Announcements

Still uncertain about your project idea? Please come to office hours.
Assignments

Next assignment: Revised Draft (due Fri)
Edit abstract in light of adjusted project focus, related work review
Add a mockup, scenario, UI walkthrough or other simple prototype
Combine with related work review in one document
Post on Wiki & Bring 2 hardcopies to class on Monday 11/7
History Interfaces: Goals

Understand what I did / what others did in the past

Communicate what I did to others

Go back in time / change history
Core Concepts

History capture & revision control

Visualization:
differences between versions
aggregates across versions

Interacting with prior versions & histories
Capturing History: Undo/Redo

Benefits?
Recover from errors
Exploration:
Rapid reversible actions (Shneiderman)
Indication of usability problems
Undo/Redo Command Stacks

Requires strong object model of entities and actions

Each action (command) knows how to undo itself

Commands are pushed on / popped off a stack

Smart techniques aggregate actions or use hierarchies

Photoshop History Panel (from Tidwell)
Undo as an indicator of usability problems

Akers, CHI’09
String differencing (diff) algorithm to compute changes
Side-by-side visualization shows both before and after states
ABSTRACT
This paper examines how to operationalize revision techniques known from text editing for the graphical domain of interaction design documents. The paper introduces dNote, a revision notation for user interfaces expressed as control flow diagrams. The dNote command set enables modifying and graphically annotating both appearance and behavior of user interfaces and defines execution semantics of revisions so proposed changes can be tested immediately. The paper also contributes two studies that compare production and interpretation of revisions in dNote to revisions captured by freeform sketching on static diagram images. In the first study, design students recorded revisions to two handheld device prototypes. The study showed that testing ideas during the revision process enabled by dNote led to more concrete, concise records for follow-up work. In a second study, participants interacted the revisions of the first study: the study showed that dNote’s revisions were more legible, but that revision intent was not always captured well.

Author Keywords
Interaction design tools, prototyping, revision, annotation.

ACM Classification Keywords
H.5.2. [Information Interfaces]: User Interfaces --- input devices and strategies; interaction styles; prototyping; user-centered design. D.2.2 [Software Engineering]: Design Tools and Techniques --- State diagrams; user interfaces.

INTRODUCTION
Interaction design is a team sport that oscillates between stages of individual work and team review and discussion. Team reviews of prototypes — whether synchronous or asynchronous — provide valuable critique and suggest

Figure 1: dNote enables interaction designers to revise and test functional prototypes of information appliances.

and prototypes, or “sketches on top of sketches” [4], are often the preferred way of capturing proposed changes. They are rapid to construct, they enable designers to handle different levels of abstraction and ambiguity simultaneously [5], and they serve as common ground for members with different expertise and toolsets [26]. Individual designers later incorporate the proposed changes into the next prototype. This edit-review-incorporate cycle of discussing and revising interaction designs is similar to revising and commenting on drafts of written documents [24]. While most word processors explicitly support such collaboration, appropriate tools don’t yet exist for interaction designs.
Diff for PowerPoint Slides

Drucker et al., UIST 2006
Diff for PowerPoint Slides

Features

Distance ops
MSE of Images
String edit distance
Slide IDs

Correspondence operators
Editing histories
Editable Graphical Histories

Kurlander, 1992

http://kurlander.net/DJ/Videos/
EditableGraphicalHistoriesVideo.shtml
Time orders of magnitude

- Chronicle
- Visualizing User Operation Histories
- Phosphor

Time scales: seconds, minutes, hours, days, months, years
Phosphor

Baudisch, UIST 2006

VLC: 2006-Baudisch-UIST06-Phosphor.avi
Figure 1: An annotated history generated from an operation history.
Annotated History

Visualizing User Operation History Using Annotated Images
Chronicle:
Capture, Exploration, and Playback of Document Workflow Histories

Tovi Grossman
Justin Matejka
George Fitzmaurice

Autodesk Research
MeshFlow
Denning, Siggraph 2011

Video: http://www.youtube.com/watch?v=oTH7zwS_Wto
Time orders of magnitude

- Chronicle
- Visualizing User Operation Histories
- Phosphor

- Wikipedia History Flow Visualizations
- MyLifeBits
Historyflow

(c) IBM 2003

Islam is a monotheistic religion founded in the 7th century based on the religious text known as the Quran. According to Islam, the religion was revealed to the Prophet Muhammad when Allah sent an angel to dictate a series of revelations to him, which Muhammad memorized. Muhammad was illiterate, and his followers later wrote down Muhammad's memorized revelations to form the Quran. Muhammad is considered to be the chief and final prophet.

Adherents of Islam are called Muslims (sometimes spelled "Mohammedans"). In some older English texts they are referred to as "Muhammadans" or "Mohammedans"; however, this term is not commonly used because Muslims find it offensive, as this term implies that they worship Muhammad, which they do not.

The meaning of the word Islam is an Arabic word meaning "submission (to Allah)". It also has an etymological relationship to other Arabic words, such as "peace". The word Muslims is derived from Islam and means "one who surrendered" or "submitted (to Allah)".

Teachings of Islam Muslims believe in one God, the God of Islam. Allah, Maker of all things, who is the one and only God. They also believe that Muhammad is the final Messenger of God and the one who brought the final message of God to humanity. Muslims believe that Muhammad came to bring the correct path and true knowledge of the afterlife to those who have strayed and to the Christians and Jews -- monotheists who had deviated from the correct path.

For Muslims, the Qur'an answers questions about daily needs, both spiritual and material. It discusses God and God's Names and attributes; believers and their virtuous; and the sins of non-believers (shirk). Mary, Jesus, and all the other prophets; and even scientific subjects. Sunni Muslims (the majority of the world's Muslims) do not follow the laws of the Qur'an exclusively; they also follow the understanding of the Qur'an contained in the teachings of the prophet Muhammad, known as the hadith.

Muslims are taught that God sent down 4 books and 100 pages. Besides the Qur'an, the others are the Law of Moses (the Taurih), the Psalms of David (the Zabur) and the Gospel of Jesus (the Injil). The Qur'an describes Christians as "the people of the Book" (ahl al Kitab).

The teachings of Islam concern many of the same personal characteristics as those of Judaism and Christianity. However, Muslims frequently refer to them using Arabic names which can make it appear they are talking about different people; e.g. Allah for God, Adnan for Satan, Bashir for Abraham, etc. A belief in a day of judgment and an afterlife is pivotal to Islam.

The Six Elements of Belief

* moslem

believes the following:

** God

** Angels

** Books (sent by God)

** Messengers (sent by God)

** Day of Judgment

Both good and bad (or more precisely, what people call good and bad) come from God. There is no authority that can decide whether a person is accepted to, or dismissed from, the community of believers. It is enough to believe with one's heart and recite with one's tongue the above, or the even shorter version contained in shahada.

As no one can spill another's heart to see what's inside, it is enough to say that you are a moslem to be treated as a moslem by the moslem.
History Flow visualization
Viegas, Wattenberg 2003

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The teachings of Islam

Muslims believe in one God, the God of Abraham, Isaac, and Jacob, who is also referred to as Allah. Muslims believe that Muhammad came to bring the final message of God, the correct path and true knowledge of the afterlife to pagan polytheists and to the Christians and Jews -- monotheists who had deviated from the correct path.

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“Bell figures that he could store everything about his life, from start to finish, using a terabyte of storage.”

*ComputerWorld article*

Gordon Bell, MSR
“Without any aids to recall, Mrs. B typically completely forgets everything about an event after five days or less. However, [...] using SenseCam, Mrs. B’s memory for the event steadily increased, and after two weeks she could recall around 80 percent of the event in question. [Remarkably], Mrs. B appears to have a lasting ability to recall the event even without reviewing the images.”