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**ESD.051 / 6.902**

**Engineering Innovation & Design**

# Principles of Design (1 - 10)

Class	1	2	3	4	5	6	7	8	9	10
Day of Week/ Date	W Sept 5	M Sept 10	W Sept 12	M Sept 17	W Sept 19	M Sept 24	W Sept 26	M Oct 1	W Oct 3	W Oct 10
Lecture Topic	Introduction	10 Step Design Process Dieter Rams	Research Stakeholder Analysis	Articulating Design	Articulating Design Psychology	Usability	Dialogue Systems Technology (Siri+)	Dialogue System Design (Questions/Feedback)	Dialogue System Design 2	Branding
Assigned	Good and Bad Design	Design a Game	Stakeholder analysis for games		Articulating Design HW	2 Subject Usability Test	Transcription & State Diagram	K-Scripts	K-Scripts 2	Make a Commercial
Due		Good and Bad Design Movie		Game + SHA			Articulating Design HW (NOT ASSIGNED)	Usability Test, Transcription & Diagram	K-Scripts	K-Scripts 2

# Innovation Example

Usability:

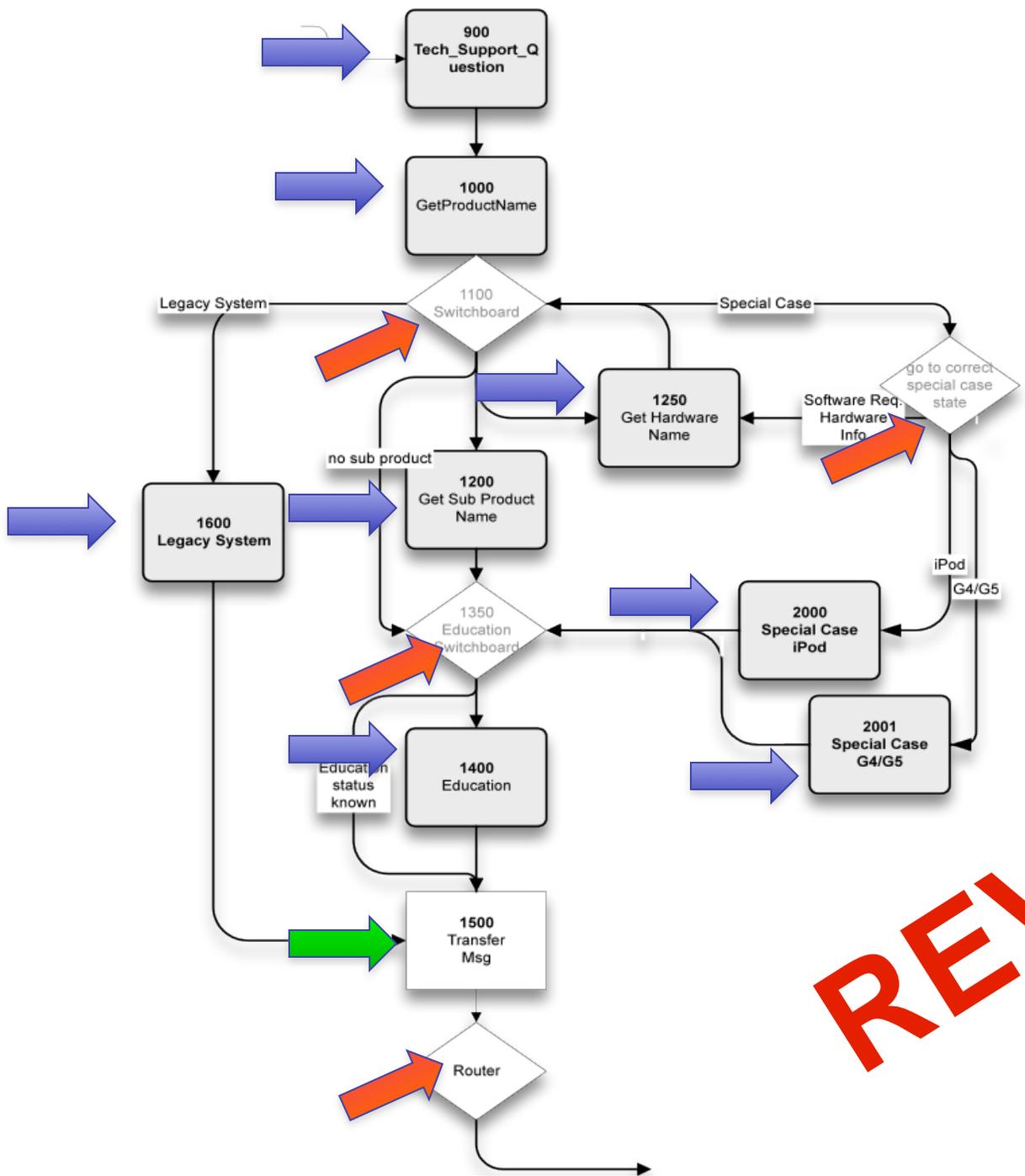
What did you experience in your tests?

Usability:

Mental Model Mismatch

# State Tables: The detailed design





**REVIEW**

# For Dialog Systems: Brand New Question? Go to a New State, (generally...)

## ENTRANCE

- User enters the new state and (generally) the system asks a question and listens for an answer

## EXIT

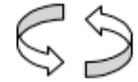
- IF the system hears something that sounds like a **good answer**, the **system exits that state** - performing an action
- IF the system hears something that **may not sound** like a good answer, the system asks the user for **clarification**, but **DOES NOT EXIT** the state, usually.
- IF the system **hears nothing**, the system asks the user for clarification, but **DOES NOT EXIT** the state, usually.
- IF there are **too many failures**, the state **fails** and **exits on failure**

**REVIEW**

Detailed Articulation of the Design:

What's happening in each state of the dialogue system?

### 3. The Interaction State Table (chapter 5 of book)



#### Number\_and\_Name\_of\_interaction\_state

Speech Input

Entering from

Name of previous states that point to this one

Prompts

Type	Name	Wording
Initial		Text for the initial prompt
Timeout 1		
Timeout 2		
Retry 1		
Retry 2		
Help		

Option	Vocabulary	DTMF	Action	Confirm.
General Option description	What the system is listening for	If there can be a touch-tone equivalent, enter the number here	Go to: fill in the name of the state that the system goes to next	(If necessary /always)
				If necessary/ always

Other Module Settings / Notes



# The Play-Prompt State Table

## Number and Name of Play Prompt State



Play Prompt		
<i>Entering from</i>		
Prompts		
Name	Condition	Wording
	always	
Condition	Action	
Always		
Module Settings		

### 3. The Branch-On-Condition State Table

Number and name of branch on condition state



Branch on Condition	
<i>Entering from</i>	
<i>Condition</i>	<i>Action</i>
<i>IF</i>	Go to:
<i>Else IF</i>	Go to:
<i>Else IF</i>	Go to:

# The 6 Principal Prompts

- **Initial prompt**
  - Asks the user to provide some information
- **Timeout prompt (no input prompt)**
  - Asks the user to provide information, but also provides additional information to users when the system didn't hear audio for (approx.) 5 seconds
- **Timeout 2 prompt**
  - Asks the user to provide information, but may also inform users to use touch-tone equivalents or to ask for help
- **Retry prompt (no match prompt)**
  - Asks the user to provide information, but also provides additional information to users when the system didn't understand what the user said
- **Retry 2 prompt**
  - Asks the user to provide information, but may also inform users to use touch-tone equivalents or to ask for help
- **Help prompt**
  - Orients the user, clarifies the question / reasoning behind asking the question allows user to answer the question again, or may re-enter the initial prompt

# Challenge!

**In class exercise:**

**Write out the prompts for the pickup/  
delivery state of a Pizza Ordering line**

# The 6 Principal Prompts

- **Initial prompt**
  - “Would you like that order for pickup or delivery?”
- **Timeout prompt (no input prompt)**
  - Asks the user to provide information, but also provides additional information to users when the system didn’t hear audio for (approx.) 5 seconds
- **Timeout 2 prompt**
  - Asks the user to provide information, but may also inform users to use touch-tone equivalents or to ask for help
- **Retry prompt (no match prompt)**
  - Asks the user to provide information, but also provides additional information to users when the system didn’t understand what the user said
- **Retry 2 prompt**
  - Asks the user to provide information, but may also inform users to use touch-tone equivalents or to ask for help
- **Help prompt**
  - Orients the user, clarifies the question / reasoning behind asking the question allows user to answer the question again, or may re-enter the initial prompt

# Challenge!

**In class exercise:**

**Transfer Funds**

## Design Exercise – Banking: The Problem

- Design the part of the banking system for **account-transfer** & must confirm that the transfer is correct
  - System must collect transfer information (minimally, From, To, and Amount)

## Design Exercise – Banking: The Requirements

- Background information
  - Accounts have numerical identifiers (9 digits)
  - your design starts AFTER the user has
    - called the bank
    - logged in (the system knows all the user’s account information)
    - from the main menu says “transfer funds”
  - Your design is complete when the user is finished and sent back to the main menu

Image of the book cover of "The Art and Business of Speech Recognition  
-- Creating the Noble Voice" removed due to copyright restrictions.

Coding?

**Today:**

We will go over the 3 simple features.

In class exercise.

You will implement a basic Pizza System

# Types Of Pages

Message Page

Question Page

Data Page

Voicemail Page

Logic Page

Transaction Page

# Types Of Pages

Message Page

Question Page

Data Page

Voicemail Page

Logic Page

Transaction Page

Login Problems? See TA's after class

# Coke Challenge!

**Users call in**

**Choose “Pepsi” or “Coke”**

**Coke voters get an option of a prize:**

*iPad, MacBook Air, iPhone 5, or a Dell...lol*

**Save votes in Data File**

**Welcome**

**Get “Pepsi” or**

**Negative Pepsi  
Comment**

**Coke Voters choose  
prize**

**Confirm Prize**

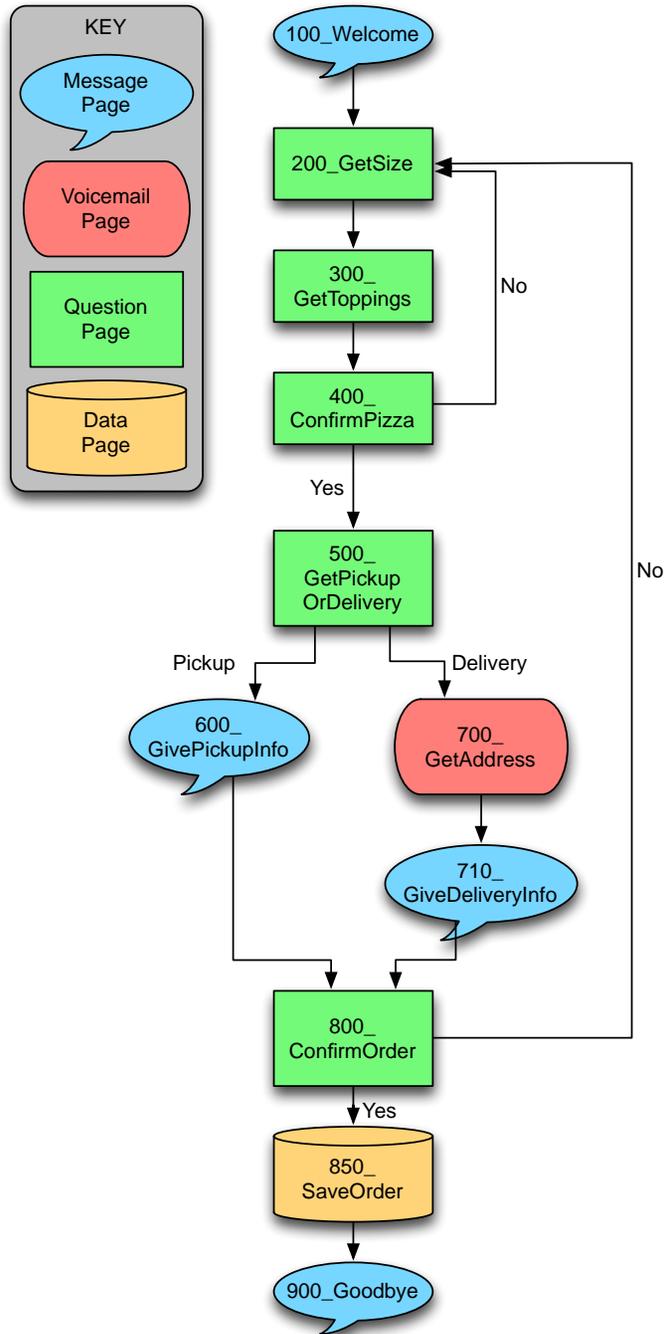
**Address for**

Message  
Question  
Voicemail  
Data

**Saves Data**

**Goodbye**

# Ready, Go!



# Homework:

- **Finish Pizza System at Home**

## *Weather System:*

- Provides weather information for your area.
- Develop K-Script
- Develop State Tables
- Call Flow Diagram

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