



Digital Systems

1.1 Introduction to MIS

FOX
MIS

Welcome!

Spring 2022

FOX
MIS

Introduction to Instructor

- ❖ Leila Hosseini
- ❖ Assistant Professor of Management Information Systems (MIS)
- ❖ PhD in MIS
- ❖ University of Texas at Dallas (UTD) Alumni
- ❖ Teaches Undergraduate Courses in MIS
- ❖ 18+ Years of Programming Experience



Introduction to Instructor

Research Interests:

- ❖ Digital Systems
- ❖ Cloud Computing
- ❖ Digital Advertising
- ❖ Internet of Things (IOT)

Business Communities:

- ❖ Boston
- ❖ Dallas

Introduction to Instructor

Office Hours:

- ❖ Tuesdays and Thursdays 3:30 PM – 4:30 PM.
- ❖ And also, by appointment. Please email me to schedule your meeting.

Email:

leila.hosseini@temple.edu

Office:

Speakman 206E

Introduction to Instructor

Email Policy:

- ❖ Make sure that you always place our course name and section in the subject line. See below for an example:

Subject: MIS 2101 sec 001

Course Support

Information Technology Assistants (ITAs):

- ❖ Mona Younes
- ❖ Raihana Choudhury

Course Support: ITAs

Mona Younes

❖ Email: mona.younes@temple.edu



Course Support: ITAs

Raihana Choudhury

❖ Email: Raihana.Choudhury@temple.edu



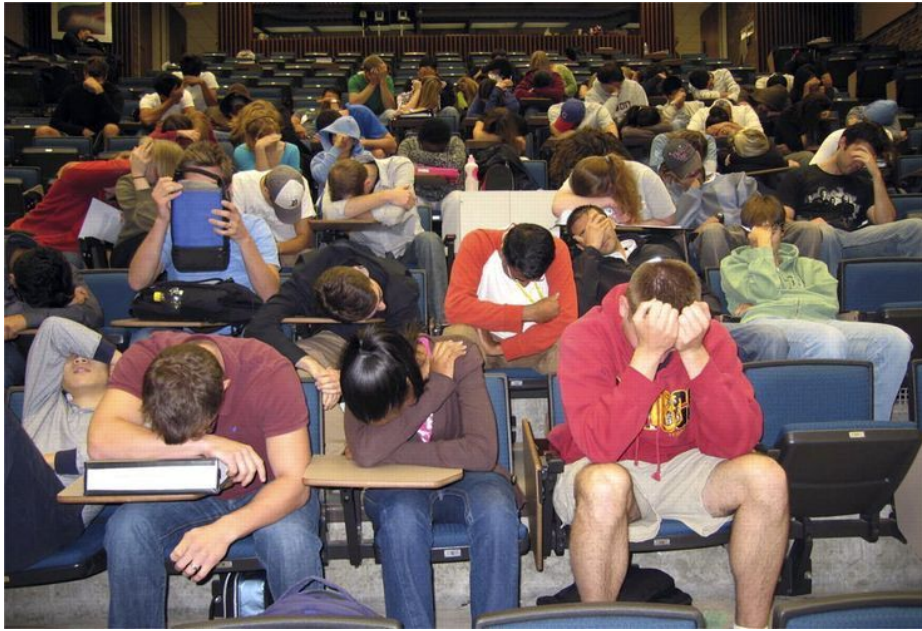
***“Tell me and I forget.
Teach me and I remember.
Involve me and I learn.”***

- Benjamin Franklin

Managing Expectations

- ❖ This class is unique!
- ❖ We will work through challenges together...plan on it!
- ❖ You will find the class engaging and fun!
- ❖ You will acquire knowledge and skills that you will use in future classes and your career!!!

Lecture vs. Activities



Source: <https://www.theodysseyonline.com/11-things-college-lecture-hall>

- 3 Hours of zzzzzzzzz's



- 1 Hour Discussion
- 2 Hours of Activity

Course Highlights

First Two third of the semester:

- ❖ Systems Analysis
- ❖ Process Mapping (Modeling with swim lanes & entity relationship diagrams)
- ❖ Digital Product Management
- ❖ Information Systems CRM & ERP, Data Analytics & SCM
- ❖ Platforms & Digital Business models, including API's
- ❖ Cyber security and the Enterprise plus AI

Last third of the semester:

- ❖ Programming including: JavaScript, HTML & CSS

Course Objectives

- ❖ Explore the systems which organizations use to create their digital products
- ❖ Explore the platforms which these digital systems are built upon
- ❖ Explore the API ecosystems by which systems extend their reach and capability.
- ❖ Discuss cyber security including risks & responses surrounding digital products
- ❖ Introduction to the creation of software
- ❖ Learning the basics of programming in JavaScript

Course Sites

MIS Community Course Site (CCS):

<https://community.mis.temple.edu/mis2101sec001spring2022/>

Canvas Site (for In-Class Activities and Assignments):

<https://templeu.instructure.com/courses/108108>

Graded Components

Component	Percentage
In-Class Activities & Worksheets * must be present in class to earn credit – no exceptions! * Students may miss up to two in-class activities. All activities are graded pass/fail based on due diligence.	10%
Assignments ** no late assignments accepted – no exceptions!	30%
Exam #1 (50 minutes)	20%
Exam #2 (50 minutes)	20%
Exam #3 (60 minutes – held during finals week)	20%

Link for Grading Webpage: <https://community.mis.temple.edu/mis2101sec001spring2022/>

Grades will be available on [Canvas](#) and [Gradebook on CCS](#).

*In-Class activities must be submitted while in class.

**Completed assignments will not be returned in class. Grades will be posted to the gradebook. Please note that two weeks after a grade is posted, the grade will be considered “final.”

Readings & Videos (first 2/3's of the semester)

- No required texts the first 2/3's of the semester!



- Engaging collection
- Current content
- Available for Free!!!

Link for Readings: <https://community.mis.temple.edu/mis2101sec001spring2022/>

Link for Videos:

<https://community.mis.temple.edu/mis2101sec001spring2022/video-vault/>

Readings & Videos (first 2/3's of the semester)

The Max Labs Assignments

The fee associated with the MaxLab assignments is \$19.99. You will be required to pay the fee as you start the first Lab. DO NOT skip ahead and pay for the Max Lab. Listen carefully in-class to your instructor for additional details.



Readings & Videos (last 1/3's of the semester)

JavaScript Absolute Beginner's Guide

Author: Kirupa Chinnathambi

Series: Absolute Beginner's Guide

Paperback: 416 pages

Publisher: Que Publishing; 2nd edition

Language: English

ISBN-13: 978-0-13-650289-0

ISBN-10: 0-13-650289-X



Technology Requirements

- ❖ A laptop is required for this course, see the [Fox Laptop Policy](#) for minimum specifications.
- ❖ [Fox Laptop Support](#) is available. You are responsible for attending all classes with a fully functional Fox Laptop.

Technology Requirements

- ❖ Limited resources are available for students who do not have the technology they need for class. Students with educational technology needs, including no computer, should submit a request outlining their needs using the [Student Emergency Aid Fund](#). The University will endeavor to meet needs, such as with a long-term loan of a laptop or Mifi device, or a refurbished computer.

Software

Google Chrome



- ❖ Download and Install Google Chrome

Visual Studio Code

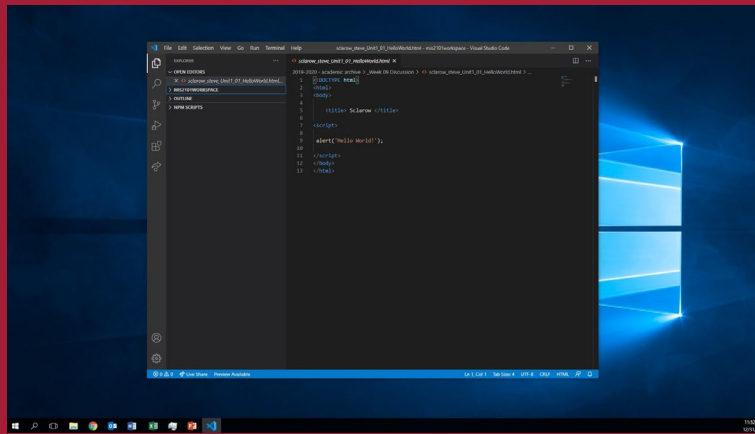


- ❖ Installing-VS-Code-Windows
- ❖ Installing-VS-Code-Mac

Class Captures

Link for Class Captures:

<https://community.mis.temple.edu/mis2101sec001spring2022/zoom-virtual-classroom/>



Assignment 1: Course Intro Video

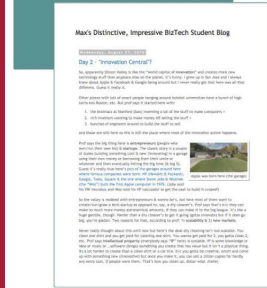
Spring 2022

Deadline: Friday

Jan 14 by 8:00 PM

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Business Systems Innovation Labs Pre-lab Pre-flight Checklist



"Distinctive, Impressive BizTech Student Blog" (Backstory)

SJSU Business Systems student Max sets out to blog her class, stumbles into a startup adventure, and invites you to follow along.

Prep: What do you need to start?

To get the most out of this pre-lab, you need a healthy curiosity, a sense of humor and a little imagination. Focus, read for understanding, and put yourself in Max's shoes so you don't just read it—you *experience* it.

Assignment 2: Max Labs Pre-Flight

Spring 2022

**Deadline: Tuesday
Jan 18 by 8:00 PM**

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Digital Systems

1.2 What are Systems?

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ROADMAP

START

Week 1:

Introduction & Systems Analysis

- Course Description
- Systems Thinking

Week 2:

Digital Product Management & Introduction to Process Mapping

- Max Labs 1a & 1b
- Systems & Processes
- Swim Lane Diagrams

Week 3:

Data Modeling with Entity Relationship Diagrams

- Swim Lane Diagrams
- ERD Diagrams

Week 4:

Digital Systems – Learn IT! #1

- ERD Diagrams
- Learn IT Kickoff

Week 5:

Exam #1, Max Labs & Information Systems: Part I & II

- CRM & ERP

Week 9:

Exam #2 & JavaScript Unit #1

- Parts I & II
- Hello World, Variables

Week 8:

Information Systems & Cybersecurity

- Protection Protocols
- Artificial Intelligence

Week 7:

Platforms & Digital Business Models: Part I & II

- Platforms & Digital Models
- APIs

Week 6:

Information Systems: Parts I - III

- Data Analytics
- SCM

Week 10:

JavaScript Unit #2 Functions

- Values & Variables
- Operator types
- Strings

Week 11:

JavaScript Unit #3 Logical Operators & Conditional Logic

- Logical Operators
- Conditional Types

Week 12:

JavaScript Unit #4 Loops

- Intro to Loops
- While and Do

Week 13:

JavaScript Unit #4 Working with Loops & HTML & CSS Unit

- Writing the code
- HTML & CSS Basics

Week 14:

HTML & CSS Unit (continued)

- HTML & CSS Basics
- Course Reflection

FINISH

Learning Objectives

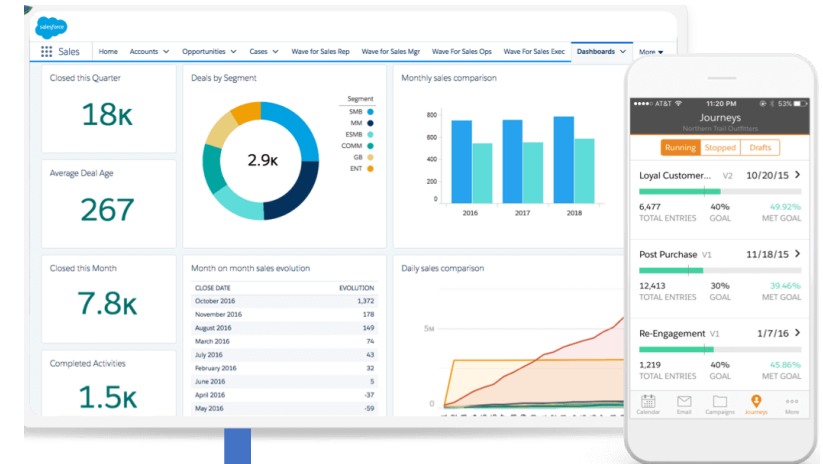
- ❖ Management Information Systems (MIS)
- ❖ System Definition
- ❖ System Development/Design
- ❖ System Architecture

Management Information Systems (MIS)

What is MIS?

- ❖ In MIS, we use Information Technology to solve business problems.
- ❖ MIS is **NOT** Computer Science.

MIS is about business where we train people to do what? **Use technology to solve day-to-day business problems**



Sources:

https://c1.sfdcstatic.com/content/dam/web/en_us/www/images/products/what-is-salesforce/whatis-jumbo-astro-product.png

https://www.kindpng.com/picc/m/568-5683178_real-cash-stack-100-dollar-bill-hd-png.png

System Definition

World View – A collection of “Systems”

Systems = People + Process + Technology

- ❖ Manipulation of information = value
- ❖ Managed by MIS professionals
- ❖ Systems surround us 24/7
- ❖ Application Program Interface (API's)



Source: <https://www.aecom.com/ca/management-information-systems-mis/>

Understanding Systems

Case Study 1:

Buying textbooks on Amazon

The screenshot shows an Amazon search for "javascript absolute beginner's guide / kirupa chinnathambi". The search results are sorted by price from low to high. The top result is "JavaScript Absolute Beginner's Guide" by Kirupa Chinnathambi, published in July 2016. It is available in paperback for \$19.06 (originally \$29.99) and on Kindle for \$14.39 (originally \$23.99). The book has a 4.5-star rating from 29 reviews. A Prime offer is available: "FREE One-Day. Get it Tomorrow, Jul 23".

Below this, there are two sponsored results:

- "JavaScript: Programming Basics for Absolute Beginners (Step-By-Step) (Volume 1)" by Nathan Clark, published in August 2017. It is a paperback for \$16.38 with a 4.5-star rating from 33 reviews. A Prime offer is available: "FREE Delivery Wed, Jul 24".
- "Programming for Beginners: 3 Books in 1- HTML+CSS+JavaScript (Basic Fundamental Guide for Beginners)" by MG Martin, published in September 2018. It is a paperback for \$24.99 with a 4.5-star rating from 13 reviews. A Prime offer is available: "FREE Delivery Wed, Jul 24".

The left sidebar shows the department "Books" with sub-categories like "JavaScript Programming" and "Introductory & Beginning Programming". It also displays "Avg. Customer Review" with star ratings and "Computer User Books" for "Beginners & Seniors".

Understanding Systems

Case Study 1: Buying textbooks on Amazon

❖ What was part of that system?

- ✓ Log-in (multiple steps)
- ✓ Search
- ✓ Shopping Cart
- ✓ Purchase (Multiple steps)
- ✓ What else???

The screenshot shows an Amazon search results page for the query "javascript absolute beginner's guide / kirupa chinnathambi". The page features a navigation bar at the top with the Amazon Prime logo, a search bar containing the query, and a "Stock up for college" banner. Below the navigation bar, there is a section for "1 result for 'javascript absolute beginner's guide / kirupa chinnathambi'" with a "Sort by: Price: Low to High" dropdown. The main content area displays several book listings. The first listing is for "JavaScript Absolute Beginner's Guide" by Kirupa Chinnathambi, published on Jul 18, 2016. It has a 4.5-star rating from 29 reviews. The paperback price is \$19.99 (originally \$29.99), and it is available for Prime One-Day delivery. The Kindle price is \$14.39 (originally \$29.99). The second listing is a sponsored result for "JavaScript: Programming Basics for Absolute Beginners (Step-By-Step) (Volume 1)" by Nathan Clark, published on Aug 16, 2017. It has a 4.5-star rating from 33 reviews. The paperback price is \$16.38, and it is available for Prime Free Delivery on Wed, Jul 24. The third listing is another sponsored result for "Programming for Beginners: 3 Books in 1- HTML+CSS+JavaScript (Basic Fundamental Guide for Beginners)" by MG Martin, published on Sep 18, 2018. It has a 4.5-star rating from 13 reviews. The paperback price is \$24.99, and it is available for Prime Free Delivery on Wed, Jul 24. The page also includes a left sidebar with navigation options such as "Department", "Avg. Customer Review", "Computer User Books", "Accessibility Features", and "Condition".

Understanding Systems

Describe the Process of Ordering

❖ What keeps info accurate?

✓ Data

❖ Who is involved?

✓ Customer ♦ Store ♦ Warehouse Mgr. ♦ Admin ♦ UPS driver...

❖ How much effort?

✓ None...it's automated!

✓ Technology !!!

The screenshot shows an Amazon product page for the book "A Smarter Way to Learn JavaScript" by Mark Myers. The page features a blue banner at the top that says "Discover the best books of 2019 so far". Below this, there is a section titled "bought together" which shows the book being viewed along with two other books: "JavaScript Absolute Beginner's Guide" and "jQuery: Interactive Front-End Web Development". The total price for all three books is \$67.83. Below the "bought together" section, there is a section titled "who viewed this item also viewed" which displays a grid of six related book covers. Below that, there is a section titled "products related to this item" which displays a grid of eight related book covers. The page also includes a "Report incorrect product information" link at the top right and page numbers "Page 1 of 9" and "Page 1 of 39".

Understanding Systems

Case Study 2: Buying Lunch from Chop! Chop!



Understanding Systems

Case Study 2: Buying Lunch from Chop! Chop!

- ❖ What was part of that system?
 - ✓ Take the order
 - ✓ Hand order to cook
 - ✓ Prep to-go bag
 - ✓ Order cooked (multiple steps)
 - ✓ What else???



**“information system –
an integrated set of components for
collecting, storing, and processing data
and for providing information, knowledge,
and digital products.”**

- Encyclopedia Britannica

A collection of technologies

Including:

- ❖ Hardware
- ❖ Software
- ❖ Policies
- ❖ Education tools
- ❖ Application Programming Interface (API)
- ❖ Etc...



Source: <https://www.kisspng.com/png-laptop-computer-hardware-computer-repair-technicia-1180595/preview.html>

API's Case Study: UBER

Requesting a ride?

- ❖ Describe what happens...
 - ✓ What are these systems?
 - ✓ How do they work?



Source: <https://www.okta.com/security-blog/2019/05/how-uber-takes-advantage-of-the-api-economy/>

System Development/Design

Four Core Steps of Designing UX

- ❖ Problem Definition
- ❖ Documenting Business Processes
- ❖ Process Decomposition
- ❖ Data Modeling



Source: <http://www.petraware.com/consulting/>

SDLC methodologies

SDLC stands for System Development Life Cycle

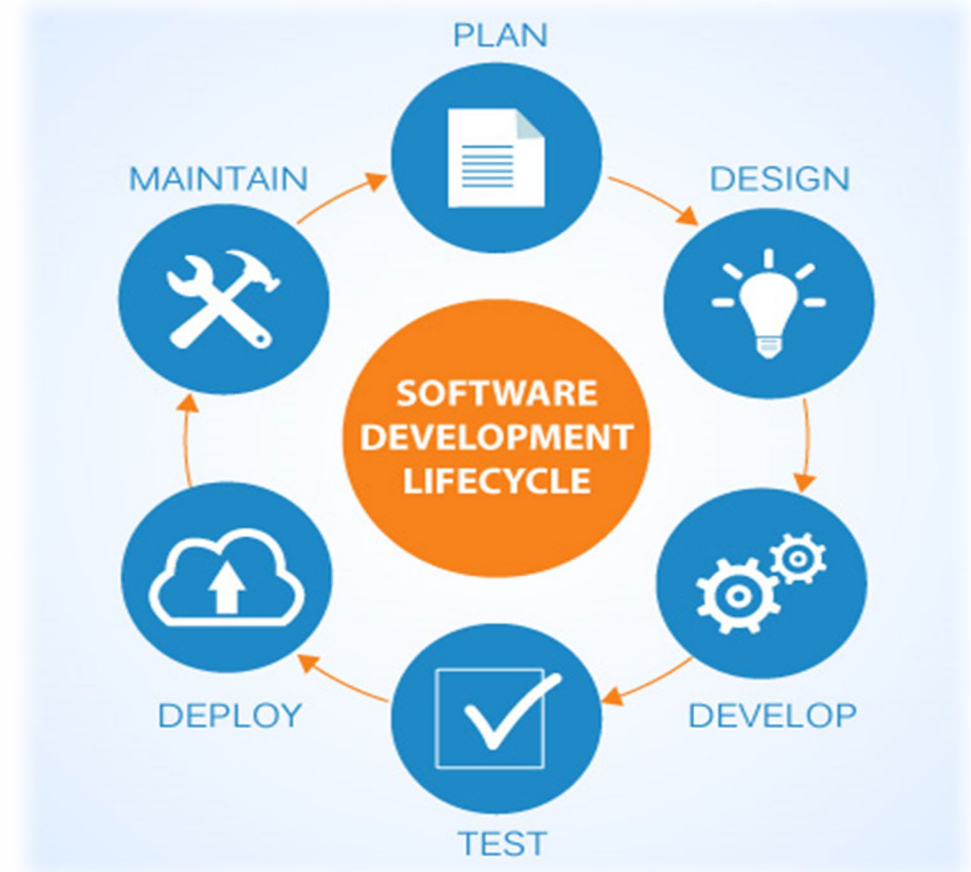


Image: <http://www.xanadutec.com/software-as-a-service.html>

SDLC methodologies

- ❖ Waterfall
- ❖ Agile
- ❖ Lean
- ❖ Scrum
- ❖ DevOps

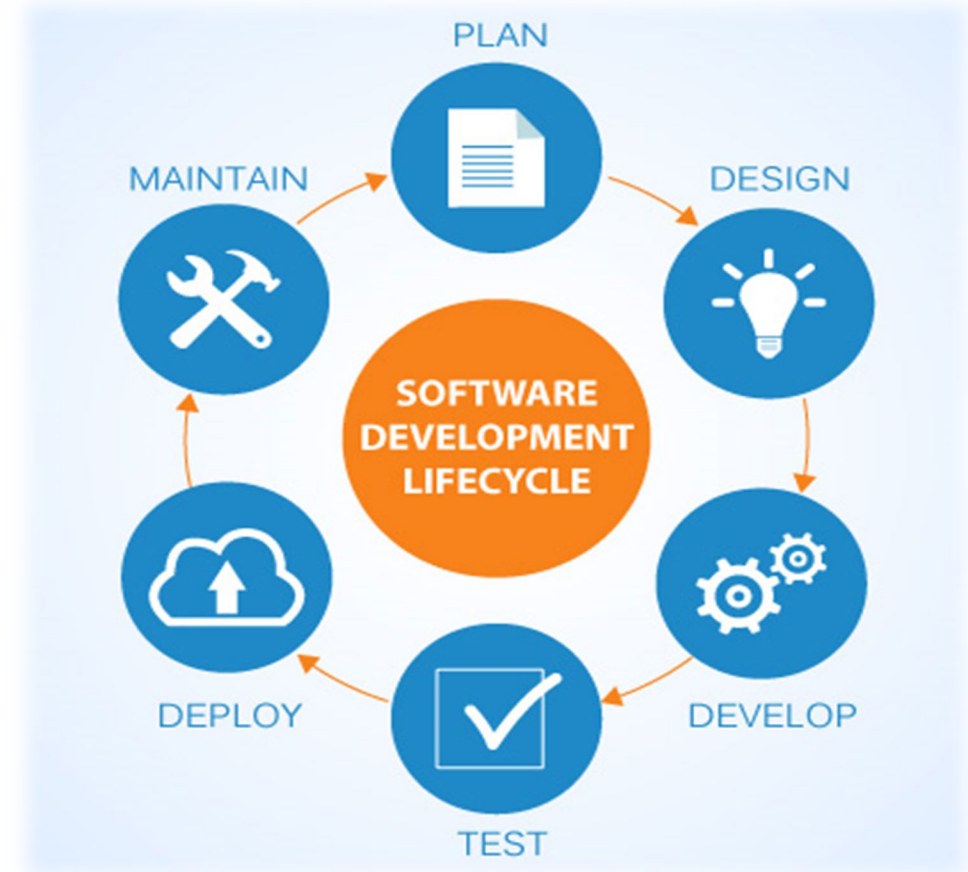


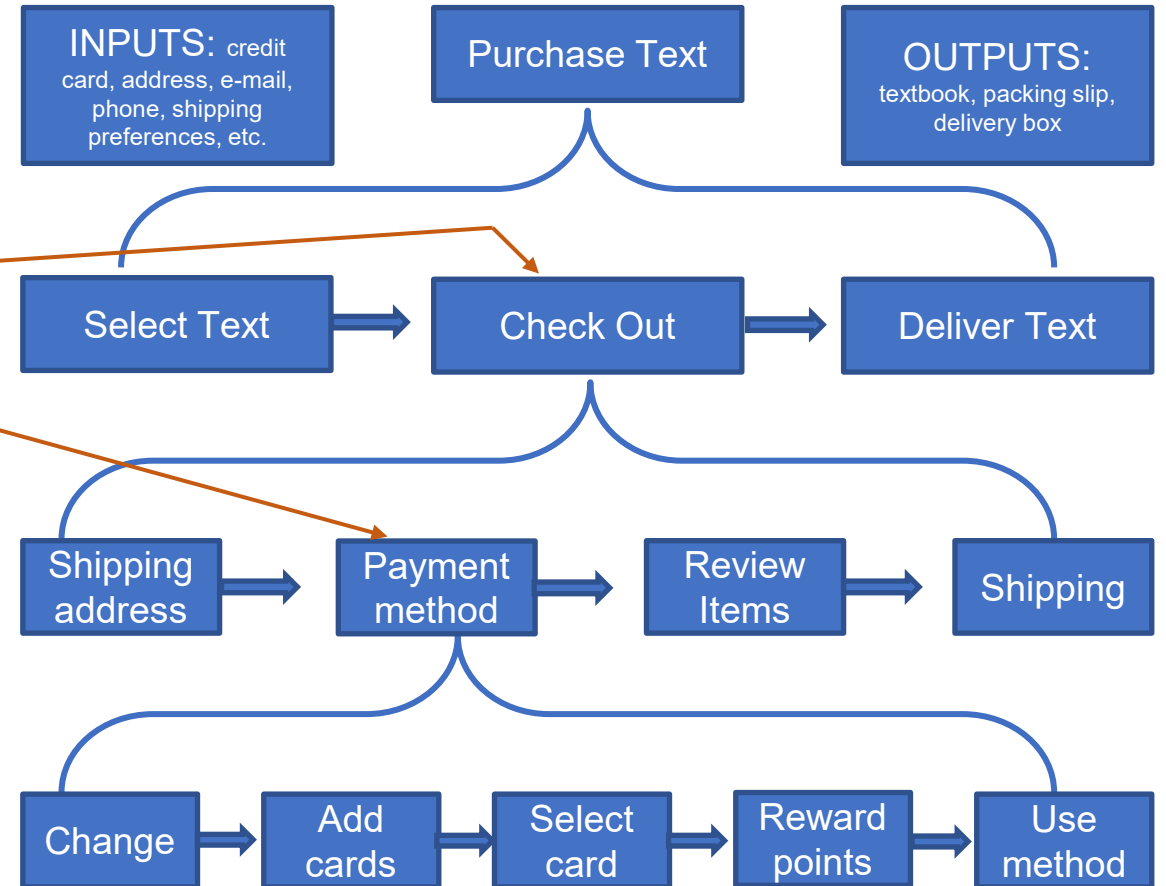
Image: <http://www.xanadutec.com/software-as-a-service.html>

“Once a Product Manager / Technologist understands the *business problem*, they can architect a solution.”

- Mart Doyle

Process Decomposition

- Single entity
- Subsystem



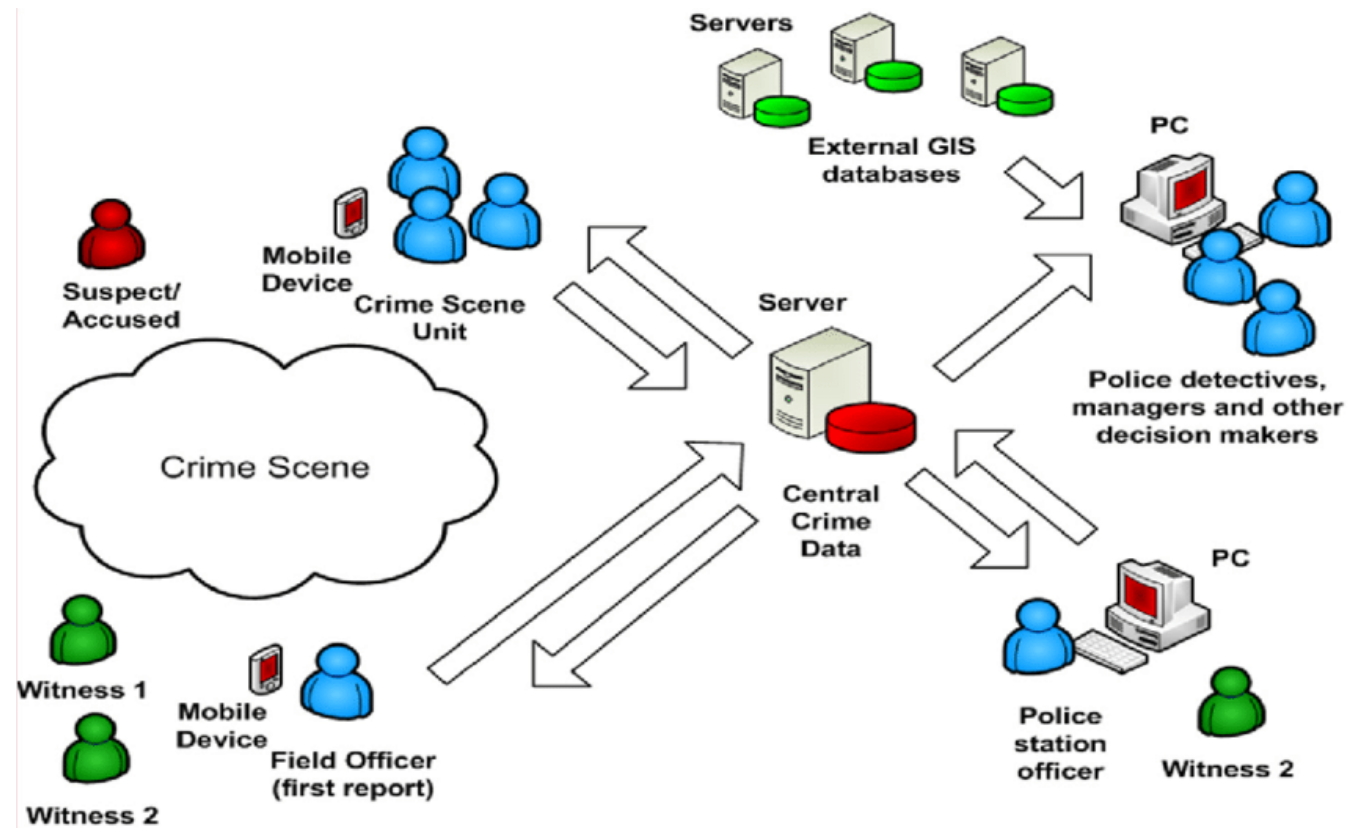
System Architecture

“Systems Architecture is a response to the conceptual and practical difficulties of the description and the design of complex systems.”

- Boris Golden

Systems Architecture

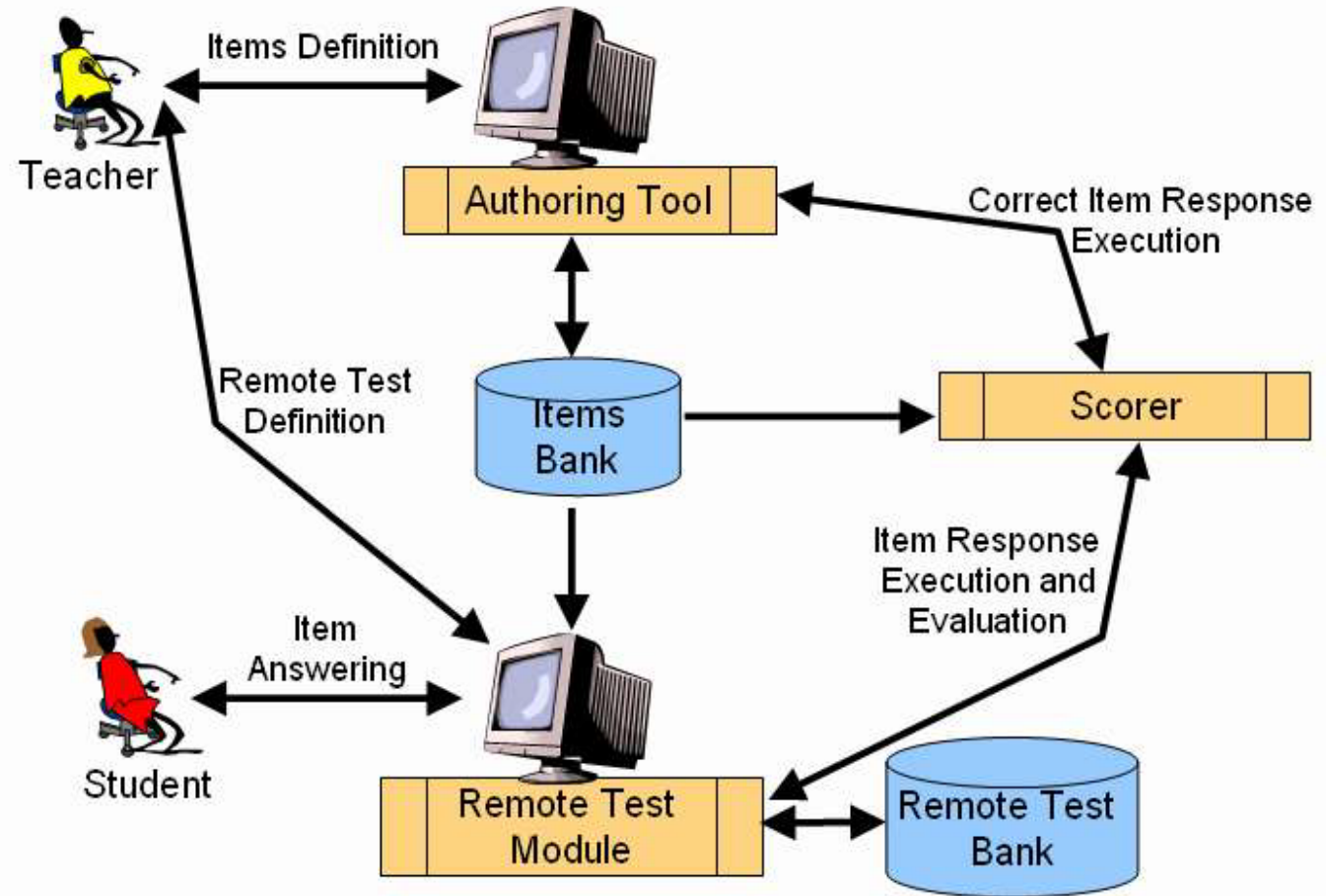
- ❖ Conceptual Diagram
- ❖ Structural components
- ❖ Identify/Solve Problems
- ❖ Existing or New
- ❖ Communication tool



Source: https://www.researchgate.net/figure/Conceptual-System-Architecture_fig2_327987580

Systems Architecture

- ❖ Test question defined
 - ✓ Authoring tool
- ❖ Remote test created
 - ✓ Test module
- ❖ Student responses
 - ✓ Test module
- ❖ Execution & Evaluation



Source: <http://spmarchitecture.com/systems-architecture/system-architecture-learning-environment-for-automatic-rating-64721-2/>

More to Come

Prepare with Readings & Videos before our next class!!!