Collaborative Design Session

A.K.A. a JAD (Joint Application Development) session
Purpose of a CDS

• To work with application users interactively
• To rapidly define requirements
• To create a “strawman” (a paper mockup) of a possible UI for an application.
• To use to help the design an development team to understand the users needs and wants.
• To help create a UI that will be acceptable to the Users
Risks

• **Risk:** What users think they want and what they will really accept are different
  **Mitigation:** Usability testing

• **R:** Users will think the application is farther along in development than it really is.
  **M:** Use paper prototyping instead of creating software based prototypes

• **R:** Using the time to gather information and/or do initial analysis instead of design.
  **M:** Do initial observations and analysis before the session.
Process

- Well defined roles of participants
- Interactive
- Iterative
- Facilitated brainstorming
- Clearly Defined Goals
- Documented Artifacts (drawings, documents, screens designs, etc.)
Process – Roles

- **Facilitator** (1) – guides and controls the process. Manages the time. Timeboxes discussion (keeps process focused). Does NOT do the design or contribute information to the design. Asks questions but does NOT answer the questions. Like the official in a football or soccer game.

- **Scribe** (1) – documents what significant information is developed during the session. Records the drawings, and other design that is done on the whiteboards/chalkboards/whitepaper, etc. Does NOT ask or answer the questions involved in the design. Good handwriting and drawing skills. Keeps good, concise notes.
Process – Roles (2)

• **Design Team (1 or more people)**—asks questions of the users. Defines and refines the requirements derived from the information gathered previous to the session and during the session. Draws suggested designs with the input of the users. Suggests the layout, controls, placement, flow, information architecture, etc.

• **User Team (1 or more people)** – answers questions about their business processes and business problems. Tells the designers what their needs and wants are. Gives feedback and suggestions about the designs created by a design team.
Process - Interactive

• People ask questions, give answers, suggests designs, get feedback, ask questions, give answers, etc.

• To manage this **chaos** is the facilitator's role.
Process - Facilitated Brainstorming

- There are no stupid questions or stupid answers.
- Many seemingly “stupid” questions often lead to innovative design approaches. Brainstorm helps to discover these ideas in a manageable way.
- The facilitation is to prevent the discussion from getting off track. The facilitator may:
  - take discussions “off line” (if they are important but will take too much time in the current session)
  - declare a “flag on the play” (if someone is out of line, they get a warning, like a “yellow card” in soccer).
  - Timebox a discussion – give it a certain prescribe amount of time and then declare it is done. Often an interval like 5 minutes, 15 minutes, etc.
Process – Goals -> Artifacts

• Understand the users’ wants and needs through interaction and feedback.
• Develop software quicker that matches the user’s needs more.
• Define and refine:
  – Users
  – Actors
  – Actors Goals
  – Workflows
  – Users’ Requirements for the Application
  – Possible UI layouts, flows and functionality
Process - Artifacts

• Document:
  – Business Entities (objects/concepts)
  – Users
  – Actors
  – Actors Goals
  – Workflows – tasks and goals for a specific task
  – Users’ Requirements for the Application
  – Possible UI layouts, flows and functionality
Tools

- Whiteboard / Chalkboard / White Paper
- Markers / Chalk / Markers
- Information
- Observations
- Interviews
- Imagination
- Critical Thinking
Artifacts

Things that are produced in the software development process; info, analysis docs, requirements, design docs, prototypes, code, data, user documentation, etc.
Business Domain

Business Name:
Business Domain (General):
Business Domain (Specific):
Description:
Consumers:
Providers:
Suppliers:
Competitive Businesses:
Related Domains:
User

Name:
Title(s):
Age:
Education:
Training:
Skills:
Limitations:
Other:
Actor

Title:
Role(s):
Users in this group:
Age Range:
Education Range:
Training Range:
Skills Range:
Other:
Goal

Name:
Description:
Actors that share it:
Workflows that achieve it:
Other:
Business Entities

Name:
Brief Description:
Physical or conceptual?
Persistent or transitory?
Attributes:
Owner:
Composition - “Has A”:
Inheritance - “Is A”:
Instances:
Constraints:
Used by what actors:
Workflow (Tasks)

Name:
Summary Description:
Goal(s) it achieves:
Steps and decisions:
  1.
  2.
  3.
  4.
  5.
  6.
  7.
  8.
Business Entities (Objects)

(a list of nouns that are relevant to the domain)
Business Activities (Actions)

(A list of verbs)
Business States
(attributes of the entities)
(adjectives)
Example Artifacts
Business Domain

• Business Name: **NYU CIMS CS Grad School – UI Class**
• Business Domain (General): **Collegiate Education**
• Business Domain (Specific): **Graduate CS Education**
• Description: **NYU CS department provides classroom instruction at the graduate level. It provides a very high level of service and exacting standards. It grants BS, MS and PhD in CS.**
• Consumers: **People that desire a CS degree or courses in CS (Students)**
• Providers: **Professors and Faculty**
• Suppliers: **The facilities and facilities people. Writers of text books. Software and Hardware manufactures.**
• Competitive Businesses: **Harvard, MIT, Yale.**
• Related Domains: **MIS, EE, AI**
User

Name: Sam
Titles: Student, Employee
Age: 20 something
Education: Closing in on MS in CS
Training: Years of school and an undergraduate degree. On the job experience.
Skills: Great college student skills. Excellent computer skills.
Limitations: none
Other: MS Windows machine
User

Name: Sheng
Titles: Student
Age: 20 something
Education: Undergraduate degree in CS
Training: Years of school and an undergraduate degree. On the job experience.
Skills: Great college student skills. Excellent computer skills.
Limitations:
Other: Linux Machine
User

Name: Ido
Titles: Student, Software Business Owner
Age: 20 something
Education: Undergraduate degree in CS
Training: Years of school and an undergraduate degree. On the job experience.
Skills: Great college student skills. Excellent computer skills.
Limitations:
Other: Linux Machine
User

Name: **Logan**
Titles: **Professor**
Age: **30 something**
Education: **CS and Psych degrees**
Training: **Research experience. Academic experience. On the job experience.**
Skills: **Good teaching skills**
Limitations: **1 hand, questionable sense of humor**
Other: **Windows and Linux Machines**
Actor

Title: **NYU CS Grad Student**
Role(s): **Student**
Users in this group: **Sam, Sheng, Ido**
Age Range: **20-30’s**
Education Range: **At least undergrad in CS. Excellent computer skills**
Training Range: **None for application.**
Skills Range: **Advanced computer user.**
Other:
Actor

Title: Professor
Role: Administrator, Educator
Users in this group: Logan, Dennis Shasha, ...
Age Range: 20-90’s
Education Range: Advanced degree
Training Range: None for application.
Skills Range: Advanced computer user.
Other:
Goal

Name: InsureRegistration
Description: Check to insure all the students in the lecture hall are registered.
Actors that share it: Educator
Workflows that achieve it: ClassRegistrationProcess
Other:
Goal

Name: GetIntoClass
Description: Do what is required to get into the course.
Actors that share it: Student
Workflows that achieve it: ClassRegistrationProcess
Other:
Business Entities

• Name: Course
• Brief Description: A class that has a professor, curriculum, web page, timeslot, lecture hall, student roster and one or more students.
• Physical or conceptual? Mixed
• Persistent or transitory? Persistent until completion time.
• Attributes: Name, ID Number, Course Description, Credit Hours
• Owner: NYU
• Composition - “Has A”: professor, curriculum, web page, timeslot, lecture hall, student roster, student(s)
• Inheritance - “Is A”:
• Instances: Only one per semester of this type are allowed
• Constraints: Limited number of students allowed. Requires a professor to teach it.
• Used by what actors: Educator, Administrator, Student
Workflow (Tasks)

Name: **ClassRegistrationProcess**
Summary Description: The actor must provide information required to register for the class and there must be space in the class
Goal(s) it achieves: **GetIntoClass, InsureRegistration**
Steps and decisions:
1. Get Student’s Info
2. Check if student is eligible to register. If no go to REJECT
3. Check if space in course. If no go to REJECT.
4. Add to course roster.
5. If requested, send confirmation email to student
6. Add to student account entry for cost of course.
7. Add to student transcript registration for this course
8. Done
9. REJECT: send notification to actor for reason for rejection.
10. Send information to administrator about REJECTION
Business Entities (Objects)

- Student
- Educator
- Course
- Section
- Roster
- Timeslot
- Lecture Hall Slot
- Credit Hour
- Homework
- LectureSlides
- CourseMaterials
- University
- LectureHall
- CourseWebsite
- Address
- Phone
- EmailAddress
- PersonName
- CourseGrade

- CourseSlot
- StudentCourseGrade
- StudentGPA
- CourseSlot
- StudentCourseRegistration
- StudentSemesterSchedule
- StudentCourseGrade
- TuitionBill
Business Activities (Actions)

- RegisterForCourse
- DropACourse
- AttendLecture
- DoHomework
- TakeTest
- PayTuition
Business States (attributes of the entities)

- Student – Enrolled, Graduated
- CourseSlot – Open, Filled
- StudentCourseRegistration - Registered, Started, Completed
- StudentSemesterSchedule – Empty, PartiallyFull, Full
- TuitionBill – Paid, Unpaid, InArrears
CDS Instructions
CDS 1

• Gather into your groups
• I will assign you to either a chalk board or “post it notes”
• Follow the worksheets
• I will help each group
• Possibly break into small groups to do user interviews in parallel
• Do the UI designing together
CDS 2

• Select a facilitator
  – Facilitator should be a person that speaks loudly (and understandably). Can manage the session.

• Select a scribe
  – Good handwriting and note taker. Willing to type up the session notes and drawings as an RTF doc and send them to the team.
CDS 3

• Spilt the rest of the group into Designers and Users – 50-50 split.

• Users
  – Some of you will act in the role of users. You will use your experience from observations & interviews you did.

• Select a lead designer
  – Person that will initially ask questions about the users wants and needs. Does the drawing on the board, initially. (You should rotate who draws.)
CDS 4

• Gather together and attempt to define the artifacts:
  – Business Entities
  – Users
  – Actors
  – Goals
  – Workflows
  – Design Sketches – pick a goal and sketch out a design for it.
CDS 5

- Design Constraints. Use only:
  - Swing based target
  - Application types and widgets we have discussed so far
  - Sovereign, Parasitic, Daemonic, …
  - Menus
  - Labels
  - Buttons
  - Check and Radio buttons
  - Combo and List Boxes
  - Text Boxes
  - Scroll Bars
  - Spin Control
How good do your drawings need to be? (better than this)

This is a sample dialog I've drawn. Things you should note about the dialog are: size, color, resizability, what happens when I push a button, what is the contents of the list in a list box, what are the limits of the spin control, etc.
UI Worksheet

• Title:
• Goals Achieved:
• Workflow it supports:
• Actors used by:
• For each control (other than text labels):
  – Name:
  – Purpose:
  – Action:
  – Enabled / Disabled by:
  – List Contents:
  – Constraints:
Sample Dialog: Register For Class

Register For Class

Name:
Address:
Phone:
Email:

[ ] Notify me by email of class assignments

[ ] Undergraduate Degree
[ ] Masters
[ ] PhD

Submit  Cancel
Dialog Worksheet

- **Title:** Register For Class
- **Goals Achieved:** InsureRegistration, GetIntoClass
- **Workflow it supports:** ClassRegistrationProcess
- **Actors used by:** Student
• Name: **NameField**    ControlType: **TextBox**
  • Purpose: **All user to enter email via the keyboard**
  • Action: **none**
  • Enabled / Disabled by: **NA**
  • Constraints: **Limited to 64 characters, required filled**

• Name: **AddressField**    ControlType: **TextBox**
  • Purpose: **Allow user to enter address via the keyboard**
  • Action: **none**
  • Enabled / Disabled by: **NA**
  • Constraints: **Limited to 64 characters**

• Name: **PhoneField**    ControlType: **TextBox**
  • Purpose: **All user to enter phone via the keyboard**
  • Action: **none**
  • Enabled / Disabled by: **NA**
  • Constraints: **Limited to 2-3-3-4 numbers. Must be a legal phone number (no alphas) characters. Optional field**
• Name: EmailField  ControlType: TextBox
  • Purpose: All user to enter email via the keyboard
  • Action: none
  • Enabled / Disabled by: NA
  • Constraints: Limited to 64 characters, Optional

• Name: SendEmail  ControlType: CheckBox
  • Purpose: If checked will send an email for each assignment, else not sent.
  • Action: none
  • Enabled / Disabled by: if no email address entered will be grayed out.
  • Constraints:

• Name: DegreeRadioButtons  ControlType: RadioButtons
  • Purpose: Select type of degree being pursued
  • Enabled / Disabled by: NA
  • Constraints: Only one is allowed to be selected. Default to undergrad.
- Name: SubmitButton  ControlType: CommandButton
  Purpose: Allows user to initiate registration
  Action: Saves user information and closes the dialog
  Enabled / Disabled by: disabled if user does not enter data into required fields.
- Constraints:

- Name: CancelButton  ControlType: CommandButton
  Purpose: Allows user to initiate registration
  Action: Saves user information and closes the dialog
  Enabled / Disabled by: disabled if user does not enter data into required fields.
- Constraints:
What is missing from the design?
CDS criteria

• Use the CDS worksheets provided.
• Create each of the text artifacts i.e. NOT the dialog drawings (have the scribe record them).
• Document at least 3 workflows.
• Create at least 3 application UI screens/windows based on those workflows. 1 per workflow at least.
• The facilitator must - have the scribe, the facilitator (and others) type them up and send them to the YOUR GROUP, YOUR TA AND TO ME by Friday, March 12th by 5PM. (no grade for this but a required part of the course).

PLEASE ZIP ALL THE DOCS UP INTO A SINGLE ATTACHED FILE!
• The original paper documents must ALSO be submitted to the TA mail box by then.
• The blank documents are available on the class website as RTF format.
• The UI Screens (Wireframes) drawings can be:
  – scanned in and attached as JPG
  – or you can manually create the drawings as GIF/PNG/JPGs and attach them (using a paint program) (redrawing the paper versions)
Time To CDS!