Questions?

• Project #2
  – Due today

• Fitts’ Law Study
  – 3180 AV Williams
  – 9:30-5:30 tomorrow Friday
  – 18-22 years-old, right-handed
  – Takes 5 minutes
  – You get 2 granola bars (chewy and crunchy available)
  – Jpablo@cs.umd.edu
Qualitative evaluation

- Methods
  - Introspection
    - *Walkthrough*
  - Direct observation
    - *Simple observation*
    - *Think-aloud*
    - *Constructive interaction*
  - Query via interviews and questionnaires
The feature list game
(from Scott McGregor, cited by Alan Cooper in “The inmates are running the asylum”)

- Internal combustion engine
- Four wheels with rubber tires
- A transmission connecting the engine to the drive wheels
- Engine and transmission mounted on metal chassis
- A steering wheel
- Cuts grass quickly
- Comfortable to sit on
Walkthrough

- Designer tries the system (or prototype) out
  - Does the system “feel right”?  
  - What if?

- Problems
  - Completely subjective
  - Designer is a non-typical user

From “The Inmates Are Running the Asylum” (A Cooper)
Direct observation

• Observing (and recording) users interacting with the system
  – In lab or in the field
  – For a set of pre-determined tasks or through normal duties
    • Be prepared!

• Excellent at identifying gross design/interface problems

• Three general approaches:
  – simple observation
  – think-aloud
  – constructive interaction
Recording observations

• Need a record
  – Further analysis
  – Proofs during discussion

• Techniques
  – Paper and pencil
    • Simple to set up
      – Free form
      – Coding scheme
    • Might be biased
  – Audio/Video recording
    • More accurate
    • Time consuming to analysis
      – Encoding is a time consuming process
# Coding scheme example

- Tracking activity in the office

<table>
<thead>
<tr>
<th>Time</th>
<th>Desktop activities</th>
<th>Absences</th>
<th>Interruptions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Computer</td>
<td>Desk</td>
<td>Telephone</td>
</tr>
<tr>
<td>9:00</td>
<td>s</td>
<td></td>
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<td>9:13</td>
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</tbody>
</table>
Simple observation method

- Evaluator observes users interacting
  - Sometime behind a half-silvered mirror

- Drawback
  - No insight into the user decision process or attitude
The think aloud method

• Subjects are asked to say what they are thinking/doing
  – What they believe is happening
  – What they are trying to do
  – Why they took an action

• Widely used in industry

• Drawbacks
  – Awkward/uncomfortable for subject (thinking aloud is not normal!)
  – “Thinking” about it may alter the way people perform their task
  – Hard to talk when they are concentrating on problem
The constructive interaction method

• Two people work together on a task
  – Normal conversation between the two users is monitored
    • *removes awkwardness of think-aloud*
  – Variant: Co-discovery learning
    • *Use semi-knowledgeable “coach” and naive subject together*
    • *Make naive subject use the interface*

• Drawback
  – Need a good team
Interviews

• Method
  – Pick the right population
    • *Individual or group discussion*
  – Be prepared
    • *Plan a set of central questions*
  – Probe more deeply on interesting issues as they arise
    • *Focus on tasks not technology*
    • *Find the root of the problem*

• Pros and cons
  – Very good at directing next design phase
    • *Provide many constructive suggestions*
  – Subjective
    • *Do not ask leading questions*
  – Time consuming
Debriefing

• Post-observation interviews
  – Questions from your notes
  – Questions from users diary
  – Questions from a video footage

• Pros and Cons
  – Avoids erroneous reconstruction
    • Provide many constructive suggestions
  – Time consuming
    • But extremely valuable
Questionnaires and surveys I

• Method
  – Pick the population
    • *Demographics and sample size*
      – Between 50 and 1000 subject
  – Establish the purpose of the questionnaire
    • *What information is sought?*
    • *How would you analyze the results?*
  – Establish the means of deliver/collection
    • *On-line*
    • *Direct interaction with users*
      – Walking in the street
      – Post-user testing
    • *Surface mail*
      – including a pre-addressed reply envelope gives far better response
Questionnaires and surveys II

• Method
  – Design the questionnaire
    • Don’t forget to debug it!
  – Deliver
  – Collect and analyze the data
  – Establish the main findings

• Example
  – Brainstorming tool
Questionnaires and surveys

• Pros and cons
  – Preparation is expensive
    • *Need to design and debug the questionnaire*
  – Can reach a large population
    • *But often a low return rate*
  – As good as the questions asked
  – Data collection can be tedious
    • *Use automatic forms for large volume*

• Example:
  – Questionnaire for *User Interface Satisfaction*
    • *See reading*
Closed questions

- Supply possible answers

  Characters on the computer screen are:
  
<table>
<thead>
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<th>hard to read</th>
<th>easy to read</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td></td>
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</tbody>
</table>

  - Easy to analyze
  - Make it more difficult for respondents
  - Be sure to be specific

Do you use computers at work:

  O often   O sometimes   O rarely

vs

Do you use computers at work:

  O more than 4 hrs   O between 1 and 4 hrs   O less than 1 hrs
Style of closed question: Scalar

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<td></td>
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</table>

- Be sure to pick odd numbers of choice
  - *Often between 5 and 7*
Style of closed question: Multi-choice

Which types of software have you used? (tick all that apply)

- O word processor
- O data base
- O spreadsheet
- O compiler

- Can be exclusive on inclusive
Style of closed question: Ranked choice

Rank the usefulness of these methods of issuing a command
(1 most useful, 2 next most useful..., 0 if not used)

___2___ command line
___1___ menu selection
___3___ control key accelerator

– Helpful to understand users preference
Open ended questions

• The user answers in his/her own words
  Can you suggest any improvements to the interfaces?
  – Good for general information
  – Difficult to analyze
  – Can complement closed questions