7 (Week 6)

- Interaction design
- Screen design and layout

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Interaction design

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

Interaction design: NAVIGATION DESIGN:

levels :

- **widget choice**
 - **menus, buttons etc.**
- **screen design**
- **application navigation design**
- **environment**
 - **other apps, O/S**

interaction design: NAVIGATION DESIGN:

• THE WEB:

- **widget choice**
- **screen design**
- **navigation design**
- **environment**
- **elements and tags**
- ****
- **page design**
- **site structure**
- **the web, browser, external links**

interaction design: NAVIGATION DESIGN

PHYSICAL DEVICES

- widget choice
- screen design
- navigation design
- environment
- controls
 - buttons, knobs, dials
- physical layout
- modes of device
- the real world

interaction design: NAVIGATION DESIGN:

think about structure

- within a screen
- local
 - looking from this screen out
- global
 - structure of site, movement between screens
- relationship with other applications

interaction design: NAVIGATION DESIGN:

Local structure:

Start



goal seeking

goal



interaction design: NAVIGATION DESIGN:

✓ Local structure:

Start



goal seeking

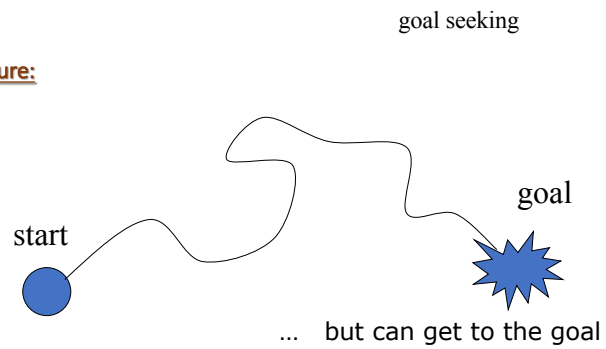
goal



progress with local knowledge only ...

interaction design: NAVIGATION DESIGN:

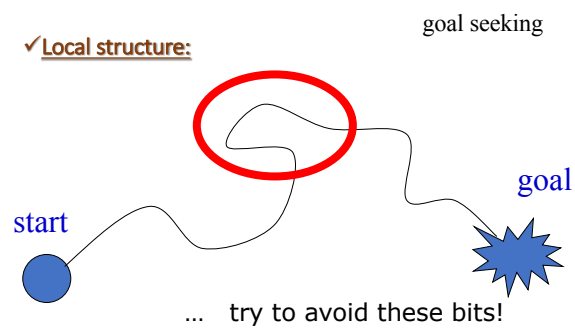
✓ Local structure:



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interaction design: NAVIGATION DESIGN:

✓ Local structure:



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interaction design: NAVIGATION DESIGN:

✓ Local structure:

four golden rules:

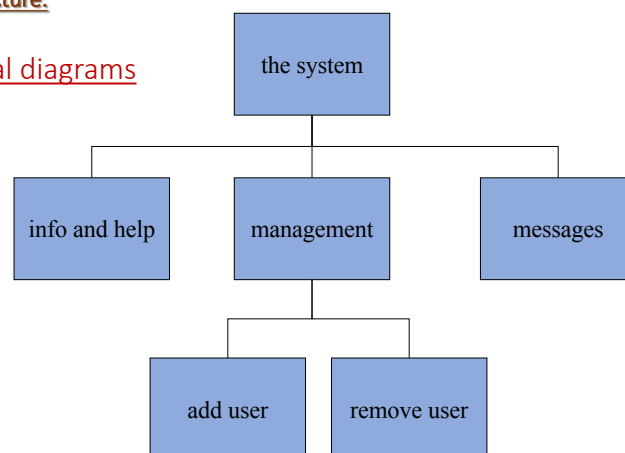
- knowing where you are
- knowing what you can do
- knowing where you are going
 - or what will happen
- knowing where you've been
 - or what you've done

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interaction design: NAVIGATION DESIGN:

✓ Global structure:

hierarchical diagrams

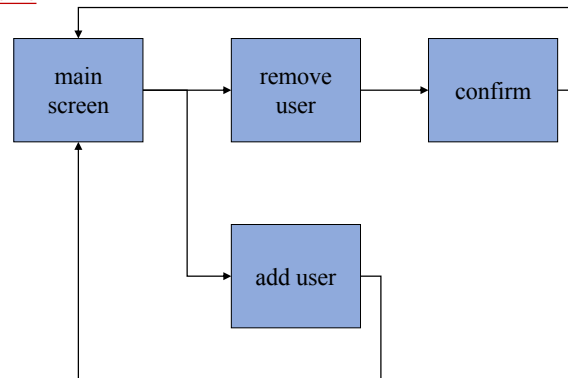


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interaction design: NAVIGATION DESIGN:

✓ Global structure:

Network diagrams



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interaction design: NAVIGATION DESIGN:

✓ Wider still...:

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

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interaction design: SCREEN DESIGN AND LAYOUT:

available tools:

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

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interaction design: SCREEN DESIGN AND LAYOUT:

□ Grouping and structure:

logically together \Rightarrow physically together

Billing details:		Delivery details:	
Name		Name	
Address: ...		Address: ...	
Credit card no		Delivery time	
<hr/>			
Order details:			
item	quantity	cost/item	cost
size 10 screws (boxes)		7	
3.71	25.97		
.....		...	

... ..

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interaction design: SCREEN DESIGN AND LAYOUT:

□ Order of groups and items:

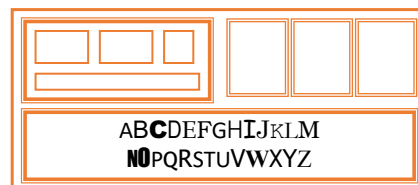
- **think! - what is natural order**
- **should match screen order!**
 - use boxes, space etc.
 - set up tabbing right!

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interaction design: SCREEN DESIGN AND LAYOUT:

□ Decoration:

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



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interaction design: SCREEN DESIGN AND LAYOUT:

□ Alignment - text:

- you read from left to right (English and European)

⇒ align left hand side

Willy Wonka and the Chocolate Factory
Winston Churchill - A Biography
Wizard of Oz
Xena - Warrior Princess

boring
but
readable!

fine for special effects but
hard to scan

Willy Wonka and the Chocolate
Factory
Winston Churchill - A Biography
Wizard of Oz
Xena - Warrior Princess

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interaction design: SCREEN DESIGN AND LAYOUT:

□ Alignment - names:

- Usually scanning for surnames
⇒ make it easy!

Alan Dix
Janet Finlay
Gregory Abowd
Russell Beale



Alan Dix
Janet Finlay
Gregory Abowd
Russell Beale



Dix , Alan
Finlay, Janet
Abowd, Gregory
Beale, Russell



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interaction design: SCREEN DESIGN AND LAYOUT:

□ Alignment - numbers:

think purpose!

which is biggest?

532.56
179.3
256.317
15
73.948
1035
3.142
497.6256

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interaction design: SCREEN DESIGN AND LAYOUT:

□ 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

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interaction design: SCREEN DESIGN AND LAYOUT:

☐ Multiple columns:

- use leaders :

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

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interaction design: SCREEN DESIGN AND LAYOUT:

☐ Multiple columns:

- or even (with care!) ‘bad’ alignment

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

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interaction design: SCREEN DESIGN AND LAYOUT:

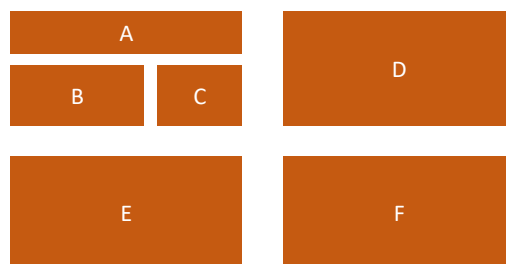
□ White space – space to separate:



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interaction design: SCREEN DESIGN AND LAYOUT:

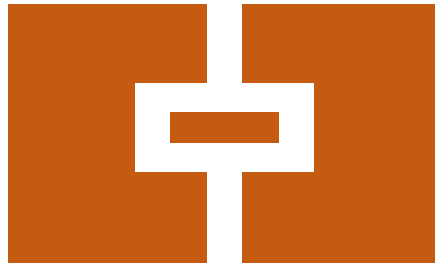
□ White space – space to separate:



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interaction design: SCREEN DESIGN AND LAYOUT:

□ White space – space to separate:



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interaction design: SCREEN DESIGN AND LAYOUT:

□ Physical controls :

- grouping of items

defrost settings

type of food

time to cook



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interaction design: SCREEN DESIGN AND LAYOUT:

Physical controls :

- grouping of items
- order of items
 - 1) type of heating
 - 2) temperature
 - 3) time to cook
 - 4) start



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interaction design: SCREEN DESIGN AND LAYOUT:

Physical controls :

- grouping of items
- order of items
- decoration

different colours for different functions

lines around related buttons (temp up/down)



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interaction design: SCREEN DESIGN AND LAYOUT:

Physical controls :

- grouping of items
- order of items
- decoration
- alignment

centred text in buttons
? easy to scan ?



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interaction design: SCREEN DESIGN AND LAYOUT:

Physical controls :

- grouping of items
- order of items
- decoration
- alignment
- gaps to aid grouping



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interaction design: SCREEN DESIGN AND LAYOUT:

user action and control:

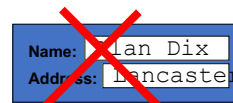
- ✓ entering information
- ✓ knowing what to do
- ✓ affordances


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interaction design: SCREEN DESIGN AND LAYOUT:

□ entering information:

- **forms, dialogue boxes**
 - presentation + data input
 - similar layout issues
 - alignment - N.B. different label lengths
- **logical layout**
 - use task analysis
 - groupings
 - natural order for entering information
 - top-bottom, left-right (depending on culture)





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interaction design: SCREEN DESIGN AND LAYOUT:

□ Knowing what to do:

- what is active what is passive
 - where do you click
 - where do you type
- consistent style helps
 - e.g. web [underlined links](#)
- labels and icons
 - standards for common actions
 - language – bold = current state or action

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interaction design: SCREEN DESIGN AND LAYOUT:

□ Affordances :

- psychological term
- for physical objects
 - shape and size suggest actions
 - pick up, twist, throw
 - also cultural – buttons 'afford' pushing
- for screen objects
 - button-like object 'affords' mouse click
 - physical-like objects suggest use
- culture of computer use
 - icons 'afford' clicking
 - or even double clicking ... not like real buttons!



mug handle

'affords' grasping



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interaction design: SCREEN DESIGN AND LAYOUT:

Appropriate appearance:

- ✓ presenting information
- ✓ aesthetics and utility
- ✓ colour and 3D
- ✓ localisation & internationalisation

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interaction design: SCREEN DESIGN AND LAYOUT:

□ Presenting information:

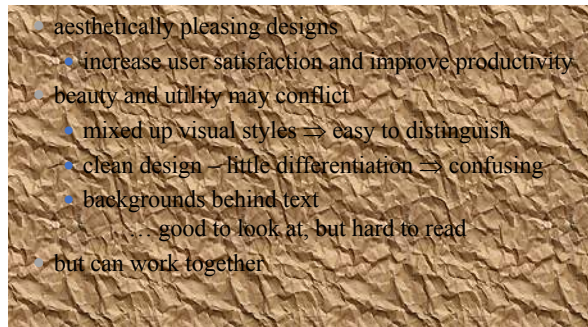
- purpose matters
 - sort order (which column, numeric alphabetic)
 - text vs. diagram
 - scatter graph vs. histogram
- use paper presentation principles!
- but add interactivity
 - softens design choices
 - e.g. re-ordering columns

name	size
chap10	12
chap5	16
chap1	17
chap14	22
chap20	27
chap8	32
...	...

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interaction design: SCREEN DESIGN AND LAYOUT:

□ Aesthetics and utility:

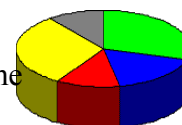


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interaction design: SCREEN DESIGN AND LAYOUT:

□ Color and 3D:

- both often used very badly!
- colour
 - older monitors limited palette
 - beware colour blind!
 - use sparingly to reinforce other information
- 3D effects
 - good for physical information and some graphs



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interaction design: SCREEN DESIGN AND LAYOUT:

bad use of colour

- over USE - without very good reason (e.g. kids' site)
- colour blindness
- poor use of contrast
- do adjust your set!
 - adjust your monitor to greys only
 - can you still read your screen?

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Interaction design: across countries and cultures

- localisation & internationalisation
 - changing interfaces for particular cultures/languages
- globalisation
 - try to choose symbols etc. that work everywhere
- simply change language?
 - use 'resource' database instead of literal text
 - ... but changes sizes, left-right order etc.
- deeper issues
 - cultural assumptions and values  
 - meanings of symbols
 - e.g tick and cross ... +ve and -ve in some cultures
 - ... but ... mean the same thing (mark this) in others

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