1ST Class – Monday, August 04, 2014

Text: Systems Anlysis and Design, 9th Edition  
Shelly Cashman Series, Course Technology CENGAGE Learning

<http://shop.oreilly.com/product/9780596009168.do>

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Assignments on WebClass

Internships - <https://www.internmatch.com/s/engineering-internship/san-diego-ca>

WebClass – Pre-Assessment Quiz

PowerPoint Presentation – Chapter1.

Scheduling  
Learn how to calculate time in the class for tasks completion time.

Project Manager

Project Leader

Project Coordinator

2ND Class – Wednesday, August 06, 2014

3rd Class – Thursday, August 07, 2014

4th Class – Monday, August 11, 2014

Meeting Minutes Review PPT Chapter4.

Requirements Modeling

GANTT Chart – System Analysis

JAD (5, 12)

TCO (6)

System Analysis

- Requirements determination

- Requirements analysis

Required to do a three level FDD (14)

UML – Use Cases, Sequence Diagrams, Class Diagrams – Structured walk-through (15-18)

Outputs, Inputs, Processes, performance, and controls (authorization levels) (19)

Do not say “must be capable of” say “must do” or “shall”

Forecast future

- Scalable: adjusting system capacity

- TCO: sum of cost and indirect expenses

Fact-Finding Techniques

Businesses are changing, don’t stay static (29)

Interviews – (30-)

1. Know who to interview

2. Establish Objectives

3. Develop Interview Questions

(Range of response questions are closed-ended questions)

4. Prepare for interview

5. Conduct the interview

6. Document the interview and take notes

7. Evaluate the interview (identify biases)

Document Review

Observations

Questionnaires and Surveys

Sampling – collect samples of actual documentation

* Systematic sample 1/10,
* stratified sample – balanced between groups 5 of 4 zip codes,
* random sample.

Research – Journals, periodicals, books, technical material, news.

Reqts:

At least 5 inputs

At least 5 outputs

At least a three level FDD

Auto-notification of milestones

5th Class – Wednesday, August 13, 2014

Toolkits

- Communication (5Ws, Audience, Expectation, Speak/Silence, Effective)

Videos of Past Presentations

[https://linuxsandbox.coleman.edu/~lrabor/Capstone%20Projects.html](https://linuxsandbox.coleman.edu/%7Elrabor/Capstone%20Projects.html)

Presentation Guidelines

- Cost-Benefit Analysis

(In budget, use financial analysis tools)

Evaluate cost at the end of each SDLC phase.

Projected benefits outweigh project costs

Tangible cost – can touch and assign a dollar vaue to

Intangible cost – can touch and assign a dollar vaue to

Direct cost – salaries,

Indirect costs - supplies, network admin

Fixed costs –

Developmental costs - (Incurred only once – salaries, training facilities,

Operational Cost – Ongoing – Annual software license, maintenance

Benefits – Profit margin, tangible benefits, intangible benefits,

Payback Analyst - payback period

Economic useful life

Spreadsheets

ROI = (total benefits – total costs ) / total costs (slide 14)

NPV = 10%

NPV Template – composite index table shows year 1

Payback period

If pbp = year 2, go to year 3 and drop the rest of the rows after

Proposal:

- The 3 templates

- Summary

- Memo of summary of spreadsheet

Look at handout ‘Summary of Cost-Benefit Data’

Be more detailed than her revenue estimate

1st year is ‘Development’, Cost: $152,000, B enefits: None

Years Admin Technical Support Training Facilities

1 6500 3500

2 +10% = 7150 - 20% = 2800

3 7900

Revenue at year 1 is that amount.

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Tuesday 4-6 Alumni Network

SSH – Secure Security

<https://www.google.com/search?q=ssh&ie=utf-8&oe=utf-8&aq=t&rls=org.mozilla:en-US:official&client=firefox-a&channel=nts>

Reqts:

At least 5 inputs

At least 5 outputs

At least a three level FDD

Outputs, Inputs, Processes, performance, and controls (authorization levels) (19)

Outputs

- Proposal (Client)

- Email (Client)

- Analyst Report (Analyst)

- Proposal Report (ISIS)

- Client List (ISIS)

Inputs

- Client Info (Contact, needs, budget)

- User Login (Admin Panel)

- Analyst Input

- Proposal Report Parameters

- Administrative UI

Processes

1. User login validation: a) client b) backend

2. Add/edit/delete account

3. Add client input to DB

4. Survey/Questionnaire

5. System generates 3 reports to DB

6. Session Timeout Message (5-minute pause of client input -> warning (20 minute time-out))

7. Stale Data purge

8. Error Handling and Error Logging

Performance

- No unscheduled down-time

- 30-second client input -> analyst view

- 30-second proposal generation

- 30-second email generation

- 30-second client input -> analyst view

- Survey response time not to exceed 5-seconds

- Up to 250 db connections

Controls (authorization levels) (19)

- System Admin (user level permissions, doc mgmt, rules for data purge (proposed document))

- DB Management (maintenance, upgrades)

- Web server maintenance (Session Timeout Rules)

- Documentation (Workflow, User manual)

-

Design phase – algorithm

5 minimum

FDD – Functional Decomposition Diagram (3-level)

Proposal Generation

**ISIS Cost-Benefit Data**

**Developmental Costs:**

* Salaries
* Training Center
* Other
* Total
* Additional

**Developmental Costs:**

* Administration
* Technical Support
* Training Salaries
* Supplies
* Facilities
* Depreciation of hardware

Eli asks Leticia: Connection pool –php has a persistent connection. Avoid the persistent connection.

Next week - DFDs are the most confusing chapter.

Erich will assign work for the Cost-Benefit Analysis

9:30 11:30

6th Class – Monday, August 18, 2014

DFDs, Data Processing and Modeling

Evaluation of Team Members  
Proposal submitted as a team  
Data dictionary

Chapter 5 Data Process Modeling – Phase 2 (SDLC) Systems Analysis

Data flow diagrams (DFD)

Data dictionary

DFD Symbols (Gane and Sarson symbol set, Yourdon symbol set)

Process symbol contains business rules, does i/o, a black box.

A black hole (does not produce an output) (Slide 9)

A gray hole (not enough data to produce an output)

Data store

Plural names

Must be connected to a process, optionally to a data store, must have one input and one output.

Entity Symbol (Slide 11)

- Can be Terminators (Source (produces) and a sink (consumes))

Step 1. Draw a Context Diagram (Slide 15)

Top-down (Over-view of the system)

Bottom-up (Functional primitives – lowest level) (in leveling e.g 4, 4.1, 4.1.1)

Diagram Zero – Looking Inside, zooming in on the detail. (No more than nine processes)

Context Diagram

“Event

Management System”

Divergent Data Flow

Do a Process Dictionary. Also can do a Data Dictionary, Record Dictionary.

7th Class – Wednesday, August 20, 2014

**Chapter 7 Development Strategies – Phase 2 of the SDLC**, Chapter 7.ppt

Build or buy?

Horizontal Application, Vertical Application

Software Vendor, Value Added Reseller (VAR), Customizing a Software Package, Outsourcing,

Application Service Providers (ASP), User Applications, Select a Software alternative,

In-House Development – SDLC

Buy Software Package (Steps) (Slide 13)

Customize Package

Steps in Evaluating and Purchasing Software Packages (Slides 15- 20)

Completion of System Analysis

- Presentation to Management

- Transition to System Design

Logical Design, Physical Design, Prototyping.

Prototyping – System Prototyping, Throwaway Prototyping, Benefits (Slide 30), Problems,

Prototyping Tools (Slides 32-37).

Overview of Systems Design (Slide 38), Considerations,

**Chapter 8 User Interface, Input and Output Design – Phase 3 of the SDLC**, Chapter 8.ppt

**Phase Description**

Begin Physical Design of System.

Output Design Issues –

Types of Reports –

Concepts of User Interface Design –

Guidelines of User Interface Design –

User Interface Design Techniques –

**Introduction**

Output Design – Online catalog, e-mail, audio, automated fax, Computer output microfilm (COM)

Computer output to laser disk (COLD),

Turnaround documents are output that also is used for input (with barcode)

Types of Reports – Exception Report, Summary Reports. Have user-involvement.

Printed, Screen.(Slide 13)

Concepts of User Interface Design – Evolution of UI – Process control, centralized, user-centered, good HCI,

User-centered – six panels (slide 19)

Guidelines of User Interface Design – Attractive, (Slide 20-)

1. Focus on basic objectives
2. Build an interface that is easy to learn and use
3. Provide features that promote efficiency
4. Make it easy for users to obtain help or correct errors
5. Minimize input data problems
6. Provide feedback to users
7. Create an attractive layout and design
8. Use familiar terms and images

Focus on basic objectives

Build an interface that is easy to learn and use

Provide features that promote efficiency

Make it easy for users to get help or correct errors

Minimize input data problems

Provide feedback to users

Create an attractive layout and design

Use familiar images

UI Controls –

* Menu bar
* Toolbar
* Command button
* Dialog box
* Text box
* Toggle button
* List box – scroll bar
* Drop-down list box
* Option button, or radio button
* Check box
* Calendar control
* Switchboard

Input Design 6 major objectives (slide 35)

* To select a suitable input and data entry method – Batch input, Online input, tradeoffs
* To reduce input volume. Guidelines (slide 38)
* To design attractive data entry screens. Guidelines (slide 39-43)
* To use validation checks to reduce input errors 8 types of data validation (slides 45-46) - Sequence check, Existence check, Data type check, Range check – limit check,

Reasonableness check

* To design required source documents (slides 47-48)
* To develop effective input controls – traceable back to the input data, Audit trail, Data security, Records retention policy, Encrypted – encryption

Due:

DFDs, Data dictionary.

Database – 3rd normal form.

8th Class – Thursday, August 21, 2014

**Chapter 9 Data Design – Phase 3 of the SDLC**, Chapter 9.ppt

Data Design Concepts – Database design, ERD, DFD, all entities connected (and data stores as entities).

Data

Problems:

1. Data redundancy

2. Data integrity

3. Rigid data structure (validity of data)

Uses various types of files

- Master file (system files)

- Table file (data)

- Transaction file (committed)

- Work file – scratch file (hot swappable)

- Security file (restore from backup)

- History file (archive)

DBMS Components

ERD

Action – Diamond – verb

Entity – Rectangle – noun

Relationships: One-to-one, One-to-many, Many-to-many

Cardinality is the numerical relationship

Visio (screen shop)

8 types of Codes

* Sequence Codes (numbers)
* Block Sequence Codes
* Alphabetic Codes (LAX)
  + Category Codes (Dept HW – Hardware)
  + Abbreviation Codes (pneumonic, NY – New York)
* Significant Digit Codes
* Derivation Codes (Combine)
* Cipher Codes (encode to, decode from a cipher)
* Action Codes (A-add report, X-exit, D-delete)

8th Class – Thursday, August 21, 2014

**Work on Project**

9th Class – Monday, August 25, 2014

**Chapter 10 System Architecture –Phase 3 of the SDLC**, Chapter 10.ppt

10th Class – Wednesday, August 27, 2014

**Chapter 11 System Implementation –Phase 4 of the SDLC**, Chapter 11.ppt

We’re in the System Implementation Phase.

Review to previous designs.

Follow the Implementation Plan for the project

Final Proposal – don’t include anything from the first proposal.

Lots of write-ups:

- Implementation Plan (Sections TOC, 1, 2, 3)

- Test Plan

- Training Plan

- Security Policy

Update the Table of Contents. Keep the fonts the same.

Strict on the documents

Midterm – Study Chapters 1-9 and Toolkits

Agile Development – Managing IT Teams and I hate it. If there’s a good scrum master.

Eliminate problems early, ASAP. Do your own QA on the documents and uplight.

Difference with Programmers, Developers and Software Engineers.

Software Engineers do it all.

Software Engineering Institute (SEI) has the Capability Maturity Model (CMM) – Five Levels

Capability Maturity Model Integration (CMMI) (slide 6)

ISO

Application Development steps – design, coded, tested, documented. (slide 8)

Top-down approach, modular design or partitioning, flowcharts, psuedocode,

O-O Applixcation Development,

Coding – good design = good project

Testing – Unit Testing (testing modules): test data, test stubs, test plan.

Testing – Integration Testing: two or more programs depend on each other. (slide 13)

Documentation – Internal and External

Training – Training plan, Vendor training, Outside training resources, In-house training (slide 16)

Data Conversion –

System Changeover – Direct Cutover, Parallel, Pilot operation, Phased Operation (slide 18)

Post-Implementation Tasks (slide 19) – Assess the overall quality, meets reqts, feedback, (20-23)

Implementation Plan Template – Take out blue, notes, update TOC, research for understanding,

Section 4 – If your system is executed at another site.

It is very long, possibly divide it into sections.

Assignments:

- Executive Summary (Erich)

- Implementation (Erich)

- Training (Stephen)

- Test (Mike)

Also will include the Executive Summary.

Next class is Wednesday because Monday is a Holiday. We will take practice midterms.

Thursday we take the Mid-term

Minutes: Mike – Downloaded the minutes during the previous phase which are included in the project Proposal 2. Then deleted the minutes (files) from Freedcamp to recover storage space. Before this action, the storage space was 70% used, after the storage space became 40% used.

Meeting (09:30-11:00):

Snapshots of result of grading the Proposal 2. We need to fix the error.

11th Class – Wednesday, September 3, 2014