UI Concerns

- Functionality
  - What is necessary?
    - Pareto Principle (80/20 "rule"): “20% of the X does 80% of the Y”
  - Too little vs. too much

- Reliability
  - Does it do what it’s supposed to do?
  - Unreliability → user becomes unconfident, modifies behavior

Economist Vilfredo Pareto noted in 1906 that 20% of the people owned 80% of the wealth; generalized by management consultant Joseph Juran to “principle of the vital few and trivial many.” (Later, “trivial” changed to “useful” to be politically correct.)
UI Concerns

- Availability
  - How often is it up?
- Privacy and security
  - From: antifraud@citibank.com
  - Subject: CitiBank: urgent security notification
- Standardization
  - “Standards are wonderful. That’s why there are so many of them.”
- Integration

UI Concerns

- Consistency
  - {Intra/inter} {application/OS}
- Portability
  - Of programs
  - Of programmers
- On schedule
- Within budget
UI Concerns

- Aesthetics

UI Concerns

- Usability
Quantifiable Usability Measures

- Time to learn
- Time to use
  
  Implied benchmark task(s)

Errors
- How many?
- What kind?
  
  Goal: \textit{Italic} vs. \textit{roman}
  
  Result: \textit{Italic} vs. \textit{roman} \textit{Italic} vs. \textit{roman}
  
  Cause(?) \textit{Italic} vs. \textit{roman} \textit{<I>Italic} vs. \textit{roman...}
- How important?

Quantifiable Usability Measures

- Skill retention
  
  For how long?
  
  Frequent vs. casual user
  "-" vs. “–” vs. “—”

- User impressions
  
  Does user like the system?
  
  User’s subjective impressions of objective measures
Other Quantifiable Human Factors

- Behavioral measures
  - Facial expressions
  - Vocalizations
  - Posture
  - Gaze
- Physiological measures
  - Temperature
  - Pulse
  - Respiration
  - Skin conductance
  - Tremor
  - BCI
- Can be used to compare different systems, including real and virtual environments, by inferring user’s internal state
  - Measures of “presence” in virtual environments

Why are good UIs important?

- “Chess is like life.”
  — Boris Spassky
- “Chess is life.”
  — Bobby Fischer
Why are good UIs important?

- Distinguishing full and partial control rod levers in a nuclear plant

R. Sugarman, Nuclear power and the public risk, IEEE Spectrum, 16(11), November 1979, 58–79.