Southern New Hampshire University
Syllabus

IT.304: Systems requirements and implementation planning
Course Prerequisites: IT.200, QSO.340
Location: on-ground, SETA, 209, Wednesday and Friday at 11:00 – 12:15
Instructor: brian hogan, b.hogan@snhu.edu, https://github.com/bbe2/IT.304.Fall.2022

Course Description

Systems analysis and design is an art form, discipline, and science. The 1890s witnessed its formative pillars of speed, quality, and checklists thanks to the efforts of Frederick Taylor, and his methods and stop-watches remain key systems analysis and design tools[1].

```
1890    1930   1950      1960      1970      1980    1990   2000      2020
Scientific mgmt
     Fordism
          Manufacturing automation (MA)
               Statistical process control
               Total quality mgmt (TQM)(Demming)
                    Transistors
                         Microprocessors
                              Integrated data stores (IDS)<tape>
                                   Personal computers
                                        Information Systems MIS\MES
                                             Business process reengineering
                                                  Info. factory-servers
                                                       Intelligence systems
                                                            Data warehouses
                                                            Artificial Intell.
```

To perform systems analysis and design well, it helps to understand different process models alongside what operation managers need to see, what business leaders want to achieve, and what financiers advise on sustainability. Information technology (IT) facilitates systems design efforts through codification. Leaping forward, Artificial intelligence (AI) identifies potentiality by pairing unseen connections with deep learning neural networks.

In the 1990s, MIT computer science professor Michael Hammer developed the management theory of business process re-engineering (**BPS**). Its tenets are process improvement, process re-design, and process re-engineering. **BPS** emphasizes the application of a holistic view of understanding how business objectives and processes are or are not aligned.

Question: have you stood in line in a coffee shop while the servers are busy doing lots of things but not helping you? IT online ordering has changed business operations, and perhaps customer experience is out of alignment with new transaction processing models. Good design principals may have identified this experience gap a priori by using first in, first out (FIFO) queueing.

In 2022 **BPS** is alive and well, as witnessed by consultancies like IBM's Business Process Reengineering <IBM-BPRS> and Bain & Company's Business Process Redesign <Bain>. **BPS** names change, such as Accenture's Human + machine intelligence, but its Tayloristic principles are still profitable.

Business requirements, business rules, system specifications, environmental factors, opportunities to tear things apart, reorganize, recodify, and discover new viability vectors. **IT** is essential to this process. Understanding the application of BPS models will help you become a better system's designer through the development of abstraction and looking ahead skills. These skills improve with training and application.

In BPS, an individual's skills express themselves in the selection, testing, and application of BPS models to frame situations. Abstracting systems involves applying process engineering skills to help orchestrate quality engineered improvements, new IT paradigms, and machinery to augment and facilitate change. Measuring change is problematic, and this course is not focused on it. Suffice it to say, sometimes only profit and stock price reflect the systemic effects of an organization's BPS's efforts.

Why do BPS efforts wane? One answer is people and systems "move on." Life flows forward with designers and business champions refocusing and pulling the wind out of BPS sails. Perhaps work was not understood by managers leading to other ineffective, haphazard d outcomes. Developing skills in this arena will help you identify concerns hopefully before a ghoulish nightmare.

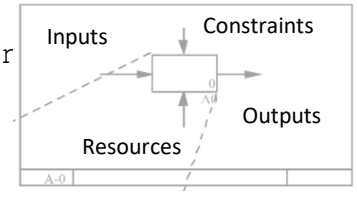
This course will develop systems analysis\design skills as evidenced by,
1. Written examination and diagnostics of systems thinking.
2. Use of 10 modeling approaches to draft system requirements.
3. Use of object model programming to codify data and transactions paradigms.
4. Application of systems analysis and design principles by translating business and information structures into object models, systems requirement specifications, and.or implementation plans.
4. Evaluating a Harvard Business School case study (or similar).

The coursework is challenging, accessible, and extremely useful. As such, the expectation is your work will progress naturally in an ongoing fashion driven by self-interest and self-motivation. If a topic or assignment does not strike a nerve, please reach out to discuss it with the instructor.

Students are encouraged to focus learnings on they most gravitate towards.

Course competencies:

- IT-20358: Make ethically informed decisions based on awareness of legal and organization parameters
- IT-20359: Develop a systems requirements specificatior
- IT-30360: Develop an implementation plan



Required textbooks for knowledge reading assignments:
In any endeavor, resources are critical to success. In this course, information is assembled from various sources to minimize purchase costs. Printed materials are provided weekly alongside media stored in class bh.github. To the extent possible the instructor provides online references

and only recommends quality materials. When applicable, consider acquiring materials from the SNHU Online Bookstore.

The following textbook is well suited for class purposes. Class.1.2 will guide a course of action for purchase, rental, or borrowing from instructor .

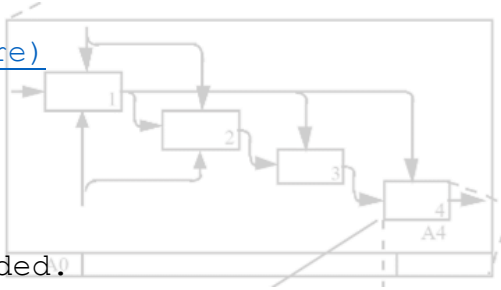
A) Tilley, Scott (2022). **Systems analysis and design, 12th Edition**. Shelley Cashman Series. Cengage. Published 2022. ISBN 978-0-357-11781-1.
- https://www.amazon.com/s?k=systems+analysis+and+design+12th+edition+scott+tilley&crid=3MA5XRRHG2KMB&sprefix=systems+analysis+%2Caps%2C82&ref=nb_sb_ss_ts-doa-p_2_17
- ***Instructor has 2 copies students may use and share for assignment readings.***

Models come in all forms. Ideas from The Decision Book will broaden your capabilities through fast weekly model applications. Purchase encouraged.

B) Krogerus, M., Tschappeler, R., and Pienning, J. (2018). **The decision book: fifty models for strategic thinking.** ISBN-10: 0393652378, ISBM-13, 978-0393652376.
- Amazon.com: The Decision Book: Fifty Models for Strategic Thinking: 9780393652376: Krogerus, Mikael, Tschäppeler, Roman, Piening, Jenny: Books

Tools, technology, and software to facilitate evidence

1. <provided> Paper, pencil, digital/in-hand Imperial rulers, index cards.
2. Document and spreadsheet software such as MS Word \ MS-Excel.
3. Microsoft Visio or another process design software like EdrawMax.
   ✓ Please attempt to submit .jpg or Adobe .pdf to help instructor consolidate work quickly.
4. Learn hands-on by applying weekly system models and theory to situations.
5. Blog, discussion chain, via slack channel https://it304fall2022.slack.com/home
6. Case studies to apply models too for assessment purposes.
7. A systems design and analysis custom model library at bh.github name=Model_x
8. Software
   - Microsoft VISIO (available through university here)
   - Python; jupyter notebook classic home
   - o Python IDE: Jupyter :: Anaconda.org

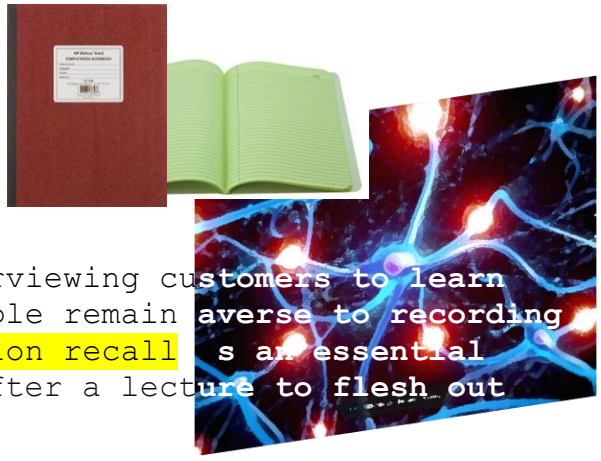


note: students are not required to figure out code from scratch. They are expected to retype code provided.

Instructor availability and response time

- Communications typically occur during class for the benefit of everyone.
- Interaction with the instructor and classmates will occur regularly on Wednesdays and Fridays at 11:00AM, room 209, SETA.
- The instructor is available before and after class from 8 AM till approximately 3 PM for in person discussion. Please request a day ahead.
- Please communicate with your instructor via b.hogan@snhu.edu at any time!

A brief guide to effective analysis



This course is lecture based and taking notes is critical to both scholastic and business success.

i. In systems analysis and design, your interviewing customers to learn information and process details. Many people remain averse to recording conversations in any medium, so conversation recall is an essential
   ii. Augment your class notes shortly after a lecture to flesh out learnings context, and details.

ii. Augment your class notes shortly after a lecture to flesh out learnings context, and details. When something is not well-understood reach out to your instructor promptly to help your analysis skills advance organically. Consider keeping an experience journals as they are helpful to reflect upon if you seek employment in this field.

iii. **Blackout typing.** Consider typing your notes and ideas with the computer screen blocked or blacked out. Doing so stimulates your abstraction engine flow.

iv. Word spelling/grammar matters. But, for now, focus on **IDEA** generation and design. The Victorians have 1000s of well-written texts nobody reads, and Herman Melville, a Victorian, wrote about a **process** -- whale hunting.

v. Maintain a top 5 model list to facilitate and focus assignment work.

vi. Ask questions – right away. This course focuses on engineering ***courses of action***. Think ahead to clarify your thinking.

Good writing is good thinking

Effective analysis items to do first:

1. Write down any ideas about assignment and models that come into your head when they arrive. Carry index cards, text yourself, keep a moleskin notebook and pencil. Don't put off recording something interesting for even for five minutes else "whooosh-vapor."
   - laboratory bench scientists are required to this day to perform daily journal of their work. It is a skill worth considering.

2. Carefully read every word of the assignment 2x to make sure you consider what lectures, readings, and models your asked to consider. Carefully cogitate an approach. Every assignment link is curated to deepen knowledge, focus thinking, **AND** eliminate internet research.
   - Consider reviewing weekly assignment section and re-reading curated course content when your logic is amiss.
   - Between 4-8 will review strategies for librarian type research.

3. If you assignment wants you to use class lectures, then study your lecture notes. Hopefully you have augmented your lecture notes shortly after the lectures to add context.
    - Add to your class notes in another color pen to increase neuroplasticity.

Research Websites
The internet is full of information *and* advertisements. Use your time wisely working with the research sites below. This following should be longer but snhu Shapiro library, ResearchGate, and Routledge cover vast ground.

If you like what you find, I suggest setting up an account. Each provides unscheduled ad-hoc resource emails of quality information based on items you have queried.

Once acquainted with quality information sources, it is challenging to remember the data.Trash you likely wade through.

WARNING: when you appreciate quality information you may never listen to commercials again and use the internet quite differently.

Below are a few quality research website.

- Shapiro Library - Research Guides at Southern New Hampshire University (snhu.edu)
- Home Feed | ResearchGate, https://www.researchgate.net/
- Routledge - Publisher of Professional & Academic Books, https://www.routledge.com/
- Syracuse University Libraries - Research guides by subject
    - https://researchguides.library.syr.edu/
    - Syracuse also has outstanding librarians like MS. Brenna Helmstutler
        - https://researchguides.library.syr.edu/prf.php?account_id=152875

Use of Wikipedia for course referencing and information sharing:

- Any links to dictionary wikipedia is to help quickly build topic background and.or augment class lectures.
- Wikipedia helps to broadly engage a topic's context and related info.
- Wikipedia **is not** an academic reference nor a substitute for quality academic media. Some academics argue Wikipedia's veracity p.e.r.i.o.d.
- **At any time a student may request academic approved learning media to substantiate any reviewed topic.**

Diversity, Equity, and Inclusion
As indicated in SNHU's core value, the university is committed to "embrace diversity where we encourage and respect diverse identities, ideas, and perspectives by honoring difference, amplifying belonging, engaging civilly, and breaking down barriers to bring our mission to life."

In higher education, you're expected to think critically while exhibiting a growth mindset. This mindset includes the practice of diversity, equity, and inclusion (DEI) to provide transformative experiences for yourself, peers, faculty, and staff.

Collectively we are an organize learning mechanism. Through our community, compassion, and collaborative interactions we walk with respect towards a greater

SNHU Handbook and University General Guidelines

- https://snhu.sharepoint.com/sites/CAMPUSACADEMICS
- Use your internal resources to access the student handbook detailing all features of attendance, academic honesty et. cetera.
- Perform authentic work.
  - SNHU requires all students adhere to high standards of integrity including avoidance of plagiarism and cheating.
- SNHU adheres to copyright provisions of the Copyright Act.
- Consult the handbook when considering withdrawal or need anything else.

ADA/504 Compliance Statement

SNHU is dedicated to providing equal access to individuals with disabilities in accordance with Section 504 of the Rehabilitation Act of 1973 and with Title III of the Americans with Disabilities Act (ADA) of 1990, as amended by the American's with Disabilities Act Amendments Act (ADAAA) of 2008.

SNHU prohibits unlawful discrimination on the basis of disability and takes action to prevent such discrimination by providing reasonable accommodations to eligible individuals with disabilities. The university has adopted this policy to provide prompt and equitable resolution of complaints regarding any action prohibited by Section 504, the ADA, and the ADAAA.

For any questions about support services, documentation guidelines, general disability issues, or pregnancy accommodations please email wellness@snhu.edu. See my.snhu.edu and select the wellness tab. And the campus accessibility center at cac@snhu.edu.

For anything regarding discrimination please contact school professionals right away at the emails above and.or see the Disability and Accessibility Services at https:\\my.snhu.edu

Student Support Resources including Tutoring and Instructional Support

It is really amazing to have a careteam@snhu.edu to help students with assistance of all sorts. Again, this is an amazing resource.

- Consider this service if feeling pressured or overwhelmed.
- For instructional support email instructionalsupport@snhu.edu.
- For in class tech support call 603.645.9615

Other Key Resources

- https://snhu.sharepoint.com/sites/thesource
- https://snhu.sharepoint.com/sites/CAMPUSACADEMICS

Grading Guides

- Weekly activities and assignments are posted in this doc Friday evening to to bh.github.
- Specific category instructions, grading rubrics, directions, and hand-it-in requirements are detailed in the assignments.
- Grades and feedback are within seven days. This course also contains non-graded activities to assist you in mastering the learning outcomes.

Grade distribution*

Category	# items	Points	Total points
Activities	10	60	600
Assessments/Quiz	5	20	100
Project 1	1	150	150
Project 2	1	150	150
		Total	1000

*based on class experience and expectations may be revised by 2nd Wednesday of week 2
**updated: 09.05.22, grading categories were finalized.

University grading system

Grade	Numerical Equivalent	Points
A	93-100	4
A-	90-92	3.67
B+	87-89	3.33
B	83-86	3
B-	80-82	2.67
C+	77-79	2.33
C	73-76	2
C-	a	1.67
D+	67-69	1.33
D	60-66	1
F	0-59	0
I	Incomplete	
IF	Incomplete/Failure	
IP	In progress	
W	Withdrawn	

Due Dates

Assignments are due anytime on the day of the world clock day. If it's December 31st "somewhere" an assignment is on time.

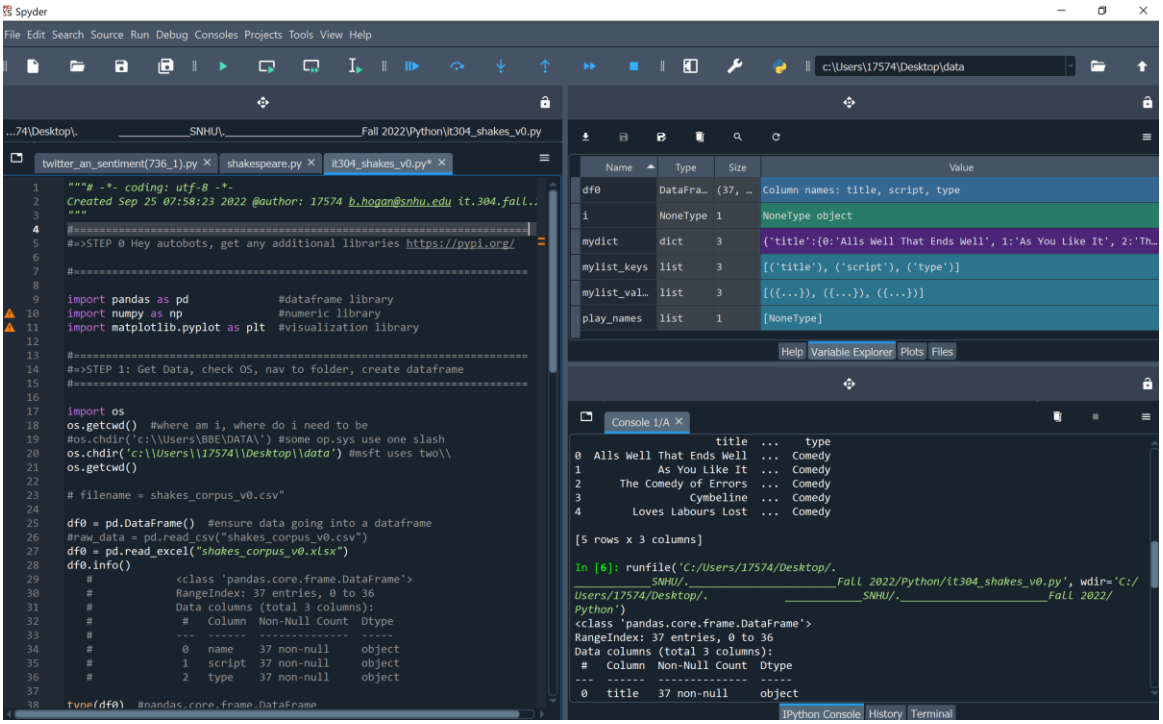
Weekly Assignment Schedule

Reading assignments, activities, and tasks are distributed at the end of week except for the first week on bh.github. For students interested in doing work ahead of schedule please contact instructor. The instructor advocates for courseload strain reduction to help ensure good thinking.

Template format

Wk	Focus & Medium	Weekly Topic & Assignment
x	~py pkg index~ https://pypi.org/ Hands - mediapipe (google.github.io)	

note: Weekly Assignments (1 or 2 pages per week as indicated on left)

Wk	Focus & Medium	Weekly Topic & Assignment
5 9-26-10-1	(1 of 3) 9/28 Class – Jupyter lite not working. **Spyder IDE** going forward polyglot = knowing or using several languages: Everyone set their window up this way **Sypder Basics**	**Objective =** entire class get on Sypder IDE for consistent training **A: Install Sypder:** https://docs.spyder-ide.org/current/installation.html • PyCharm is an IDE for polyglot programming,ie > 14 languages. • Spyder IDE is Python for science, analysts + great for students **B: setup Spyder windows like this** **Left** => code; **top right** =>variable explorer; **lower right**=>console **C: install packages:** always run library imports first. If one doesn't run then go to termind on this screen and pip install from https://pypi.org/,  **D: Sypder interface basics** **a)** code window opens any .py file with code assist editor **b)** highlight code you want to run and hit function F9 **c)** in the console you see the output! that simple **d)** Variable explorer NEAT bc tracks all the objects and current status of a variable **d.1)** you can click on a variable and it opens a window so you can see the contents. **e)** I appreciate we discussed need to code without applications but this application serves to reduce the basic visual output burden of the code you write. You still need to write the code to create an manipulate the data objects which is the core skill.

Wk	Focus & Medium	Weekly Topic & Assignment

5
 	
9-26-10-1
	(2 of 3)
	Shakespeare Corpus
	Class Team Coding
	09-28-022
	
	Step 1: libraries
	#dataframe library
	import pandas as pd
	
	#numeric library
	import numpy as np
	
	#visualization library
	import matplotlib.pyplot as plt
	
	#operating system
	import os
	
	➢ Reading the data
	➢ Use conditional to loop words
	➢ Make fun graph
	➢ transpose data between lists, dictionary, string, tuple
	
	OUT[10]: tip!
	going forward will use python [out] to signify output
	
	#now as a class we will experiment with cheatsheet
		Objective = begin working with 5 pillars of python; create data folder on c:\drive. Code -> Interpret ->
		
		 
		
		Step 1: change directory, get corpus file path
		import os #operating system library
		os.getcwd() #command to get workiing directory
		
		q1> What do bad characters in your paths do? **A: cant read data**
		
		In [2]: runfile('C:/Users/17574/Desktop/.
		SNHU/.Fall 2022/Python/
		it304_shakes_v0.py', wdir='C:/Users/17574/Desktop/.
		SNHU/.Fall 2022/Python')
		File "<unknown>", line 23
		SyntaxError: (unicode error) 'unicodeescape' codec can't decode bytes in position 2-3: truncated \UXXXXXXXX escape
		
		os.chdir('c:\\Users\\17574\\Desktop\\data') #msft uses two\\
		os.getcwd()
		df0 = pd.DataFrame() #ensure data going into a dataframe
		#raw_data = pd.read_csv("shakes_corpus_v0.csv") #oops doesn't work
		df0 = pd.read_excel("shakes_corpus_v0.xlsx") #this works!
		df0.info()
		<class 'pandas.core.frame.DataFrame'>
		RangeIndex: 37 entries, 0 to 36
		Data columns (total 3 columns):
		# Column Non-Null Count Dtype
		--- ------ -------------- -----
		0 name 37 non-null object
		1 script 37 non-null object
		2 type 37 non-null object
		memory usage: 1016.0+ bytes
		type(df0) #pandas.core.frame.DataFrame
		df0.head(2) name ... type
		0 Alls Well That Ends Well ... Comedy
		1 As You Like It ... Comedy
		
		q2> What happens when you dont have a cheatsheet and need to convert a dictionary to a list? Python Convert Dictionary To List - Python Guides
		A: === ACTION = email brian this answer <==========ACTION
		mydict = df0.to_dict()
		print(mydict.keys())
		out[10]: dict_keys(['title', 'script', 'type'])
		
		mylist_keys = list(zip(mydict.keys())) #hmm my data columns looks good
		mylist_keys
		OUT[10]: [('name',), ('script',), ('type',)]
		#DANGER Will Robinson this is a megasaurus
		mylist_values = list(zip(mydict.values())) #holy cow this is huge!
		mylist_values=====> this is huge, make sure you undertand
		
		#finally break data into more manageable things to do
		mydict.get('title') #learn a new function
		play_names = [mydict.get('title')]
		play_names **OUT[10]: [{0: 'Alls Well That Ends Well',**
		1: 'As You Like It',
		2: 'The Comedy of Errors',
		for i in play_names:
		print(i)
		Out[27]: [{0: 'Alls Well That Ends Well',
		1: 'As You Like It',

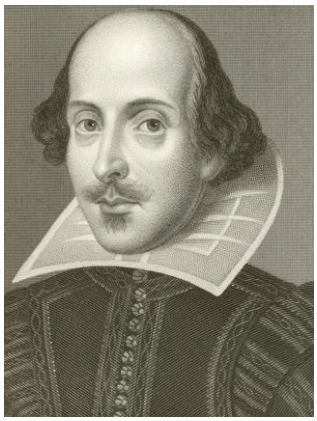
<table>
<tr><th>Wk</th><th>Focus & Medium</th><th>Weekly Topic & Assignment</th></tr>
<tr>
<td>5

9/26

-

10/1</td>
<td>Focus Overview

Python 101 coding

 
shakespeare corpus (git)

Assignment</td>
<td>
Goal: build competence with Python built-in objects to manipulate data like working in a spreadsheet application.

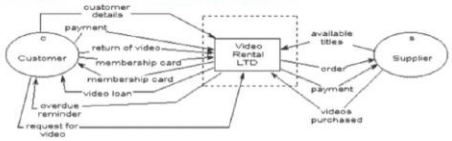
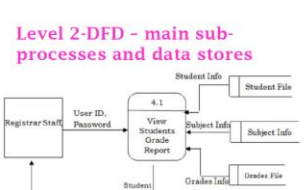
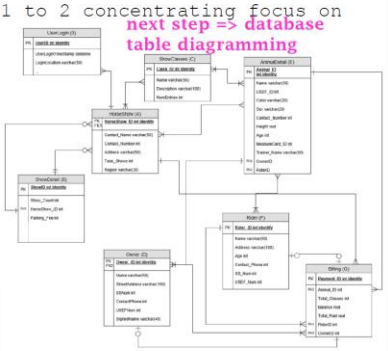
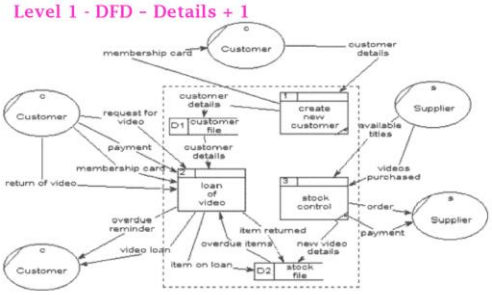
Why? Spreadsheets are 3rd tier objects versus primary information formats like databases and data objects such as Python’s list, string, tuple, dictionary, and sets. And pandas series and dataframe objects. Why Python?
o Its versatile, used across industries, and provides easy to learn data ETL (extract-translate-load), analysis, and reporting.
o Manipulating data in objects make you more agile and confident grab.get data from anywhere.
o Developing transposition skills with Python’s data objects gives you the basic means to always work with any data in the future
o These tools will help you perform system design and analysis with agility and deftness.
o This is your new HAMMER. Now let’s go frame it.

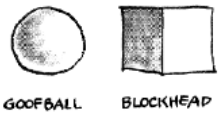
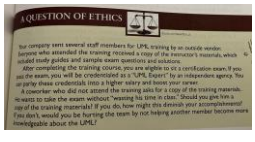
The remainder of the course will use the following toolkit to perform system analysis & design exercises.

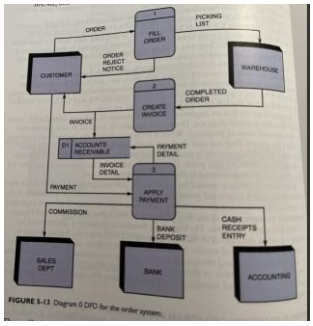
~~ Course System Design & Analysis Tooling ~~
<table>
<tr><th>System Planning & Design</th><th>Class Python Codebook</th></tr>
<tr><td>a) customer requirements outline with level 1 system diagramming methods (IDEF0, swimlanes, SWOT, etc)
b) architect a system data flow diagram (DFD)
b.1) key transactions
b.2) key storage tables</td><td>1) data objects (list,string..)
2) user defined objects
3) iterators
4) conditionals
5) functions / methods
6) transposition
7) pandas dataframes\series
8) ETL</td></tr>
</table>

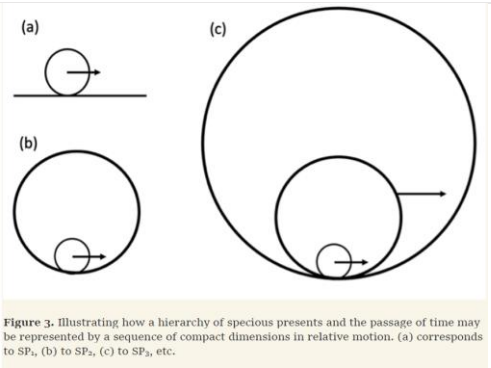
Preparation for our Shakespeare Assessment (given 9/30)
As discussed in class, you will be applying your learnings to the Shakespeare corpus by importing the data, performing transformations, and using iterations and conditionals to report on # characters, words, and # plays.

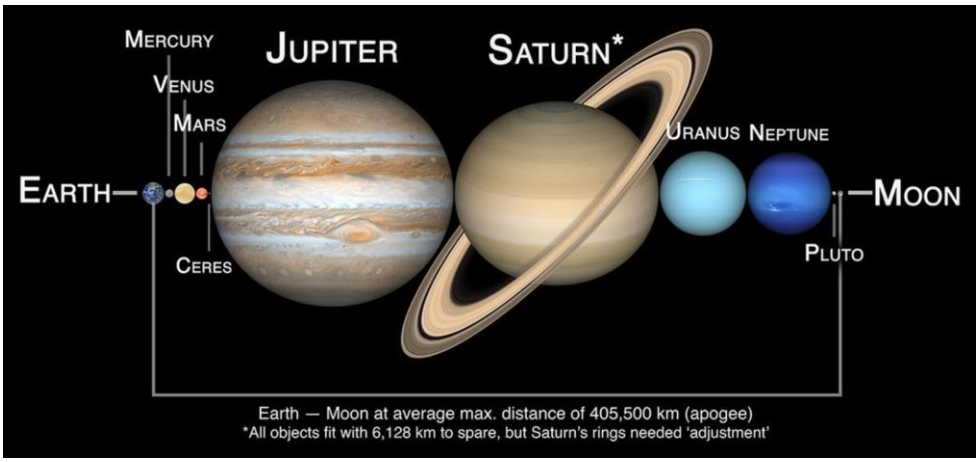
Tasks:
• The zipper codebook has been updated <09.24.22>
• Please work through the code examples again for 9/21 class
• New: repeat 1 page of ETL, object, report code tasks
o (due 9/30,posting shortly)
</td>
</tr>
</table>

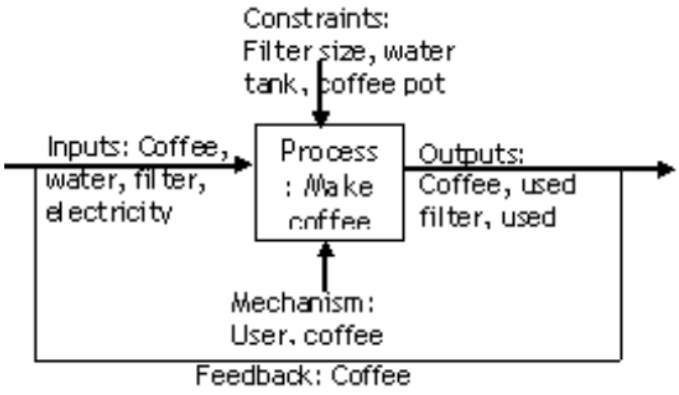
Wk	Focus & Medium	Weekly Topic & Assignment
4 9/19 - 9/24	**Overview** **Python 101 coding** **wk4 Assignment** **Model.4.DFD** **Data Flow Diagram**	Orientation to core Python functionality the course will use for system analysis and design projects. The codebook details core data objects, functions, iterators, conditionals, dataframes, and ETL. In short, everything you need to be successful in class and as an entry-level IT professional. Your objective is to "re-type" the code and bring class your learnings and questions for any code you do not understand. You are not learning code from scratch, but you need to understand and intuit the mechanics of iterators, if.elif.else conditions, and functions to perform work computational work effectively. I am 99.9% confident everyone can complete this work, and I hope everyone will have fun doing so. Good writing is good thinking, and good programming helps make IT work more meaningful and enjoyable. The latest version of the codebook, called the zipper, is in the bh.github. Enjoy the printed codebook handouts but ensure to update and print another copy in the upcoming weeks. The latest copy is always on the class git. Thank you for thoughtfully working through all codebook examples. Think about what the code is doing inside the computer. Write down anything that doesn't make sense for class discussion. The class will design a DFD to perform a system analysis effort. **Model.4: Data Flow Diagraming** <sparx-models> <website> <how.to.doc[VG]> <how.to.video> <wikipedia> Purpose: is the proess of representing simplified data transactions enabling process and stakeholder owners to agree on scope and boundaries of a systems analysis and design re-engineering effort. Key tasks are consolidated in levels 1 to 2 concentrating focus on the 1 to many transactions they likely perform. Level 0 - DFD - Context Diagram  Level 2-DFD - main sub-processes and data stores  next step => database table diagramming  Level 1 - DFD - Details + 1  • **Context diagrams** — context diagram DFDs are diagrams that present an overview of the system and its interaction with the rest of the "world". • **Level 1 data-flow diagrams** — present a more detailed view of the system than context diagrams, by showing the main sub-processes and stores of data that make up the system as a whole. • **Level 2 (and lower) data-flow diagrams** — a major advantage of the data-flow modelling technique is that, through a technique called "levelling", the detailed complexity of real world systems can be managed and modeled in a hierarchy of abstractions. Certain elements of any dataflow diagram can be decomposed ("exploded") into a more detailed model a level lower in the hierarchy. IT.304 Systems analysis, design, and implementation planning, Southern New Hampshire University, b.hogan@snhu.edu <bh.github> **Note:** Wikipedia is an information only reference. It is not an academic reference.

Wk	Focus & Medium	Weekly Topic & Assignment
3 9/12 - 9/17	**Focus** **Overview** **Reading Tilley, Ch6 entire chapter** GEOMETRIC DUDS  **ethics discussion text tilley p196**  	• Perform hands-on activities in Python to learn object-oriented programming(OOP) working with strings, dictionary, tuple, list, set, function, and objects. • As a team, outline system and code objects to simulate system analysis exercises. • Code is provided for you to re-type and learn. • Use cases will grow your confidence. Tilley details old and new techniques for systems modeling, like business process modeling (BPM) (ch1-2), data flow diagrams (DFD) (ch4), and data and process modeling (ch5). Exercises focus on techniques but with little substantiated in the field outcomes. Python hands-on OOP work will replicate varying Tilly processes, such as pg 155-163, with Python data objects (strings, list, etc.), building knowledge of what programmers do. It connects you closely to realistic outcomes of systems analysis and design work. And position you to learn quickly any systems anal. method. A final benefit of the Python OOP work is today's systems analysis, and design do a lot of work extracting and translating information. The result is challenging, but you will know more about it and how not to perform senseless internet searches looking for ideas.approaches to tackle it. **Tilley, Ch6: Overview** • The chapter does an excellent job detailing the components with little to no "geometric duds." • Notice by end of chapter everything you have done to this point is repeated here. Curious! **Python Training:** • By Wed you will be provided with customized training to support this work. It will have all that you need. • Python crash course link below is good to reference and see examples for lists, loops, and similar. Feel free to dig into. • Real world python is super fun training exercises. **Other reference materials** • Matthes, E. (2019), Python Crash Course • Real world Python – FUN training examples • Matthes, Alien Invasion, Ch12. o Note: custom materials being provided replace Matthes chapters 1-11. Good to skim by priority: Ch:9,1,3,6 **Nothing due / Reading Only!** Class will start off discussing pg 196 ethics case study so please simply have your thoughts organized on that.

WK	Focus & Medium	Weekly Topic & Assignment
2.2 **9/9**	Focus / Goal lecture notes  **Assignment** **A. Reading** ○ **Tilley,Ch5** **B. Install Python** **Good luck w install!**	**Goal:** wrap-up historical influence of business process reengineering • **lecture notes:** BPS's evolution with invention of machine learning and data warehousing. The institutionalized game changer of Amazon's kiva robotics **Ch5: data and process modeling** • data flow diagramming uses mostly an agreed upon set of symbols to represent processes, data flows, data stories and entities like transactions or physical items like a deposit ticket and goods. • the goal is to represent the information to be encoded by database programmers and develop apps that negotiate the transactions. • this class is less concerned on formality of box symbols but use circles to start and end a process, diamonds for decisions and rectangles for activities. • pg 153, agreed! try not to cross lines when building. • pg 155-159 does a nice job representing an actual system we could easily and realistic code for on hands-on python activities. • Unlike the book are goal is not to "write" about doing this work but actually code it using standard python data objects of lists, strings, dictionaries, tuples, and sets. a) **Reading:** Tilley, ch5, pgs 144-163 b) **Install Python** • **Please watch video (i). The best course of action is installation via anaconda b.c it is engineered to auto-fix MANY challenges. However, if done wrong, the 1st time may take => 2-3x more work/time to fix. You "do not" have to figure this out yourself so please reach out with any questions.** **i.** 1.3M views on YouTube: Install Anaconda Python, Jupyter Notebook And Spyder on Windows 10 - YouTube **ii.** good start place = jupyter notebook classic home **iii.** Jupyter :: Anaconda.org **Python cloud** • **online\cloud Jupyter Notebook:** • online alternative – works great ! • https://jupyter.org/try-jupyter/lab/ • JupyterLite — JupyterLite 0.1.0-beta.12 documentation

Wk	Focus & Medium	Weekly Topic & Assignment
2.1	Overview Podcast / Video **Run videos at speed 1.25** Focus / Goal **Model.2:SWOT** **Model.2:SWOT. Decision.Book** **perception... cartoon**  	**Ch2: Overview** o ch2 directs focus to business cases and how to identify a system for analysis. It augments learnings with factors contributing to project success/failure, purpose+ how.to a perform feasibility study, align priorities, and perform an preliminary investigation. o Section 2.9, "Preliminary Investigation" (p.26), outlines your revolving course focus building skills and techniques in o **Abstraction:** Which tool-kit model will help me quickly assess the situation asked of me? ▪ Quick assessments illustrate your ability to another party to grok salient factors, exercise skill by presenting a visual or data dashboard, and communicate back to manager or stakeholder. ▪ *Why should person X trust you*? Your responsible for building trust b/c it gets you access to more resources and what you need most, time. o **Data:** What data collection strategy will help me access inputs, outputs, resources, and constraints? o **Situational awareness:** After presenting initial response to business owner, what kind of model support, time, and resources do I have? Do I need? ✓ info.Tech resources usually can help get process metrics, source metric data, and any other information to meet your analysis goals. ✓ Data not what you need? Initiate estimation work. ✓ Today, operations often have project planning documents associated with the system workflow you should inspect while applying your abstraction work. ✓ **SWOT.** When in doubt fall back to basics to help assess a situation's status with strengths, weaknesses, opportunities, and threats(tilley.45, krogerus.tschappelerp.12). **Perception & time <philosophy>:**  **Figure 3.** Illustrating how a hierarchy of specious presents and the passage of time may be represented by a sequence of compact dimensions in relative motion. (a) corresponds to SP_1, (b) to SP_2, (c) to SP_3, etc. link physical space, perceptual space, and memory o the course is not designed to dive deep into perception, time, and points of view. For systems modeling, learn to hone your logic representation skills ***and*** figure what you missed. o Do individuals experience time similarly? Does time affect perception? Quality of shared information?

Week	Focus & Medium	Weekly Topic & Assignment
1.2	Model.3: Swimlane IT Order Harmonization Example model.3.swimlane <bh.github> <how.to.doc> <wikipedia> sorry! in github you have to download to get link to work or use them here Artemis I Space Launch System unmanned Moon mission  Swimlane Assignment request by 9/6 @6ish PM	**Model.3.Swimlane** **Purpose:** use horizontal or vertical gradating color bars to demarcate business lines illustrating system inputs, activities, and decisions connected with arrows. **Assignment: Tilley Ch2 + Roughcut Swimlane diagram** ➢ Swimlanes no longer have notoriety as in 1993, and some IT professionals view them as a hindrance to what they need, that is, codified information. ➢ However, swimlanes are super at helping a senior manager or new employees quickly grasp what an organization is doing and how they are doing it. ➢ **"""You're the only resource, but you can have and do anything you want to do. Please include,"""** ➢You're the only resource but can have, and do, anything you want to do. Please include, ✓ Square(ish) boxes to represent activities ✓ Lines to connect between activities ✓ Line arrowheads to show directionality between shapes ✓ Diamond(ish) boxes to represent decisions ✓ Text in squares + diamonds + on lines to detail happenings ✓ Optional: add a numeric index for each box & feel free to annotate "anyway" you like.  **Example:** **Earth:Launch ↓** **Mars: Fuel up -> Open solar flares 3 yrs ↓** **Neptune: Turn into nano-space particulates** ❖ **Please email a .jpg, pdf however you build it.** ○ **File\SaveAs\often allows you select type .pdf** **-->'The goal is to be more thoughtful of your logic'<--**

Week	Focus & Medium	Weekly Topic & Assignment
1.1	Reading Podcast / Video What is business process re-engineering? **Run videos at speed 1.25** What is a system? **inputs outputs resources constraints** IDEF0 Handout **Assignment Request for 9/1** Assignment Example page Assignment example **Model.1:IDEF0**	**Tilley, Ch 1.** Intro to Systems Analysis (free link) • 1st chapter is FREE !, use above link • Awareness & Design – Michael Hammer o https://www.youtube.com/watch?v=9oxM5JV7H50 • Business Process Re-engineering explained - o https://www.youtube.com/watch?v=v-jAf7L2Uak ▪ (10.5min/1.25=8.4min) • IBM Business process Analysis (6.5min/1.25=5.2min) o https://www.youtube.com/watch?v=1E6II2U1shY Utilize your abstraction instinct while reading because the name "EMS" isn't important, but the concepts are. https://www.niu.edu/ems/introduction/definition.html 1) definition is page 1 + 8 more pages using <next topic> 2) The EMS model 3) Benefits of EMS 4) Examples of EMS 5) Systems approach 6) Concept diagram <focus and perform abstraction here> 7) Processes, inputs, outputs a. Example of: inputs, outputs, resources, constraints 8) Summary • IDEFØ – Function Modeling Method – IDEF - website o 2nd example of input, output, res., constraint Select a process you love or dislike. Define its input, outputs, resources, and constraints (IORC). Logically what goes into the system is either consumed or comes out. Notate ALL you think of. Then, list 5 to 10 high-level activities performed by the IORC. Use paper and pencil and send me a picture **anytime** end of the day tomorrow. I am only asking for a max of 15 min to whip up. Please spend more if having fun. Thank you for considering this fast turnaround, as I will use all work submitted to start Friday's lecture. Perform work as a team as desired or convenient. https://www.niu.edu/ems/introduction/constraints.html 

References

1. Kanigel, R. The One Best Way. Viking.