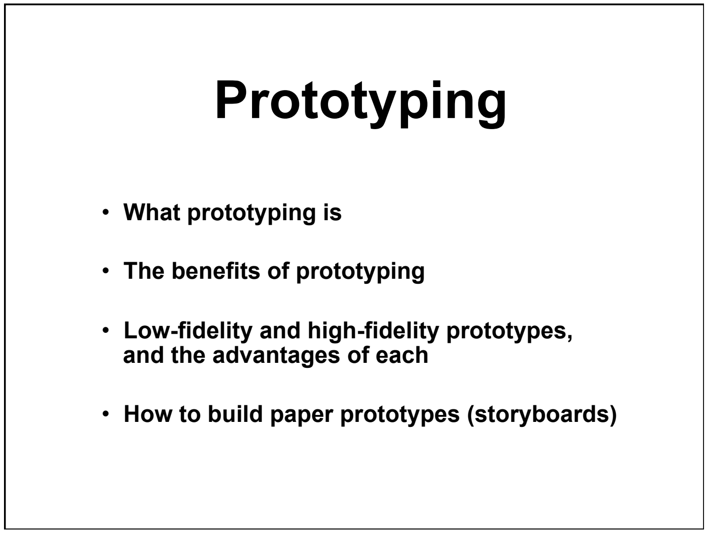
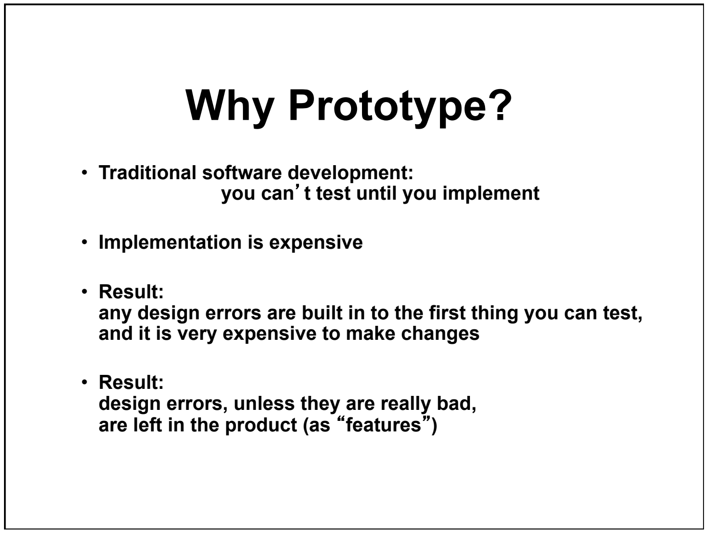


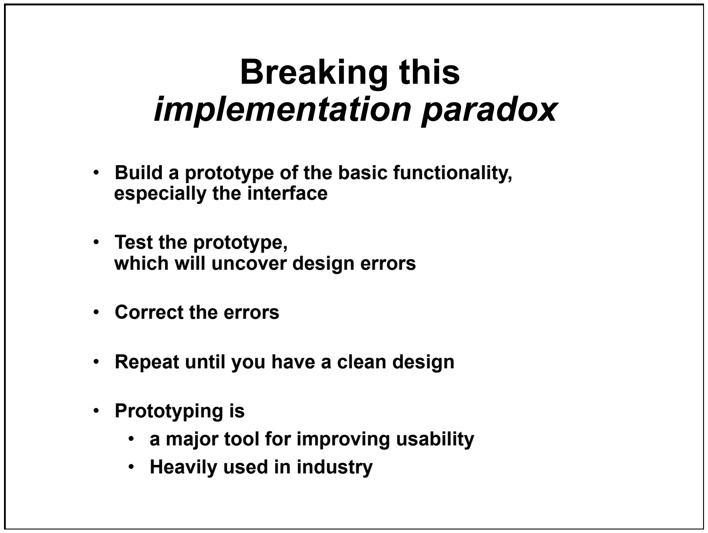
Prototyping

- What prototyping is
- The benefits of prototyping
- Low-fidelity and high-fidelity prototypes, and the advantages of each
- How to build paper prototypes (storyboards)



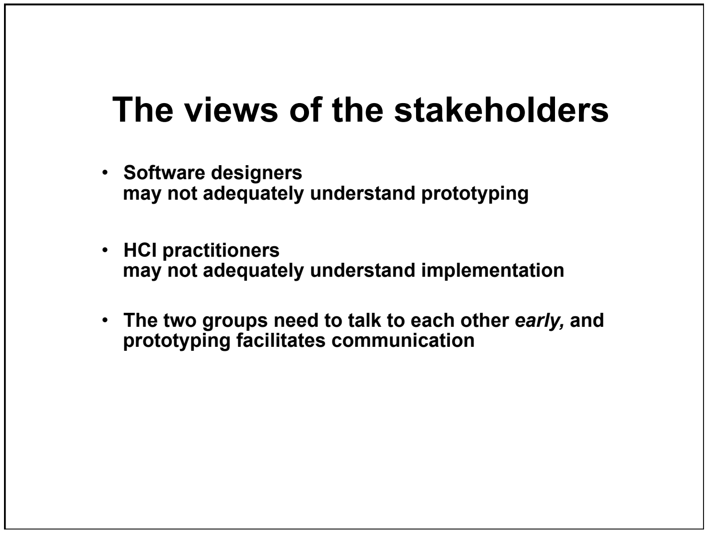
Why Prototype?

- Traditional software development:
  you can’t test until you implement
- Implementation is expensive
- Result:
  any design errors are built in to the first thing you can test, and it is very expensive to make changes
- Result:
  design errors, unless they are really bad, are left in the product (as “features”)



Breaking this *implementation paradox*

- Build a prototype of the basic functionality, especially the interface
- Test the prototype, which will uncover design errors
- Correct the errors
- Repeat until you have a clean design
- Prototyping is
  - a major tool for improving usability
  - Heavily used in industry



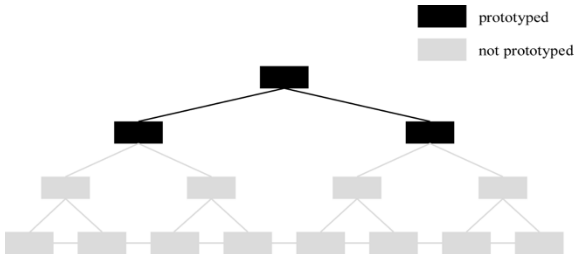
The views of the stakeholders

- Software designers
  may not adequately understand prototyping
- HCI practitioners
  may not adequately understand implementation
- The two groups need to talk to each other *early,* and prototyping facilitates communication

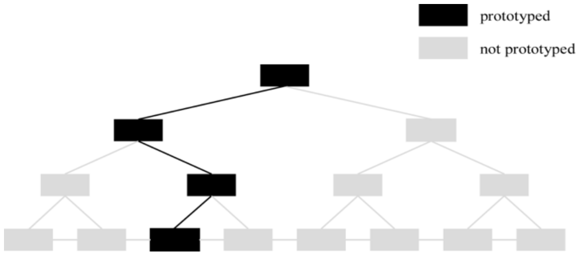
Two types of prototypes

- Evolutionary:
  the prototype eventually becomes the product
- Revolutionary, or throwaway:
  the prototype is used to get the specs right,
  then discarded!!

Horizontal prototype:
broad but only top-level



Vertical prototype:
deep, but only some functions



Benefits of prototyping

- Can be used to test every detail of the final product
  before the product is built (E.g. MoS testing rooms)
- Results in higher user satisfaction
- Users are better at evaluating an existing (vs described) system
- It brings the users into the process early

Disadvantages

- Users may be unfamiliar with the technique.
- Management may think that the project is nearly finished
  if the prototype is “too good,”
  or that the prototype can be converted into the final product.

The right way: use low-fidelity prototypes

- Inexpensive
  in materials cost, people time, and schedule time
- No risk of being mistaken for the final product
- Simple and fast to repeat as lessons are learned
- When interface testing of the prototype is complete, implementation can proceed with confidence

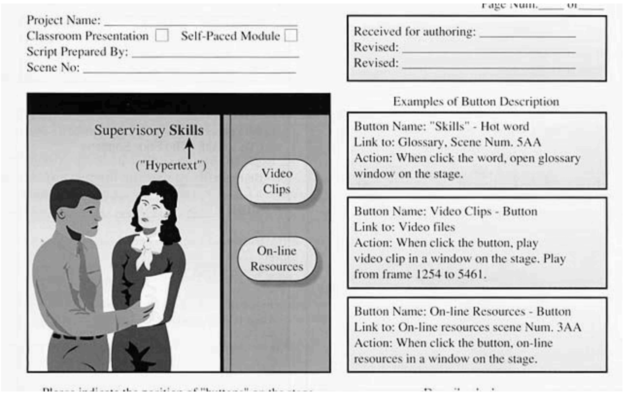
Storyboards: paper-based prototypes

a “hardware” tool to visualize your project:

- Navigation
  visual display of paths
- Interactivity
  all on paper and words
- Screen design
  basic layout, basic color
- Rough sketches
  for key frames, menus, etc.

Storyboarding is about conceptual thinking, not art.

Organization on a single snapshot
Shows screens, files, concepts, navigation


Project Name: ________________
Classroom Presentation □ Self-Paced Module □
Script Prepared By: ________________
Scene No: ________________

Received for authoring: __________
Revised: __________
Revised: __________

Supervisory Skills
("Hypertext")
Video Clips
On-line Resources

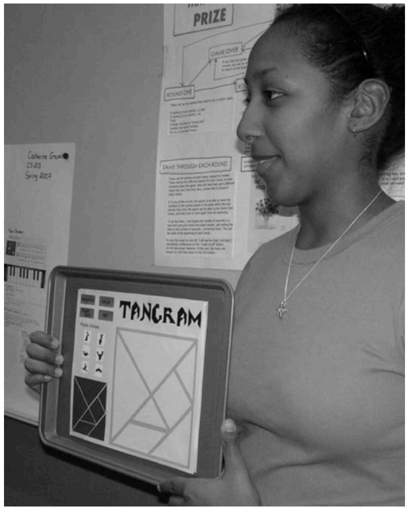
Examples of Button Description

Button Name: "Skills" - Hot word
Link to: Glossary, Scene Num. 5AA
Action: When click the word, open glossary window on the stage.

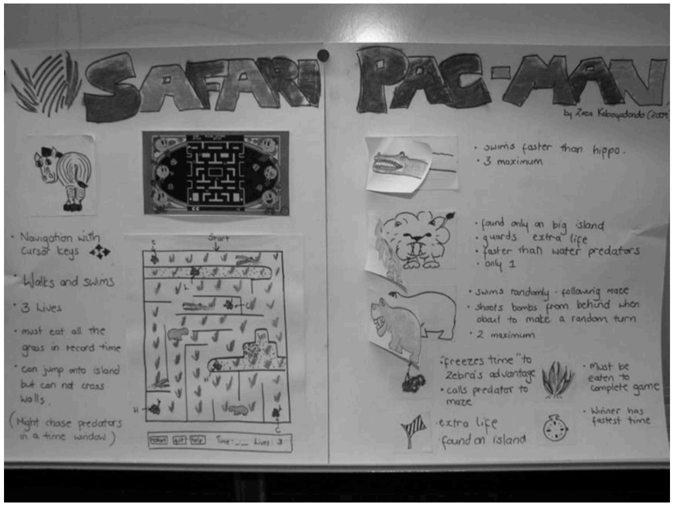
Button Name: Video Clips - Button
Link to: Video files
Action: When click the button, play video clip in a window on the stage. Play from frame 1254 to 5461.

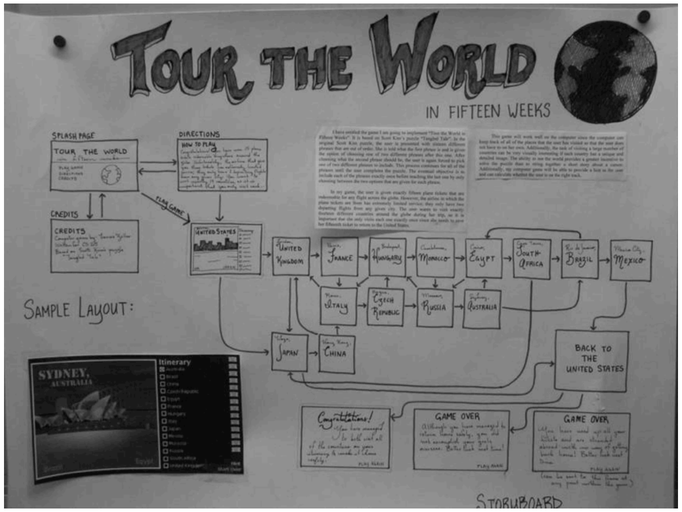
Button Name: On-line Resources - Button
Link to: On-line resources scene Num. 3AA
Action: When click the button, on-line resources in a window on the stage.

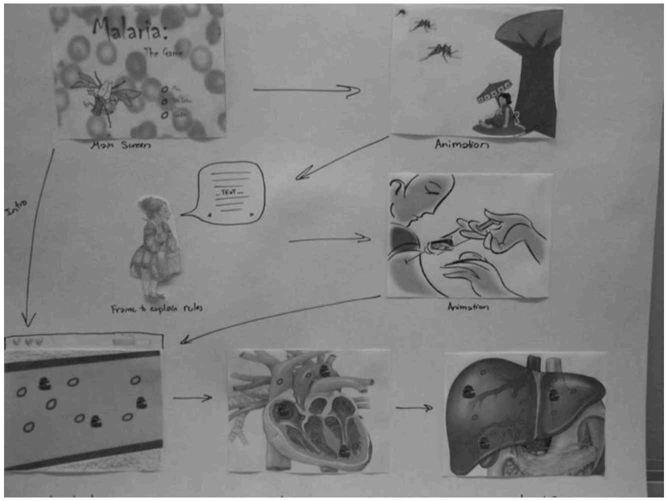
Screen-level detail makes implementation easy and unambiguous

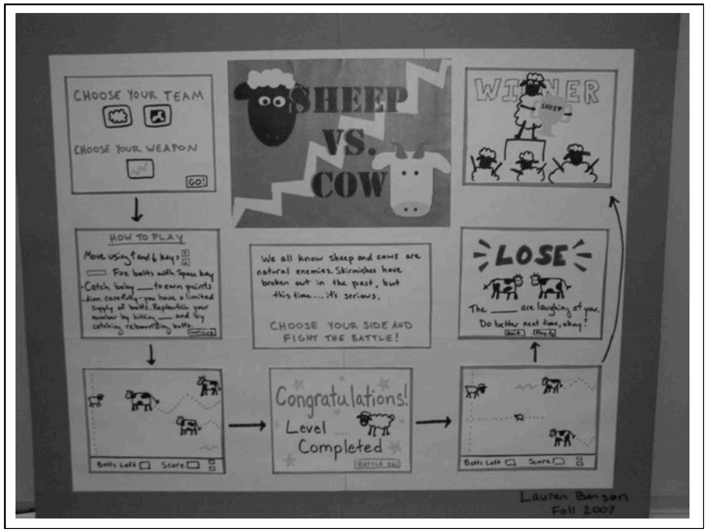


Thinking out of the box:
You can actually *use* the prototype!


SAFARI PAC-MAN
by Zaca Kaboyadondo (2007)
• Navigation with cursor keys
• Walks and swims
• 3 Lives
• must eat all the grass in record time
• can jump onto island but can not cross walls
(Might chase predators in a time window)
Start
Time: __ Lives: 3
• swims faster than hippo.
• 3 maximum
• found only on big island
• guards extra life
• faster than water predators
• only 1
• swims randomly - following maze
• shoots bombs from behind when about to make a random turn
• 2 maximum
• "freezes time" to Zebra's advantage
• calls predator to maze
• Must be eaten to complete game
• extra life found on island
• Winner has fastest time






CHOOSE YOUR TEAM
CHOOSE YOUR WEAPON
GO!
SHEEP VS. COW
WINNER
SHEEP
HOW TO PLAY
Move using ↑ and ↓ keys
Fire bolts with Space key
-Catch baby ___ to earn points
-Aim carefully - you have a limited supply of bolts. Replenish your number by hitting ___ and by catching rebounding bolts.
We all know sheep and cows are natural enemies. Skirmishes have broken out in the past, but this time... it's serious.
CHOOSE YOUR SIDE AND FIGHT THE BATTLE!
LOSE
The ___ are laughing at you. Do better next time, okay!
Congratulations! Level Completed
BATTLE ON
Bolts Left
Score
Lauren Banson
Fall 2007

There is a very high correlation
Between storyboard quality
And final project quality