CSCI375
Intro to Systems Analysis

Today’s plan

Course administrivia

Course overview

Administrivia

Lecture:
Instructor: Sarah Carruthers (sarah.carruthers@viu.ca)
Office Hours:
Course homepage: http://csci.viu.ca/~carruths/Courses/CSCI375/index.html
Syllabus: http://csci.viu.ca/~carruths/Courses/CSCI375/CSCI3752020Outline.html

Administrivia

Mark breakdown:

- Team Project: 50% (must pass to pass the course)
- Final Exam: 50% (must pass to pass the course)

Team Project

Purpose:

- to gain first hand knowledge of the challenges of systems analysis
- to gain experience working in a team on a project
- to learn to properly document a project

Deliverable	Due Date (midnight)	
Team Formation	Jan 13/15	Time in first lab to form teams of 4 Will include a breakdown of skills, roles, and responsibilities
Project Plan	Jan 20/22	Presented in lab
Requirements	Feb 10/12	Presented in lab
Analysis Model	March 2/4	Presented in lab
Design Models	March 9/11	Presented in lab
Prototype	March 30/April 1	Demo’d in lab
Final Project	April 6/8	Presentation in class

Team Project

All students must fully participate in a team project

- attend all labs
- attend all team meetings
- participate in all demonstrations
- participate in all presentations
- complete a fair share of:
  - planning
  - analysis
  - design
  - development
  - documentation

Team Project

For full marks, all deliverables must be

- received on time
- submitted exactly as requested

Late submissions:

- at most one day late: -25%
- more than one day late: mark of 0

Team Project

All students will be assigned to a team

Documentation:

- Each team member is responsible for documenting their contributions
  - Weekly timesheets
  - Weekly contributions details

Presentations:

- mandatory attendance
- exceptions for medical or family emergency (documented)
- failure to give a presentation will result in a 0
  - presentation must still be given at a later date, or a failing grade for the project will be given

Team Project

Suitable projects

- must be beneficial to other csci students at VIU (game, application, entertainment...)
- must be stored, developed, compiled, and run **entirely** on otter
- depth must be appropriate for 50% of total course mark for 4 upper level students (at instructor's discretion)
- must reflect the feedback provided during the lifetime of the project

Team Project

Documentation

- Time sheets (individual)
- Contributions (individual)
- Meeting minutes (group)

Submission

- using git (to be set up during Lab 1)
- all teams must commit and push their team repo every Monday (before lab)
- all individuals must commit and push their individual files every Monday (before lab)
- Individual marks will be largely based on these pushes

Course Topics

Motivation (today and next class)

…

Motivation

We live in a world of ubiquitous computing

Despite the fact that we are familiar with using

- mobile tech
- computers
- internet
- AI

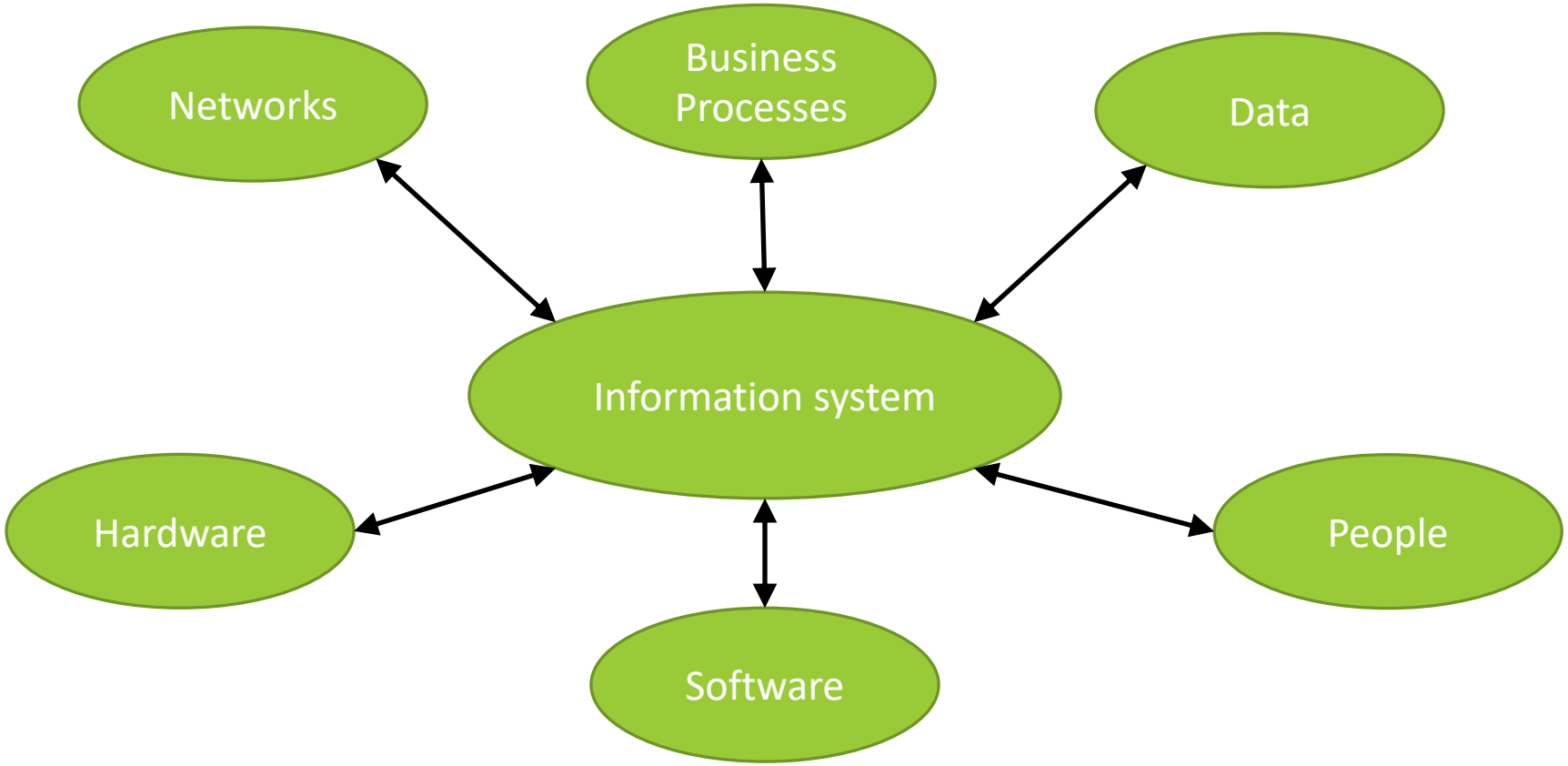
Most of us are unfamiliar with *building information systems*

Computer Applications (apps)

Computer Applications (apps)

Definition: a program that runs on a computer to carry out specific functions or a set of related functions

Information systems



Information systems

Definition: a set of interrelated components that collect, process, store, and provide as output the information needed to complete business tasks

Exercise

As a student you use VIU's student support system to:

- register for classes
- get a timetable

You access it using:

- browser
- app

It is used by:

- students
- staff

Describe this as an information system:

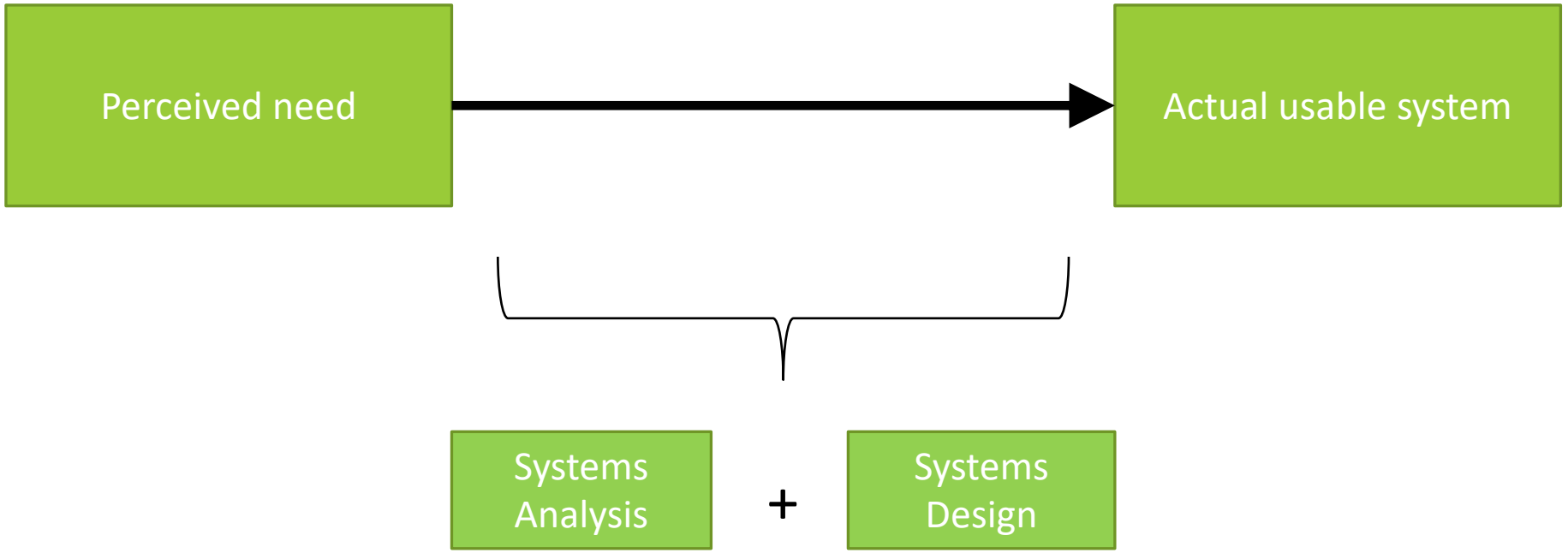
- **What are the components?**
- **What problem(s) does it solve?**

Systems Analysis and Design

In this class we will investigate how

an information system is created

Systems Analysis and Design



Systems Analysis

Definition: Systems Analysis is the **set of activities** that we undergo to *understand* and *specify* what a system should be able to do or accomplish

Understand

Specify

Systems Analysis

A customer management system should:

- track customers
- register products
- monitor warranties
- track service levels
- …

Systems analysis is much more than this list!

Systems Design

Definition: Systems Design is the set of activities that we undergo to describe in detail **how** the Information System will actually be implemented

Systems Analysis and Design

Systems Analysis + Systems Design

What is needed for the system to solve this problem

How the system will operate to solve this problem

Building a ~~Building~~ System

Building a system is a lot like building a building

Land owner

Builder

Architect

The Development Process

1. Understand the need
2. Capture the vision
3. Define a solution
4. Communicate the vision and the solution
5. Build the solution or direct others to build it
6. Confirm that the solution meets the need
7. Launch the solution

Building an IS

Definition: A **project** is a planned undertaking with a start and finish, that produces an end result

Project

Should include all the activities needed to design, develop, and launch a new system:

- Identify
- plan
- organize
- monitor

System Development Life Cycle (SDLC)

Definition: A framework that identifies all the activities needed to research, build, deploy, and maintain an Information System

System Development Life Cycle (SDLC)

Should include all activities needed for:

- planning
- systems analysis
- systems design
- programming
- testing
- user training
- deploying
- maintaining...

System Development Life Cycles (SDLC)

Core Processes
Identify the problem and obtain approval
Plan and monitor the project
Discover and understand details
Design the system components
Build, test, and integrate system components
Complete system tests and deploy the solution

Systems Development Methodology

Definition: A systems development methodology (or process) is a set of comprehensive guidelines for carrying out all the activities of the Core Processes

Agile Development

Most current Systems Development Methodologies are based on Agile Development

- based on the idea that no one has a complete understanding of the system, not:
  - developers
  - users
  - designers
  - clients...
- Plan needs to be able to deal with unanticipated challenges
  - be flexible
  - be agile

Iterative Development

System is “grown” in an *organic* way

Core components developed first

Additional components added

Consists of the six core development processes

- repeated over and over until system is fully functional

Iterative Development

Six Core Processes

1. Identify problem and obtain approval
2. Plan and monitor project
3. Discover and understand details
4. Design system components
5. Build, test, integrate system components
6. Complete system tests and deploy solution

Iterative Development

the amount of *effort* expended at each iteration for each process depends on:

- project
- approach
- results of previous iteration

First iteration, more effort will go into processes 1-3

Late iterations, more effort will go into later processes

Each iteration should be completa in 2-4 weeks

Iterative development

What are the benefits of iterative development?

Feasibility, Risk, and Cost-benefit Analysis

For Project:

- Feasibility
- Risk
- Cost-benefit

In your teams

Scan: https://en.wikipedia.org/wiki/Feasibility_study

For each category, summarize the feasibility of your project:

- Technical Feasibility
- Legal Feasibility
- Operational Feasibility
- Time Feasibility
- Resource and Time Feasibility

Present to class

In your teams

Identify each of the following for your project

- Costs
- Benefits

Present to class

In your teams

Identify the risks of your project:

- What could lead to your project's failure?
  - Identify each risk
  - Identify how it could be avoided, managed, or mitigated

Present to class

Motivation

RMO’s Tradeshow System