TEMPLE UNIVERSITY

Digital Systems

1.1 Introduction to MIS

FOX MIS

Welcome!

Spring 2021

FOX
MIS

Introduction to Instructor

- **Marie-Christine Martin**
- **E-mail: mcmartin@temple.edu**
- **Office: Speakman 209J (zoom)**
- **Office Hours:**

  By appointment

Introduction to Instructor (cont.)

Education
- BS Industrial Engineering
- MBA, Finance

Pre-Temple
- IBM (Canada, USA & Singapore)
- HP Global
- Oracle, USA
- Self Employed Consultant

Adjunct Faculty
- Temple University, MIS

Full-Time Faculty Temple University
- Undergraduate - MIS
- Graduate - FOX Business School MBA & MiM
- Director of MIS Masters Programs

PHOTOGRAPHY
www.kdphotography.net

Course Support: Information Technology Assistants (ITAs)

- **Rose Listman**

rose.listman@temple.edu

Office Hours: by appointment,

send Rose an email to schedule

“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!!!**

Course Highlights

- **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**
- **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

Graded Components

Component	Percentage
In-Class Activities & Worksheets (approximately 10)	10%
Learn IT! and Max Lab Assignments no late assignments accepted – **no exceptions!**	30%
Exam #1 (60 minutes)	20%
Exam #2 (60 minutes)	20%
Exam #3 (60 minutes)	20%

*In-Class activities (ICA) must be submitted while in class (you are able to miss two ICA without penalty).

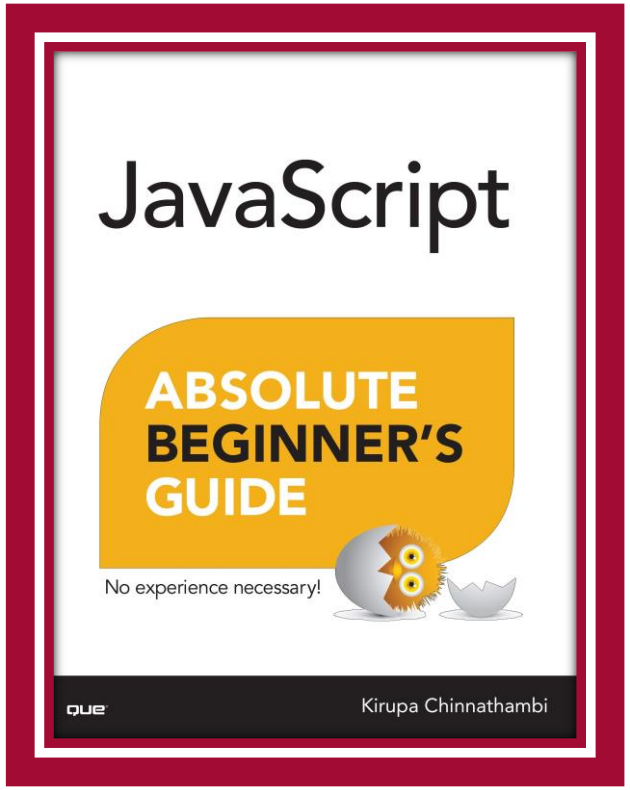
Readings & Videos – Part 1

- **No required texts the first half of the semester!**

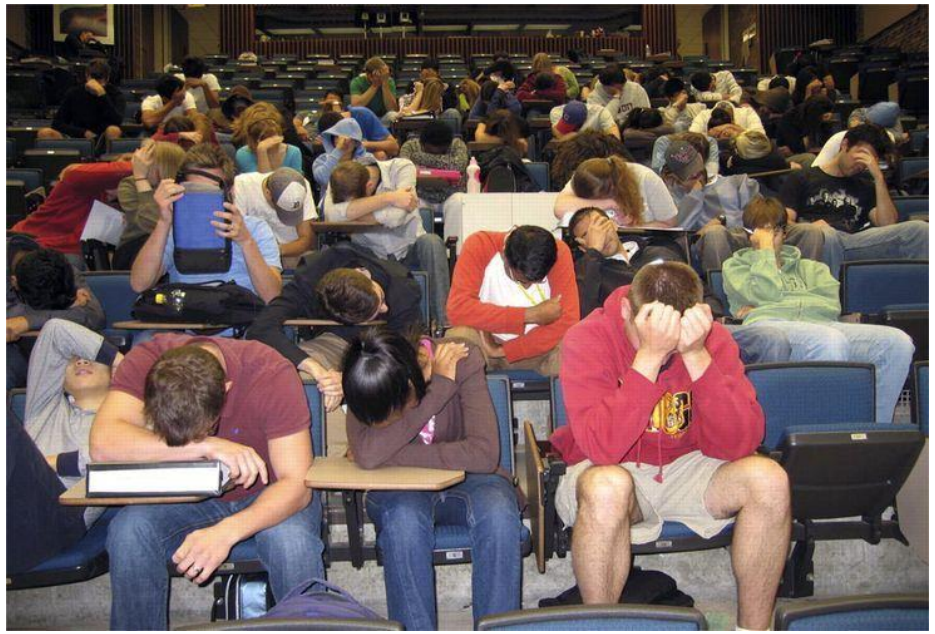
- **Engaging collection**
- **Current content**
- **Available for Free!!!**

Readings & Videos – Part 2

- **JavaScript**
  - Create simple JavaScript programs
  - Prompt users for input
  - Utilize loops
  - Process Information



Lecture vs. Activities



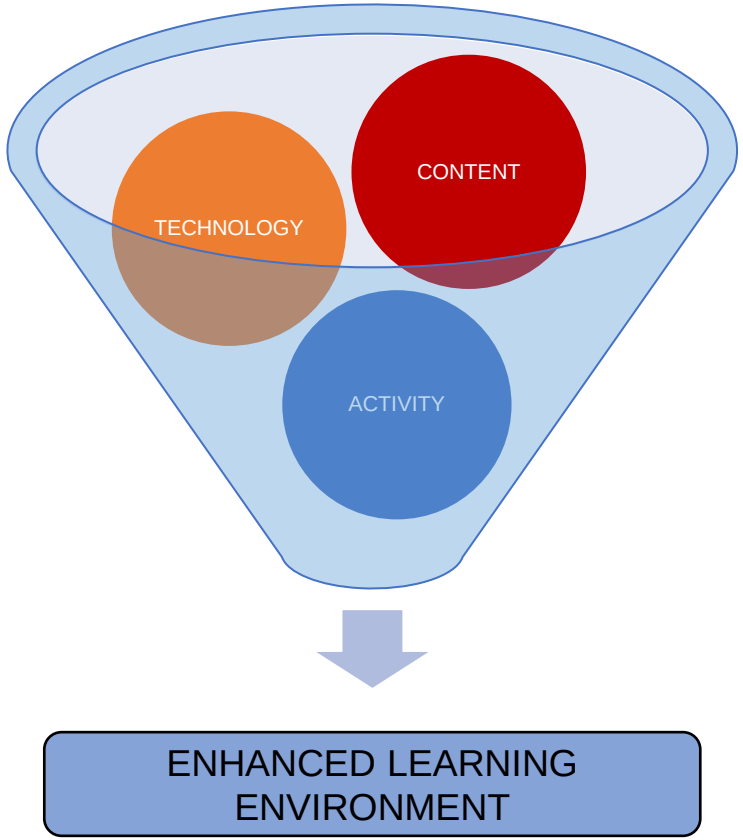
Source: https://www.theodysseyonline.com/11-things-college-lecture-hall

- 2 Hours of zzzzzzzzz's

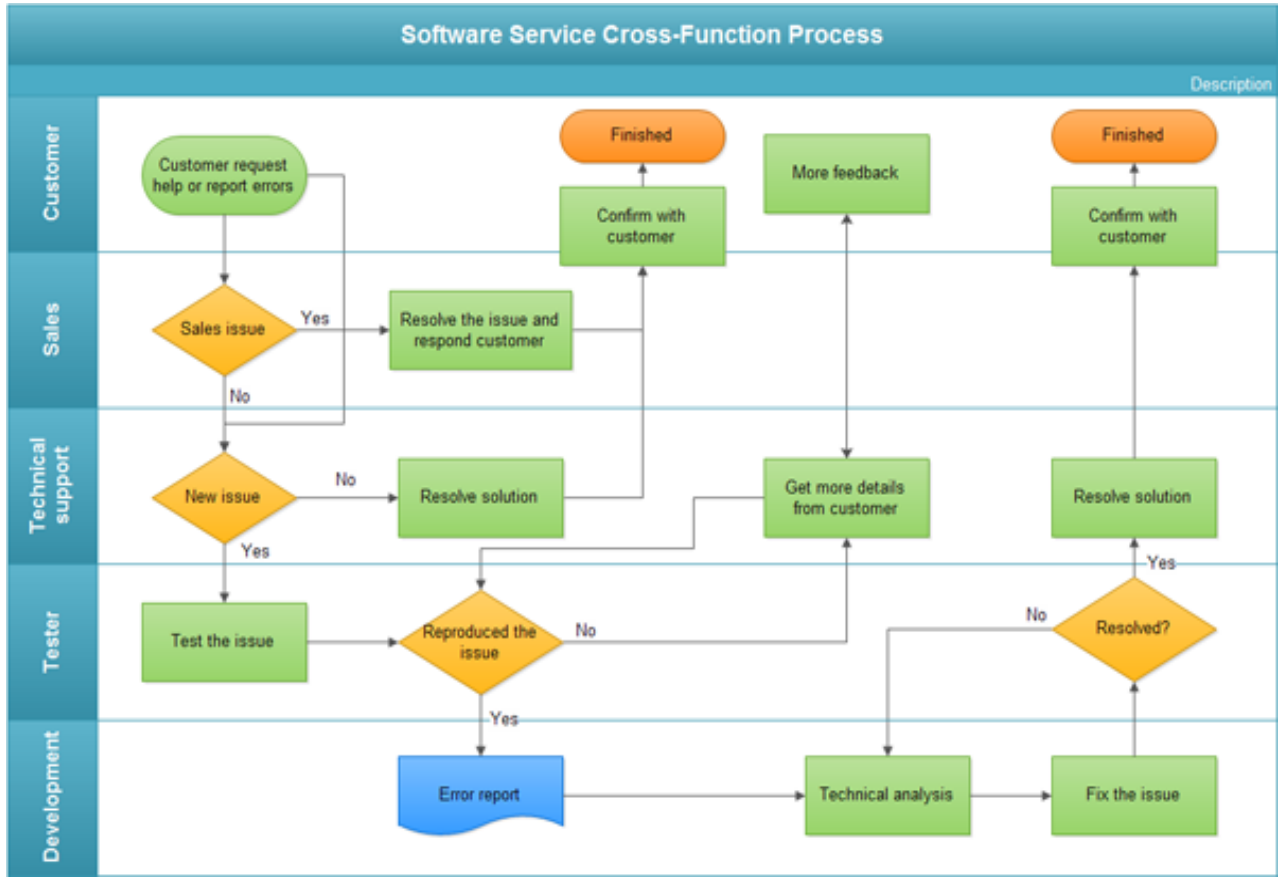
- 1 Hour Discussion
- 1 Hours of Activity

Active Learning Components

The Active Learning Funnel

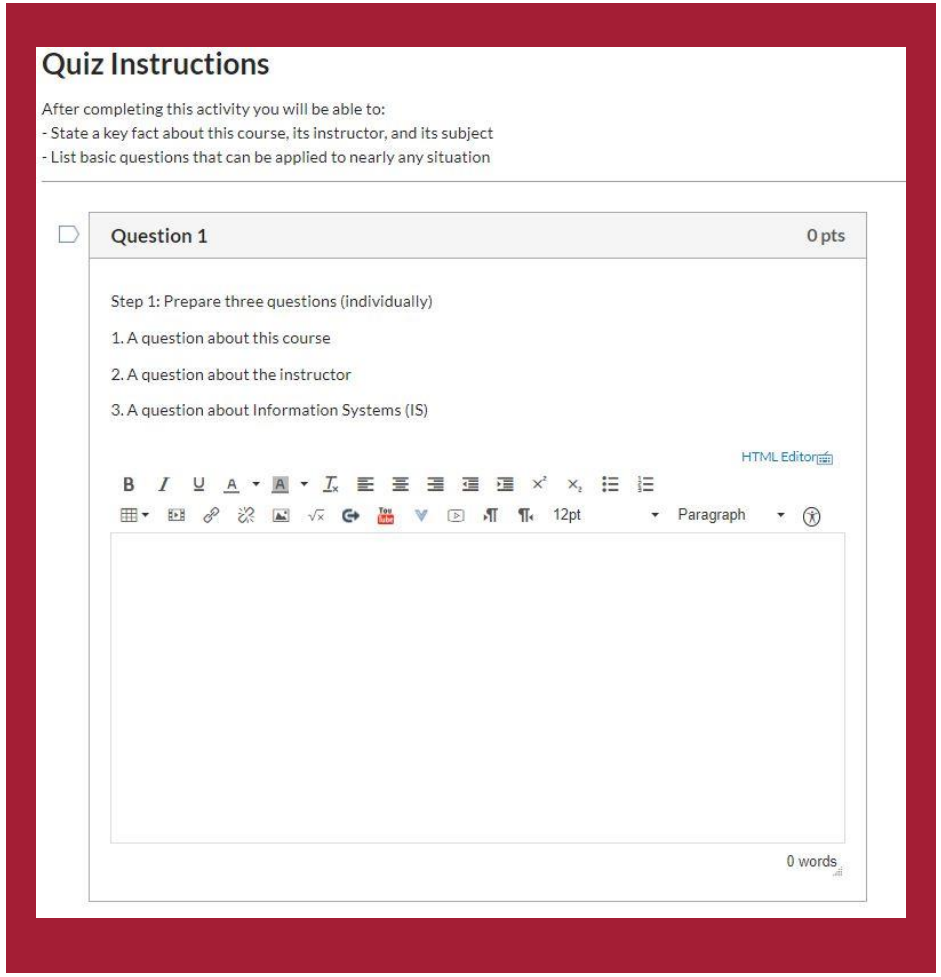


The In-class Activity



- Process Diagrams
  - Swim lane diagram
- Real life scenarios
- Knowledge Application
- Problem Solve
- Synthesize Solutions

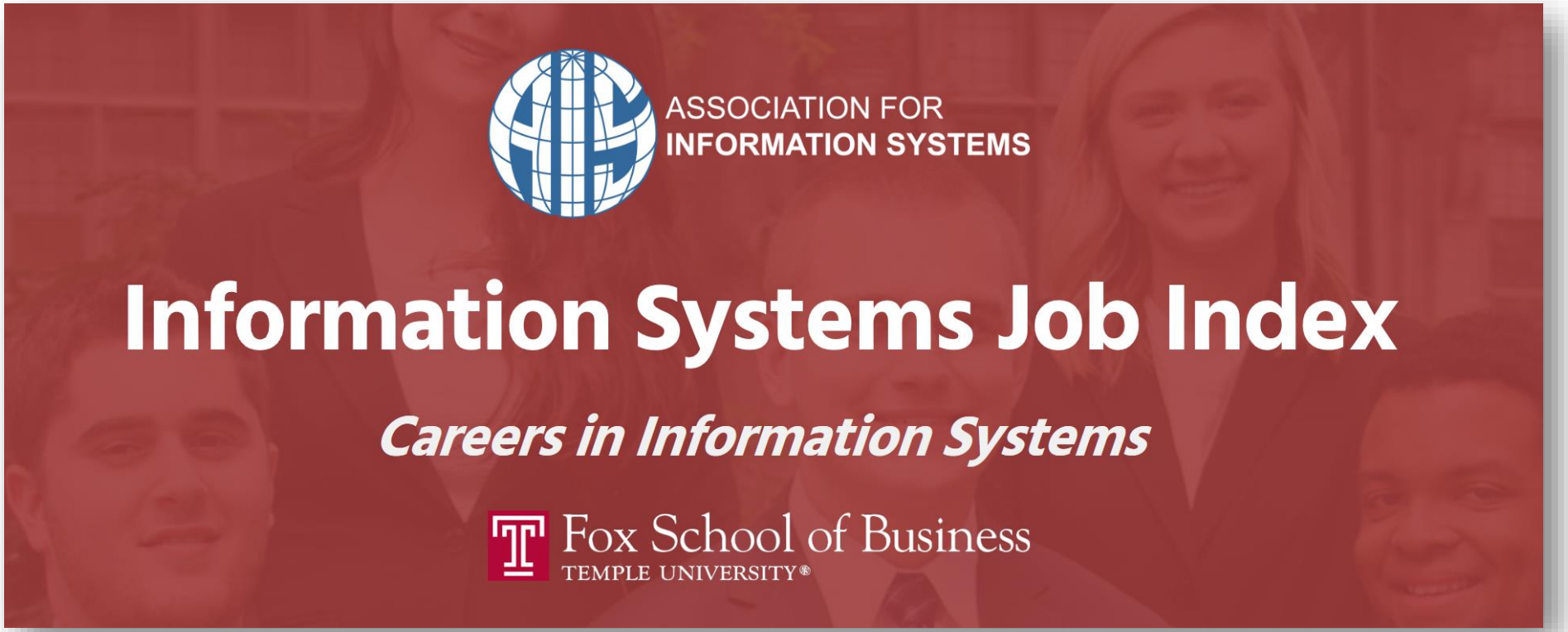
The In-class Activity – Canvas



- **Reinforce assigned materials**
  - **Readings**
  - **Videos**
  - **Lecture**
- **Exam Preparation**

Not Just Another Intro Class!

- Accounting
- Business Management
- Entrepreneurship & Innovation Management
- Financial Planning
- International Business Administration
- Marketing
- Risk, Insurance & Healthcare Management
- Supply Chain Management
- Actuarial Science
- Economics
- Finance
- Human Resources Management
- Legal Studies in Business
- Management Information Systems
- Real Estate
- Statistical Science and Data Analytics



Read the full report at **isjobindex.com**

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Based on 1420 recent graduates from 43 universities across the U.S.

FOX MIS

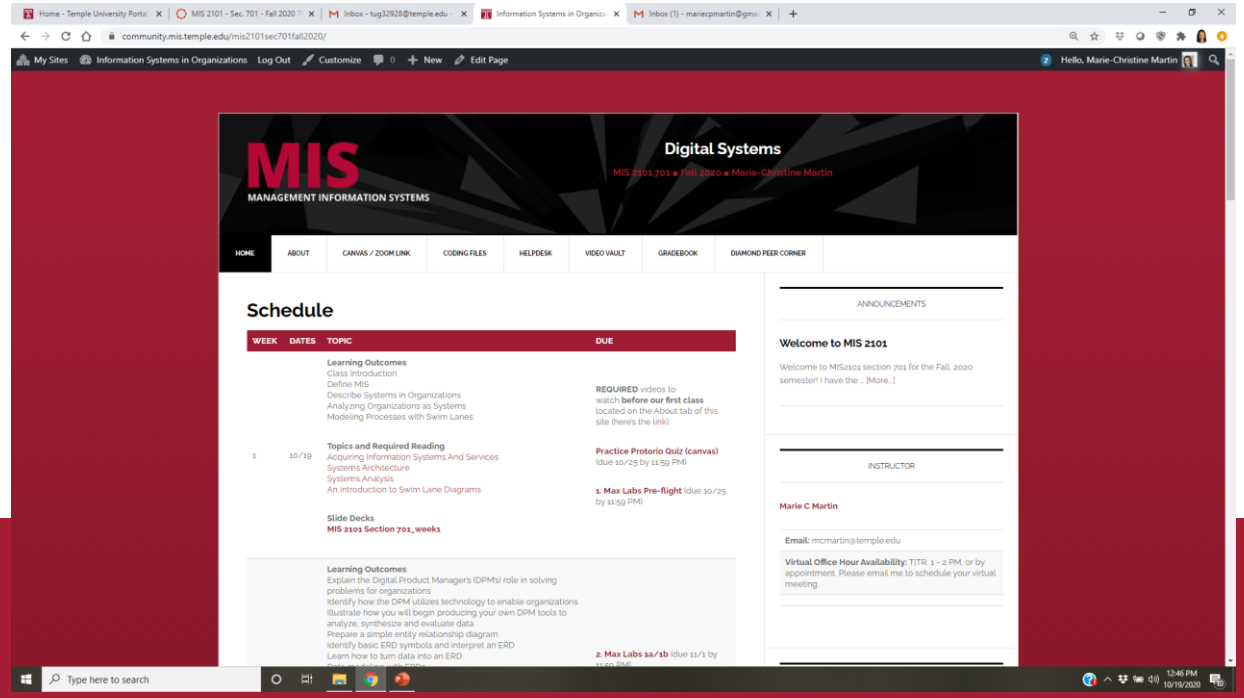
Class Sites Review

We use Canvas for our exams, assignments and in class activities.

https://templeu.instructure.com/courses/86866

The rest of the information is on our MIS site:

https://community.mis.temple.edu/mis2101sec730spring2021/



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ROADMAP

START

Week 1:
Introduction & Systems Analysis
- Course Description
- Systems Thinking

Week 1:
Introduction to Process Mapping
- Systems & Processes
- Swim Lane Diagrams

Assignments due::
- Course video intro
- Max Labs Pre-Flight
- Proctorio Practice Quiz

Week 2:
Data Modeling & ERD

- Max Labs 1A/1B- due
- Max Labs 2A/2B due

Week 2:

Exam #1

1/29 – 1/31: Exam Availability

Week 3:
Information Systems
- ERP & CRM
- Data Analytics & SCM

- Max Labs 3a/3b due
- Lean IT #1 due

Week 4:
Platforms & Digital Business Models
- API's
- Cloud

Week 4:
Cybersecurity & AI
- Protection Protocols
- Artificial Intelligence

- Lean IT #2 due
- Cyber Security due

Week 4 :

Exam #2

2/12-2/14 Exam Availability

Week 5:
JavaScript Unit #1 & 2
- Hello World,
- Variables
- Operator types
- Strings

SoloLearn Coding due

Week 6:
JavaScript Unit #3&4
- Logical Operators
- Conditional Types
- Intro to Loops
- While and Do
- Coding Challenges *3) due
- Proctorio Coding Practice due

Week 7:
HTML & CSS

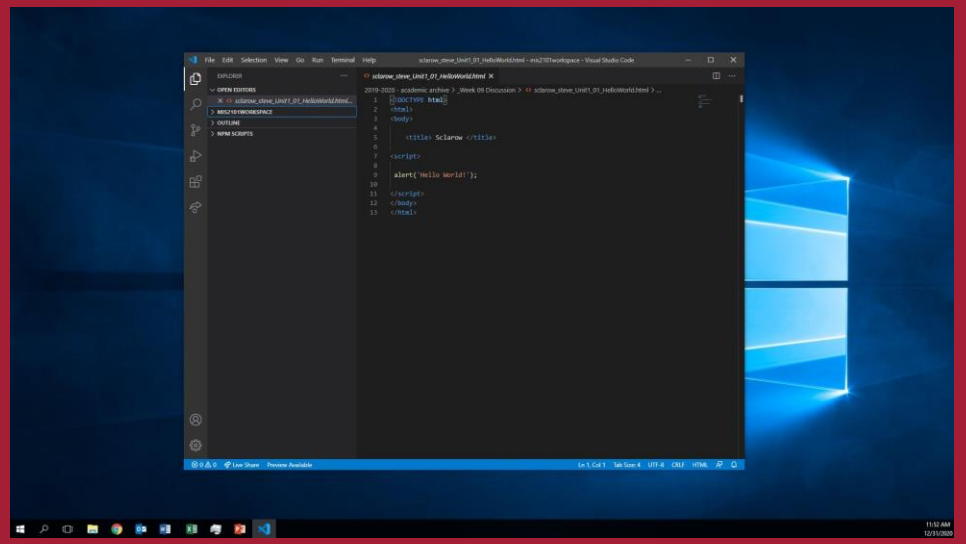
- Coding Assignment -due

Week 7:

Exam #3

3/5 – 3/7: Exam Availability

FINISH



Course Overview Video

Spring 2021

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Digital Systems

1.1 Intro to Information Systems in Organizations
In-Class Activity

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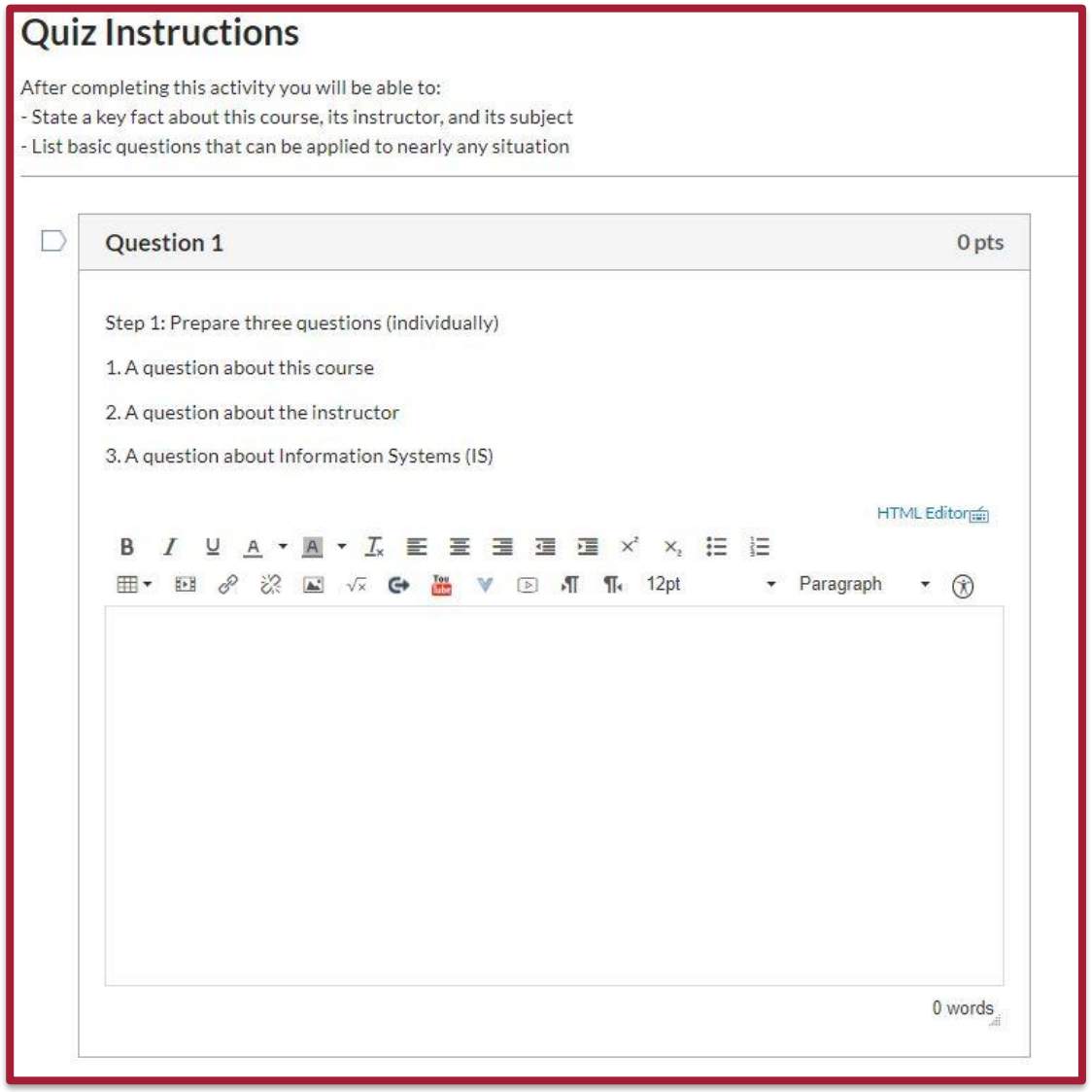
ICA#1: Intro to Information Systems in Organizations

- **What?**
  - **Ask your instructor questions about the course and about themselves**
  - **Learn what "In-Class Activities" are all about**
- **Why?**
  - **Regardless of your major, the more you understand about information systems, the more successful you will be**
  - **This course uses activity-based learning to help students develop a deeper, more genuine understanding of topics. This is your first taste of "In-Class Activities"**

Step #1 - Individually

- **Prepare three questions using the Canvas form**
  - **A question about the course:**
  - **A question about the instructor:**
  - **A question about Information Systems (IS)**



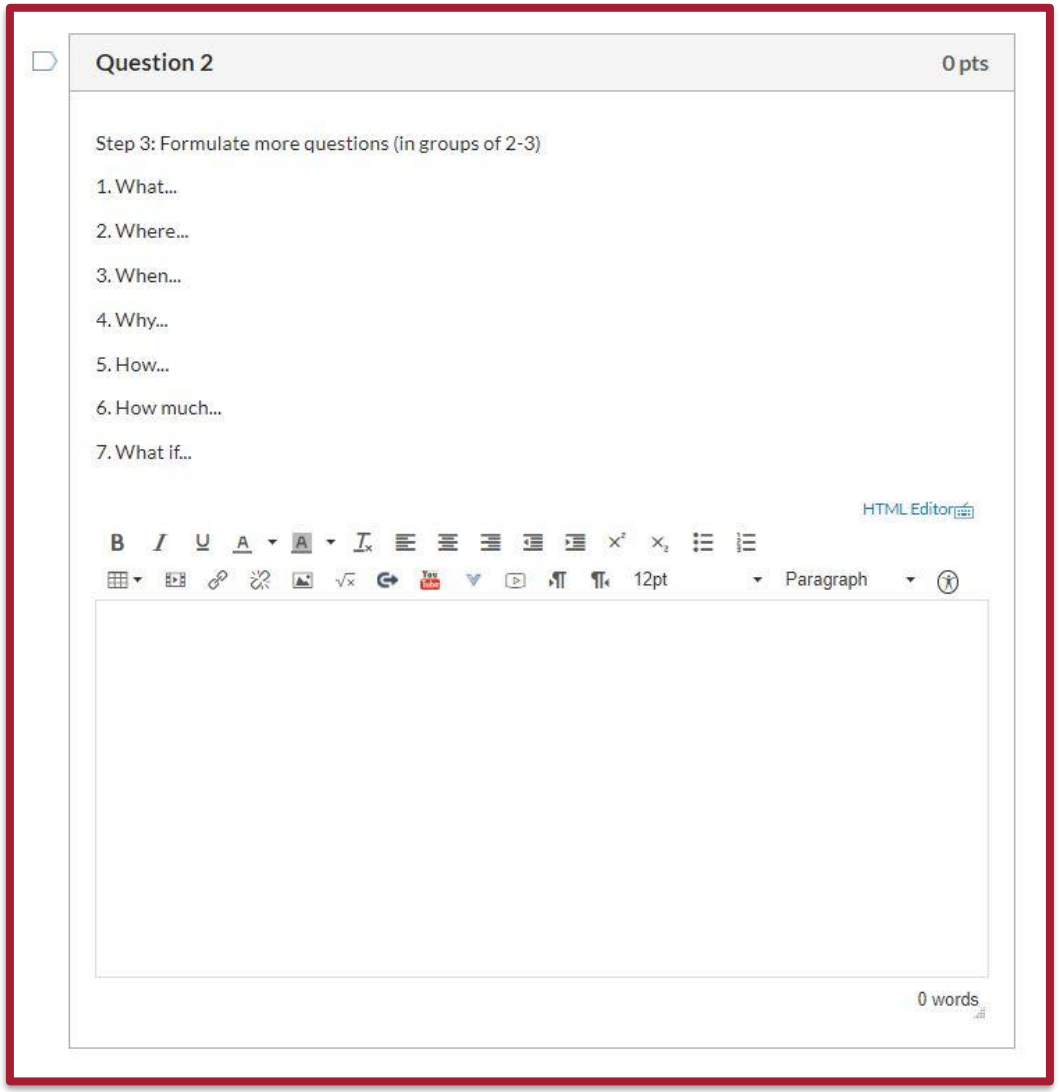
Step #2

- **Instructor calls on students at random to ask questions**

Source: https://i1.wp.com/www.nationalreview.com/wp-content/uploads/2016/12/school-bans-students-raising-their-hands-answer-questions-2.jpg?fit=788%2C460&ssl=1

Step #3 –

- **Formulate more questions and enter them individually into the Canvas form**
  - **What _____?**
  - **Where _____?**
  - **When _____?**
  - **Why _____?**
  - **How _____?**
  - **How much _____?**
  - **What if _____?**



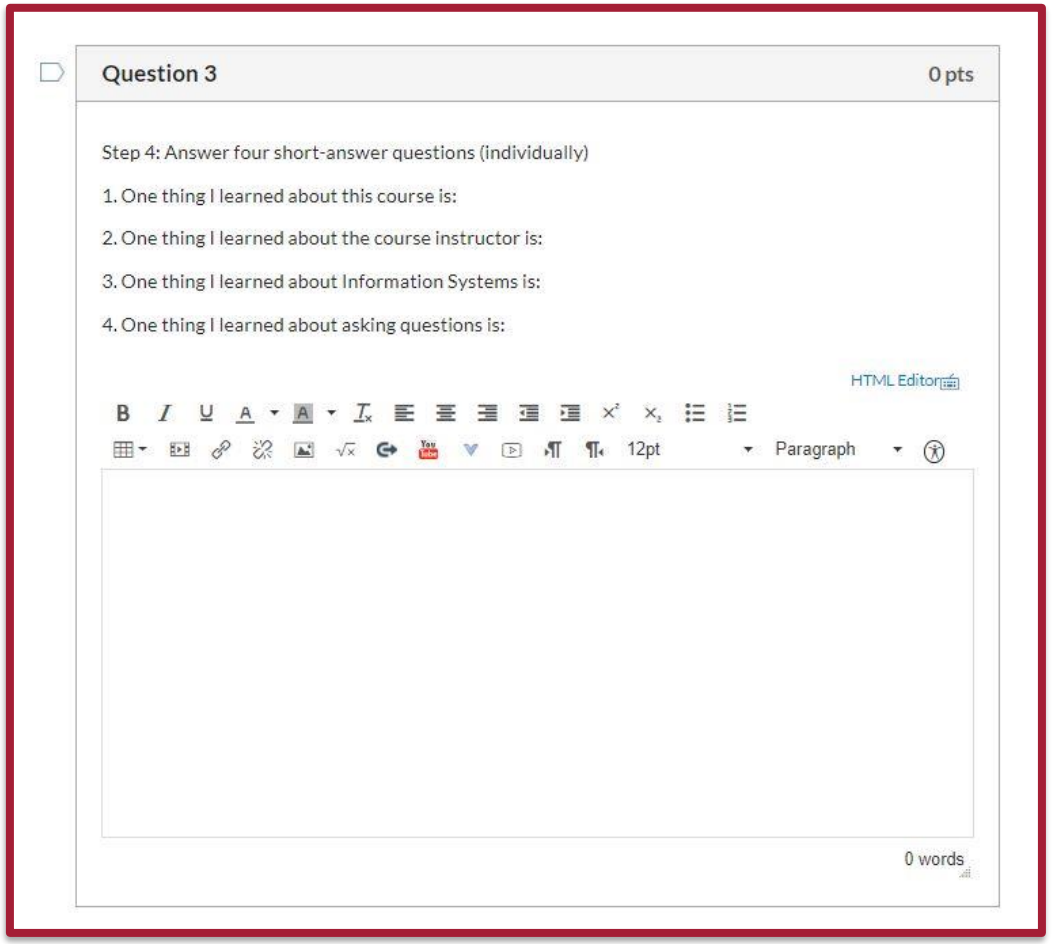
Step #4

- **Instructor calls on students at random to ask questions**

Source:_ttps://www.google.com/url?sa=i&source=imgres&cd=&cad=rja&uact=8&ved=2ahUKEwiVibKgrvjjAhVvS98KHdI9D4sQjRx6BAgBEAQ&url=https%3A%2F%2Finsight.futurestudents.csu.edu.au%2Ftag%2Fregional-university%2F&psig=AOvVaw1vpMqBORPhyvyOouH05SF-&ust=1565528495762447

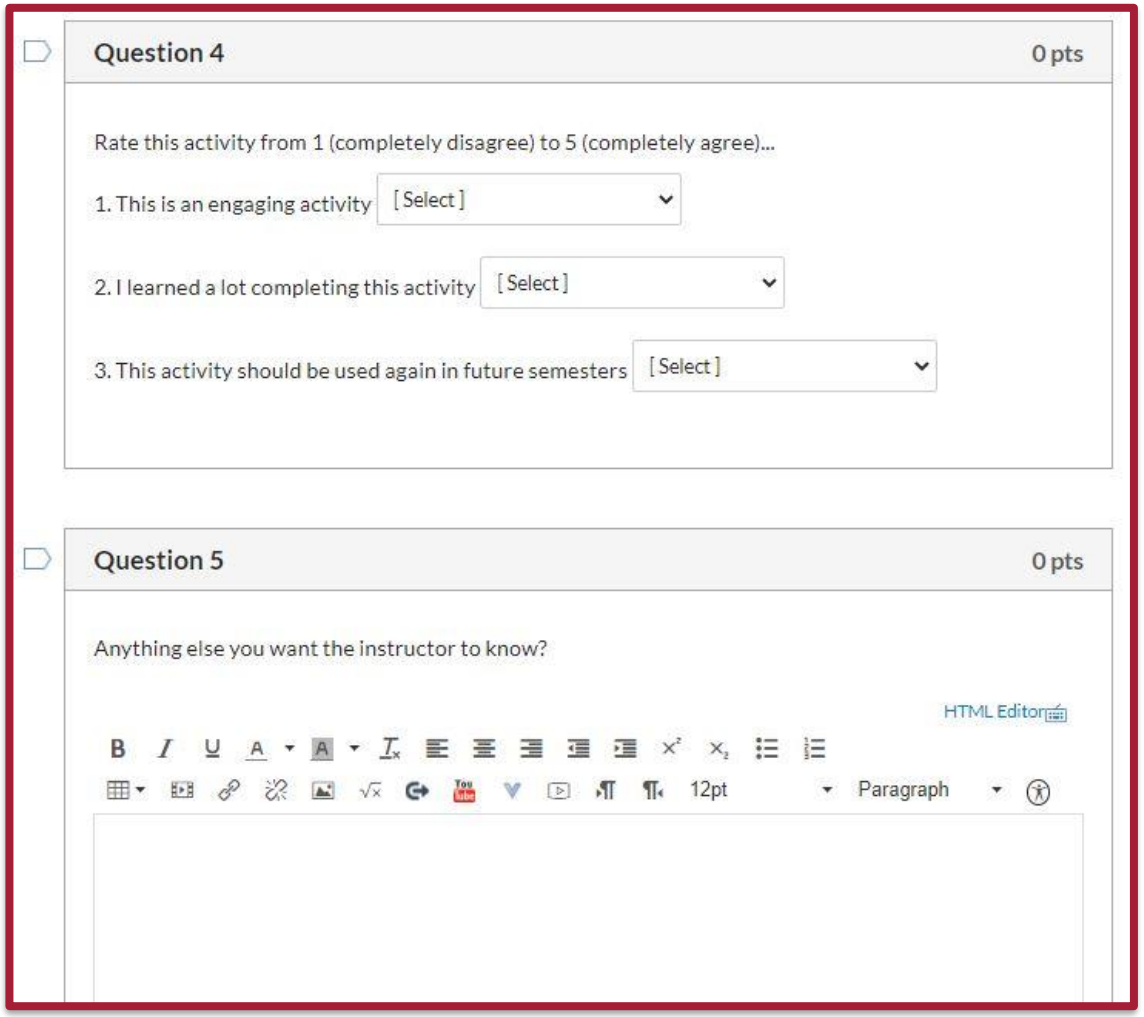
Step #5 - Individually

- **Answer four short-answer questions and enter your answers in Canvas**
  1. **One thing I learned about this course is:**
  2. **One thing I learned about the instructor is:**
  3. **One thing I learned about Information Systems (IS) is:**
  4. **One thing I learned about asking questions is:**



Step #6 - Individually

- **Rate this activity using Canvas**
- **From 1 (completely disagree) to 5 (completely agree)...**



TEMPLE UNIVERSITY

Digital Systems

1.2 What are Systems?

FOX MIS

Max Labs

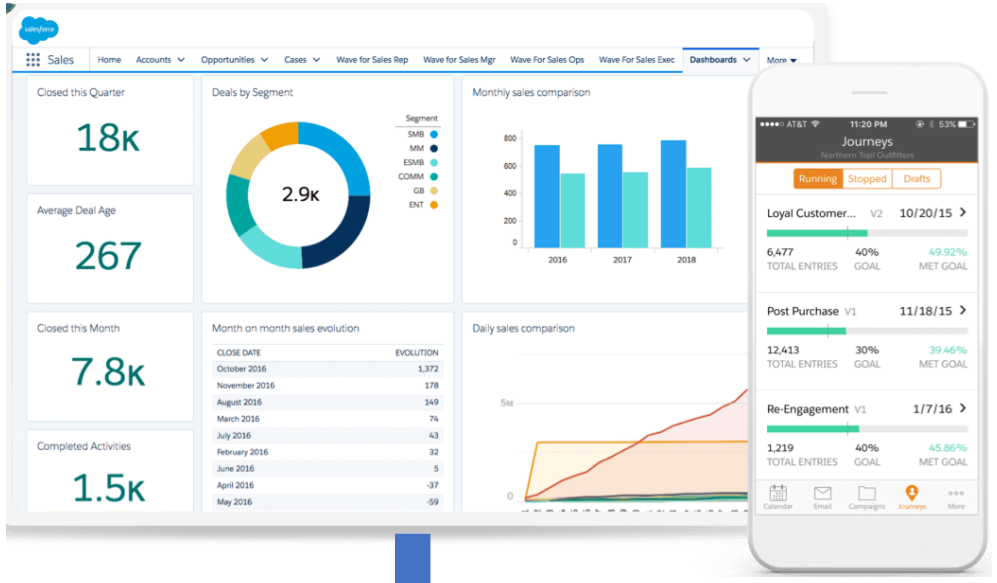
DUE BY EOD SUNDAY!

FOX MIS

What is MIS?

Using Information Technology to solve business problems.

- **MIS is not Computer Science**
- **It's 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

World View – A collection of “Systems”

Systems = people + process + technology

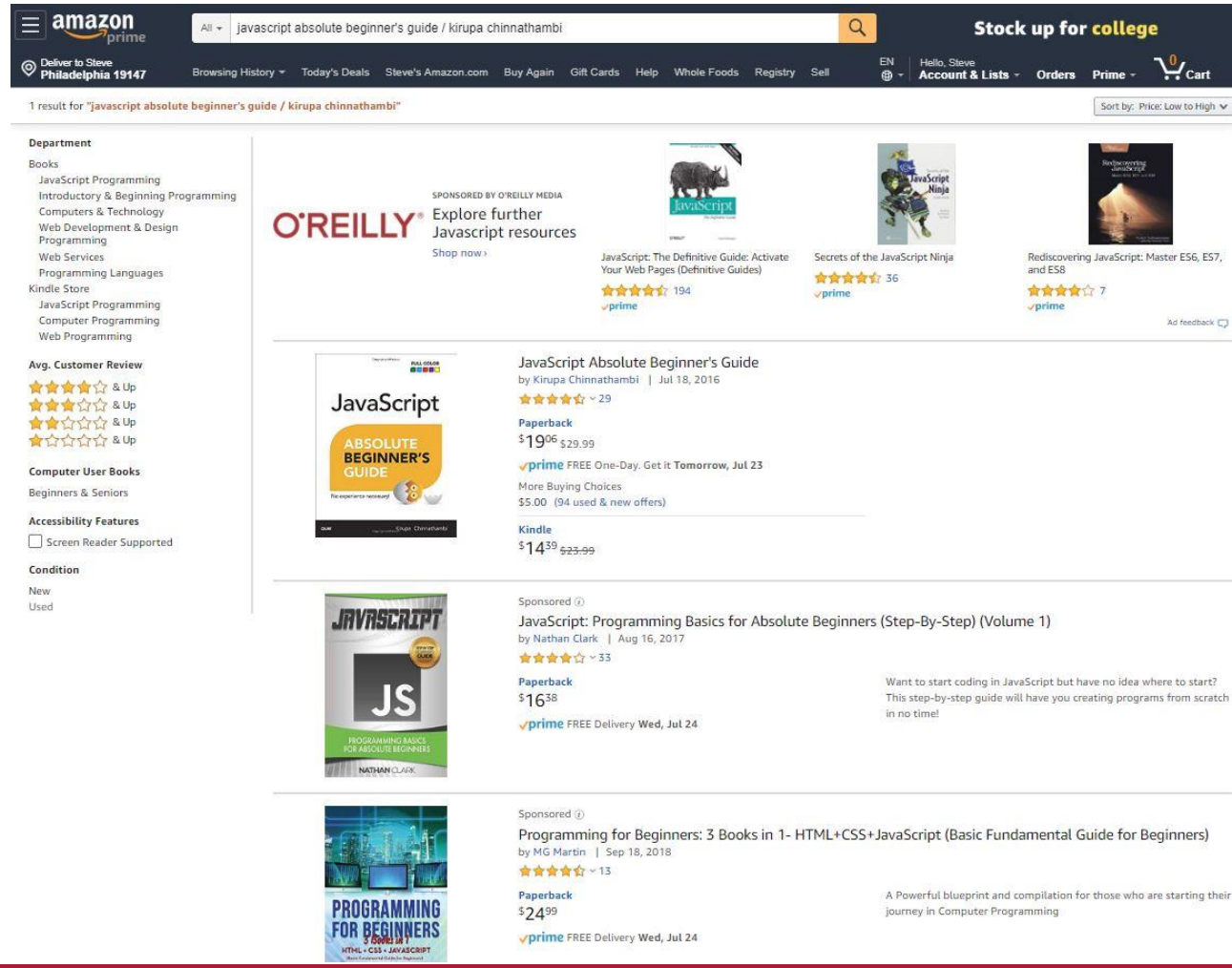
- Manipulation of information = value
- Managed by MIS professionals
- Systems surround us 24/7
- Application Program Interface (API’s)

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

Understanding Systems

Buying textbooks on Amazon

- What is part of that system?
  - Log-in (multiple steps)
  - Search
  - Shopping Cart
  - Purchase (Multiple steps)
  - And much more…..



Understanding Systems (cont.)

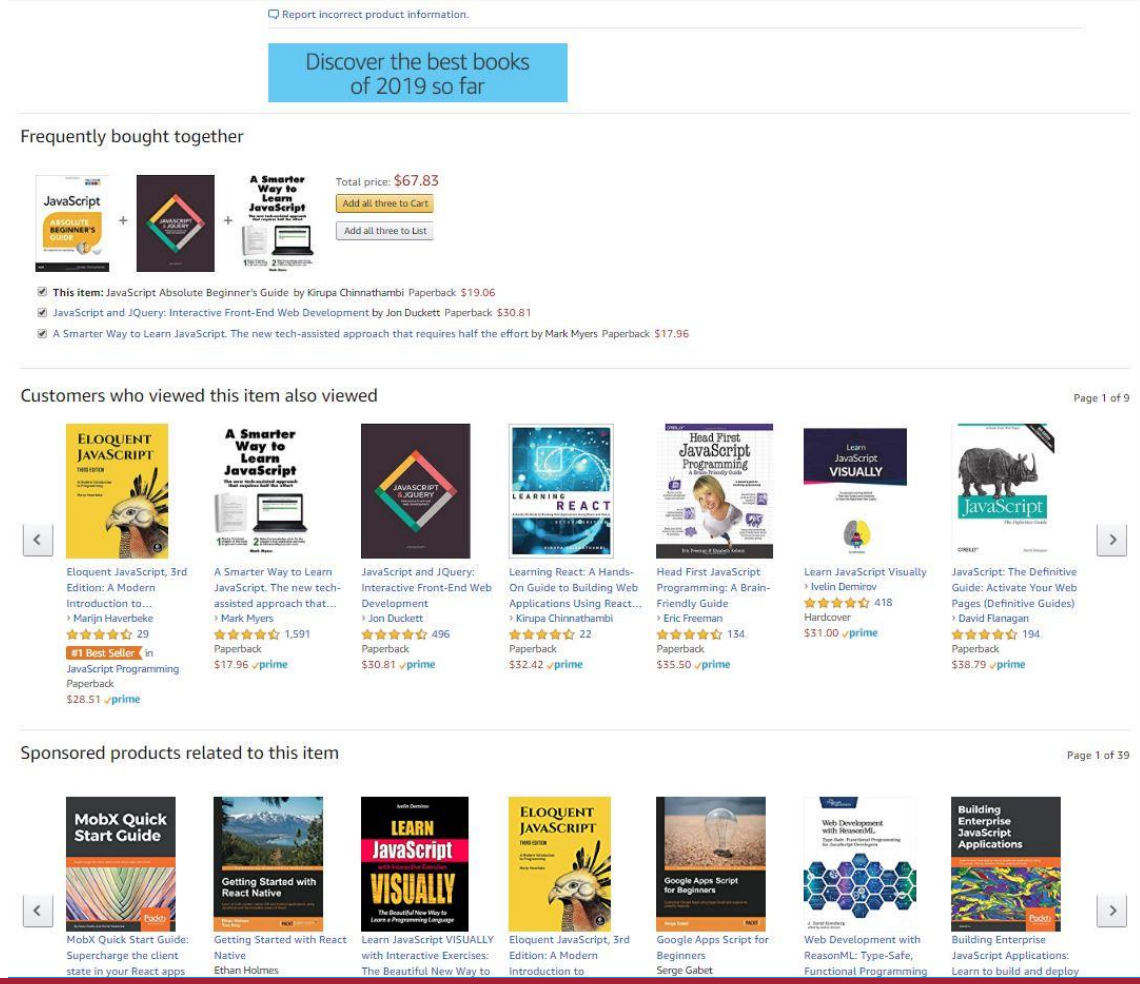
Buying lunch

- What is part of that system?
  - Take the order
  - Hand order to cook
  - Prep to-go bag
  - Order cooked (multiple steps)
  - And much more….

Understanding Systems (cont.)

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 !!!



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

- Encyclopedia Britannica

Source: https://www.britannica.com/topic/information-system/Management-support

A collection of technologies

Including:

- **Hardware**
- **Software**
- **Policies**
- **Education tools**
- **API's**
- **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/

Four Core Steps of Designing UX (user experience)

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

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

Software Development Lifecycle (SDLC) methodologies

- **Waterfall**
- **Agile**
- **Lean**
- **Scrum**
- **DevOps**

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

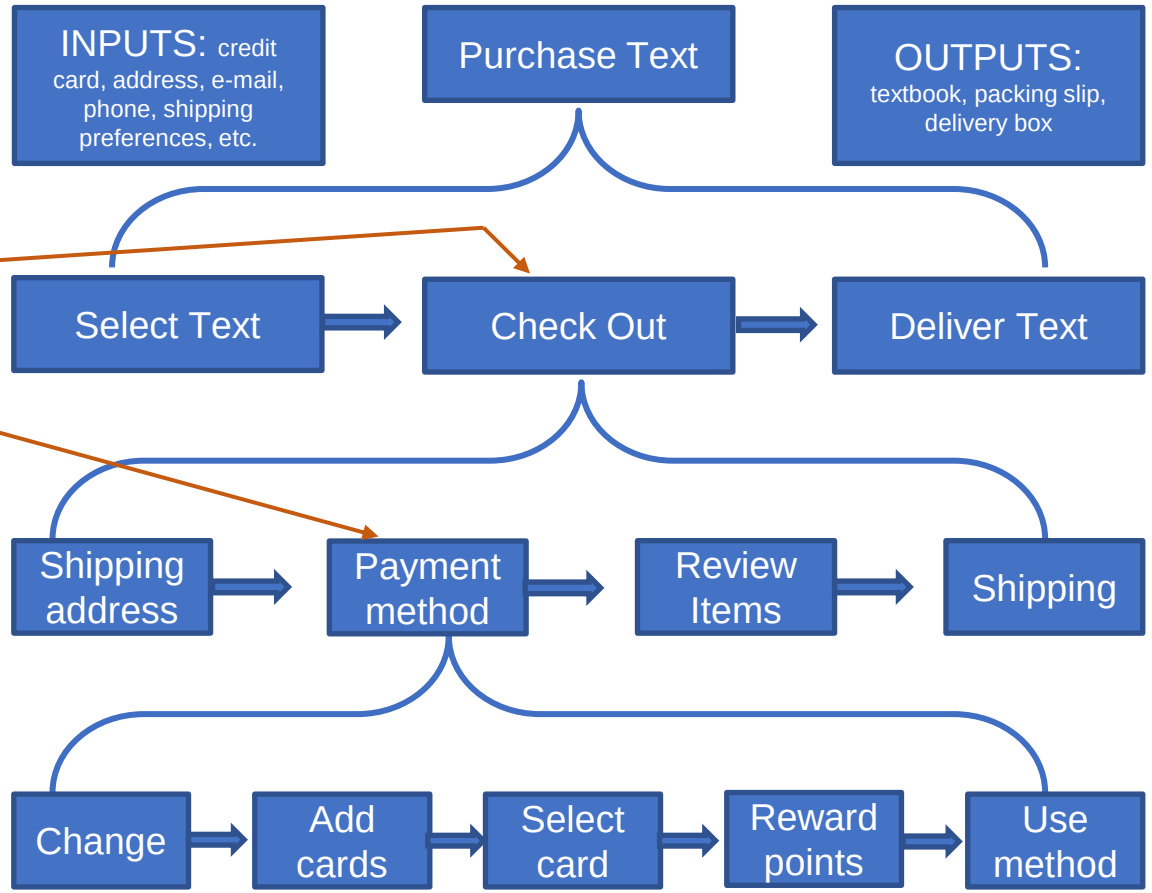
“Once a Product Manager / Technologist understands the *business problem*, they can architect a solution.”

- Mart Doyle

What is “Systems analysis?”: Problem solving technique that “decomposes” a system into its component pieces for the purpose of studying how well these parts work & interact to accomplish their purpose

Process Decomposition

- **Single entity**
- **Subsystem**



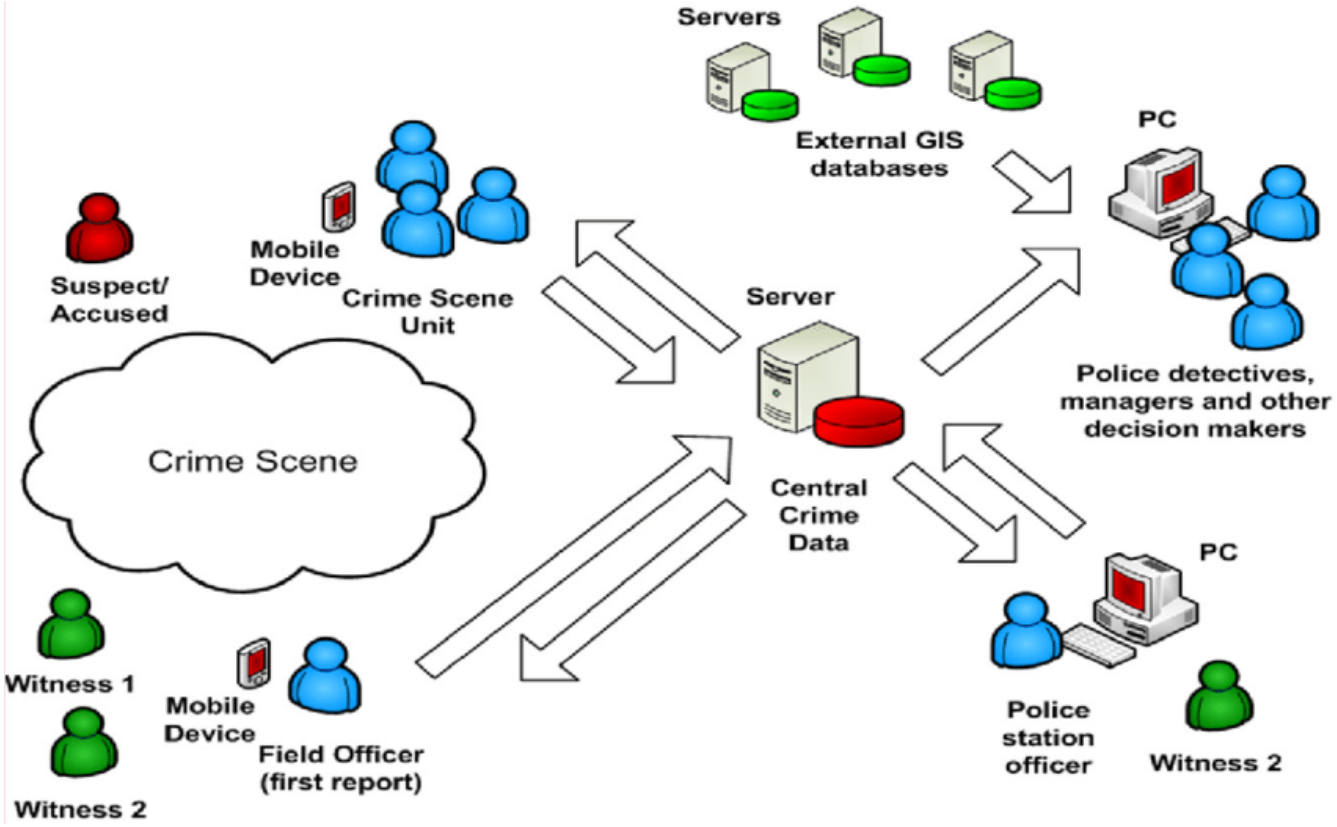
“Systems Architecture is a response to the conceptual and practical difficulties of the description and the design of complex systems.”

- Boris Golden

What is “Systems Architecture?”: Representation of the system & all of its parts/components

Systems Architecture

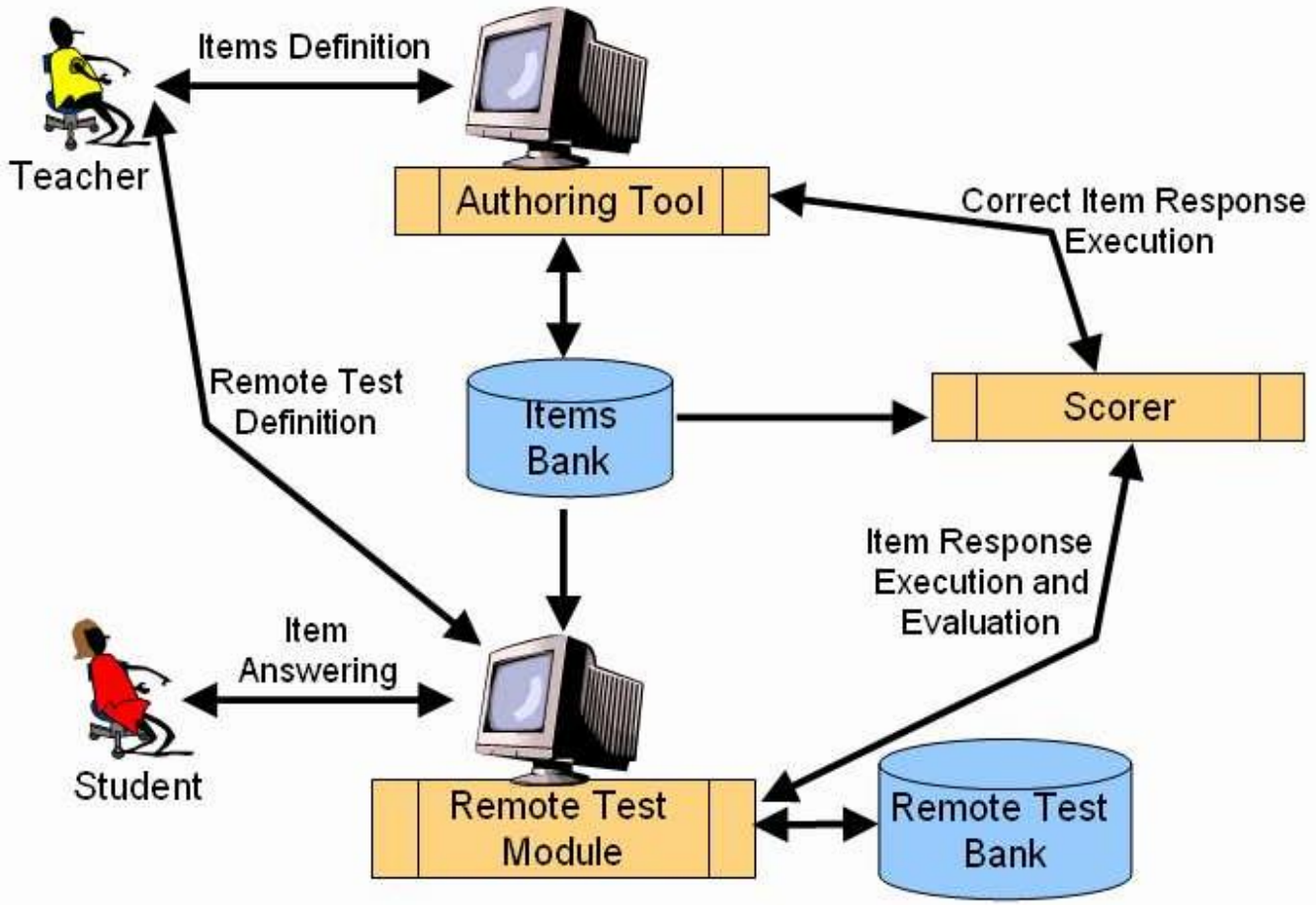
- Conceptual Diagram
- Structural components
- Identify/Solve Problems
- Existing or New
- Communication tool



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/

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Digital Systems

2.1 Intro to Process Mapping & MaxLab

FOX MIS

The Max Labs salesforce Project

Overview & Startup

Source: https://www.salesforce.com/

MaxLab Assignments
Why Salesforce?

This is not Salesforce training – it is exposure to a great platform that delivers cloud-based *systems products*.

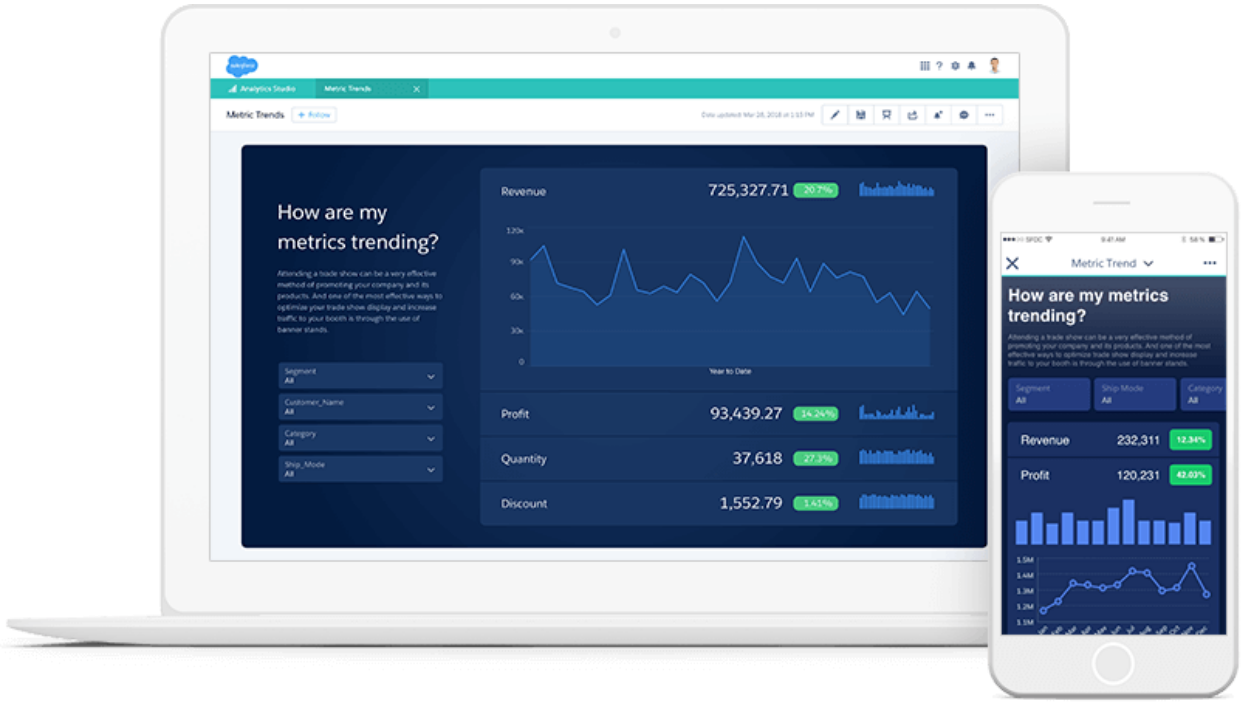
- Enables & Enhances Business
- Used By Industry Fortune 100's
  - Across All Business functional Areas
- Great Resume Builder For You!

Source: https://www.salesforce.com/

Max Labs – Enabling Organizations

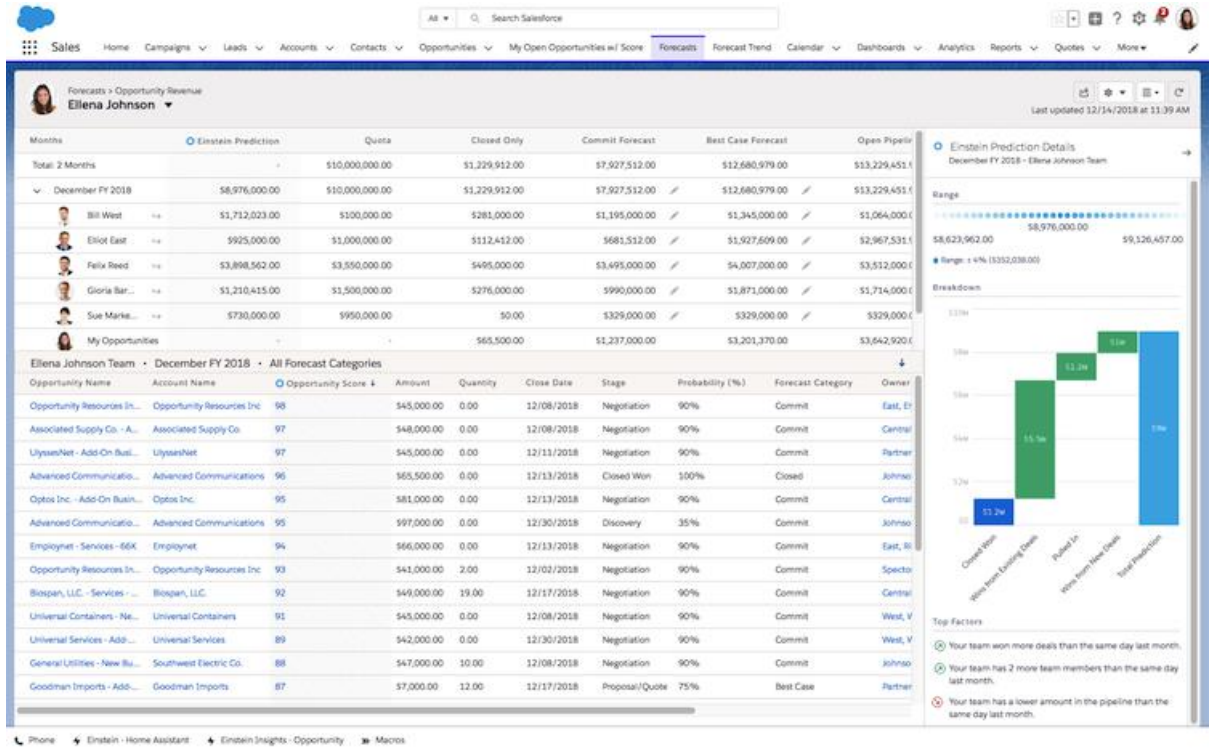
Technology Enables Organizations to work faster/smarter/more efficient

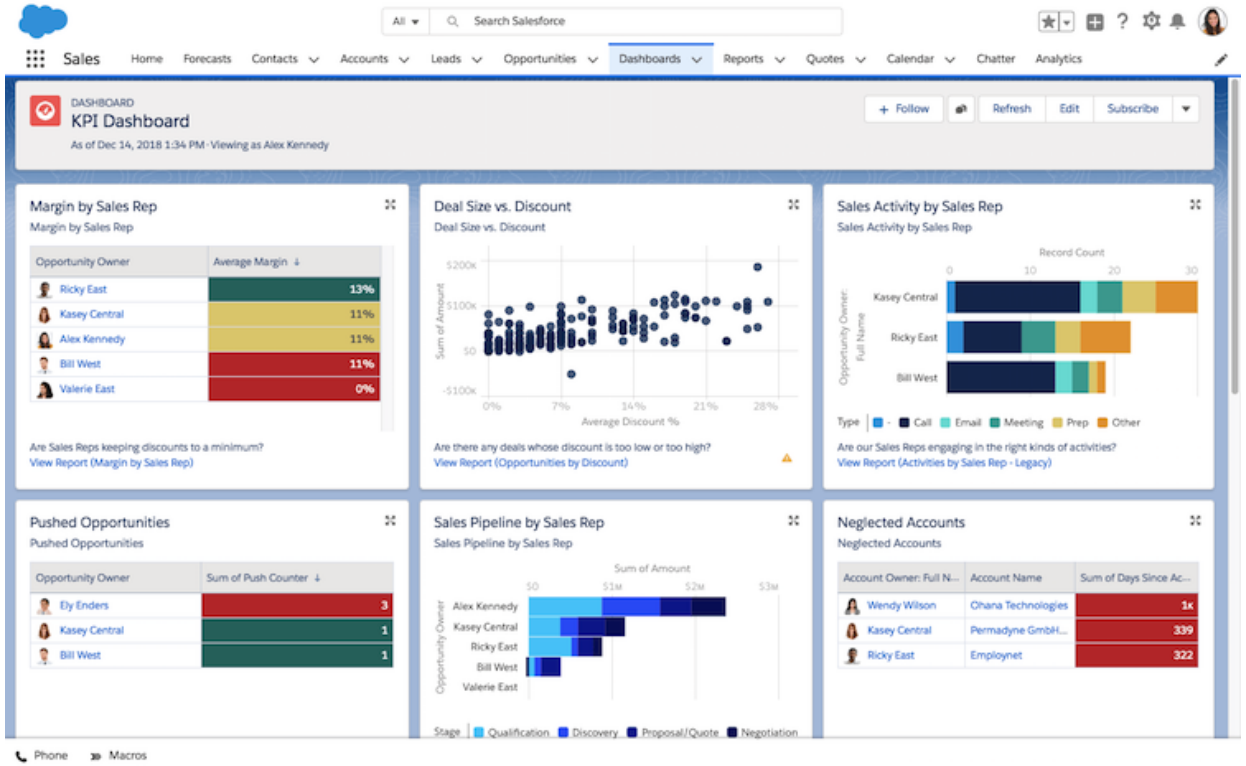
- See How It Works First-Hand
- Understand how Used by Industry Fortune 100's
  - Across all Business Functional Areas
- Great Resume Builder For You!



Source: https://www.salesforce.com/

Max Labs – What do they include?

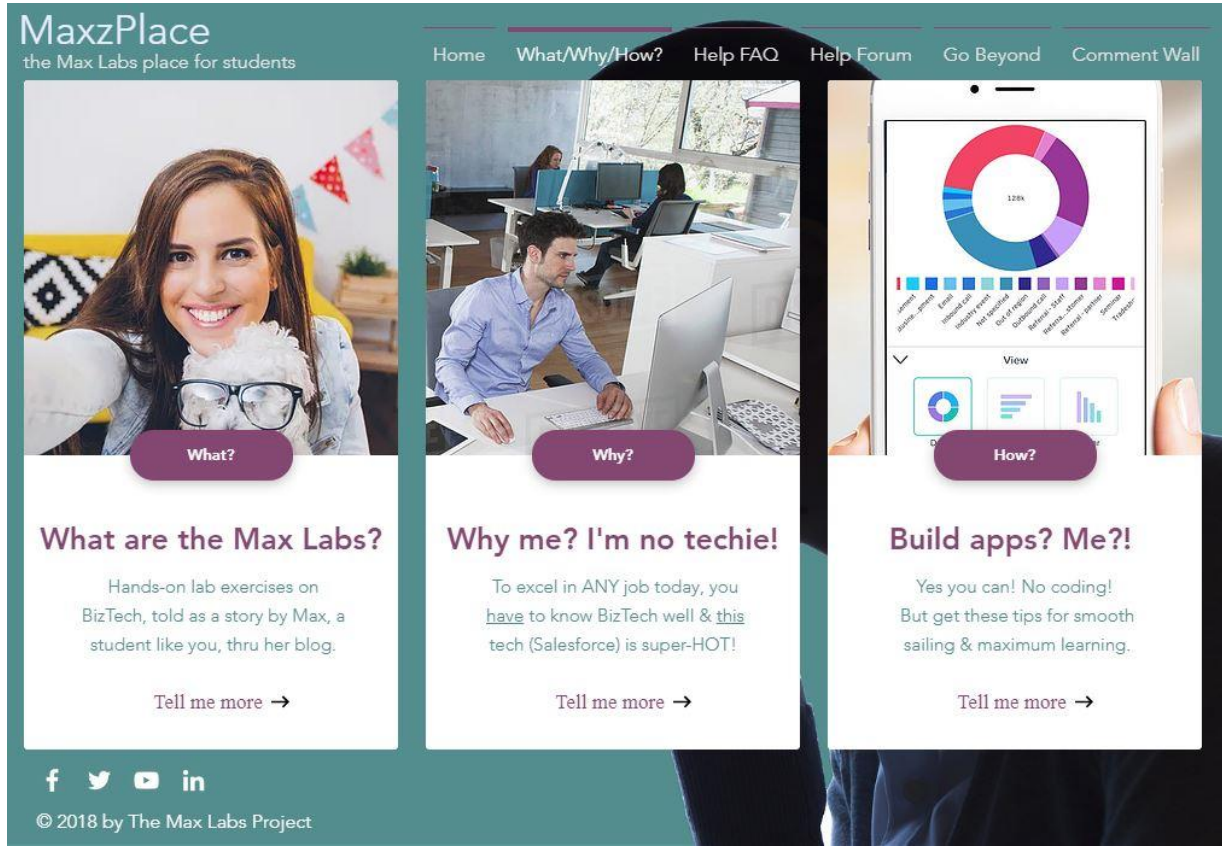




Source: https://www.salesforce.com/

Max Labs – Tips for Your Success

- READ & FOLLOW every single instruction EXACTLY, in order. (You'll have no problems.)
- READ the cover sheet BEFORE you start every lab.
- ALWAYS read stories BETWEEN instructions. (Connections to our key Course Concepts)
- They're quick (allow about 60-90 min for each lab)
- *DO NOT* get the 30-day trial account from www.salesforce.com.
- The Lab 1b instructions tell you EXACTLY how to pay the lab fee. (Just follow them)
- If you're stuck, FIRST check the Help FAQ at MaxzPlace.com
- BE SURE your name appears on every screen-capture you submit to show your progress
- DO NOT use Yahoo! for your Salesforce account email. (Use Gmail)
- They're on the exams (w/un-guessable questions)
- They'll help you get a job (IF you can explain what you did/learned)



Source: https://www.maxzplace.com/what

Max Labs - Pre-Flight

Due by EOD Sunday

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Process Mapping

What

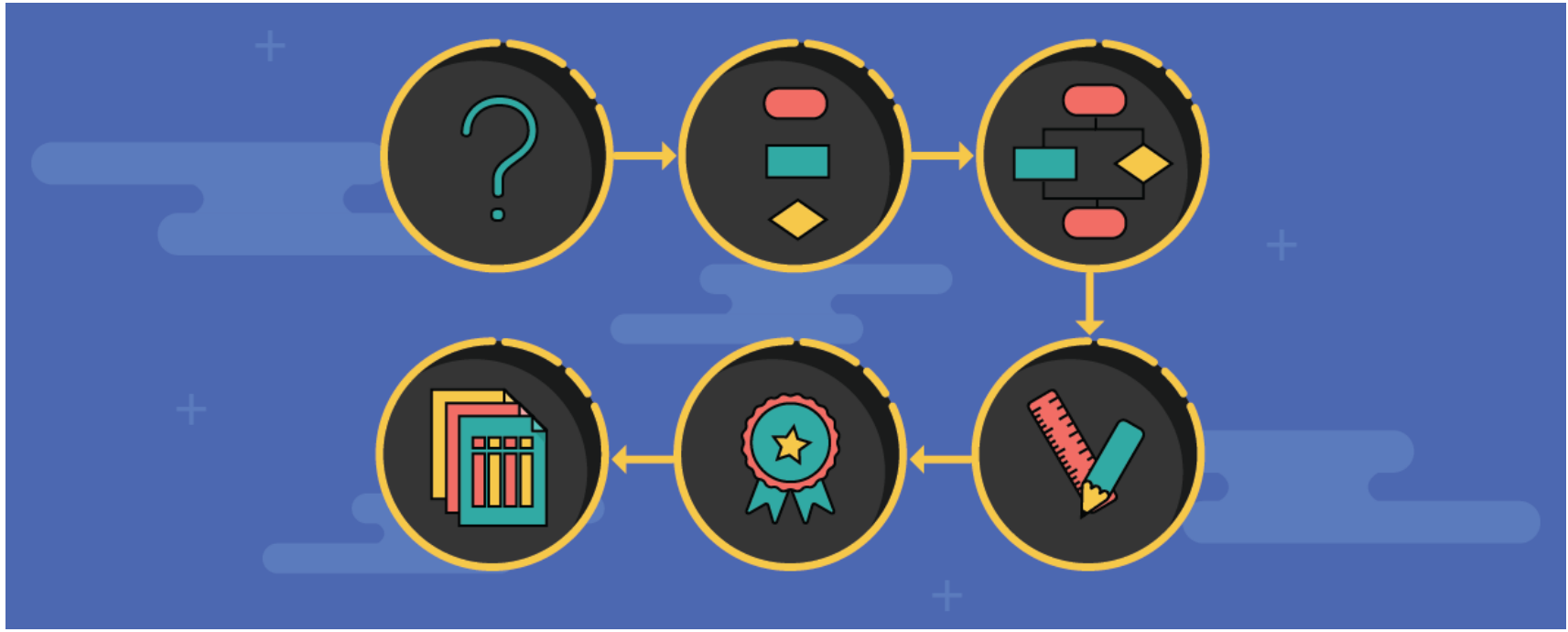
- Visual Representation

Why

- Identify Problems

How?

- Draw the “as-is”

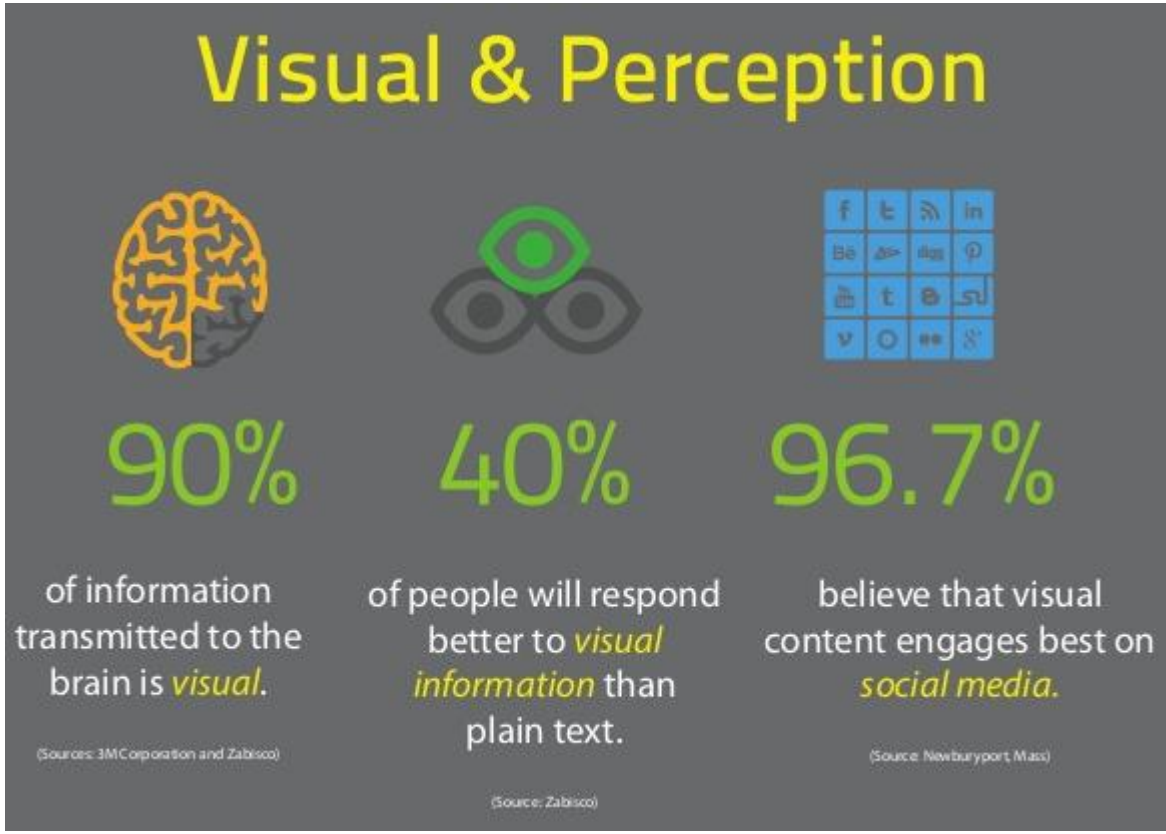


Source: https://creately.com/blog/diagrams/process-mapping-guide/

What's a Picture Worth?

How about a diagram???

- How fast does the brain process images?
- 70% of your sensory receptors are in your eyes
- 50% of your brain is active in visual processing



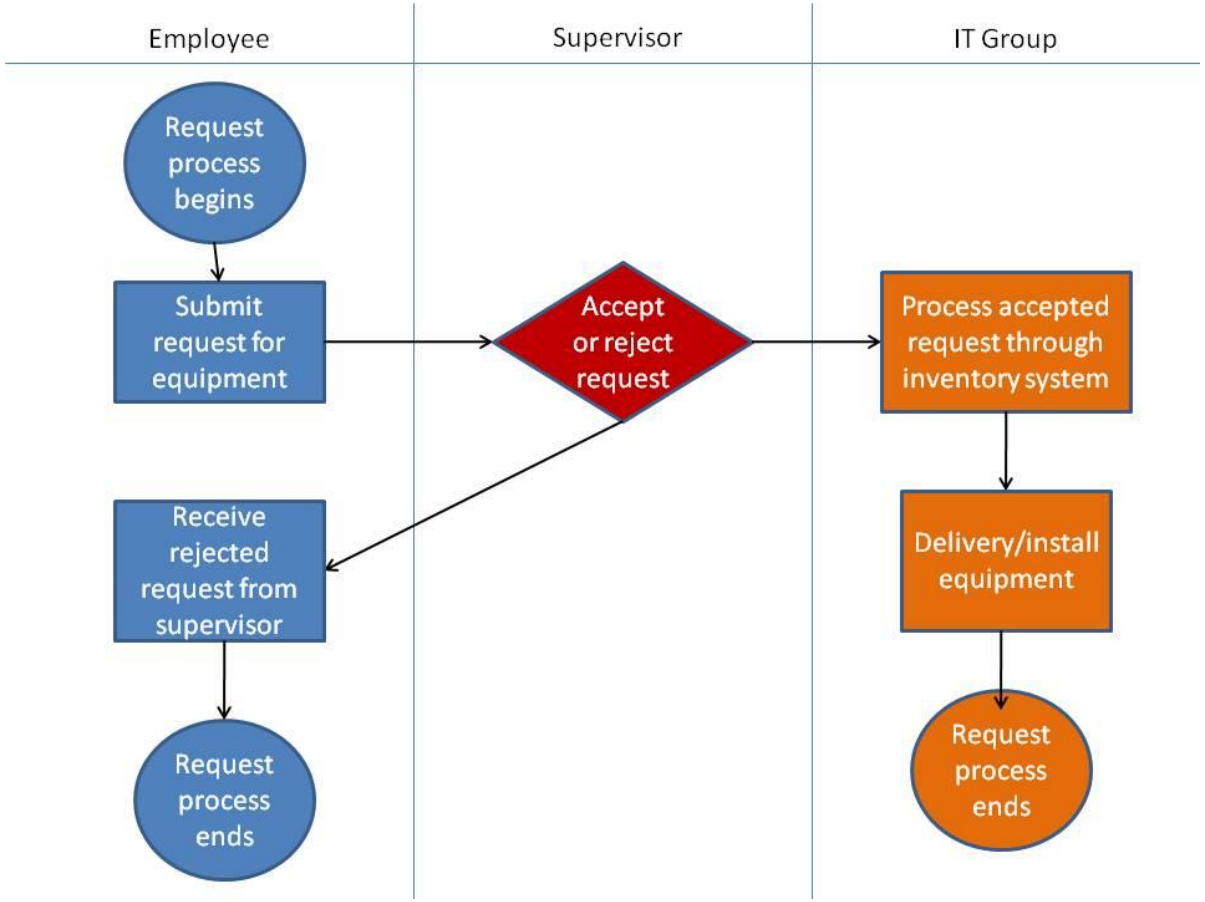
Source: https://tax.thomsonreuters.com/blog/the-importance-of-visual-content-marketing-infographic/

Source: http://esheninger.blogspot.com/2018/08/a-picture-is-worth-thousand-words.html

Swim Lane Diagrams

Advantages

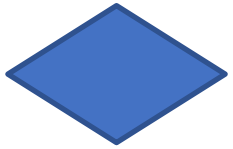
- Identifies who does what & in what order
  - Logical & Chronological
  - Indicates hand-offs
- Versatile
  - Applied to other diagrams
  - Training tool



Swim Lane Diagrams - symbols

- A circle signifies the starting and ending of an event in the process

- A rectangle represents an activity in the process.



- A diamond represents a decision that must be made.

- Arrows indicate the flow of the process.

- A cylinder represents stored data.

Swim Lane Diagrams – Order to Cash (O2C)

The process starts when the customer contacts Sales to place an order. The person in Sales creates the sales order. As part of doing this, the person in sales first checks to see if the customer has enough available credit to cover the order. They do this by looking up the customer's credit on a report that is generated by Accounting and sent to Sales every Monday morning. If the customer doesn't have enough available credit then the person in sales notifies the customer who can then either update or cancel their order. Next the person in sales checks to see if the items being ordered are in stock. They do this by checking a report on inventory that the Warehouse created at the end of each day. If the items being ordered are not in stock then the person in Sales notifies the customer who can then update or cancel their order. If the report indicates the items are in stock then the order goes to the Warehouse where the workers there will pick the order. Since Sales is looking at a report that is only updated at the end of each day, there is a chance that they accepted an order for an item that is not really in stock. If that is the case the Warehouse notifies Sales who then notifies the customer who can update or cancel their order…

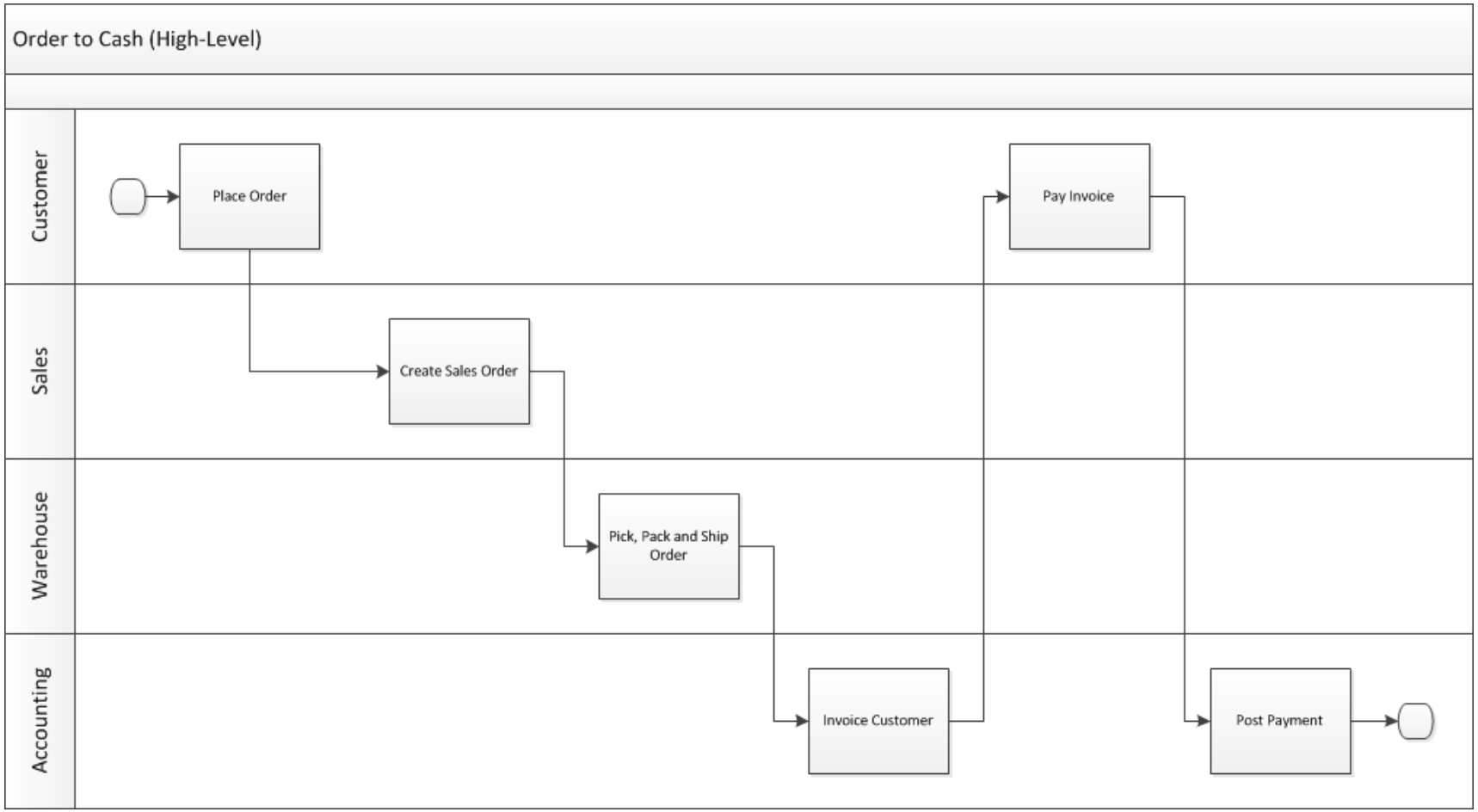
Swim Lane Diagrams – Order to Cash (O2C)

…Once the people in the warehouse pick the order, the people in Accounting have to make sure that the customer actually has enough credit to cover the order. Since the people in Sales use a credit report that is generated on Monday morning, there is a chance that the information on the credit report is old. If the customer doesn't have enough available credit then Accounting notifies Sales who then notifies the customer who can then choose to update or cancel their order. If the customer has enough available credit then their available credit is reduced by the total cost of the order and the warehouse is notified and they pack and ship the order. As soon as the order is shipped the people in the warehouse notify accounting and accounting generates and sends the invoice to the customer. When the customer pays the invoice the people in Accounting increase the customer's available credit by the amount of the payment, they post the payment and we're done.

Swim Lane Diagrams – Order to Cash (O2C)

Who does What & When

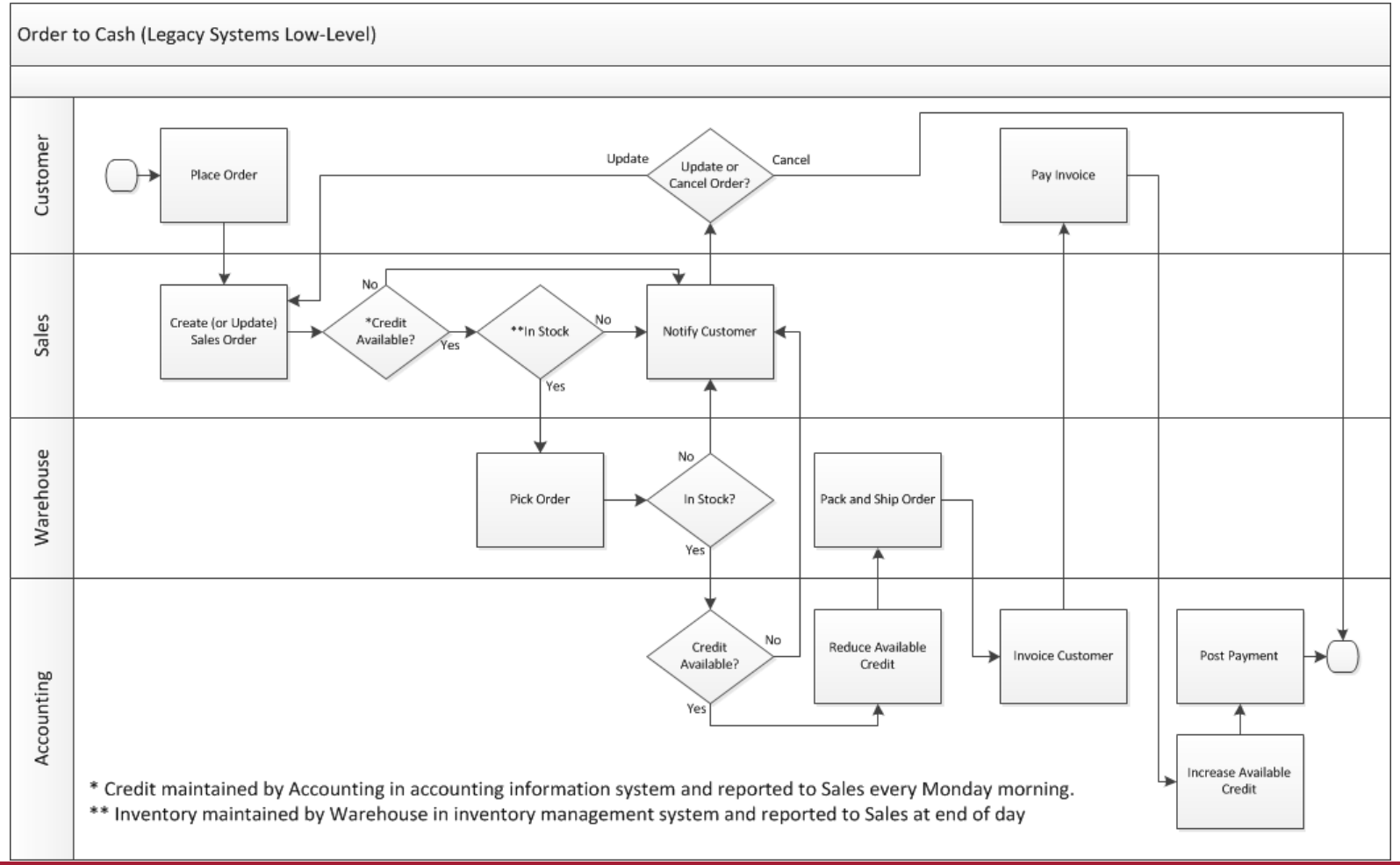
- Overview example



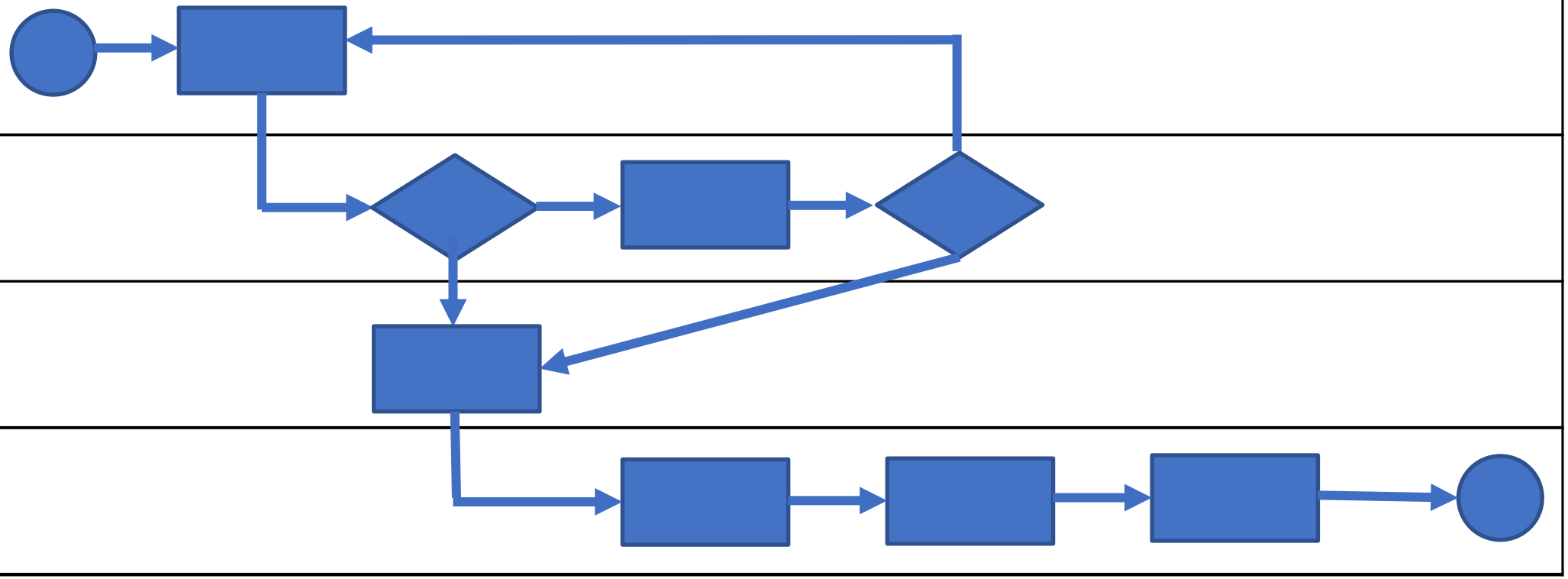
Swim Lane Diagrams – Order to Cash (O2C)

Who does What & When

- Complexity added
- Legacy system



Swim Lane Diagrams – Create your own

Actors	Title of the Process you are documenting
Actor 1	
Actor 2	
Actor 3	
Actor 4	

TEMPLE UNIVERSITY

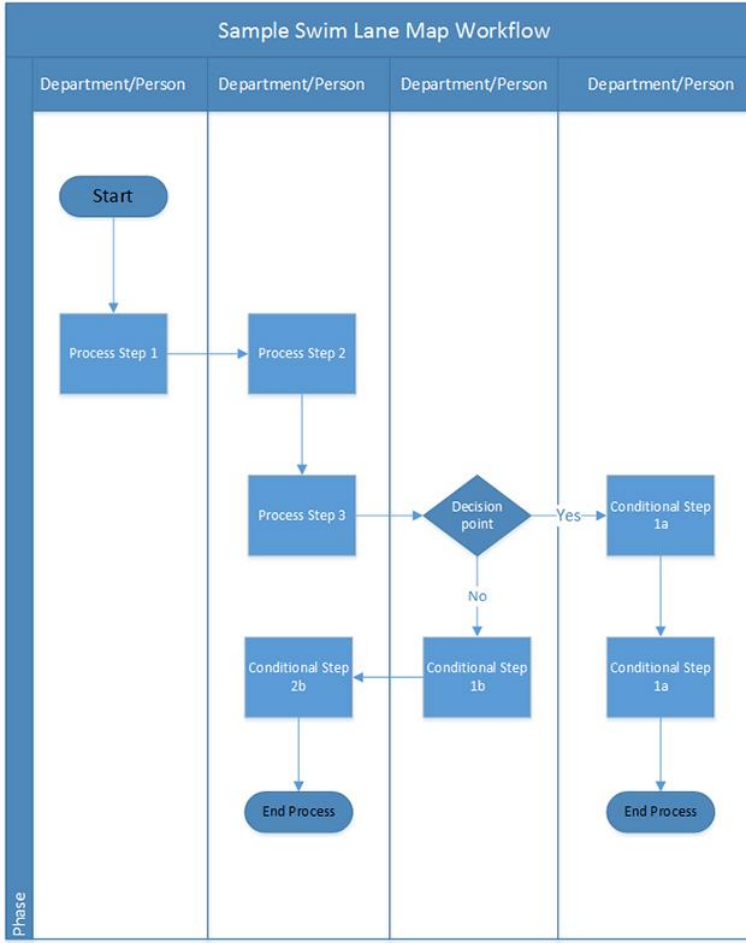
Digital Systems

Swim Lane Diagrams #1
In-Class Activity

FOX
MIS

ICA#2: Swim Lane Diagrams

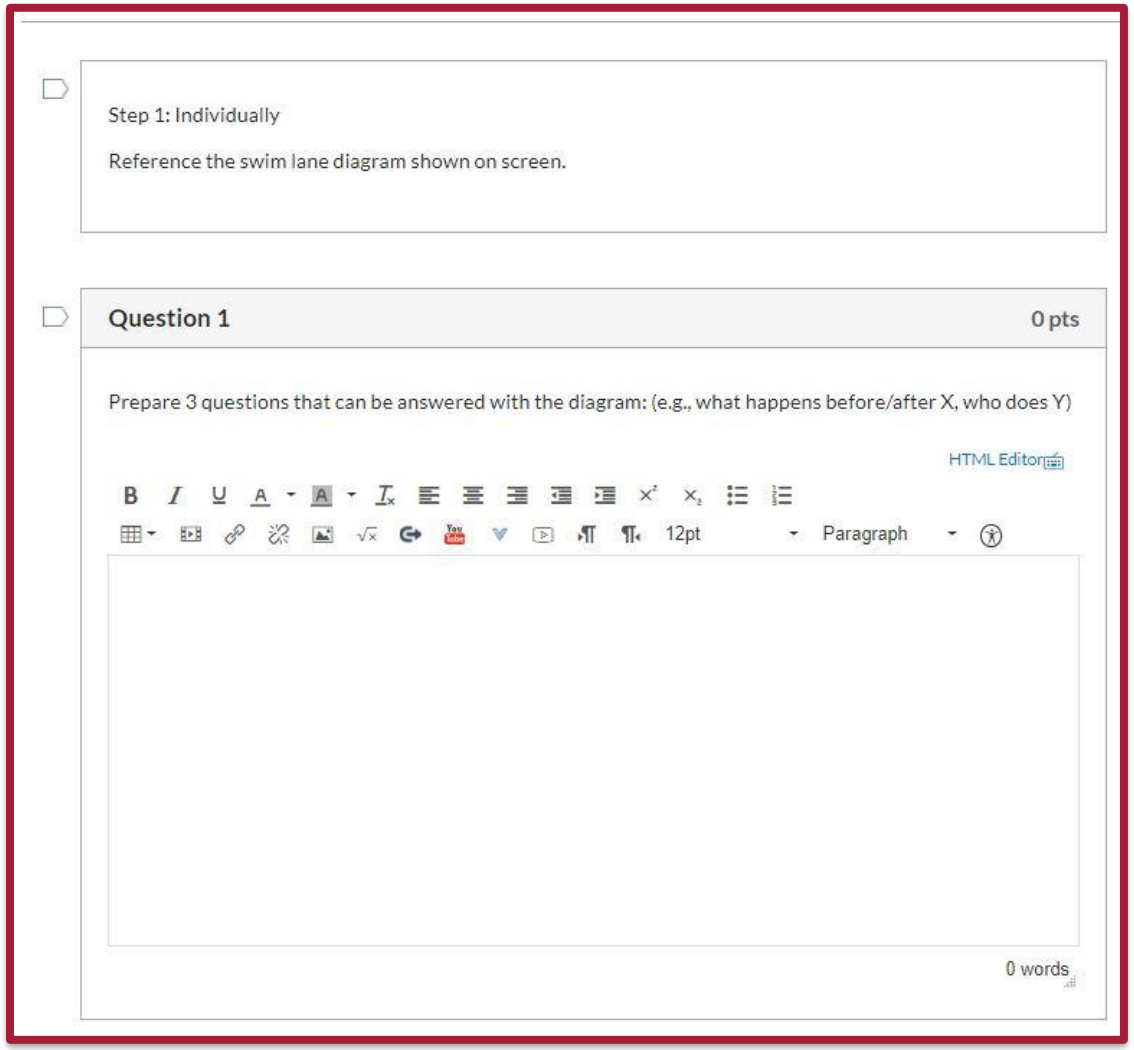
- What?
  - Interpret a swim lane diagram
  - Construct a swim lane diagram from provided story
- Why?
  - Simple, effective tools for documenting a business process and eventually improve it!
  - Everything you do at work will be part of a business process
    - Modeling processes = analysis and improvement opportunities
  - Swim lane diagrams will be on the first 2 exams!

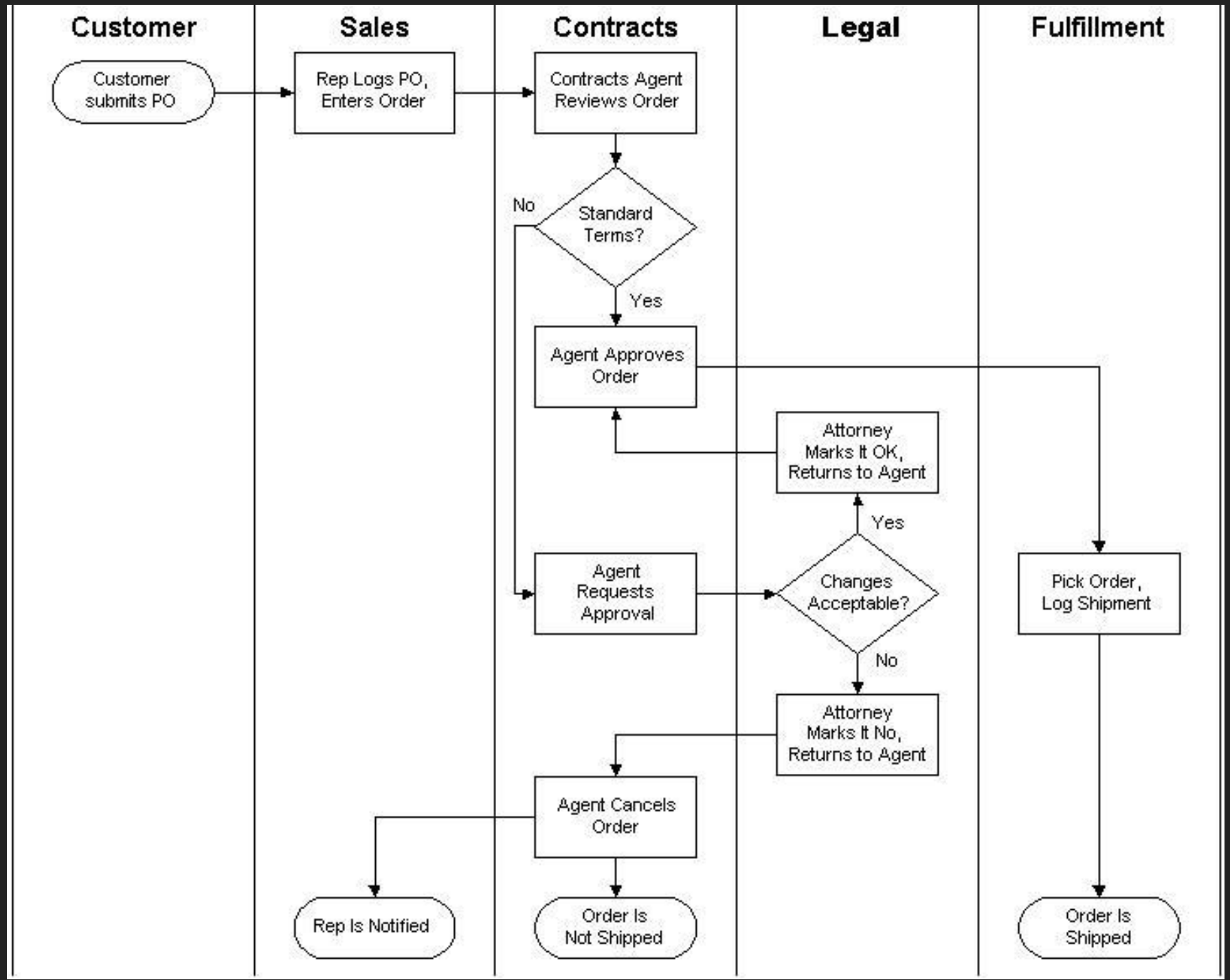


Source: https://www.businessport.net/wp-content/uploads/2018/10/Swim-Lane-Map-Businessport-blog.jpg

Step #1

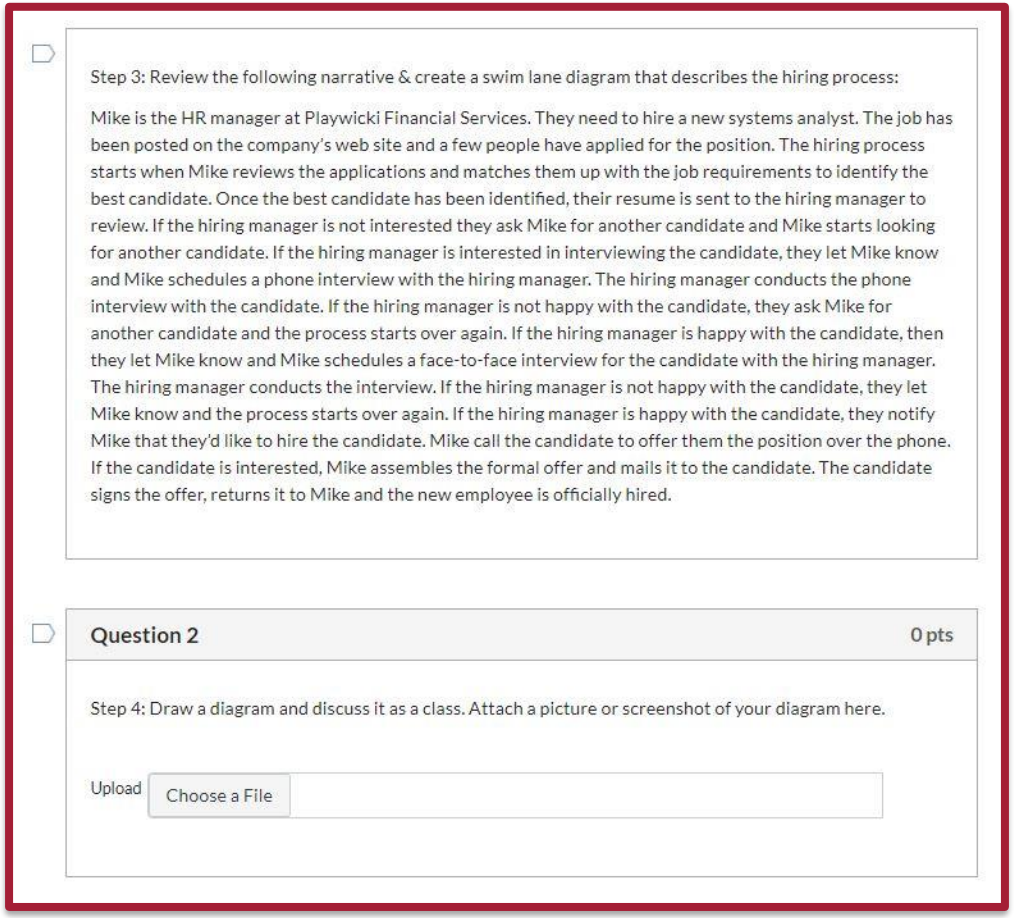
- **Reference the swim lane diagram shown on the following slide**
- **Prepare three questions that can be answered with the diagram (e.g. what happens before/after X, who does Y) and enter these questions in Canvas**




Customer
Sales
Contracts
Legal
Fulfillment
Customer submits PO
Rep Logs PO, Enters Order
Contracts Agent Reviews Order
No
Standard Terms?
Yes
Agent Approves Order
Attorney Marks It OK, Returns to Agent
Yes
Agent Requests Approval
Changes Acceptable?
Pick Order, Log Shipment
No
Attorney Marks It No, Returns to Agent
Agent Cancels Order
Rep Is Notified
Order Is Not Shipped
Order Is Shipped

Step #2

- **Review the provided narrative and create a swim lane diagram that describes the hiring process at Playwicki Financial Services**
- **Upload your swim lane diagram individually into canvas**



Step 3: Review the following narrative & create a swim lane diagram that describes the hiring process:

Mike is the HR manager at Playwicki Financial Services. They need to hire a new systems analyst. The job has been posted on the company's web site and a few people have applied for the position. The hiring process starts when Mike reviews the applications and matches them up with the job requirements to identify the best candidate. Once the best candidate has been identified, their resume is sent to the hiring manager to review. If the hiring manager is not interested they ask Mike for another candidate and Mike starts looking for another candidate. If the hiring manager is interested in interviewing the candidate, they let Mike know and Mike schedules a phone interview with the hiring manager. The hiring manager conducts the phone interview with the candidate. If the hiring manager is not happy with the candidate, they ask Mike for another candidate and the process starts over again. If the hiring manager is happy with the candidate, then they let Mike know and Mike schedules a face-to-face interview for the candidate with the hiring manager. The hiring manager conducts the interview. If the hiring manager is not happy with the candidate, they let Mike know and the process starts over again. If the hiring manager is happy with the candidate, they notify Mike that they'd like to hire the candidate. Mike call the candidate to offer them the position over the phone. If the candidate is interested, Mike assembles the formal offer and mails it to the candidate. The candidate signs the offer, returns it to Mike and the new employee is officially hired.

Question 2 0 pts

Step 4: Draw a diagram and discuss it as a class. Attach a picture or screenshot of your diagram here.

Upload Choose a File

Mike is the HR manager at Playwicki Financial Services. They need to hire a new systems analyst. The job has been posted on the company's web site and a few people have applied for the position. The hiring process starts when Mike reviews the applications and matches them up with the job requirements to identify the best candidate. Once the best candidate has been identified, their resume is sent to the hiring manager to review. If the hiring manager is not interested, they ask Mike for another candidate and Mike starts looking for another candidate. If the hiring manager is interested in interviewing the candidate, they let Mike know and Mike schedules a phone interview with the hiring manager. The hiring manager conducts the phone interview with the candidate. If the hiring manager is not happy with the candidate, they ask Mike for another candidate and the process starts over again. If the hiring manger is happy with the candidate, then they let Mike know and Mike schedules a face-to-face interview for the candidate with the hiring manager. The hiring manager conducts the interview. If the hiring manager is not happy with the candidate, they let Mike know and the process starts over again. If the hiring manager is happy with the candidate, they notify Mike that they'd like to hire the candidate. Mike calls the candidate to offer them the position over the phone. If the candidate is interested, Mike assembles the formal offer and mails it to the candidate. The candidate signs the offer, returns it to Mike and the new employee is officially hired.

Some help…..

- When does the process starts?
- How many Actors do we have?
  - Warning: use title not names on your diagram!
- Look for 4 decisions (or verification/question?) that will lead to a Yes or No (diamonds)

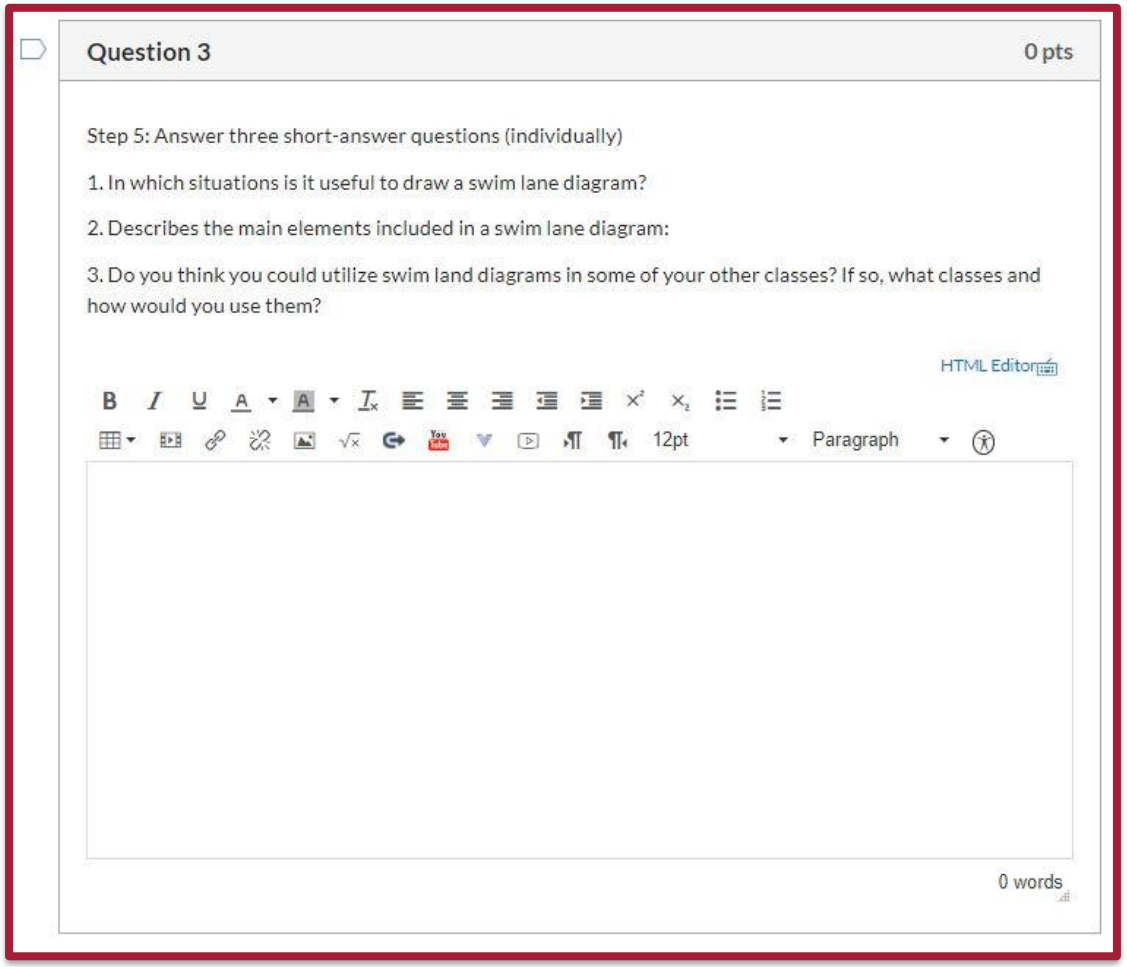
Step #3

- **Discuss as a class**

Source: https://i1.wp.com/www.nationalreview.com/wp-content/uploads/2016/12/school-bans-students-raising-their-hands-answer-questions-2.jpg?fit=788%2C460&ssl=1

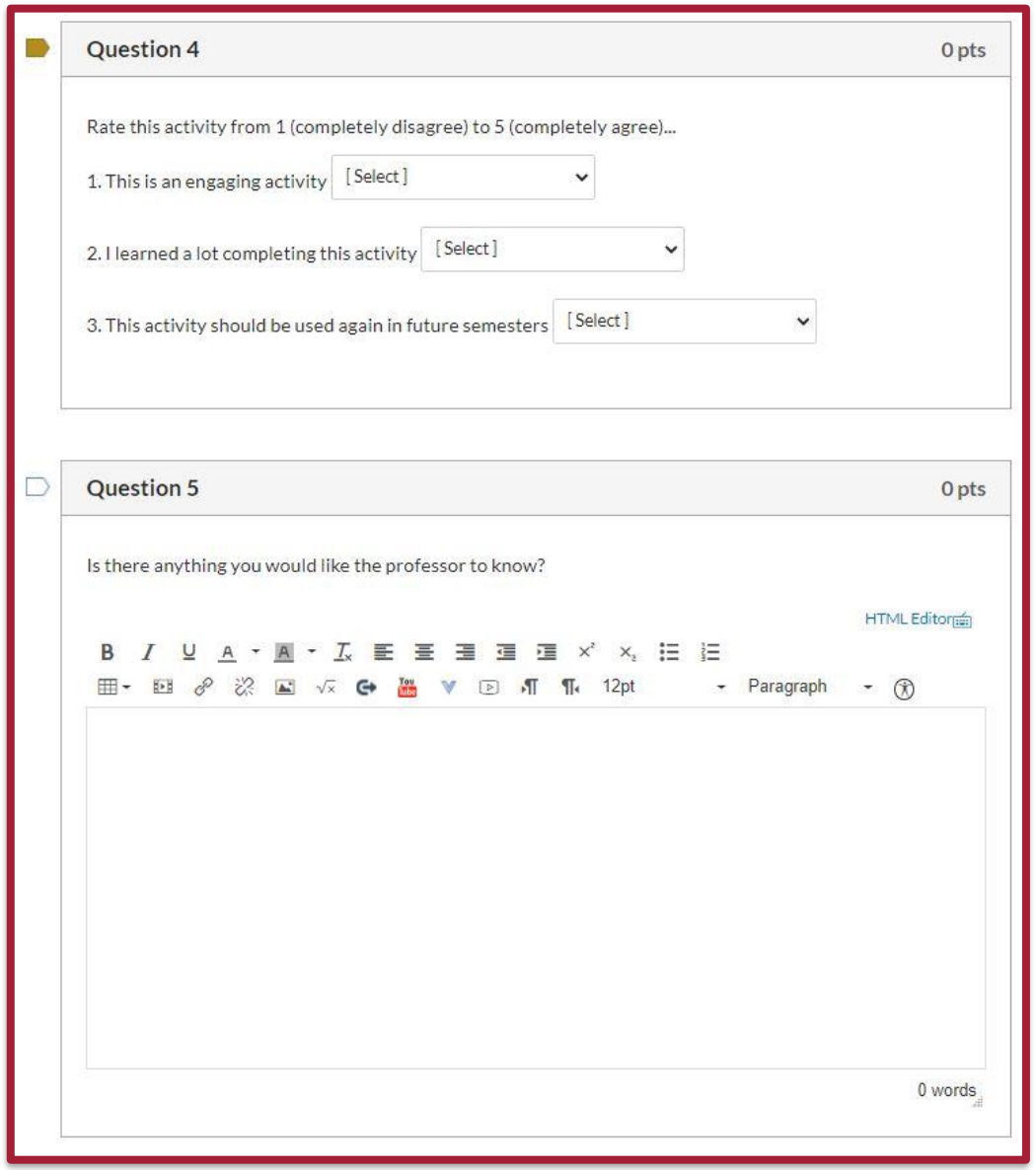
Step #5

- **Individually answer three short-answer questions and enter them into the form**
  - **In which situations is it useful to draw a swim lane diagram?**
  - **Describe the main elements included in a swim lane diagram:**
  - **Do you think you could utilize swim lane diagrams in some of your other classes? If so, what classes and how would you use them?**



Step #6

- **Individually rate this activity**
- **From 1 (completely disagree) to 5 (completely agree)...**



Want more practice with Swim Lane?

- Look for my email tonight!

Want to use a free software to draw a swim lane diagram?

- https://www.lucidchart.com/pages/

More to Come

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