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**
  - **<a href="...">**
  - page design
  - site structure
  - the web, browser, external links

interaction design: NAVIGATION DESIGN

- 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
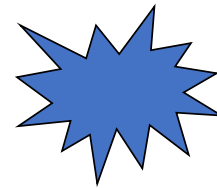
- relationship with other applications

interaction design: NAVIGATION DESIGN:

Local structure:
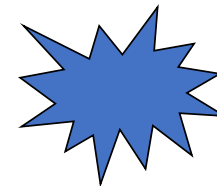
goal seeking

Start   goal

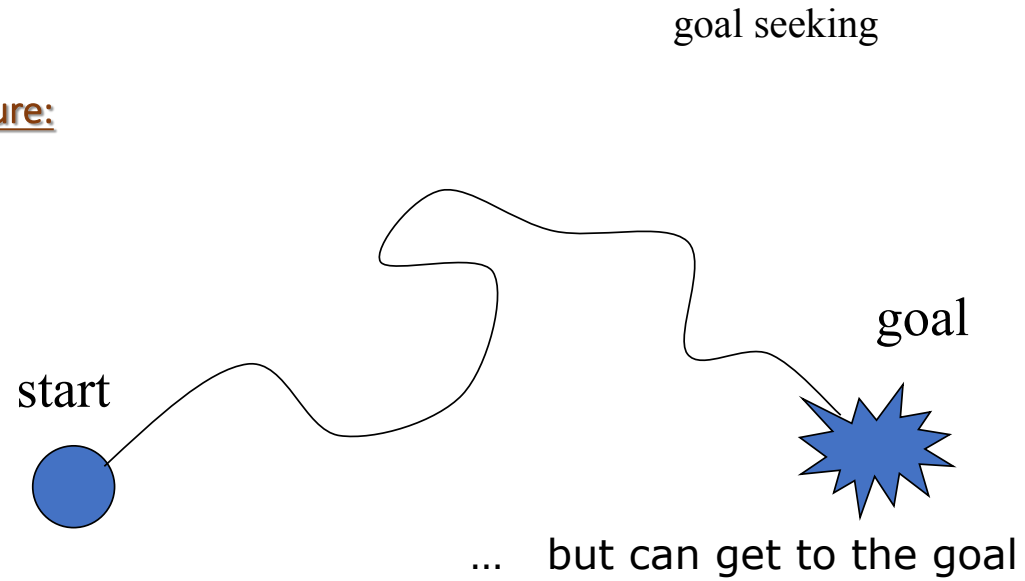# interaction design: NAVIGATION DESIGN:

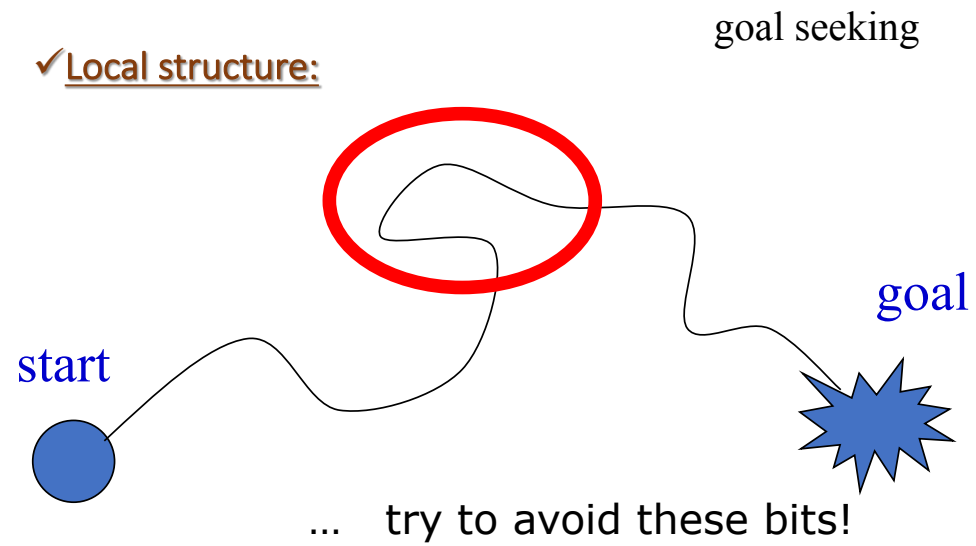✓**Local structure:**

Start

goal seeking

goal

progress with local knowledge only …

interaction design: NAVIGATION DESIGN:

goal seeking

✓<u>Local structure:</u>

goal

start

… but can get to the goal

interaction design: NAVIGATION DESIGN:

goal seeking

✓<u>Local structure:</u>

goal

start

…   try to avoid these bits!

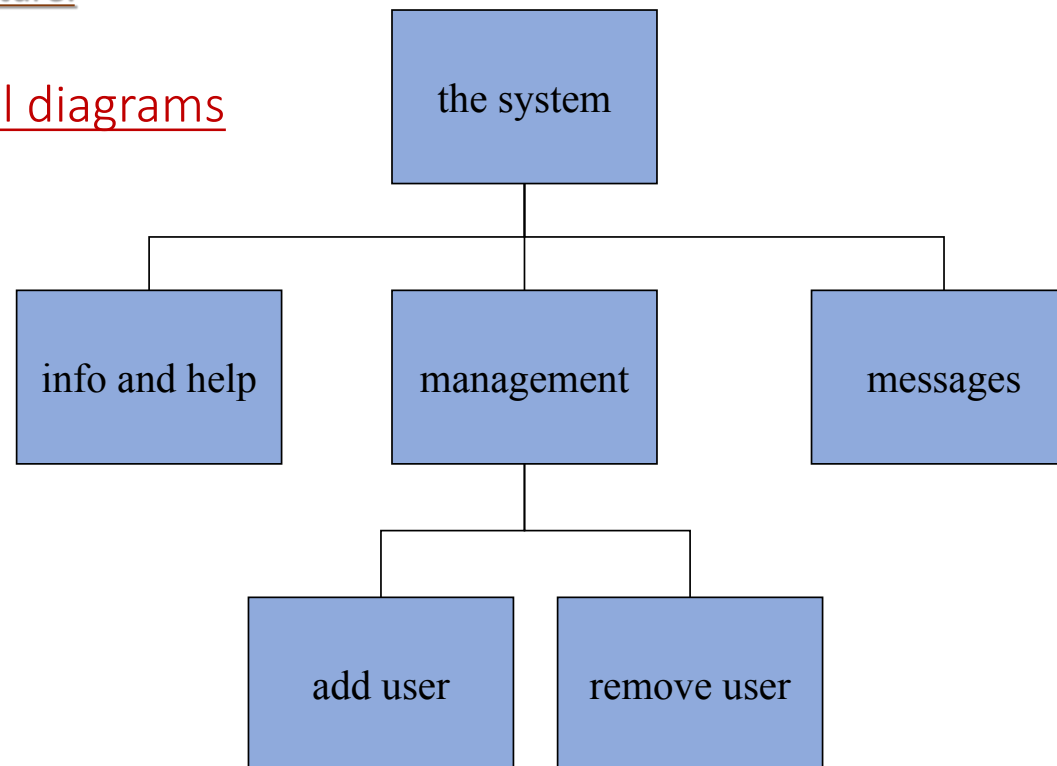# interaction design: NAVIGATION DESIGN:

✓**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**

interaction design: NAVIGATION DESIGN:
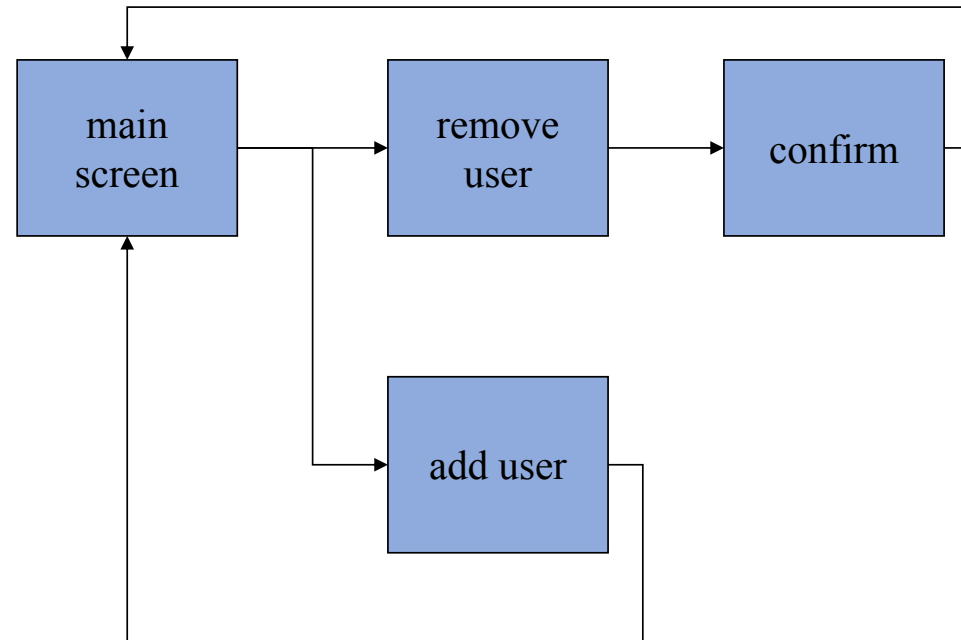
✓Global structure:

hierarchical diagrams

interaction design: NAVIGATION DESIGN:

✓<u>Global structure:</u>

<u>Network diagrams</u>

interaction design: NAVIGATION DESIGN:

✓ <u>Wider still…:</u>

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

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**

interaction design: SCREEN DESIGN AND LAYOUT:

❑Grouping and structure:

logically together ⇒ physically together

Billing details:	**Delivery details**:
Name	Name
Address: …	Address: …
Credit card no	Delivery time

Order details:
```
 item                          quantity  cost/item   cost
 size 10 screws (boxes)              7
3.71    25.97
  ......                                       ...
...      ...
```

interaction design: SCREEN DESIGN AND LAYOUT:
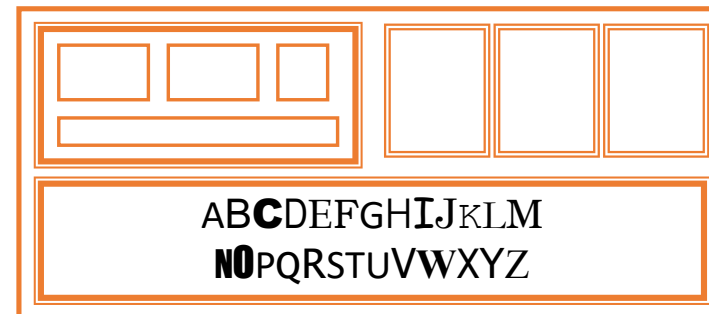
❑ <u>**Order of groups and items:**</u>

- **think! - what is natural order**

- **should match screen order!**

    - **use boxes, space etc.**

    - **set up tabbing right!**

interaction design: SCREEN DESIGN AND LAYOUT:

❑Decoration:

- use boxes to group logical items

- use fonts for emphasis, headings

- but not too many!!
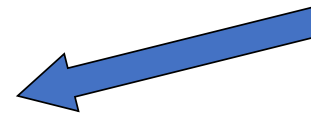
interaction design: SCREEN DESIGN AND LAYOUT:

❑ **<u>Alignment - text:</u>**

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

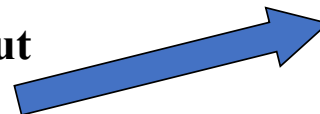⇒ **align left hand side**   boring
                                                but
Willy Wonka and the Chocolate Factory   readable!
Winston Churchill - A Biography
Wizard of Oz
Xena - Warrior Princess

fine for special effects but
hard to scan

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

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
✔

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

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

interaction design: SCREEN DESIGN AND LAYOUT:

❑ <u>**Multiple columns:**</u>

- **use leaders :**

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

interaction design: SCREEN DESIGN AND LAYOUT:

❑**Multiple columns:**

- **or even (with care!) 'bad' alignment**

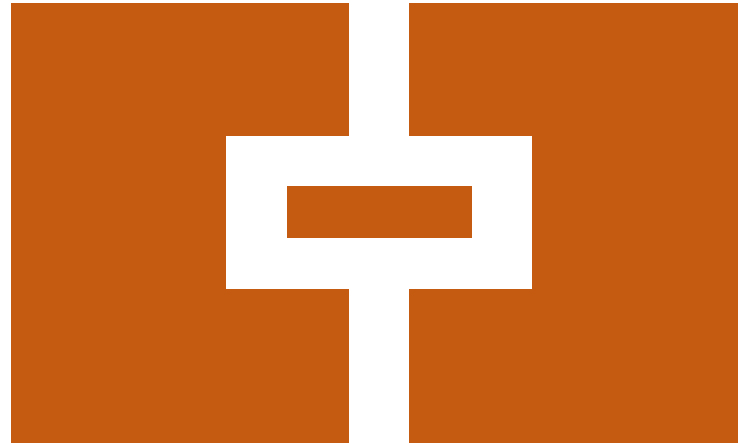|	
sherbert	75
toffee	120
chocolate	35
fruit gums	27
coconut dreams	85

interaction design: SCREEN DESIGN AND LAYOUT:

❑ <u>White space – space to separate:</u>
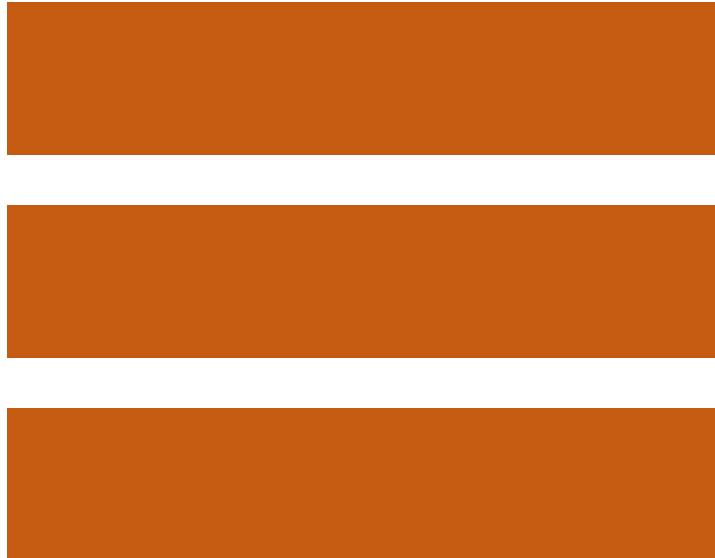
interaction design: SCREEN DESIGN AND LAYOUT:

❑**White space – space to separate:**
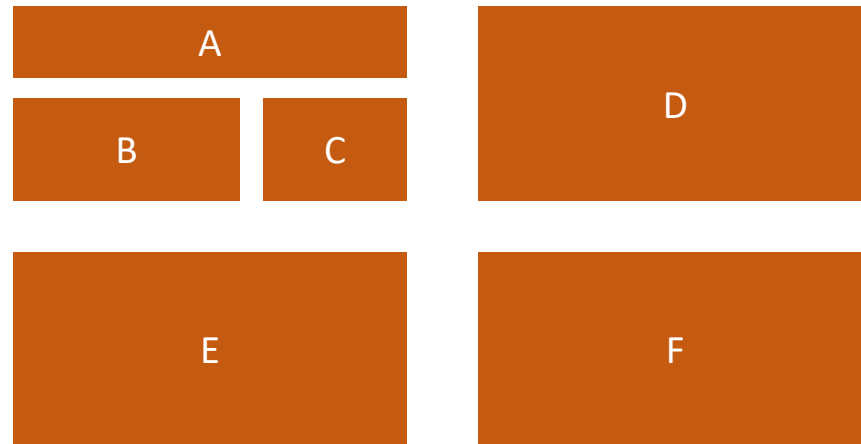
interaction design: SCREEN DESIGN AND LAYOUT:

❑<u>White space – space to separate:</u>

interaction design: SCREEN DESIGN AND LAYOUT:

❑ <u>Physical controls :</u>

- grouping of items

  defrost settings

  type of food

  time to cook

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

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)

interaction design: SCREEN DESIGN AND LAYOUT:

❑**Physical controls :**

- grouping of items

- order of items

- decoration

- alignment

  centred text in buttons

  ? easy to scan ?

interaction design: SCREEN DESIGN AND LAYOUT:

❑ **Physical controls :**

- **grouping of items**

- **order of items**

- **decoration**

- **alignment**

- gaps to aid grouping

interaction design: SCREEN DESIGN AND LAYOUT:

user action and control:

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

interaction design: SCREEN DESIGN AND LAYOUT:

❑ entering information:

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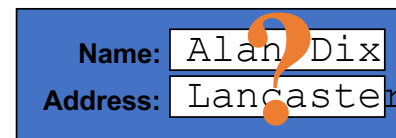
- **logical layout**
  - **use task analysis**
  - **groupings**
  - **natural order for entering information**
    - **top-bottom, left-right (depending on culture)**

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

interaction design: SCREEN DESIGN AND LAYOUT:

❑ <u>Affordances</u> :

- 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

interaction design: SCREEN DESIGN AND LAYOUT:

Appropriate appearance:

- ✓ presenting information

- ✓ aesthetics and utility

- ✓ colour and 3D

- ✓ localisation & internationalisation

interaction design: SCREEN DESIGN AND LAYOUT:

❑ <u>Presenting information:</u>

- 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
...	...

interaction design: SCREEN DESIGN AND LAYOUT:

❑ Aesthetics and utility:

- aesthetically pleasing designs
  - increase user satisfaction and improve productivity
- beauty and utility may conflict
  - mixed up visual styles $\Rightarrow$ easy to distinguish
  - clean design – little differentiation $\Rightarrow$ confusing
  - backgrounds behind text
    - …good to look at, but hard to read
- but can work together

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
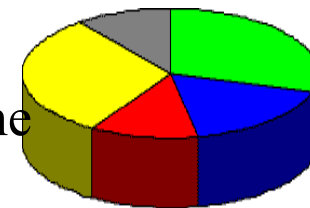
interaction design:

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