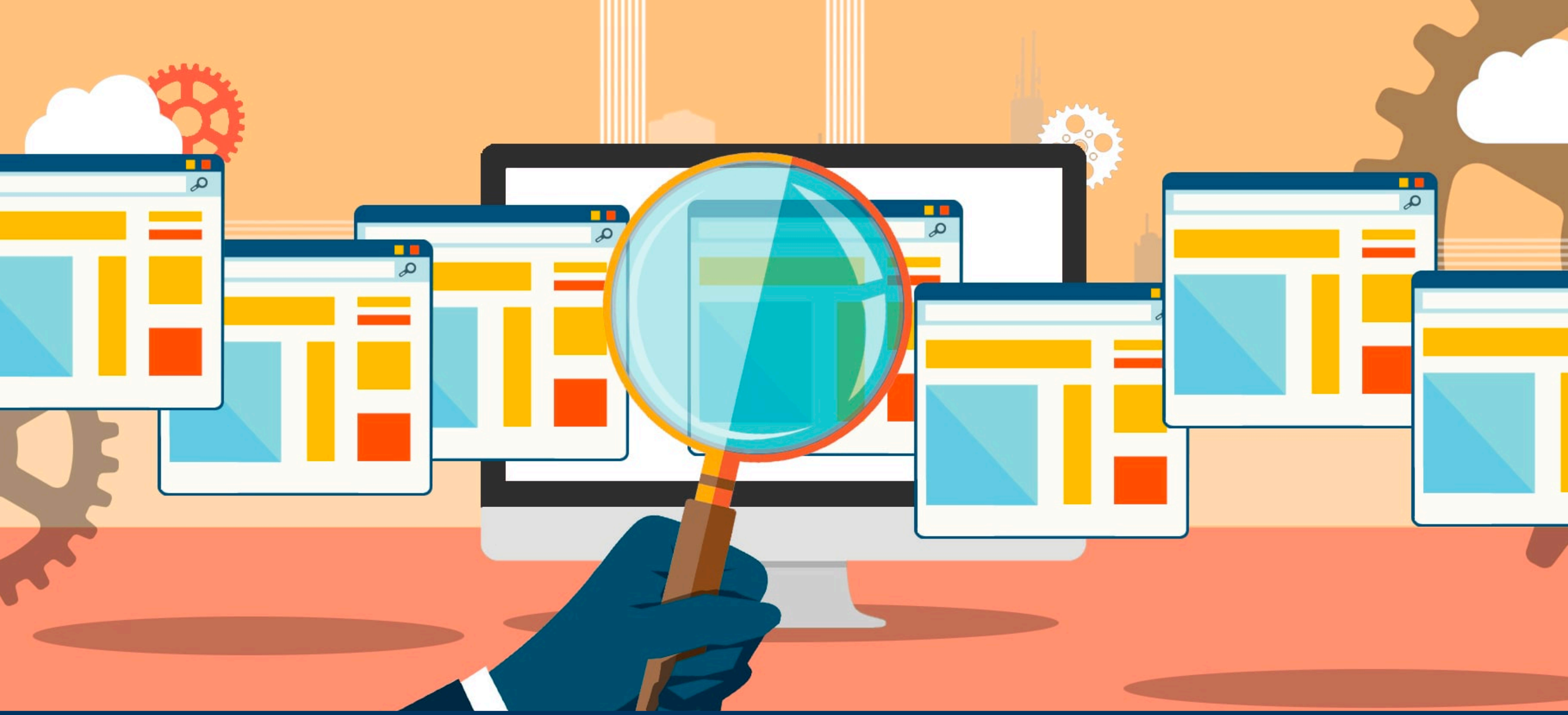


Introductions and Course Logistics

INST414 - Data Science Techniques

INST414-010*

Data Science Techniques

Wait, this isn't woodshop?

Lecture:
SKN 0200
Tuesdays
2:00-3:15 PM

Discussion:
HBK 0302J
Friday
9:00-10:15 AM
10:30-11:45 AM

Wait, this isn't woodshop?

Notes about classroom policy

Tuesdays

Fridays

Tuesdays

Fridays

Topics for Today

Introducing your instructional team

Course schedule/overview

Assignments over the semester

An intro to data science as a topic

Who am I?

Assistant Professor

COLLEGE OF INFORMATION STUDIES

Information and technology for good

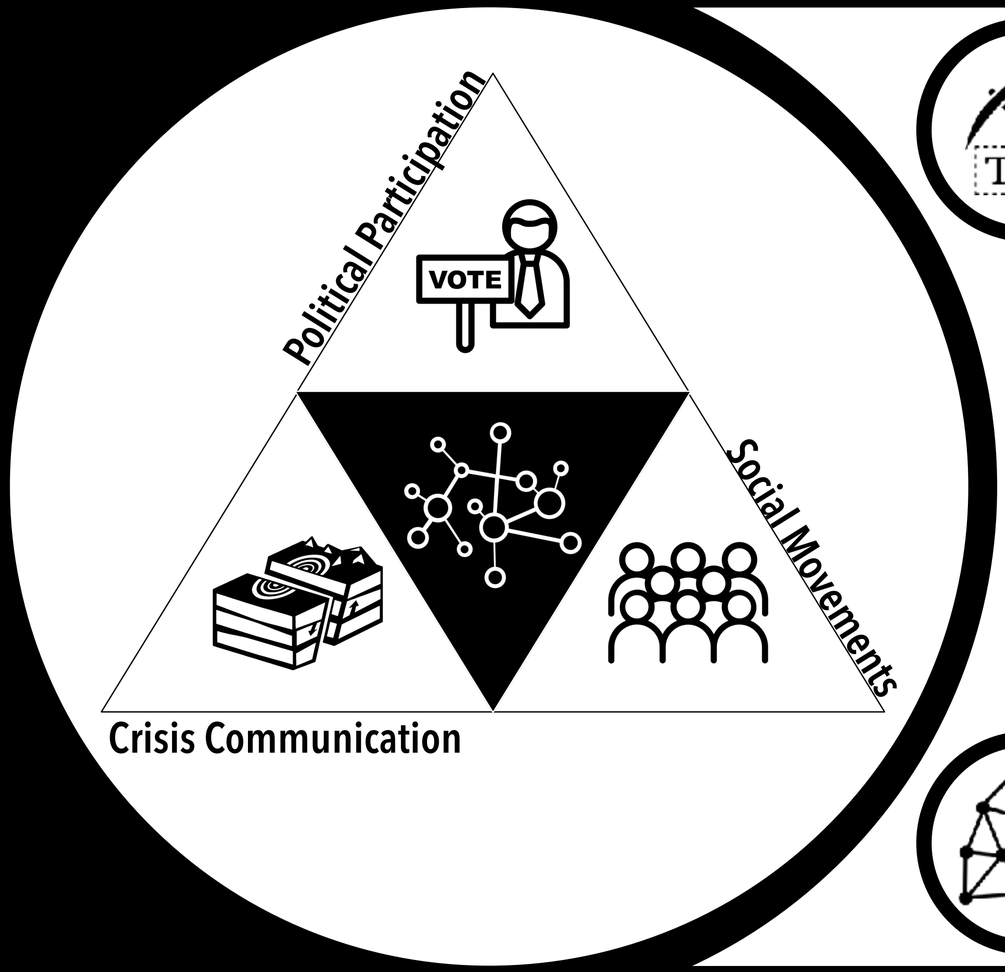
Assistant Professor, Informatics

NJIT

New Jersey Institute of Technology

Postdoc, NYU's SMaPP Lab

PhD in CS from UMD

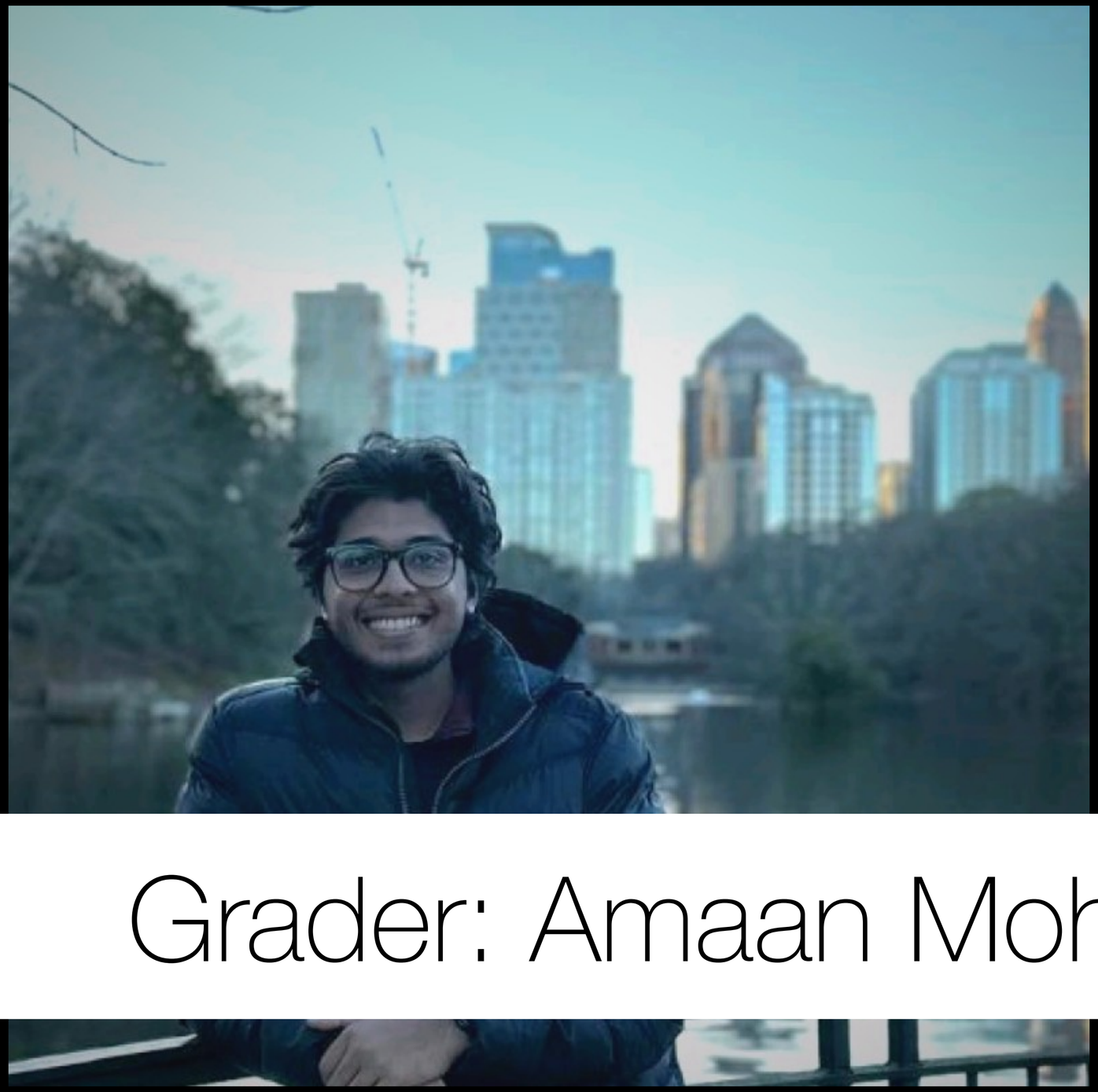

Political Participation
VOTE
Social Movements
Crisis Communication


BRUCE WILLIS
THE FIFTH ELEMENT
KEANU REEVES LAURENCE FISHBURNE
THEIR CRIME IS CURIOSITY
HACKERS
ON LINE - THIS FALL

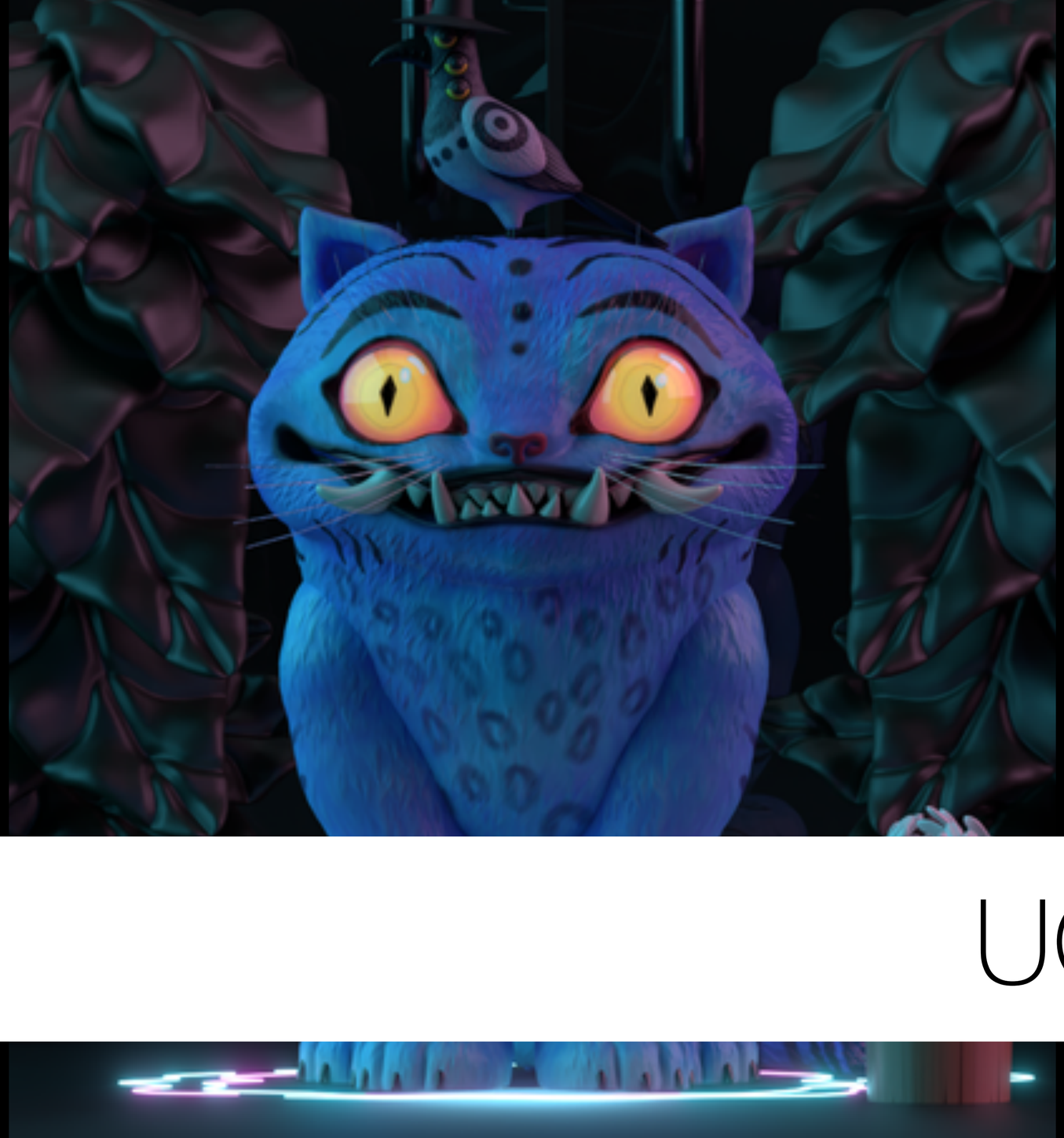

MYSTERIUM

Who are your TAs?

Instructional TA: Uday Krishnarajapuram



Grader: Amaan Mohammed



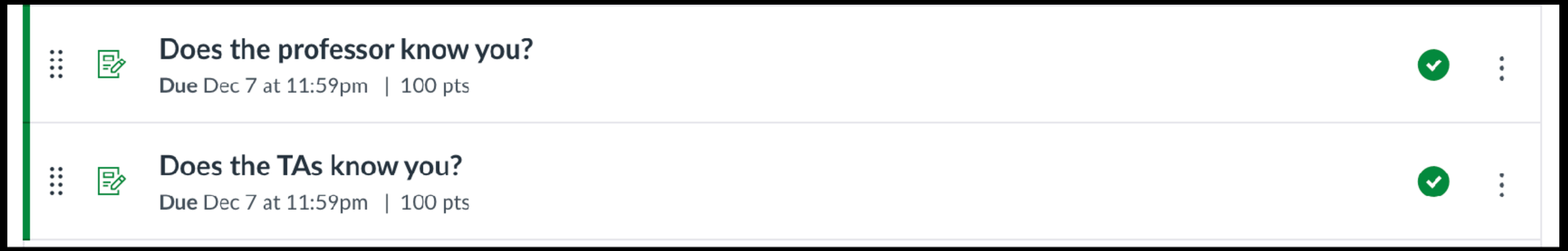
UCA: TBD

TA Office Hours

- Uday will have hours of office hours in-person and online
- Hours will be posted on ELMS/Canvas


WHO ARE YOU PEOPLE?!


IT'S TOO MUCH!
#SCHITTSCREEK
Pop TV


Does the professor know you?
Due Dec 7 at 11:59pm | 100 pts
Does the TAs know you?
Due Dec 7 at 11:59pm | 100 pts


WHERE IS AY-AY-RON RIGHT NOW?

Course Material

Prerequisites

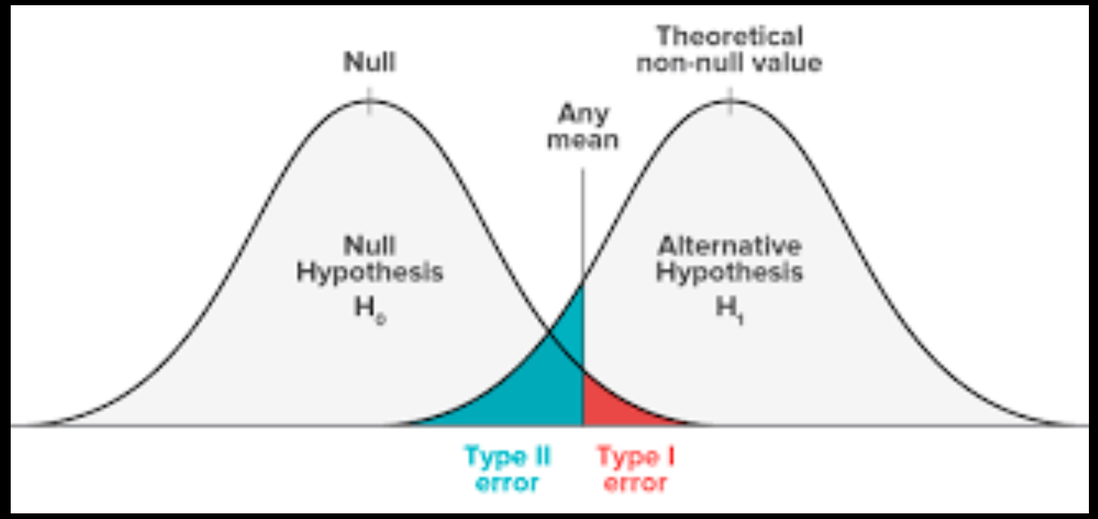
- INST201/301 or BSOS233
- What are the roles of information in society?
- How might tech be problematic, and how might we harness it for positive change?
  - Guide your insights for articles and semester project

Prerequisites

- AASP101, ANTH210, ANTH260, ECON200, ECON201, GEOG202, GVPT170, PSYC100, or SOCY100

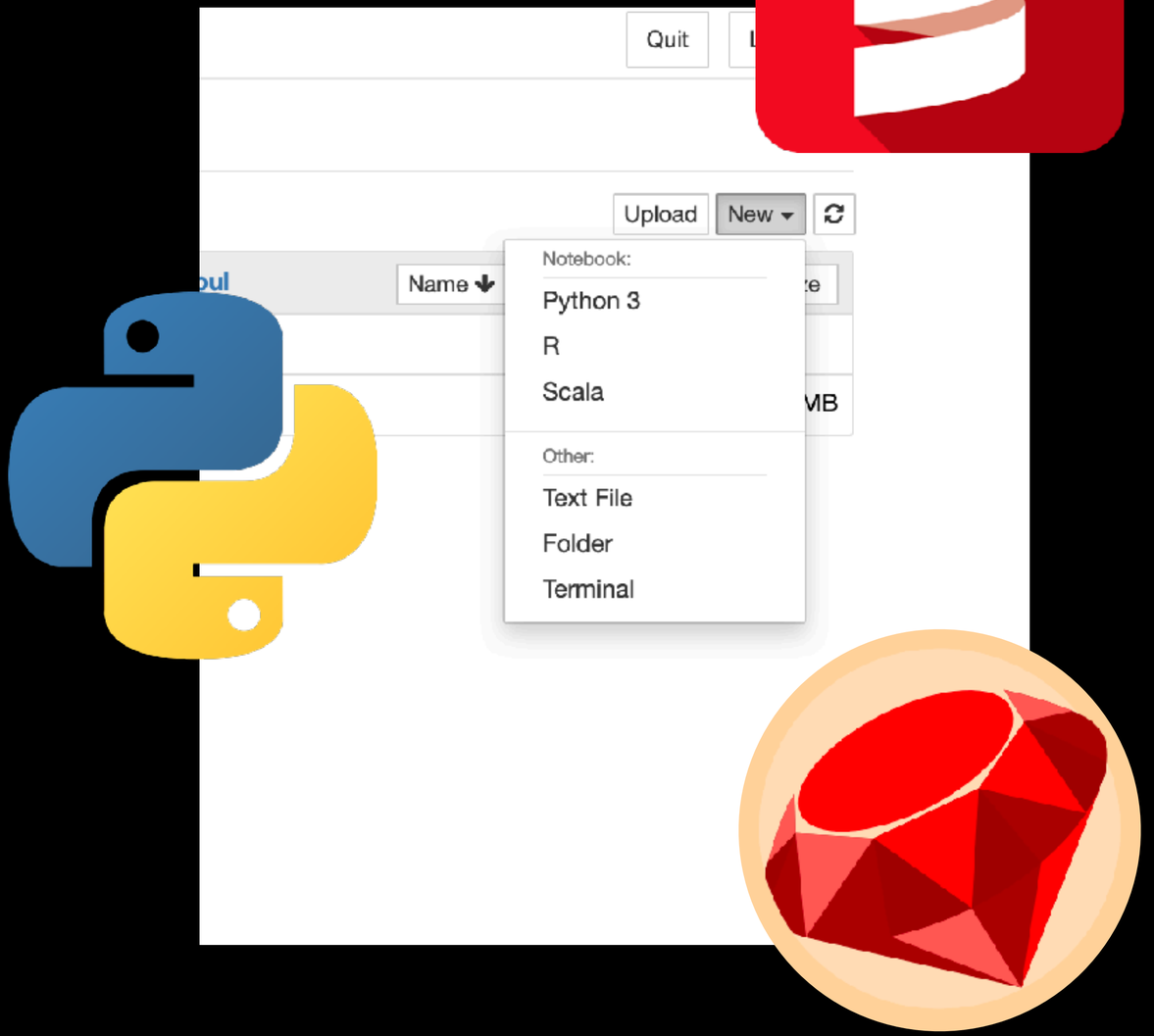
Prerequisites

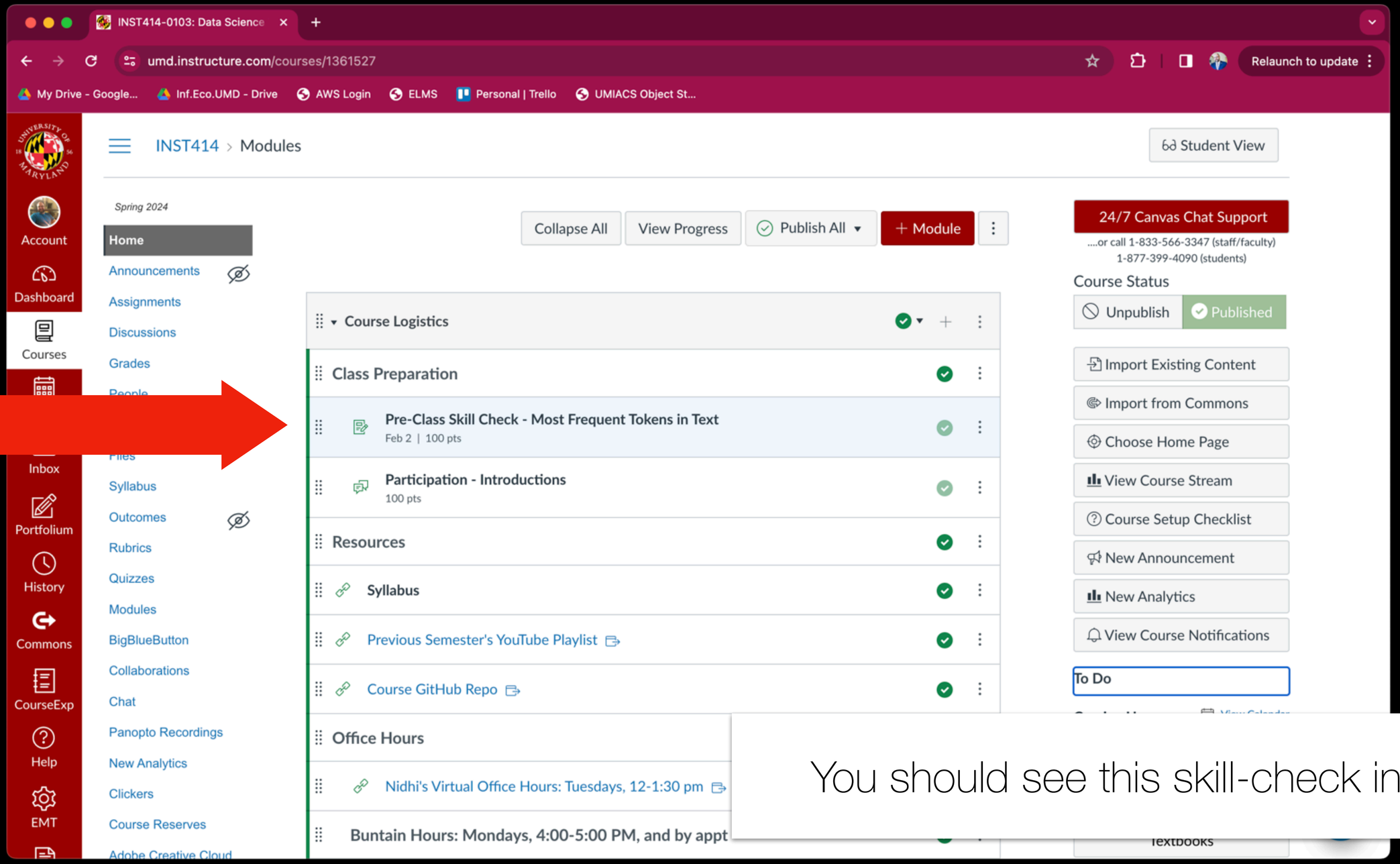
- STAT100/MATH115 - Stats and precal
  - Hypothesis testing
  - Regression
  - Some linear algebra (vectors and matrices)



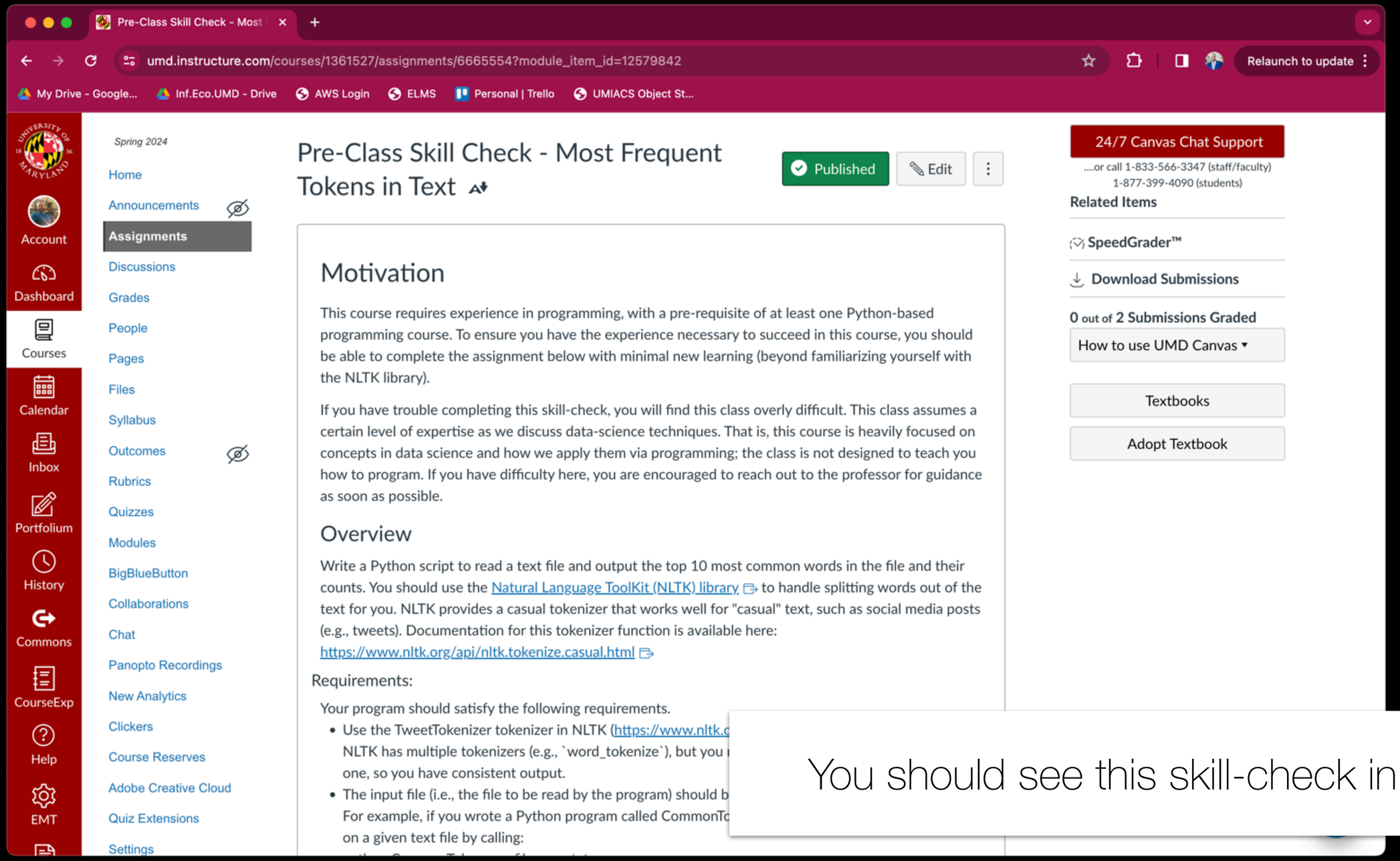
Prerequisites

- INST126 - programming
- Proficiency in programming essential to this class
- Python is preferred
  - R, Java, Ruby, Scala, or Perl may be good substitutes





You should see this skill-check in Canvas


Pre-Class Skill Check - Most
umd.instructure.com/courses/1361527/assignments/6665554?module_item_id=12579842
Relaunch to update
My Drive - Google...
Inf.Eco.UMD - Drive
AWS Login
ELMS
Personal | Trello
UMIACS Object St...
Account
Dashboard
Courses
Calendar
Inbox
Portfolium
History
Commons
CourseExp
Help
EMT
Spring 2024
Home
Announcements
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Outcomes
Rubrics
Quizzes
Modules
BigBlueButton
Collaborations
Chat
Panopto Recordings
New Analytics
Clickers
Course Reserves
Adobe Creative Cloud
Quiz Extensions
Settings
Pre-Class Skill Check - Most Frequent Tokens in Text
Published
Edit
Motivation
This course requires experience in programming, with a pre-requisite of at least one Python-based programming course. To ensure you have the experience necessary to succeed in this course, you should be able to complete the assignment below with minimal new learning (beyond familiarizing yourself with the NLTK library).
If you have trouble completing this skill-check, you will find this class overly difficult. This class assumes a certain level of expertise as we discuss data-science techniques. That is, this course is heavily focused on concepts in data science and how we apply them via programming; the class is not designed to teach you how to program. If you have difficulty here, you are encouraged to reach out to the professor for guidance as soon as possible.
Overview
Write a Python script to read a text file and output the top 10 most common words in the file and their counts. You should use the Natural Language ToolKit (NLTK) library to handle splitting words out of the text for you. NLTK provides a casual tokenizer that works well for "casual" text, such as social media posts (e.g., tweets). Documentation for this tokenizer function is available here: https://www.nltk.org/api/nltk.tokenize.casual.html
Requirements:
Your program should satisfy the following requirements.
Use the TweetTokenizer tokenizer in NLTK (https://www.nltk.c
NLTK has multiple tokenizers (e.g., `word_tokenize`), but you
one, so you have consistent output.
The input file (i.e., the file to be read by the program) should b
For example, if you wrote a Python program called CommonTo
on a given text file by calling:
24/7 Canvas Chat Support
....or call 1-833-566-3347 (staff/faculty)
1-877-399-4090 (students)
Related Items
SpeedGrader™
Download Submissions
0 out of 2 Submissions Graded
How to use UMD Canvas
Textbooks
Adopt Textbook
You should see this skill-check in Canvas

Sign In Compliance | Discussions: INST414-0102 | Pre-Class Exercise - Most F | University of Maryland, Coll | ScholarOne Manuscripts | Medium

umd.instructure.com/courses/1353667/assignments/6482452?module_item_id=12218829

Update

My Drive - Google... | Inf.Eco.UMD - Drive | AWS Login | ELMS | Personal | Trello | CHI24 SMDRM Dri...

Testing

I have provided two text files and the appropriate output for you to use to check your work:

- File test01_cc_sharealike.txt is a brief overview of the Creative Commons Sharealike license
- File test02_the_last_question.txt is a copy of Isaac Asimov's "The Last Question" short story.

Test 1: Expected Output for test01_cc_sharealike.txt

the	20
work	9
or	8
you	7
to	7
rights	6
of	5
any	5
in	5
license	4

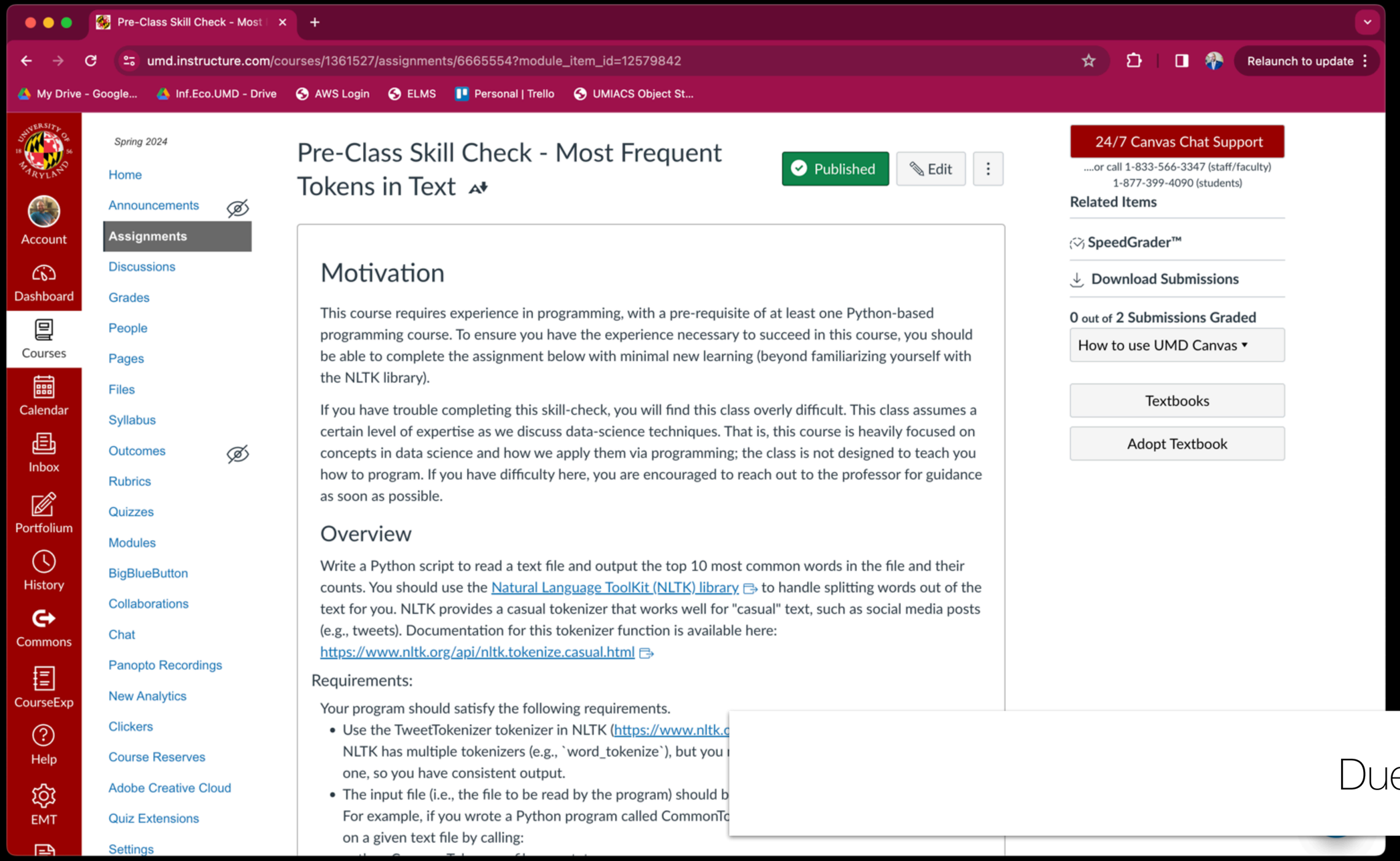
Test 2: Expected Output for test02_the_last_question.txt

the	261
of	142
and	123
a	107
to	103
it	73
in	65
was	59
all	53
that	51

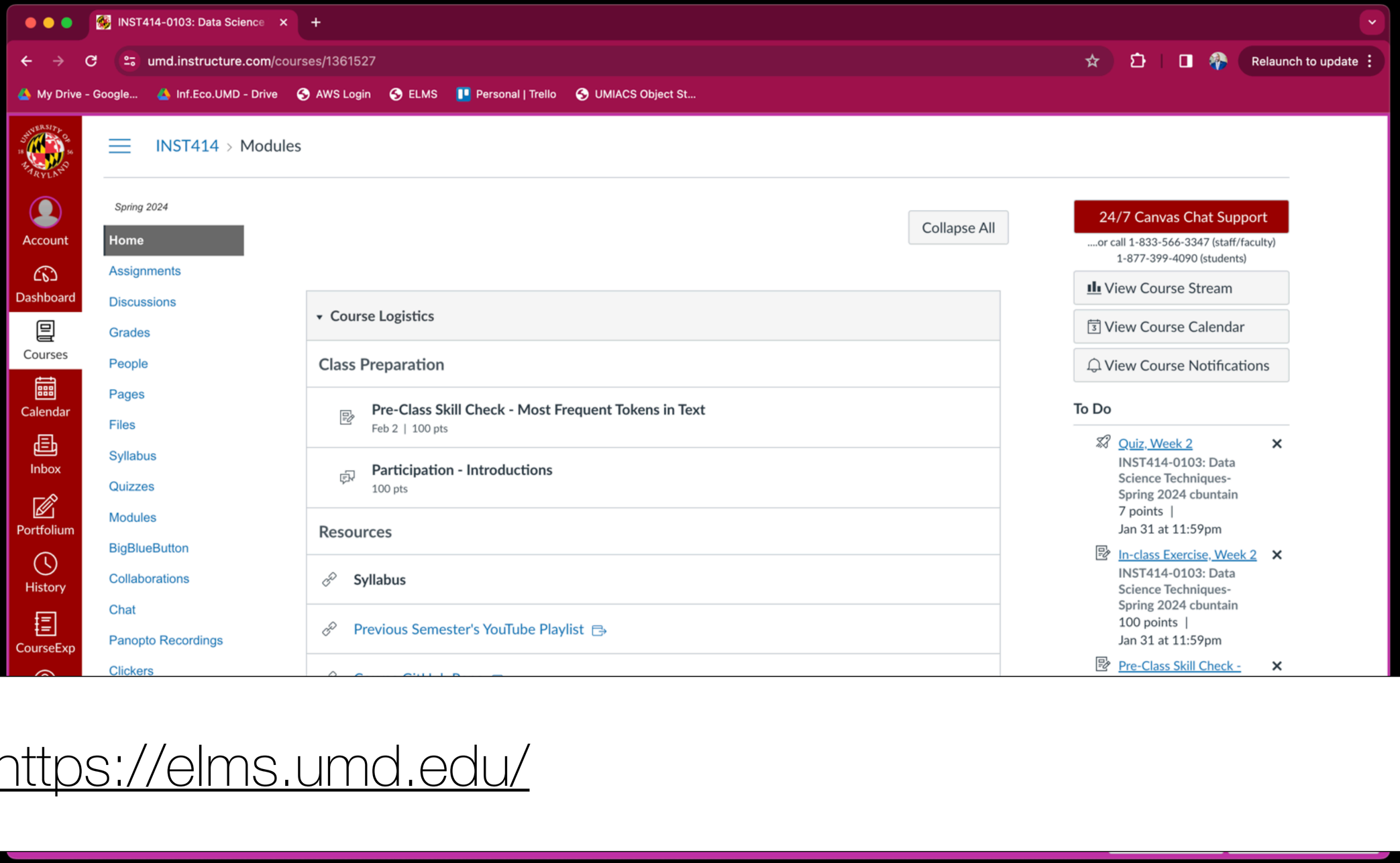
Resources:

You may need to install the NLTK. Directions for this installation are a
https://www.nltk.org/install.html

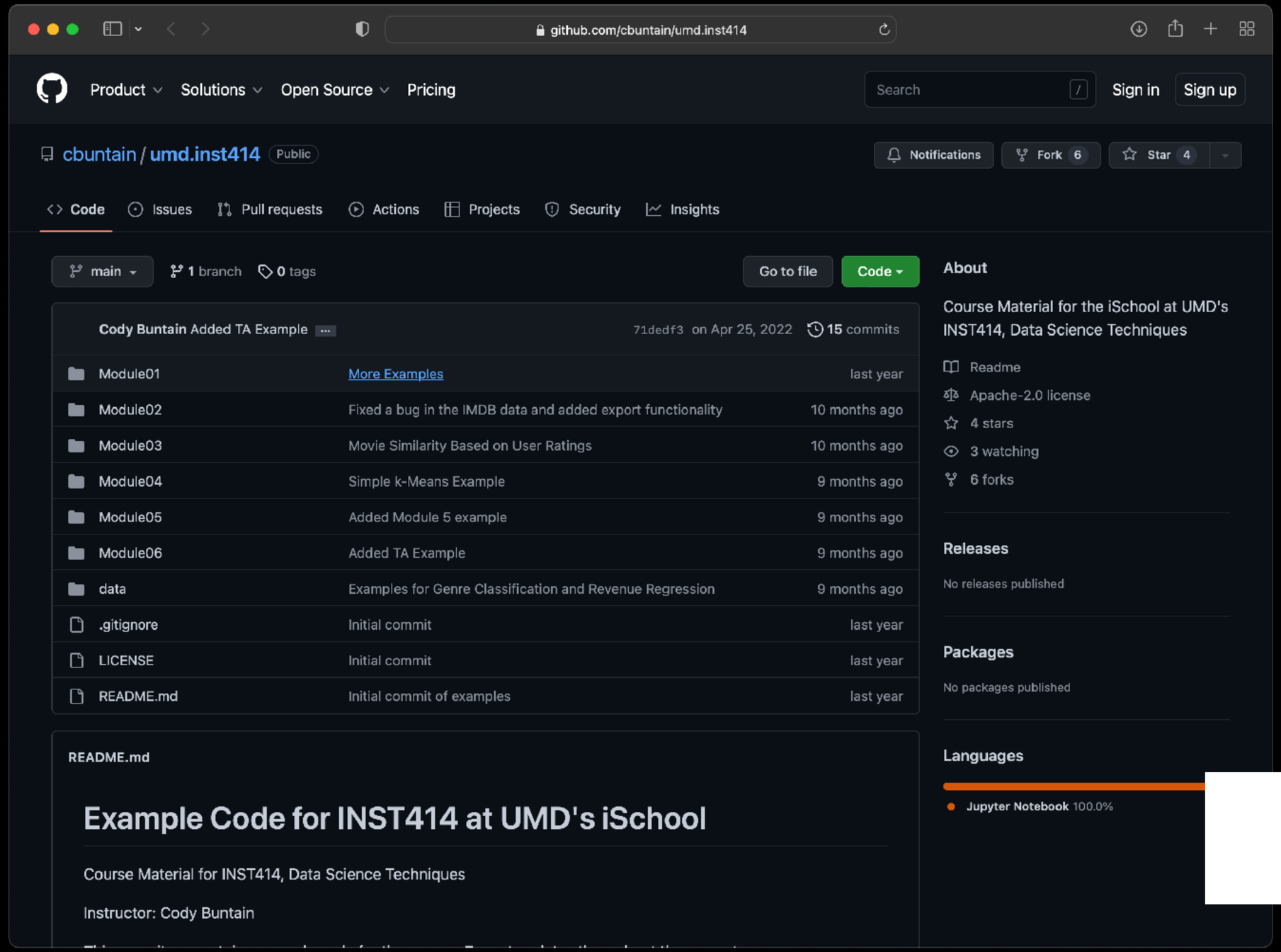
Two test files


Pre-Class Skill Check - Most
umd.instructure.com/courses/1361527/assignments/6665554?module_item_id=12579842
Relaunch to update
My Drive - Google...
Inf.Eco.UMD - Drive
AWS Login
ELMS
Personal | Trello
UMIACS Object St...
Account
Dashboard
Courses
Calendar
Inbox
Portfolium
History
Commons
CourseExp
Help
EMT
Spring 2024
Home
Announcements
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Outcomes
Rubrics
Quizzes
Modules
BigBlueButton
Collaborations
Chat
Panopto Recordings
New Analytics
Clickers
Course Reserves
Adobe Creative Cloud
Quiz Extensions
Settings
Pre-Class Skill Check - Most Frequent Tokens in Text
Published
Edit
Motivation
This course requires experience in programming, with a pre-requisite of at least one Python-based programming course. To ensure you have the experience necessary to succeed in this course, you should be able to complete the assignment below with minimal new learning (beyond familiarizing yourself with the NLTK library).
If you have trouble completing this skill-check, you will find this class overly difficult. This class assumes a certain level of expertise as we discuss data-science techniques. That is, this course is heavily focused on concepts in data science and how we apply them via programming; the class is not designed to teach you how to program. If you have difficulty here, you are encouraged to reach out to the professor for guidance as soon as possible.
Overview
Write a Python script to read a text file and output the top 10 most common words in the file and their counts. You should use the Natural Language ToolKit (NLTK) library to handle splitting words out of the text for you. NLTK provides a casual tokenizer that works well for "casual" text, such as social media posts (e.g., tweets). Documentation for this tokenizer function is available here: https://www.nltk.org/api/nltk.tokenize.casual.html
Requirements:
Your program should satisfy the following requirements.
Use the TweetTokenizer tokenizer in NLTK (https://www.nltk.c
NLTK has multiple tokenizers (e.g., `word_tokenize`), but you
one, so you have consistent output.
The input file (i.e., the file to be read by the program) should b
For example, if you wrote a Python program called CommonTo
on a given text file by calling:
24/7 Canvas Chat Support
....or call 1-833-566-3347 (staff/faculty)
1-877-399-4090 (students)
Related Items
SpeedGrader™
Download Submissions
0 out of 2 Submissions Graded
How to use UMD Canvas
Textbooks
Adopt Textbook
Due Sept 5

Questions about the skill-check?

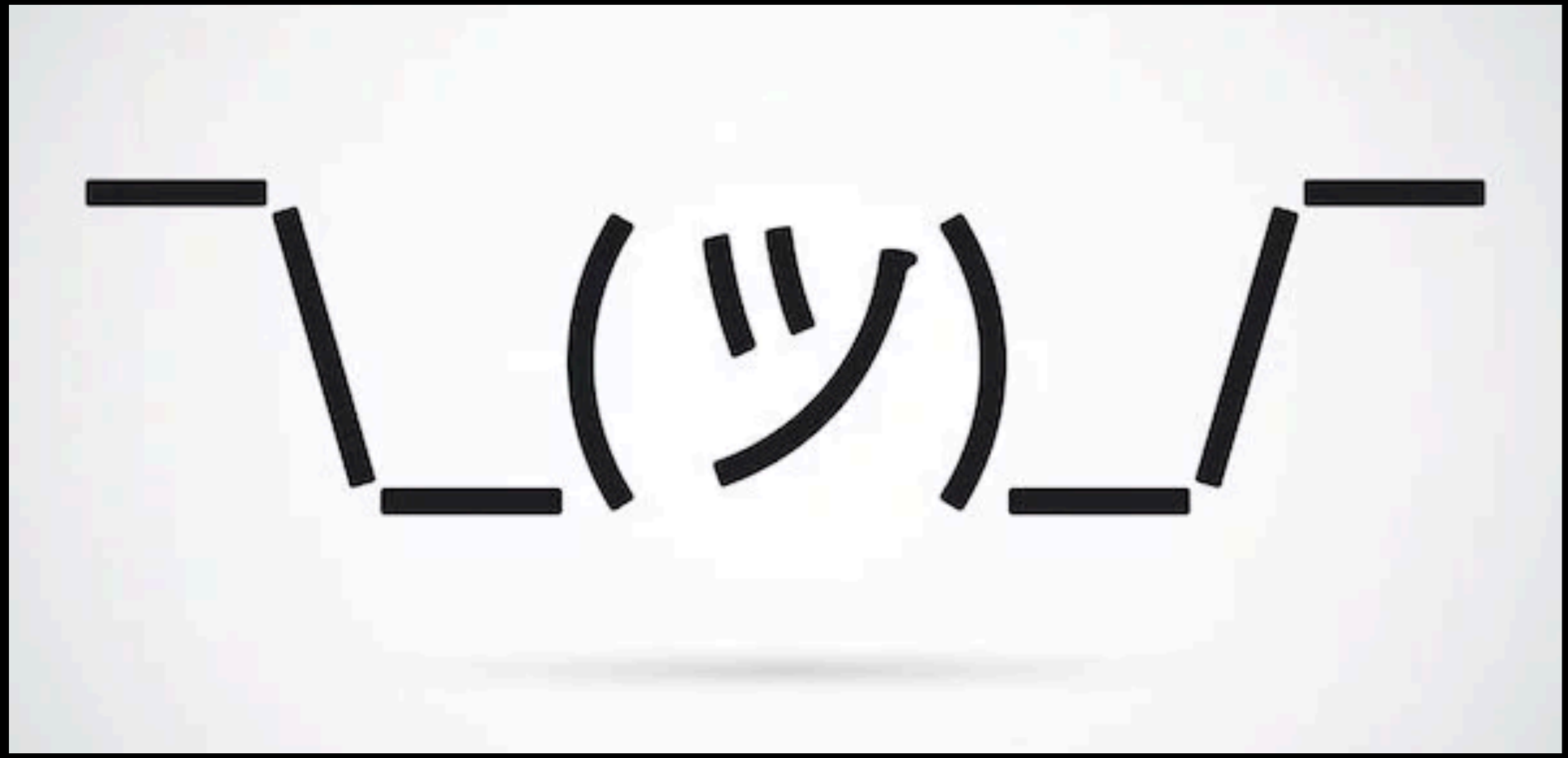


https://elms.umd.edu/



GitHub Repo for the class

What questions do you have?



What is INST414?

Seven Course Modules

Module 1 - Data Science and Motivations

Module 2 - Web Data as Graphs

Module 3 - Similarity, Dimensionality Reduction, and Data Cleaning

Module 4 - Clustering

Module 5 - Probability and Bayes

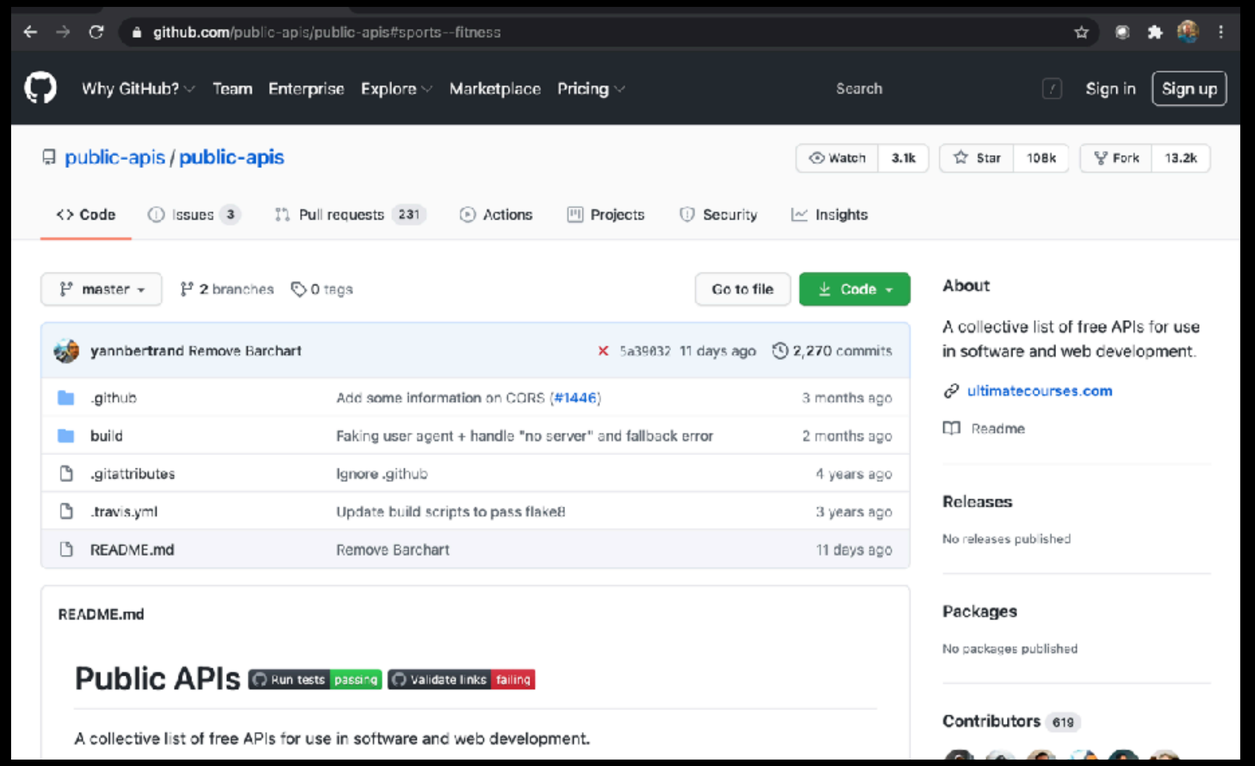
Module 6 - Supervised Machine Learning

Module 7 - Evaluation

Six Core Learning Objectives

Six Core Learning Objectives

1. Collect and clean large-scale datasets



Six Core Learning Objectives

2. Articulate the math behind supervised and unsupervised techniques

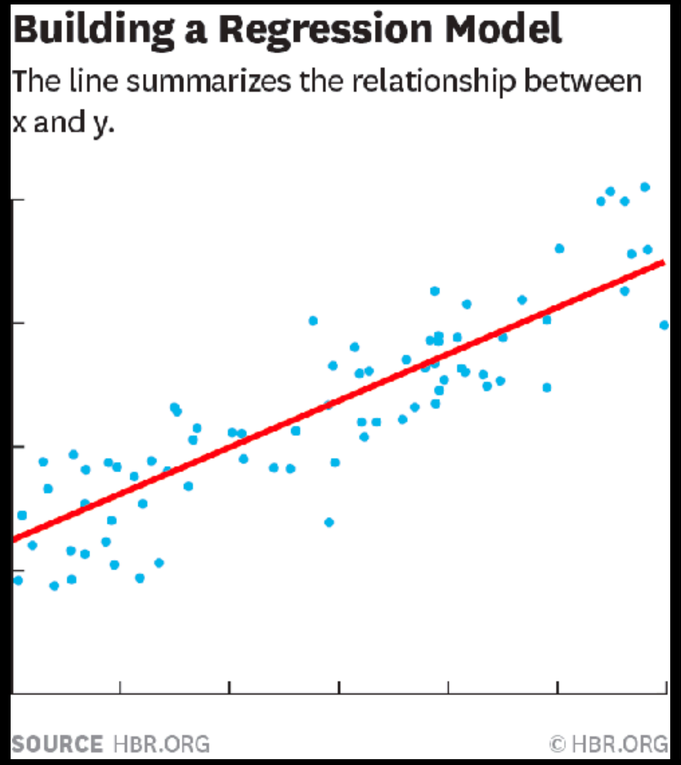
Table 1: Distance Metrics for kNN

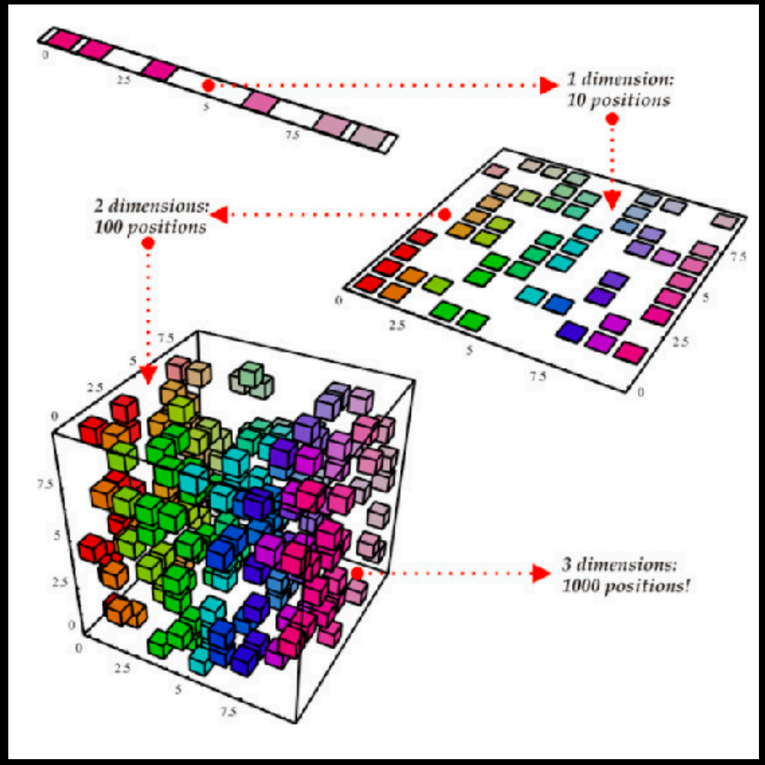
Distance	**Equation**
Euclidean	$\mathbf{d} = \sqrt{\sum_{\mathbf{j}=1}^{\mathbf{n}} (\mathbf{x_{sj}} - \mathbf{x_{tj}})^2}$
City Block	$\mathbf{d} = \sum_{\mathbf{j}=1}^{\mathbf{n}} \lvert \mathbf{x_{sj}} - \mathbf{x_{tj}} \rvert$
Chebyshev	$\mathbf{d} = \max_{\mathbf{j}} \left\{ \lvert \mathbf{x_{sj}} - \mathbf{x_{tj}} \rvert \right\}$
Cosine	$\mathbf{d} = 1 - \frac{\sum_{\mathbf{j}=1}^{\mathbf{n}} \mathbf{x_{sj}} \mathbf{x_{tj}}}{\sqrt{\sum_{\mathbf{j}=1}^{\mathbf{n}} \mathbf{x_{sj}} \mathbf{x_{sj}}} \sqrt{\sum_{\mathbf{j}=1}^{\mathbf{n}} \mathbf{x_{tj}} \mathbf{x_{tj}}}}$
Correlation	$\mathbf{d} = 1 - \frac{(\mathbf{x_s} - \tilde{\mathbf{x}}_\mathbf{s})(\mathbf{x_t} - \tilde{\mathbf{x}}_\mathbf{t})'}{\sqrt{(\mathbf{x_s} - \tilde{\mathbf{x}}_\mathbf{s})(\mathbf{x_s} - \tilde{\mathbf{x}}_\mathbf{s})'} \sqrt{(\mathbf{x_t} - \tilde{\mathbf{x}}_\mathbf{t})(\mathbf{x_t} - \tilde{\mathbf{x}}_\mathbf{t})'}}$

$$\hat{\alpha} = \min_{\alpha} \sum_{i=1}^{n} (y_i - \alpha - \beta x_i)^2 = \min_{\alpha} \sum_{i=1}^{n} \varepsilon_i^2$$

Six Core Learning Objectives

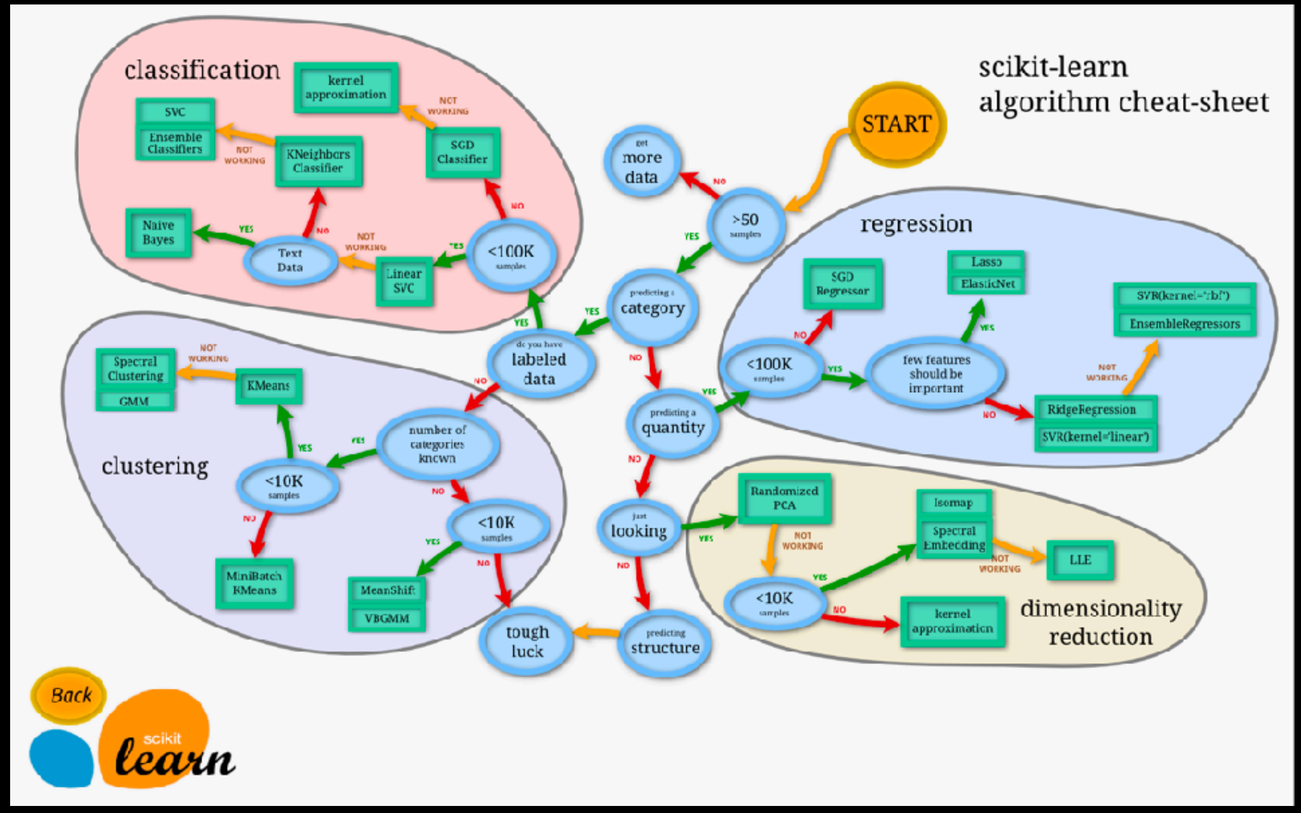
3. Execute supervised and unsupervised machine learning techniques





Six Core Learning Objectives

4. Select and evaluate various types of machine learning techniques

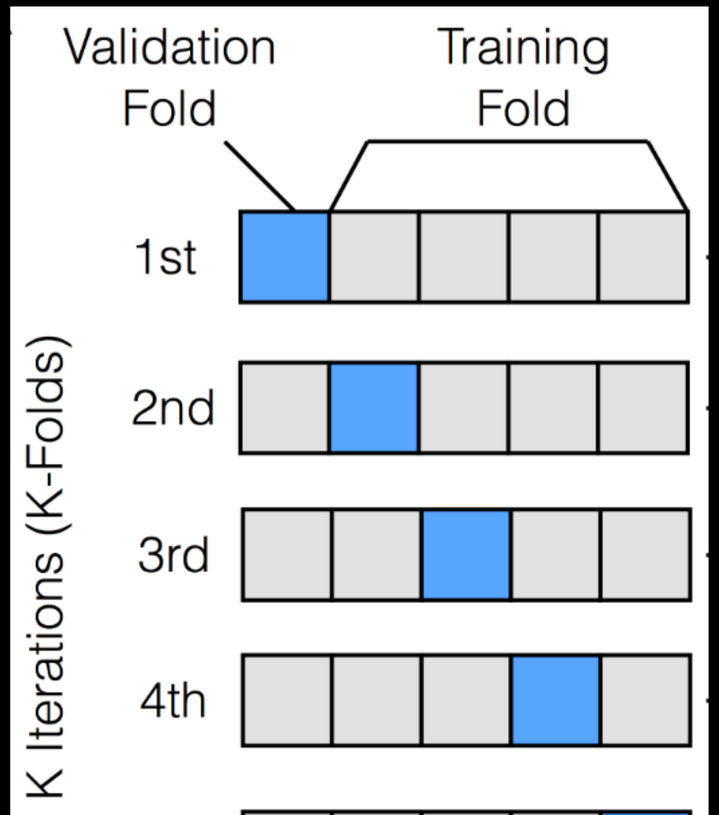


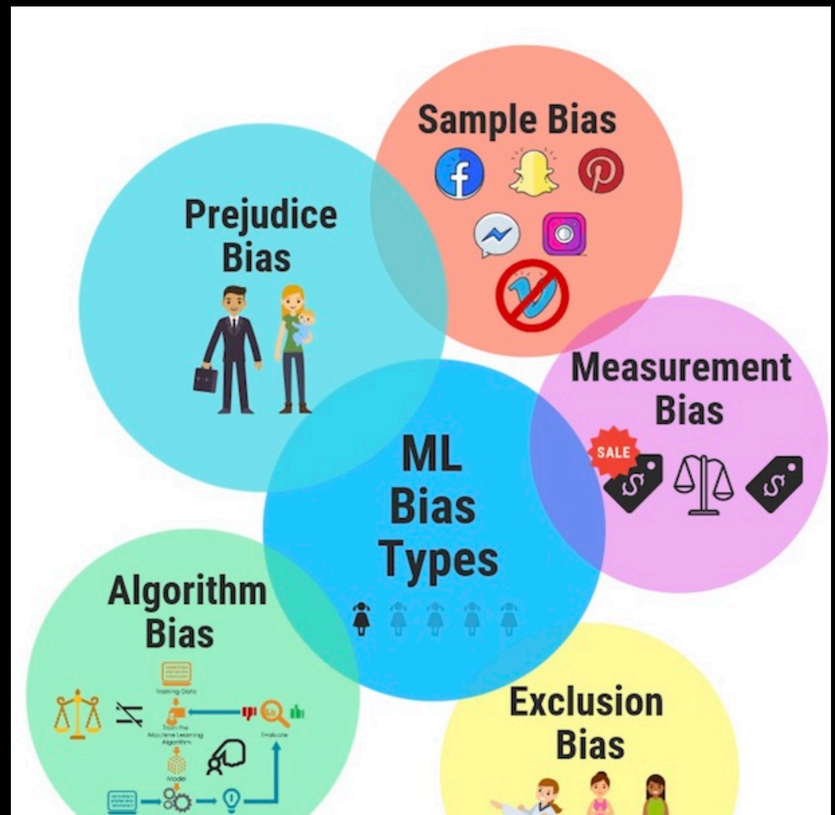
Six Core Learning Objectives

5. Explain the results coming out of the models

Six Core Learning Objectives

6. Critically evaluate the accuracy of different algorithms and the appropriateness of a given approach





How to be successful in this class

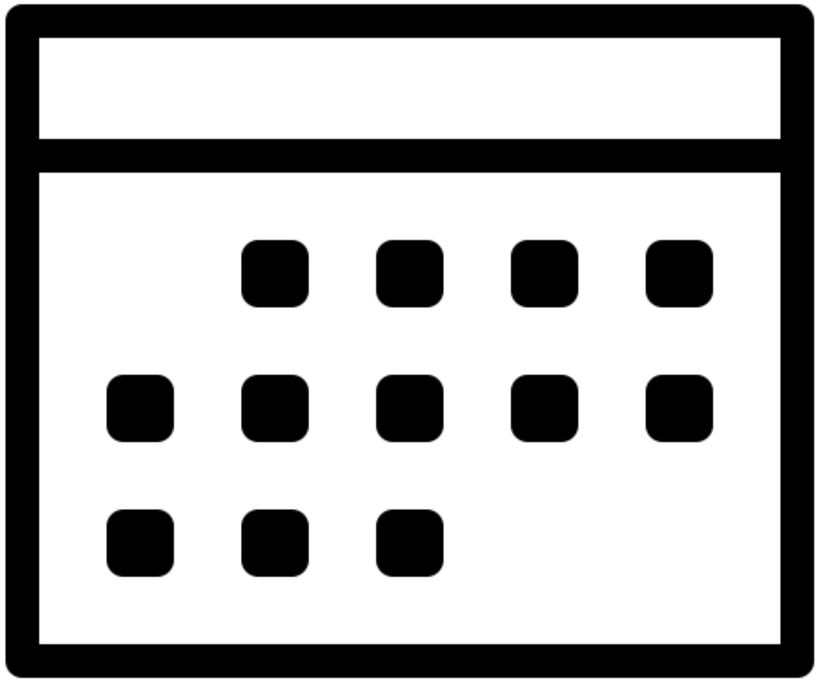
Get comfortable with programming (more than Excel)

Do the work, but don’t stress about being perfect

Be clear on why you made choices, and you’ll be fine

Many opportunities for extra credit

What questions do you have?



Course Schedule

Seven Course Modules

Module 1 - Data Science and Motivations

Module 2 - Web Data as Graphs

Module 3 - Similarity, Dimensionality Reduction, and Data Cleaning

Module 4 - Clustering

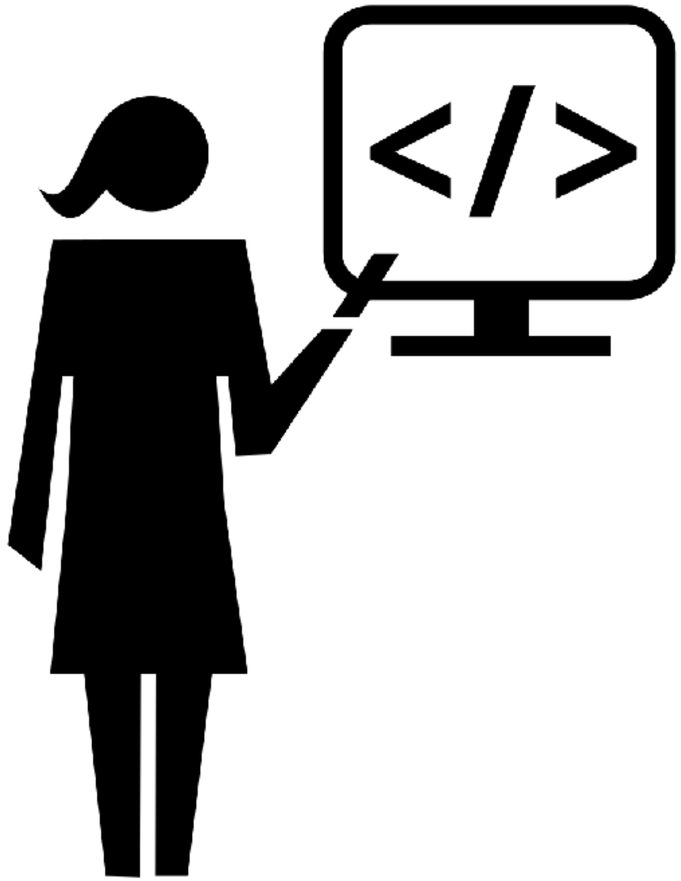
Module 5 - Probability and Bayes

Module 6 - Supervised Machine Learning

Module 7 - Evaluation

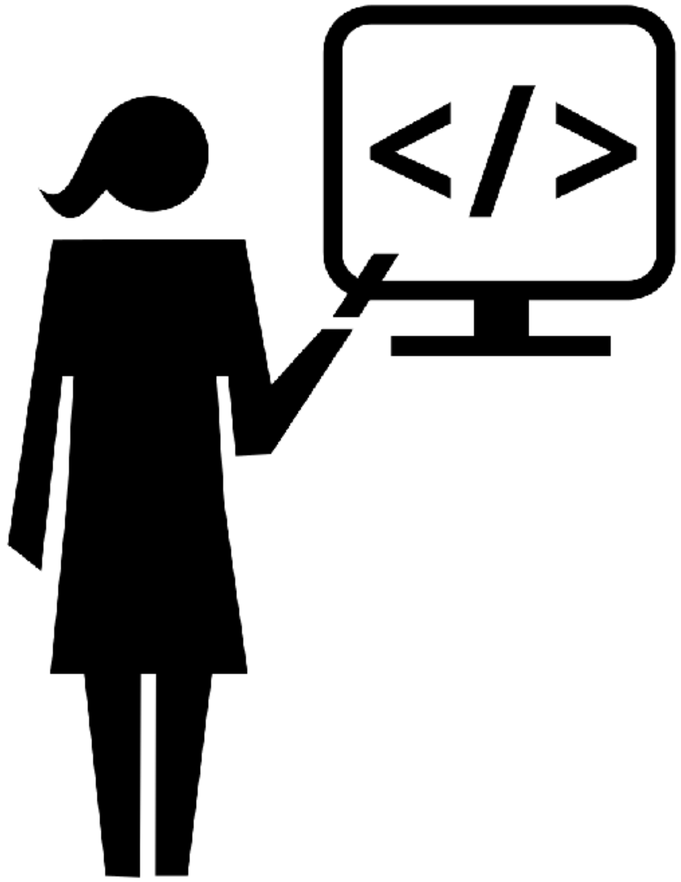
An Average Week in INST414

Tuesdays



An Average Week in INST414

Tuesdays



Fridays

INST414 Grading Distribution and Policies

Four Parts to Your Grade

Module Assignments - 35%

In-Class Labs/Quizzes - 25%

Semester Project - 30%

Participation - 10%

Late Policy – Amnesty Days

- Two days where you can submit any late Medium post for full credit
- October 24 – Amnesty Day 1
  - Anything due before this day
- December 2 – Amnesty Day 2
  - Anything due after Amnesty Day 1

Four Parts to Your Grade

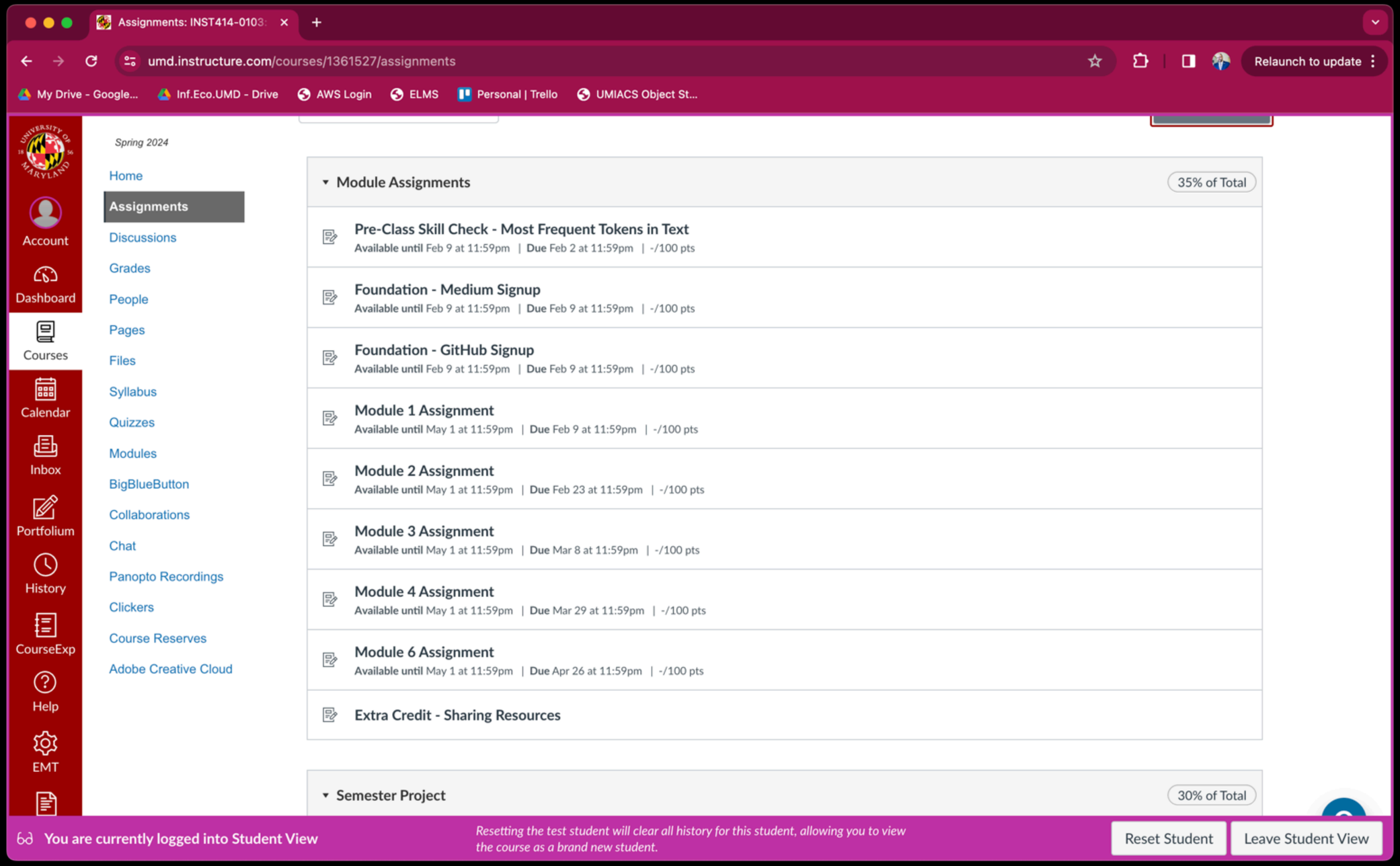
Module Assignments - 35%

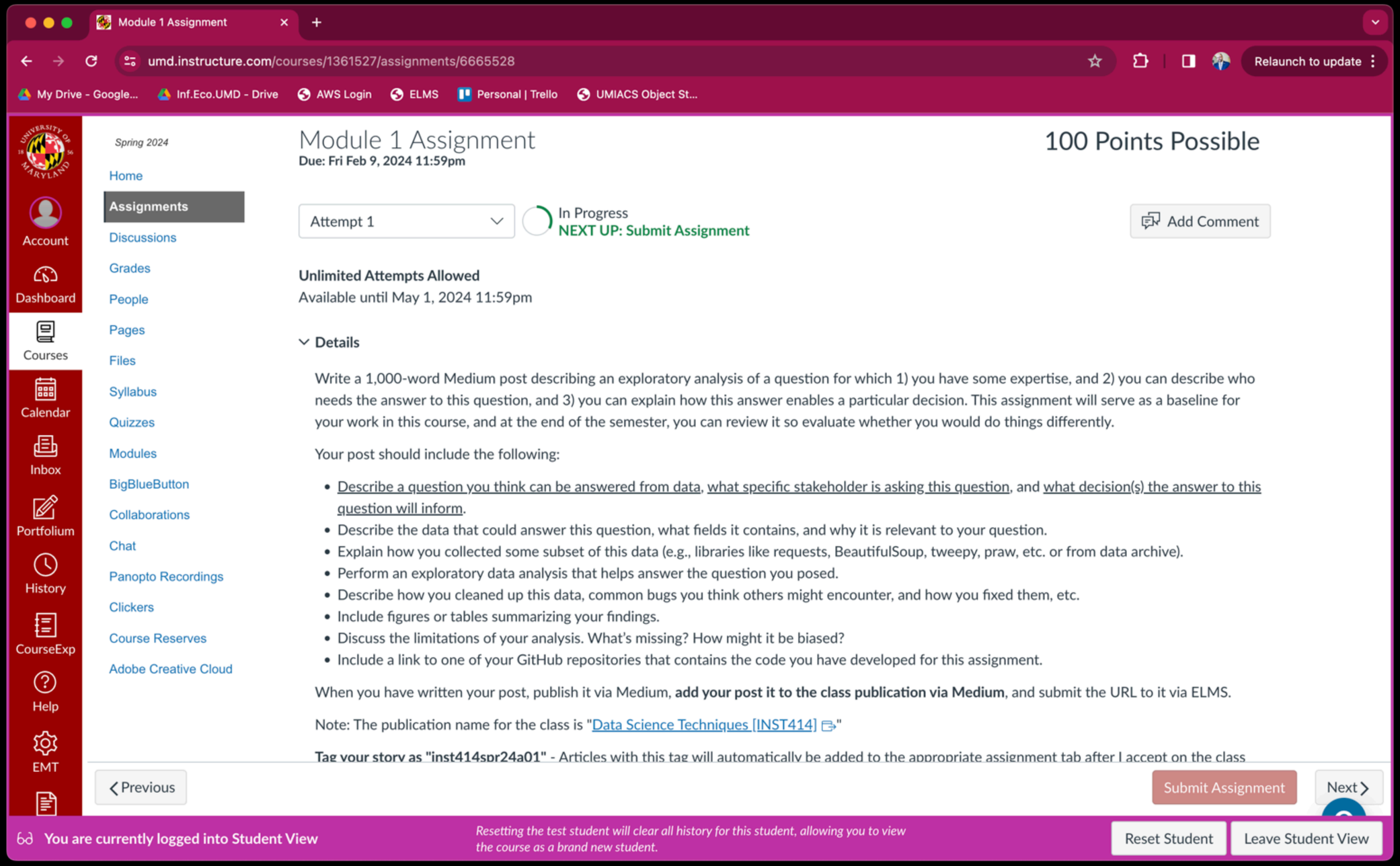
In-Class Labs/Quizzes - 25%

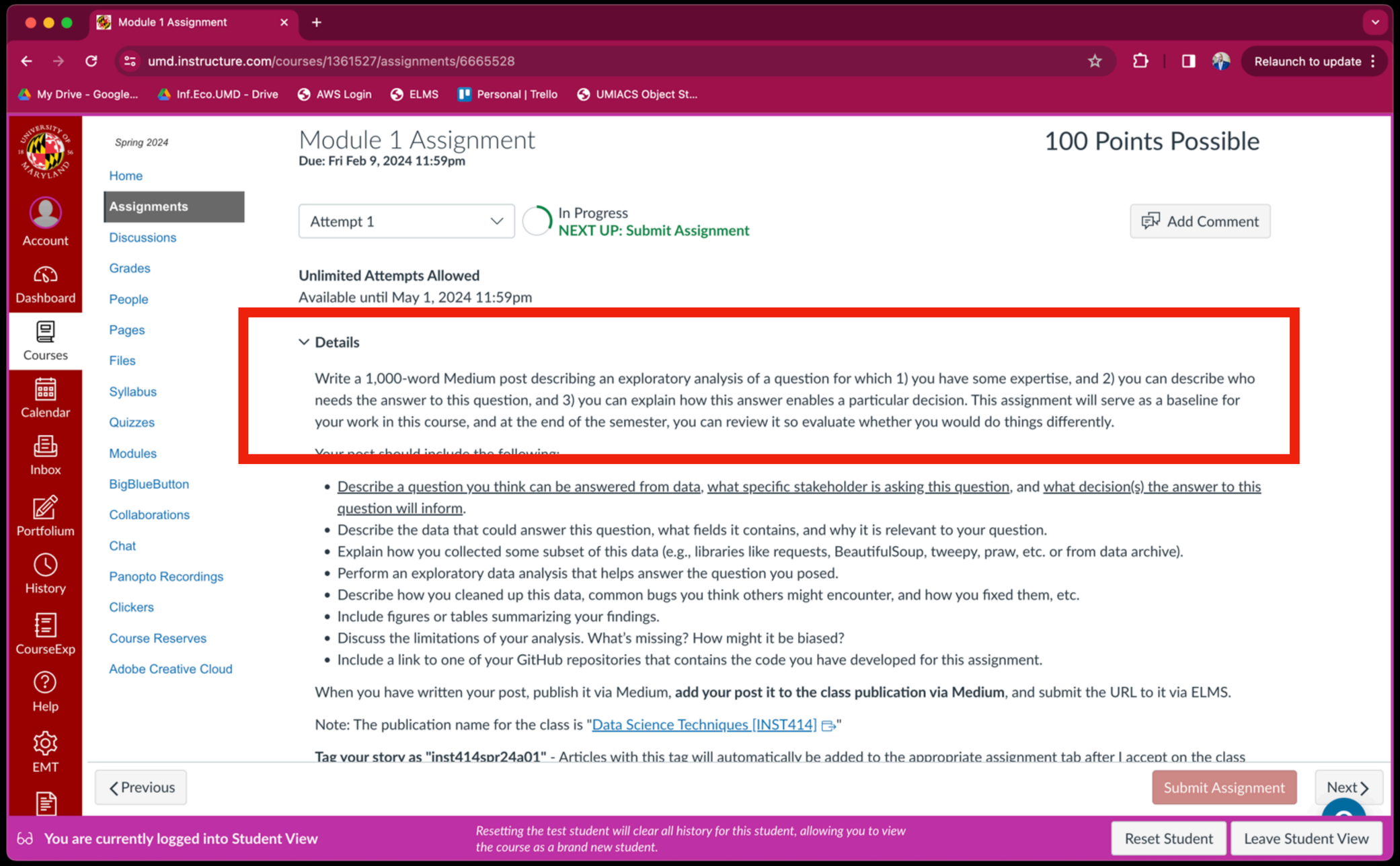
Semester Project - 30%

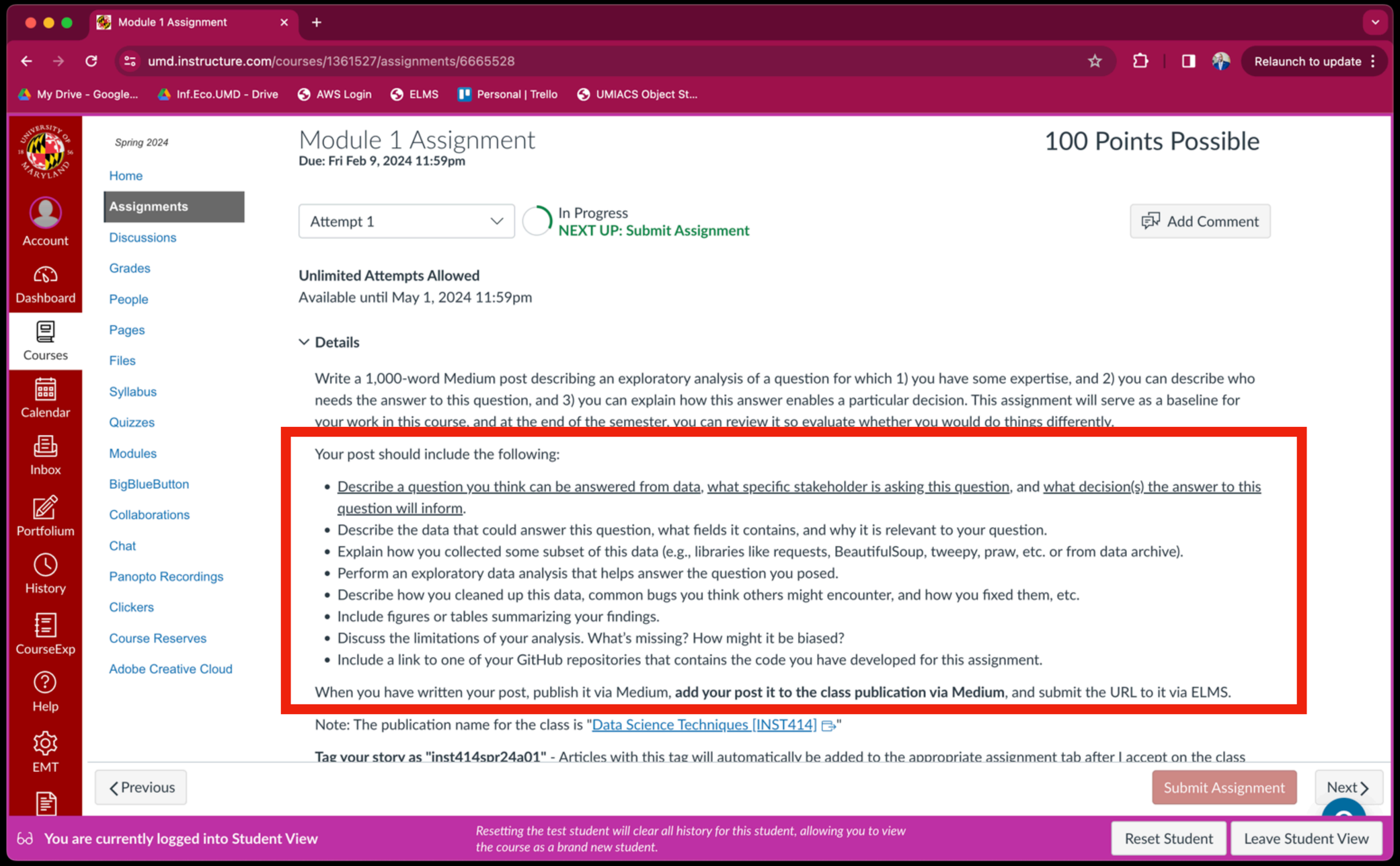
Participation - 10%

Module Assignments (Homework)


Assignments: INST414-0103
umd.instructure.com/courses/1361527/assignments
Relaunch to update
My Drive - Google...
Inf.Eco.UMD - Drive
AWS Login
ELMS
Personal | Trello
UMIACS Object St...
Spring 2024
Home
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Quizzes
Modules
BigBlueButton
Collaborations
Chat
Panopto Recordings
Clickers
Course Reserves
Adobe Creative Cloud
Account
Dashboard
Courses
Calendar
Inbox
Portfolium
History
CourseExp
Help
EMT
Module Assignments
35% of Total
Pre-Class Skill Check - Most Frequent Tokens in Text
Available until Feb 9 at 11:59pm | Due Feb 2 at 11:59pm | -/100 pts
Foundation - Medium Signup
Available until Feb 9 at 11:59pm | Due Feb 9 at 11:59pm | -/100 pts
Foundation - GitHub Signup
Available until Feb 9 at 11:59pm | Due Feb 9 at 11:59pm | -/100 pts
Module 1 Assignment
Available until May 1 at 11:59pm | Due Feb 9 at 11:59pm | -/100 pts
Module 2 Assignment
Available until May 1 at 11:59pm | Due Feb 23 at 11:59pm | -/100 pts
Module 3 Assignment
Available until May 1 at 11:59pm | Due Mar 8 at 11:59pm | -/100 pts
Module 4 Assignment
Available until May 1 at 11:59pm | Due Mar 29 at 11:59pm | -/100 pts
Module 6 Assignment
Available until May 1 at 11:59pm | Due Apr 26 at 11:59pm | -/100 pts
Extra Credit - Sharing Resources
Semester Project
30% of Total
You are currently logged into Student View
Resetting the test student will clear all history for this student, allowing you to view the course as a brand new student.
Reset Student
Leave Student View


Module 1 Assignment
umd.instructure.com/courses/1361527/assignments/6665528
Relaunch to update
My Drive - Google...
Inf.Eco.UMD - Drive
AWS Login
ELMS
Personal | Trello
UMIACS Object St...
Account
Dashboard
Courses
Calendar
Inbox
Portfolium
History
CourseExp
Help
EMT
Spring 2024
Home
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Quizzes
Modules
BigBlueButton
Collaborations
Chat
Panopto Recordings
Clickers
Course Reserves
Adobe Creative Cloud
Module 1 Assignment
Due: Fri Feb 9, 2024 11:59pm
100 Points Possible
Attempt 1
In Progress
NEXT UP: Submit Assignment
Add Comment
Unlimited Attempts Allowed
Available until May 1, 2024 11:59pm
Details
Write a 1,000-word Medium post describing an exploratory analysis of a question for which 1) you have some expertise, and 2) you can describe who needs the answer to this question, and 3) you can explain how this answer enables a particular decision. This assignment will serve as a baseline for your work in this course, and at the end of the semester, you can review it so evaluate whether you would do things differently.
Your post should include the following:
Describe a question you think can be answered from data, what specific stakeholder is asking this question, and what decision(s) the answer to this question will inform.
Describe the data that could answer this question, what fields it contains, and why it is relevant to your question.
Explain how you collected some subset of this data (e.g., libraries like requests, BeautifulSoup, tweepy, praw, etc. or from data archive).
Perform an exploratory data analysis that helps answer the question you posed.
Describe how you cleaned up this data, common bugs you think others might encounter, and how you fixed them, etc.
Include figures or tables summarizing your findings.
Discuss the limitations of your analysis. What's missing? How might it be biased?
Include a link to one of your GitHub repositories that contains the code you have developed for this assignment.
When you have written your post, publish it via Medium, add your post it to the class publication via Medium, and submit the URL to it via ELMS.
Note: The publication name for the class is "Data Science Techniques [INST414]"
Tag your story as "inst414spr24a01" - Articles with this tag will automatically be added to the appropriate assignment tab after I accept on the class
Previous
Submit Assignment
Next
You are currently logged into Student View
Resetting the test student will clear all history for this student, allowing you to view the course as a brand new student.
Reset Student
Leave Student View


Module 1 Assignment
umd.instructure.com/courses/1361527/assignments/6665528
Relaunch to update
My Drive - Google...
Inf.Eco.UMD - Drive
AWS Login
ELMS
Personal | Trello
UMIACS Object St...
Spring 2024
Home
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Quizzes
Modules
BigBlueButton
Collaborations
Chat
Panopto Recordings
Clickers
Course Reserves
Adobe Creative Cloud
Account
Dashboard
Courses
Calendar
Inbox
Portfolium
History
CourseExp
Help
EMT
Module 1 Assignment
Due: Fri Feb 9, 2024 11:59pm
100 Points Possible
Attempt 1
In Progress
NEXT UP: Submit Assignment
Add Comment
Unlimited Attempts Allowed
Available until May 1, 2024 11:59pm
Details
Write a 1,000-word Medium post describing an exploratory analysis of a question for which 1) you have some expertise, and 2) you can describe who needs the answer to this question, and 3) you can explain how this answer enables a particular decision. This assignment will serve as a baseline for your work in this course, and at the end of the semester, you can review it so evaluate whether you would do things differently.
Your post should include the following:
Describe a question you think can be answered from data, what specific stakeholder is asking this question, and what decision(s) the answer to this question will inform.
Describe the data that could answer this question, what fields it contains, and why it is relevant to your question.
Explain how you collected some subset of this data (e.g., libraries like requests, BeautifulSoup, tweepy, praw, etc. or from data archive).
Perform an exploratory data analysis that helps answer the question you posed.
Describe how you cleaned up this data, common bugs you think others might encounter, and how you fixed them, etc.
Include figures or tables summarizing your findings.
Discuss the limitations of your analysis. What's missing? How might it be biased?
Include a link to one of your GitHub repositories that contains the code you have developed for this assignment.
When you have written your post, publish it via Medium, add your post it to the class publication via Medium, and submit the URL to it via ELMS.
Note: The publication name for the class is "Data Science Techniques [INST414]"
Tag your story as "inst414spr24a01" - Articles with this tag will automatically be added to the appropriate assignment tab after I accept on the class
Previous
Submit Assignment
Next
You are currently logged into Student View
Resetting the test student will clear all history for this student, allowing you to view the course as a brand new student.
Reset Student
Leave Student View


Module 1 Assignment
umd.instructure.com/courses/1361527/assignments/6665528
Relaunch to update
My Drive - Google...
Inf.Eco.UMD - Drive
AWS Login
ELMS
Personal | Trello
UMIACS Object St...
Account
Dashboard
Courses
Calendar
Inbox
Portfolium
History
CourseExp
Help
EMT
Spring 2024
Home
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Quizzes
Modules
BigBlueButton
Collaborations
Chat
Panopto Recordings
Clickers
Course Reserves
Adobe Creative Cloud
Module 1 Assignment
Due: Fri Feb 9, 2024 11:59pm
100 Points Possible
Attempt 1
In Progress
NEXT UP: Submit Assignment
Add Comment
Unlimited Attempts Allowed
Available until May 1, 2024 11:59pm
Details
Write a 1,000-word Medium post describing an exploratory analysis of a question for which 1) you have some expertise, and 2) you can describe who needs the answer to this question, and 3) you can explain how this answer enables a particular decision. This assignment will serve as a baseline for your work in this course, and at the end of the semester, you can review it so evaluate whether you would do things differently.
Your post should include the following:
Describe a question you think can be answered from data, what specific stakeholder is asking this question, and what decision(s) the answer to this question will inform.
Describe the data that could answer this question, what fields it contains, and why it is relevant to your question.
Explain how you collected some subset of this data (e.g., libraries like requests, BeautifulSoup, tweepy, praw, etc. or from data archive).
Perform an exploratory data analysis that helps answer the question you posed.
Describe how you cleaned up this data, common bugs you think others might encounter, and how you fixed them, etc.
Include figures or tables summarizing your findings.
Discuss the limitations of your analysis. What's missing? How might it be biased?
Include a link to one of your GitHub repositories that contains the code you have developed for this assignment.
When you have written your post, publish it via Medium, add your post it to the class publication via Medium, and submit the URL to it via ELMS.
Note: The publication name for the class is "Data Science Techniques [INST414]"
Tag your story as "inst414spr24a01" - Articles with this tag will automatically be added to the appropriate assignment tab after I accept on the class
Previous
Submit Assignment
Next
You are currently logged into Student View
Resetting the test student will clear all history for this student, allowing you to view the course as a brand new student.
Reset Student
Leave Student View

INST414 – Medium Post Grading Rubric, Assignment 1

Name _____ Topic_____

#	Item Name	Max	Earned
1	Identify a non-obvious insight you want to extract from your data, describing what decision(s) this insight might inform.	10	
2	Describe the data that could answer this question, where it lives, and why it's relevant.	10	
3	Explain how you collected the data, e.g., libraries like requests, BeautifulSoup, tweepy, praw, etc. or from a data archive.	10	
4	Perform some exploratory data analysis that helps inform the decision you posed in your introduction.	10	
5	Describe how you cleaned up this data, common bugs you think others might encounter, and how you fixed them, etc.	10	
6	Include figures or tables summarizing your findings.	10	
7	Conclude with a discussion of the limitations of your analysis. What's missing? How might it be biased?	10	
8	Include a link to one of your GitHub repositories that contains the code you have developed for this assignment.	10	
9	Excellence	10	
10	Length	10	
	TOTAL	100	

Comments:

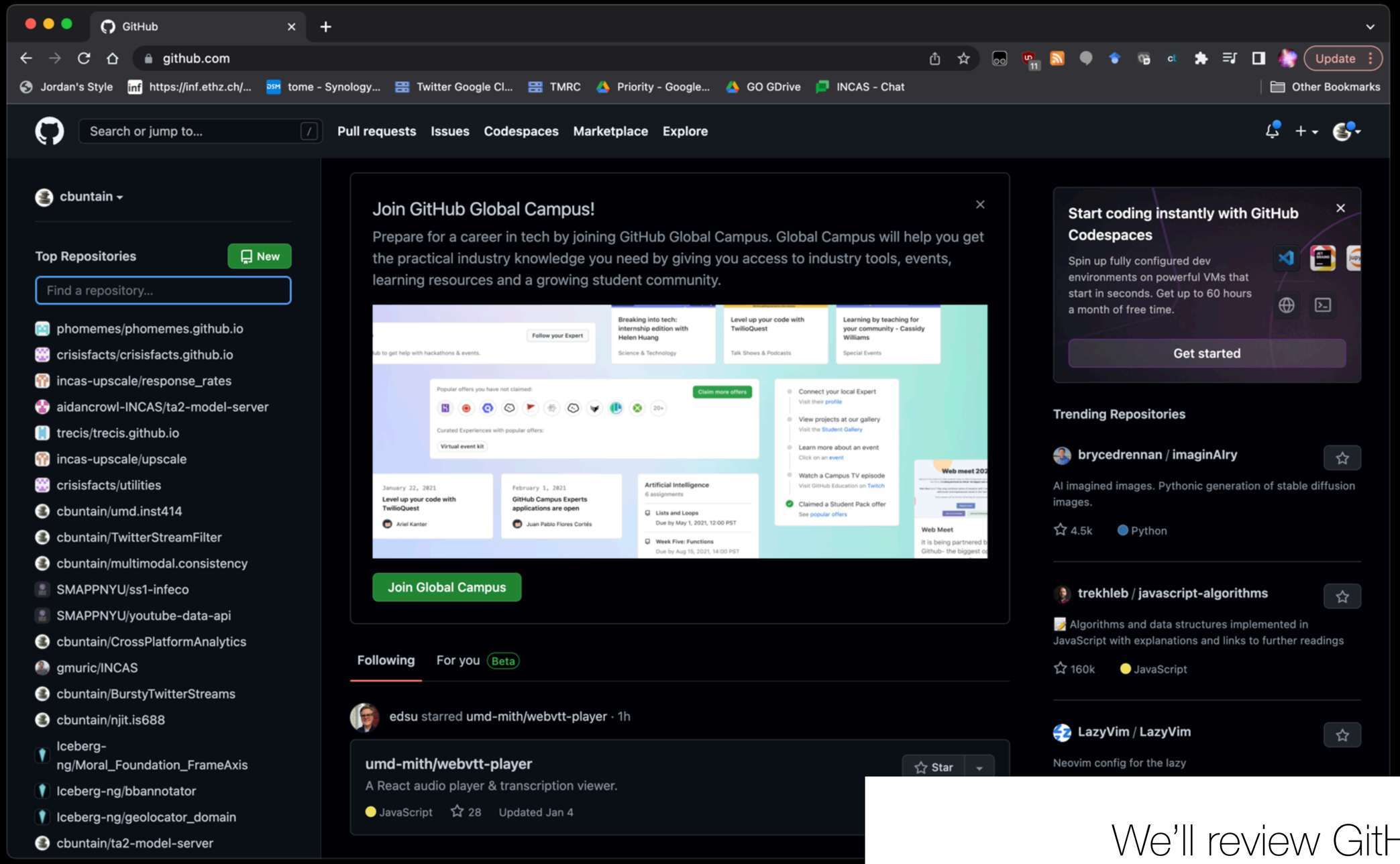
All assignments have an associated rubric

INST414 – Medium Post Grading Rubric, Assignment 1

Name _____ Topic _____

#	Item Name	Max	Earned
1	Identify a non-obvious insight you want to extract from your data, describing what decision(s) this insight might inform.	10	
2	Describe the data that could answer this question, where it lives, and why it's relevant.	10	
3	Explain how you collected the data, e.g., libraries like requests, BeautifulSoup, tweepy, praw, etc. or from a data archive.	10	
4	Perform some exploratory data analysis that helps inform the decision you posed in your introduction.	10	
5	Describe how you cleaned up this data, common bugs you think others might encounter, and how you fixed them, etc.	10	
6	Include figures or tables summarizing your findings.	10	
7	Conclude with a discussion of the limitations of your analysis. What's missing? How might it be biased?	10	
8	Include a link to one of your GitHub repositories that contains the code you have developed for this assignment.	10	
9	Excellence	10	
10	Length	10	
	TOTAL	100	

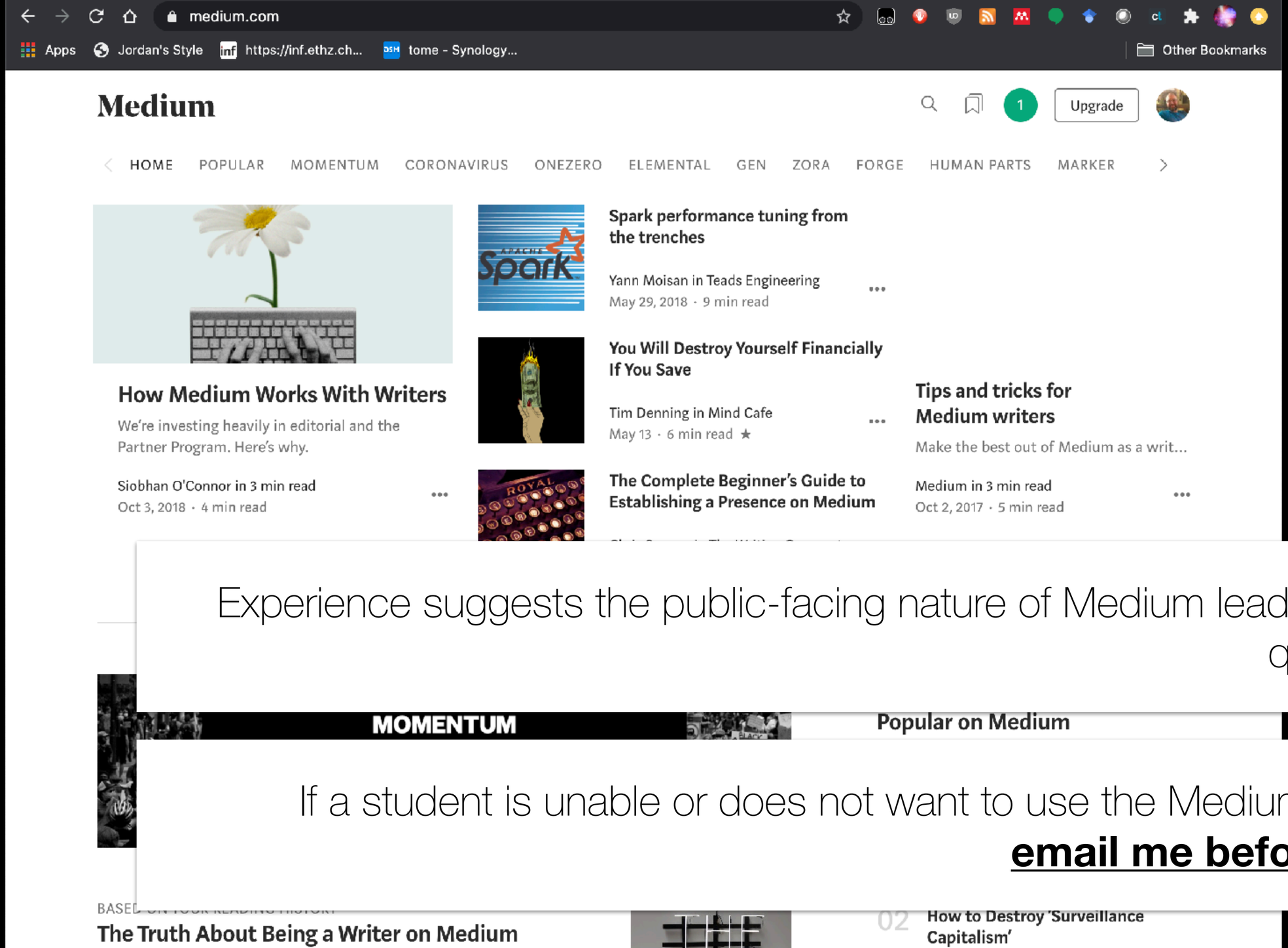
Comments:



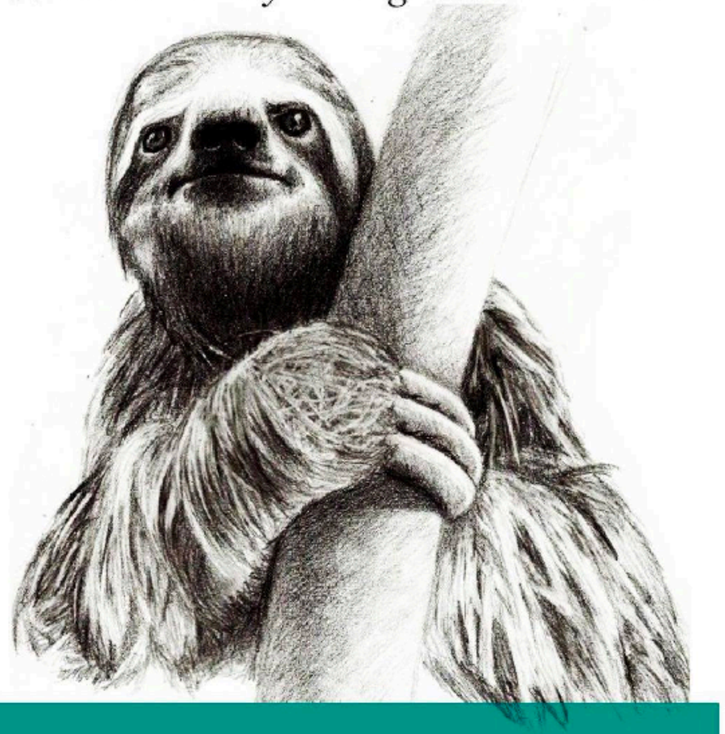
We'll review GitHub later

Why do I give these kinds of homework assignments?

Alternatively, why are you evaluated by your ability to communicate your analysis thoughtfully and concisely?


medium.com
Apps
Jordan's Style
https://inf.ethz.ch...
tome - Synology...
Other Bookmarks
Medium
1
Upgrade
HOME
POPULAR
MOMENTUM
CORONAVIRUS
ONEZERO
ELEMENTAL
GEN
ZORA
FORGE
HUMAN PARTS
MARKER
How Medium Works With Writers
We're investing heavily in editorial and the Partner Program. Here's why.
Siobhan O'Connor in 3 min read
Oct 3, 2018 · 4 min read
Spark performance tuning from the trenches
Yann Moisan in Teads Engineering
May 29, 2018 · 9 min read
You Will Destroy Yourself Financially If You Save
Tim Denning in Mind Cafe
May 13 · 6 min read ★
The Complete Beginner's Guide to Establishing a Presence on Medium
Tips and tricks for Medium writers
Make the best out of Medium as a writ...
Medium in 3 min read
Oct 2, 2017 · 5 min read
Experience suggests the public-facing nature of Medium leads to higher quality work
MOMENTUM
Popular on Medium
If a student is unable or does not want to use the Medium platform,
email me before Sept 5
The Truth About Being a Writer on Medium
How to Destroy 'Surveillance Capitalism'

Cutting corners to meet arbitrary management deadlines

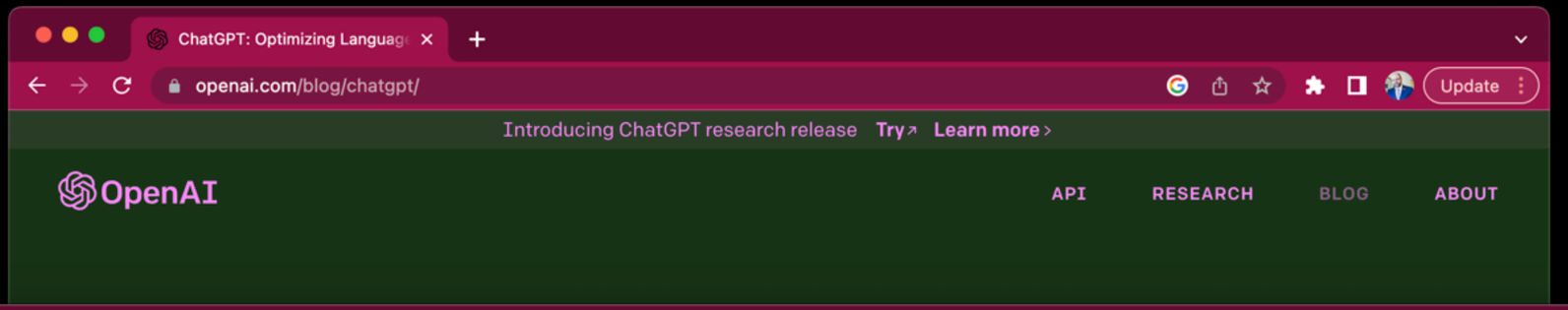


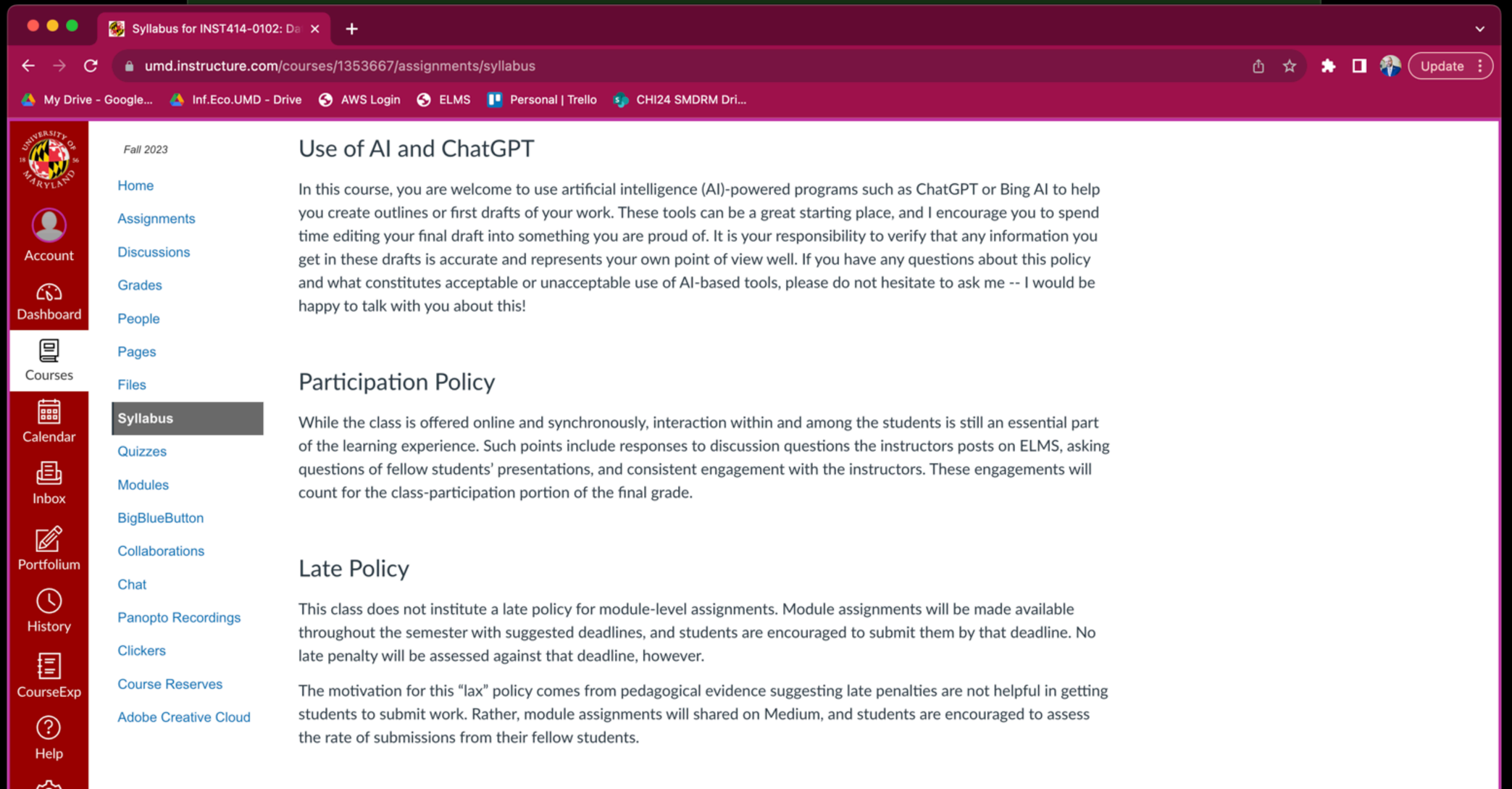
Essential

Copying and Pasting from Stack Overflow

O'REILLY®

The Practical Developer
@ThePracticalDev





Use of AI and ChatGPT

In this course, you are welcome to use artificial intelligence (AI)-powered programs such as ChatGPT or Bing AI to help you create outlines or first drafts of your work. These tools can be a great starting place, and I encourage you to spend time editing your final draft into something you are proud of. It is your responsibility to verify that any information you get in these drafts is accurate and represents your own point of view well. If you have any questions about this policy and what constitutes acceptable or unacceptable use of AI-based tools, please do not hesitate to ask me -- I would be happy to talk with you about this!

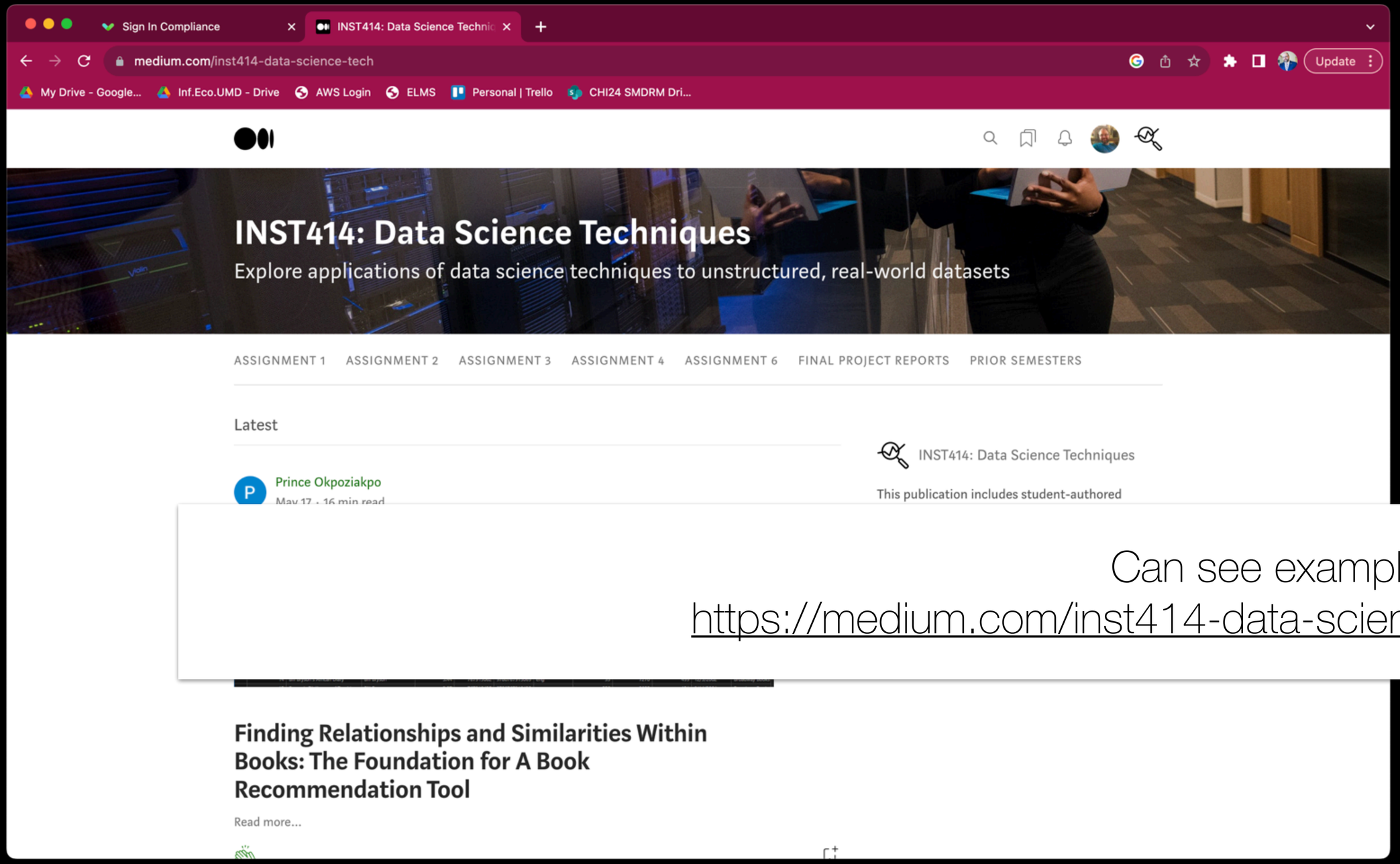
Participation Policy

While the class is offered online and synchronously, interaction within and among the students is still an essential part of the learning experience. Such points include responses to discussion questions the instructors posts on ELMS, asking questions of fellow students' presentations, and consistent engagement with the instructors. These engagements will count for the class-participation portion of the final grade.

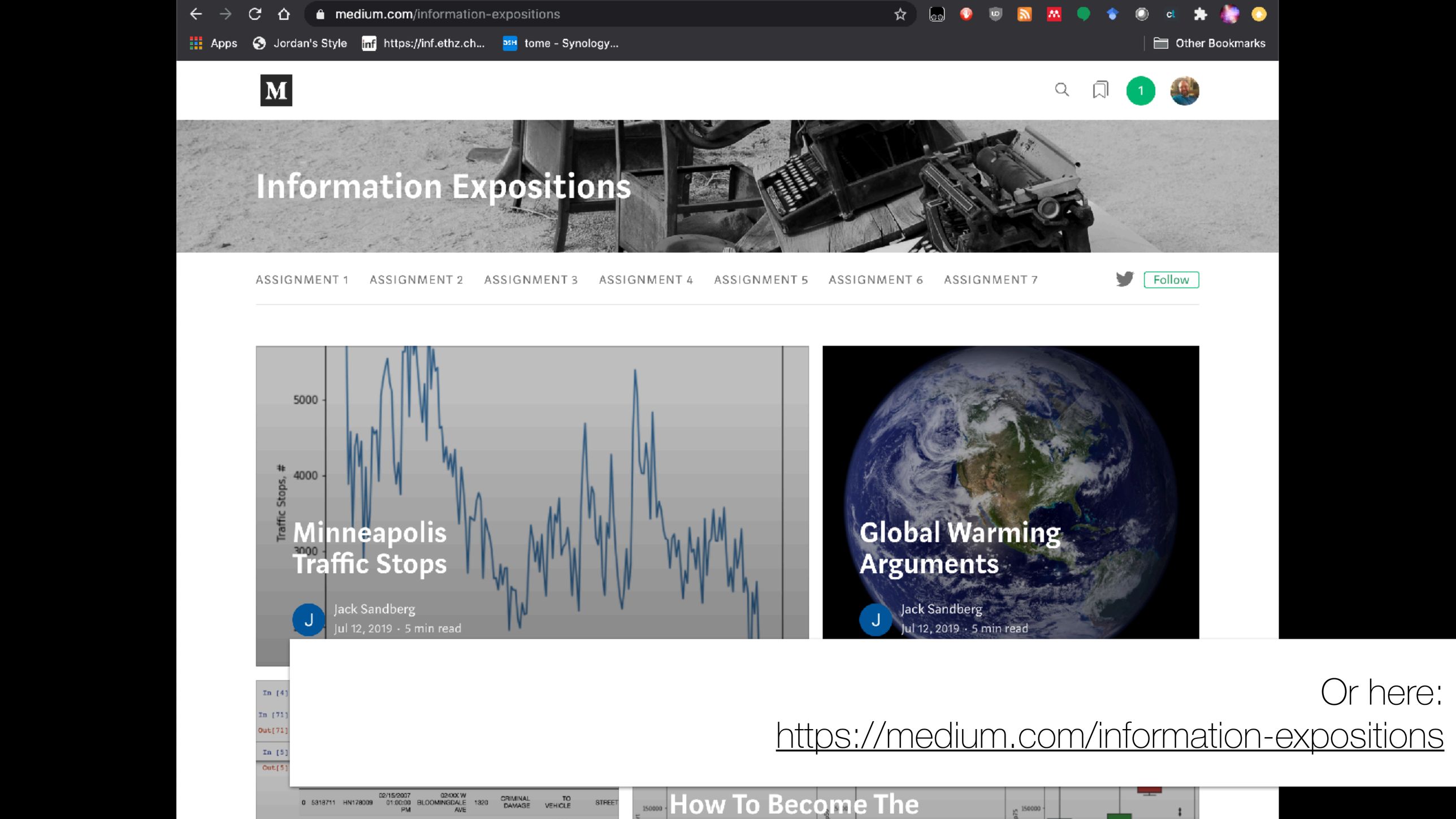
Late Policy

This class does not institute a late policy for module-level assignments. Module assignments will be made available throughout the semester with suggested deadlines, and students are encouraged to submit them by that deadline. No late penalty will be assessed against that deadline, however.

The motivation for this "lax" policy comes from pedagogical evidence suggesting late penalties are not helpful in getting students to submit work. Rather, module assignments will shared on Medium, and students are encouraged to assess the rate of submissions from their fellow students.



Can see examples here:
https://medium.com/inst414-data-science-tech



Or here:
https://medium.com/information-expositions

We’ll go over Medium later

Four Parts to Your Grade

Module Assignments - 35%

In-Class Labs/Quizzes - 25%

Semester Project - 30%

Participation - 10%

Exercises…

github.com/cbuntain/umd.inst414/blob/main/Module02/03-Graphs.ipynb

cbuntain / umd.inst414 Public

Notifications Fork 6 Star 4

Code Issues Pull requests Actions Projects Security Insights

main umd.inst414 / Module02 / 03-Graphs.ipynb Go to file ...

Cody Buntain Fixed a bug in the IMDB data and added export functionality ... Latest commit e257da9 on Mar 31, 2022 History

0 contributors

390 lines (390 sloc) 11.3 KB Raw Blame

Creating Networks from JSON Data

This notebook contains an example that reads data from a file of movies `imdb_recent_movies.json` and constructs a graph of actors. This dataset contains a sample of movies released betwen 2000-2020, their titles, genres, release years, and top-billed actors.

Using this dataset, we build a graph and perform some rudimentary graph analysis, extracting centrality metrics from it.

In [1]:
```
%matplotlib inline
```

In [2]:
```
import json
import random

import numpy as np
import pandas as pd
import networkx as nx
```

In [ ]:

In [12]:
```
g = nx.Graph()

with open("../data/imdb_recent_movies.json", "r") as in_file:
    for line in in_file:

        this_movie = json.loads(line)

        for actor_id,actor_name in zip(this_movie['actor_ids'],this_movie['actor_names']):
            g.add_node(actor_id, name=actor_name)
```

B Graph Example

_recent_movies.json file from Canvas

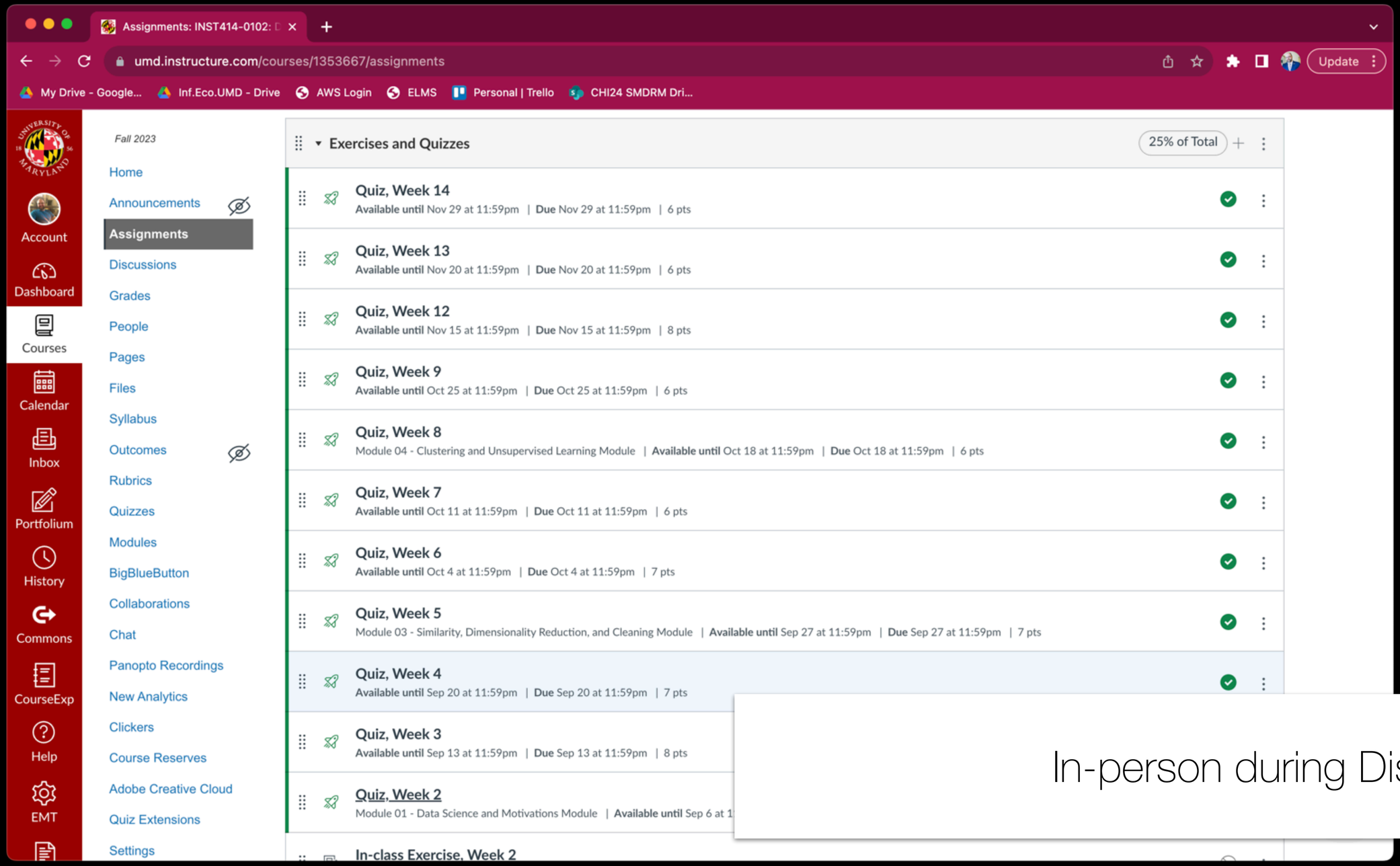
graph of actors based on costar roles

raph and randomly walk to tenth node

mes, counting frequency of endpoints

Print top 10 most frequent endpoints

Quizzes…



In-person during Discussion

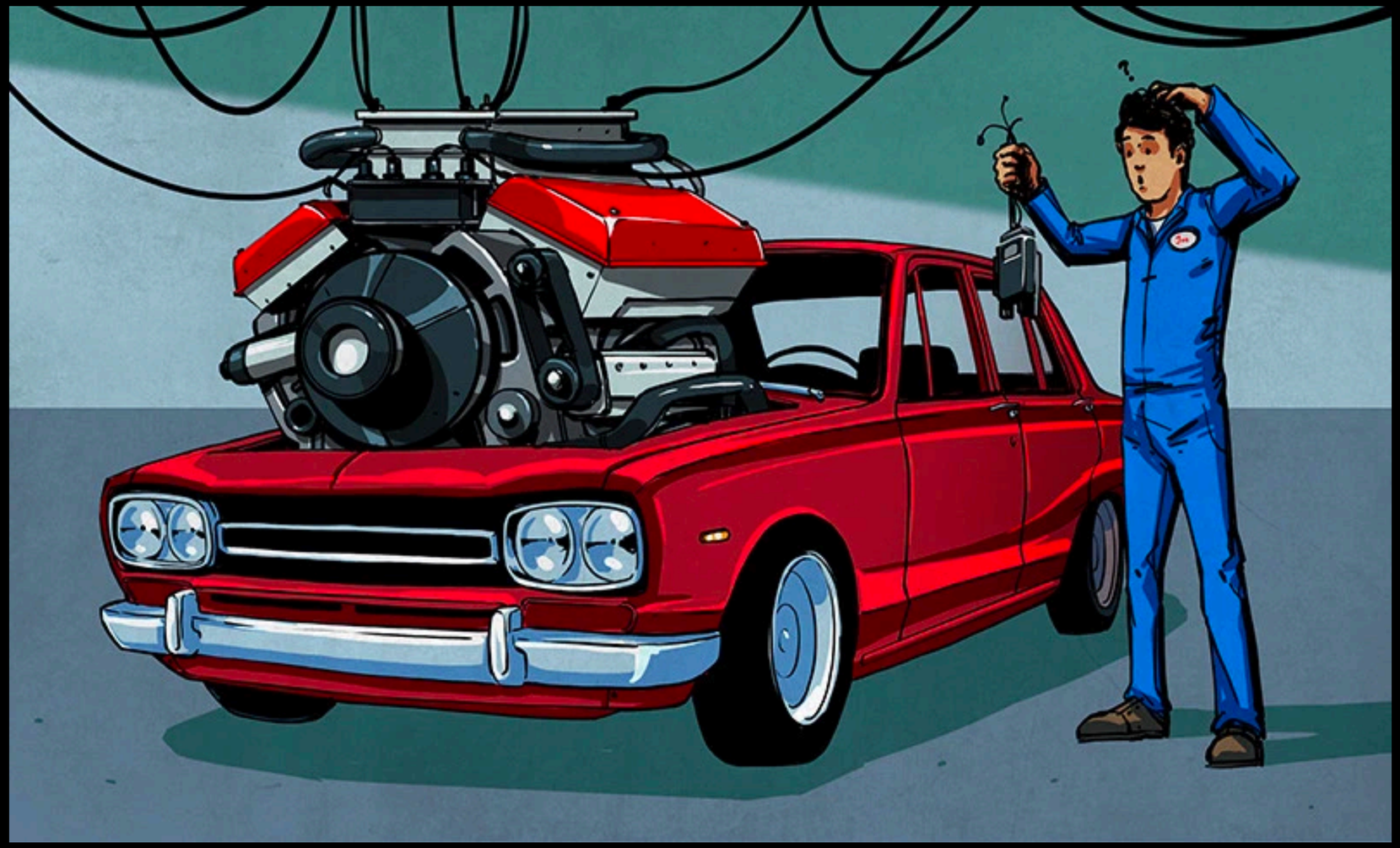
Four Parts to Your Grade

Module Assignments - 35%

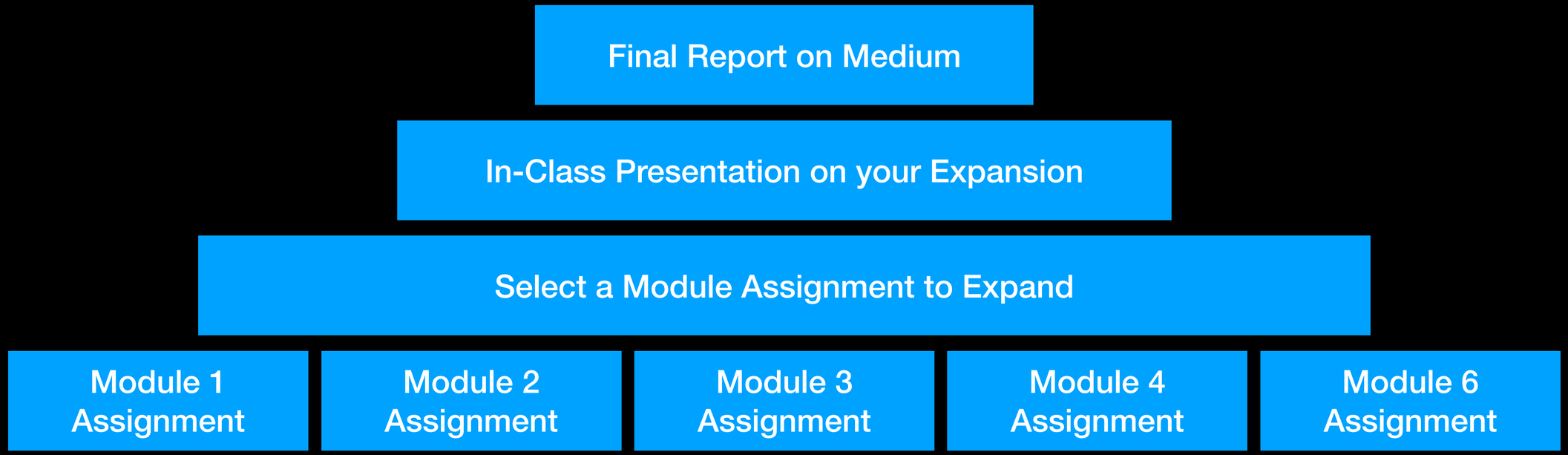
In-Class Labs/Quizzes - 25%

Semester Project - 30%

Participation - 10%



Semester Project



The semester project is meant to give students an opportunity to go deeper on a particular subject and dataset that are of interest to the student

Engagement with and getting to know the data is one of the most important parts of data science

Need to do a good job your Module assignments

Four Parts to Your Grade

Module Assignments - 35%

In-Class Labs/Quizzes - 25%

Semester Project - 30%

Participation - 10%

Do I know who you are?

In-class Exercise, Week 8
Available until Mar 21 at 11:59pm | **Due** Mar 21 at 11:59pm | -/100 pts

In-class Exercise, Week 9
Available until Mar 28 at 11:59pm | **Due** Mar 28 at 11:59pm | -/100 pts

In-class Exercise, Week 10
Available until Apr 4 at 11:59pm | **Due** Apr 4 at 11:59pm | -/100 pts

In-class Exercise, Week 11
Available until Apr 11 at 11:59pm | **Due** Apr 11 at 11:59pm | -/100 pts

In-class Exercise, Week 12
Available until Apr 18 at 11:59pm | **Due** Apr 18 at 11:59pm | -/100 pts

In-class Exercise, Week 13
Available until Apr 25 at 11:59pm | **Due** Apr 25 at 11:59pm | -/100 pts

Participation

10% of Total

Participation - Introductions
Due Feb 10 at 11:59pm | -/100 pts

Does the professor know you?
Due May 11 at 11:59pm | -/100 pts

Does the TAs know you?
Due May 11 at 11:59pm | -/100 pts

Medium Peer Review

Published | Assign To | Edit

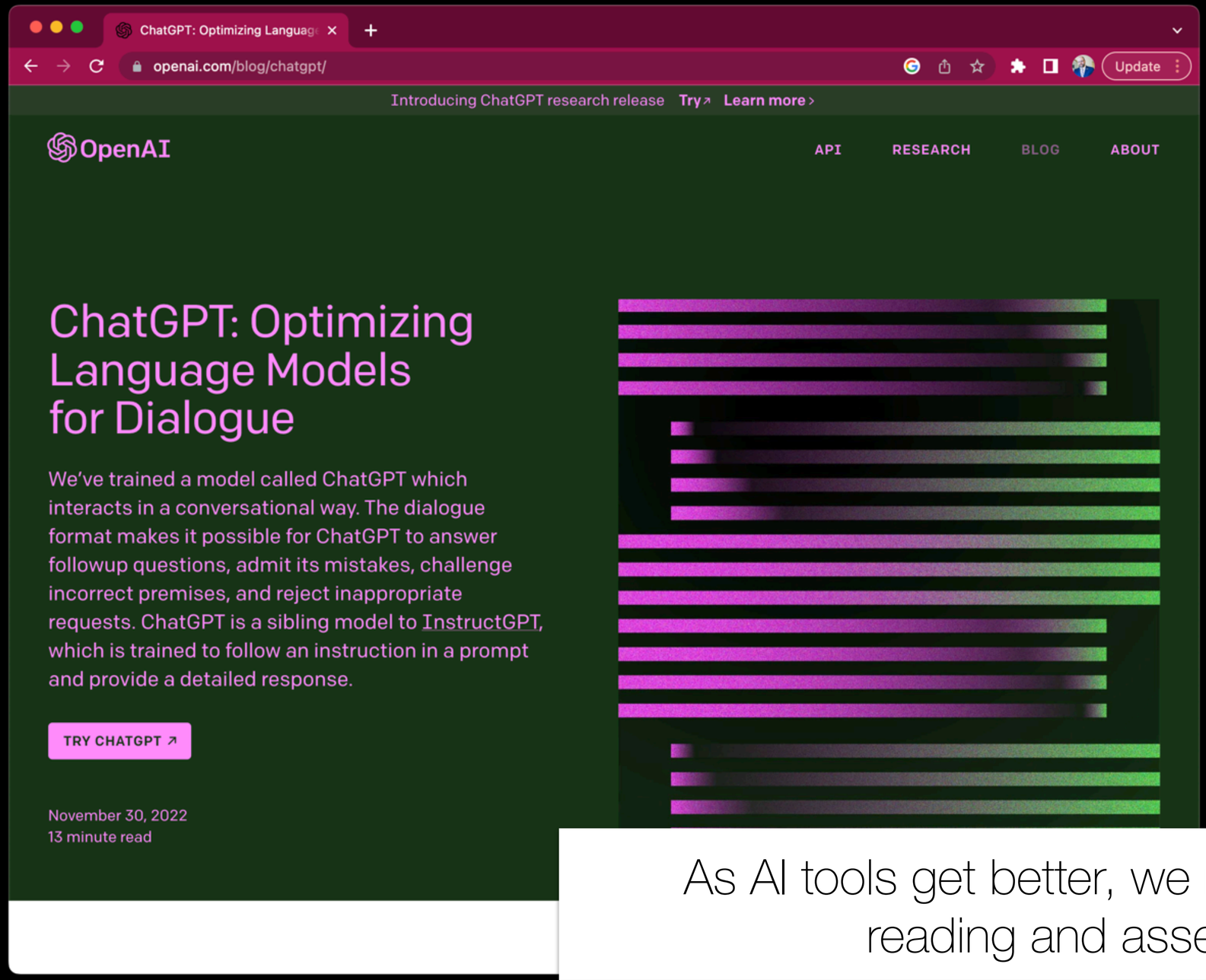
Write a peer review of one of your fellow student's Medium posts from this semester. This peer review serves to expose you to how others frame and communicate data science for their stakeholders and give you practice in thinking critically and considering how a reader may read your own content. You will reflect on what makes an impactful question/actionable insight, effective analysis, and high-quality technical writing. Your constructive feedback will help your classmates improve their communication skills and create a better project portfolio for recruiters.

Unlike the Medium posts, your review will not be public, but we will share its contents and authorship with the post's author.

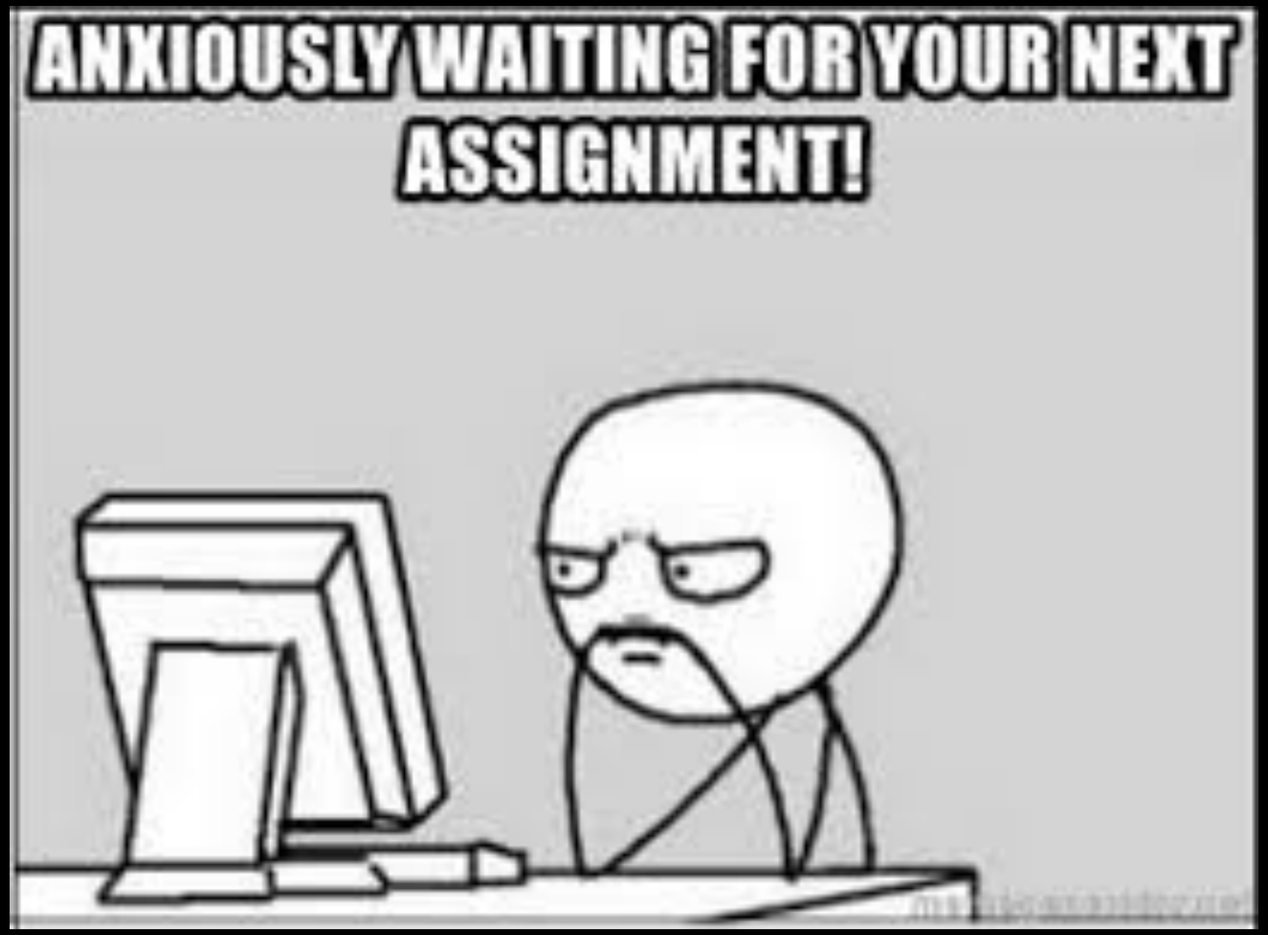
You should submit a Word document containing this review, where each question below is answered in a separate section. Include the following sections:

- Selected Post. Include a link to and the title of the post you will be reviewing.
- Stakeholders and Questions: Explain whether you think the stakeholder and their question are clearly identified. Does the article clearly outline the decisions available to the stakeholder and how an answer will help them make this decision?
- Data and Collection: Explain wh
source of the data used, its form
biases? Does this description inc
the work? Is sufficiently relevant
article's posed question?
- Quality of Analysis: Describe the extent to which you think the methods and techniques are explained clearly.

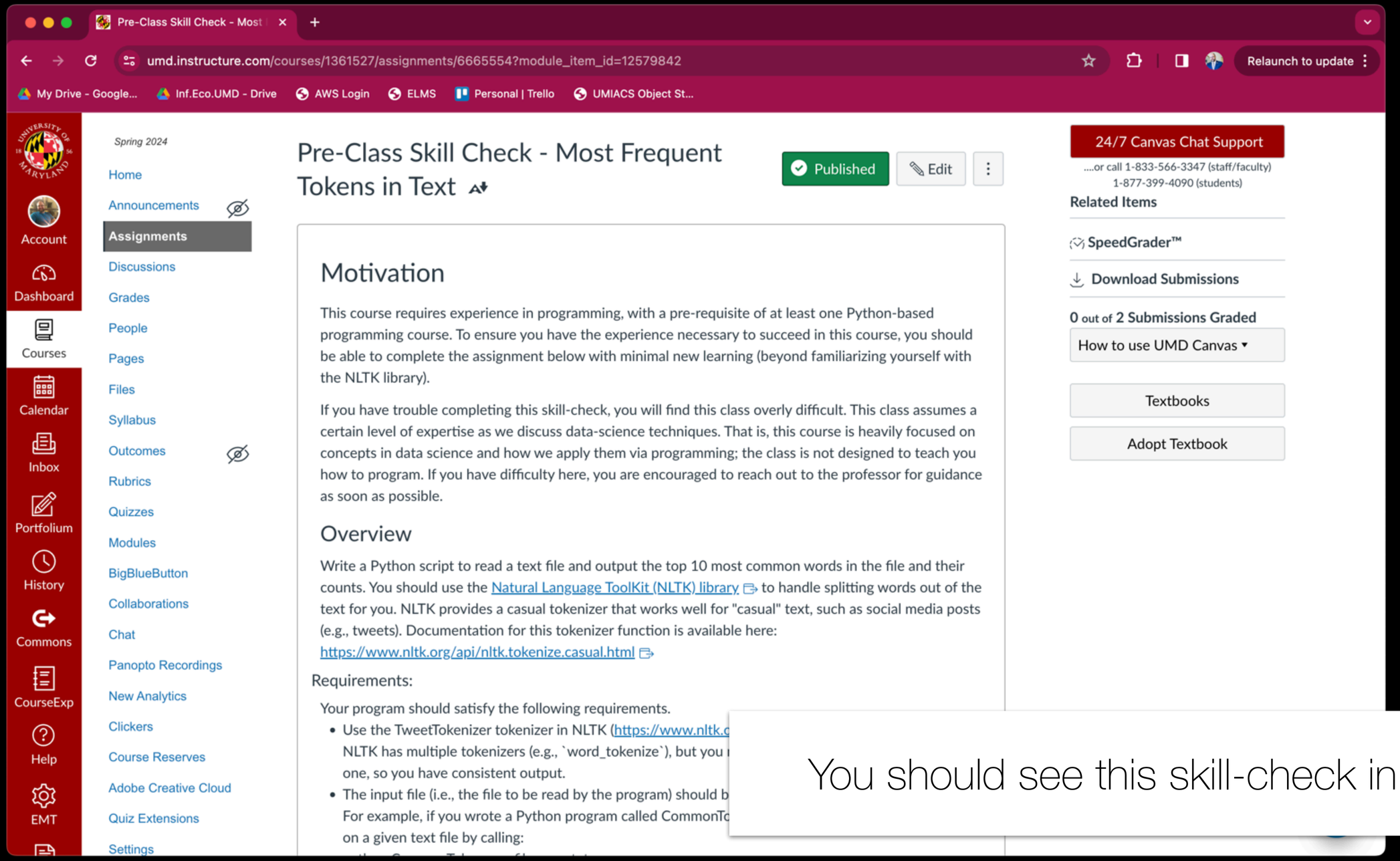
Peer reviews to give you experience reading other people's work



As AI tools get better, we need to get better reading and assessing their output



For Next Time


Pre-Class Skill Check - Most
umd.instructure.com/courses/1361527/assignments/6665554?module_item_id=12579842
Relaunch to update
My Drive - Google...
Inf.Eco.UMD - Drive
AWS Login
ELMS
Personal | Trello
UMIACS Object St...
Account
Dashboard
Courses
Calendar
Inbox
Portfolium
History
Commons
CourseExp
Help
EMT
Spring 2024
Home
Announcements
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Outcomes
Rubrics
Quizzes
Modules
BigBlueButton
Collaborations
Chat
Panopto Recordings
New Analytics
Clickers
Course Reserves
Adobe Creative Cloud
Quiz Extensions
Settings
Pre-Class Skill Check - Most Frequent Tokens in Text
Published
Edit
Motivation
This course requires experience in programming, with a pre-requisite of at least one Python-based programming course. To ensure you have the experience necessary to succeed in this course, you should be able to complete the assignment below with minimal new learning (beyond familiarizing yourself with the NLTK library).
If you have trouble completing this skill-check, you will find this class overly difficult. This class assumes a certain level of expertise as we discuss data-science techniques. That is, this course is heavily focused on concepts in data science and how we apply them via programming; the class is not designed to teach you how to program. If you have difficulty here, you are encouraged to reach out to the professor for guidance as soon as possible.
Overview
Write a Python script to read a text file and output the top 10 most common words in the file and their counts. You should use the Natural Language ToolKit (NLTK) library to handle splitting words out of the text for you. NLTK provides a casual tokenizer that works well for "casual" text, such as social media posts (e.g., tweets). Documentation for this tokenizer function is available here: https://www.nltk.org/api/nltk.tokenize.casual.html
Requirements:
Your program should satisfy the following requirements.
Use the TweetTokenizer tokenizer in NLTK (https://www.nltk.c
NLTK has multiple tokenizers (e.g., `word_tokenize`), but you
one, so you have consistent output.
The input file (i.e., the file to be read by the program) should b
For example, if you wrote a Python program called CommonTo
on a given text file by calling:
24/7 Canvas Chat Support
....or call 1-833-566-3347 (staff/faculty)
1-877-399-4090 (students)
Related Items
SpeedGrader™
Download Submissions
0 out of 2 Submissions Graded
How to use UMD Canvas
Textbooks
Adopt Textbook
You should see this skill-check in Canvas

Medium

Foundation - GitHub Signup | Foundation - Medium Signup

umd.instructure.com/courses/1340623/assignments/6190135

Update

Account
Dashboard
Courses
Calendar
Inbox
Portfolium
History
CourseExp
Help
EMT
Course Policies

INST414 › Assignments

Immersive Reader

Spring 2023

Home
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Quizzes
Modules
BigBlueButton
Collaborations
Chat
Panopto Recordings
Clickers
Course Reserves
Adobe Creative Cloud

Foundation - Medium Signup

100 Possible Points

Due: Wed Feb 1, 2023 11:59pm

Attempt 1

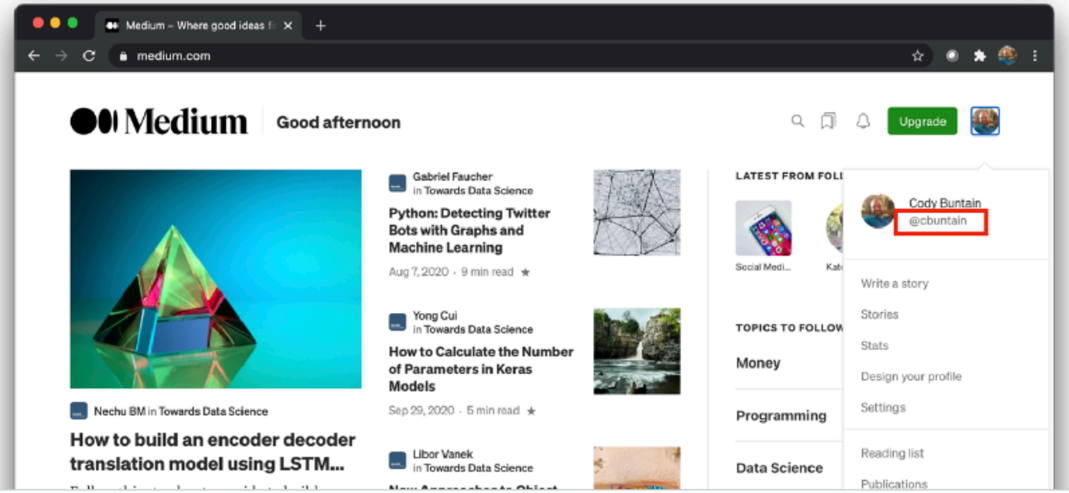
IN PROGRESS
Next Up: Submit Assignment

Add Comment

Unlimited Attempts Allowed

Details

Sign up for a Medium account and send me your Medium username (the piece with the @-symbol, as highlighted below).



Previous

Submit Assignment

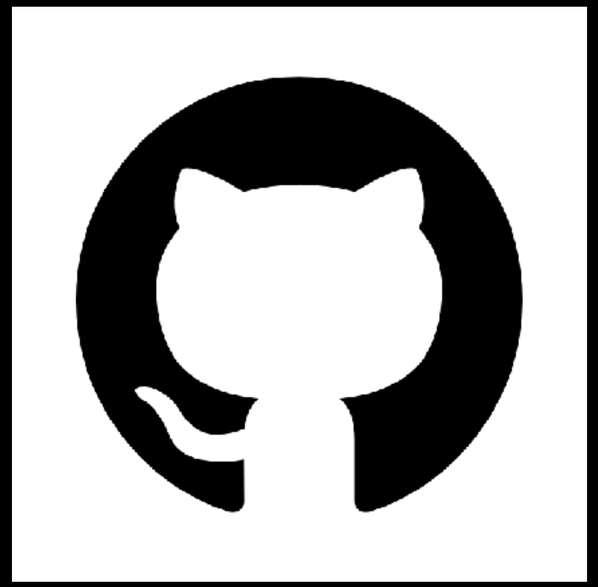
Next

You are currently logged into Student View

Resetting the test student will clear all history for this student, allowing you to view the course as a brand new student.

Reset Student

Leave Student View



Foundation - GitHub Signup

umd.instructure.com/courses/1340623/assignments/6301321

Update

INST414 › Assignments

Immersive Reader

Spring 2023

Home
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Quizzes
Modules
BigBlueButton
Collaborations
Chat
Panopto Recordings
Clickers
Course Reserves
Adobe Creative Cloud

Account
Dashboard
Courses
Calendar
Inbox
Portfolium
History
CourseExp
Help
EMT
Course Policies

Foundation - GitHub Signup

100 Possible Points

Due: Wed Feb 1, 2023 11:59pm

Attempt 1

IN PROGRESS
Next Up: Submit Assignment

Add Comment

Unlimited Attempts Allowed

Details

As your Medium posts require to share a link to your GitHub repository, you also need to have a GitHub account. Sign up for GitHub (it's free), and submit your account name here.

Edit View Insert Format Tools Table

12pt Paragraph

Previous

Submit Assignment

Next

You are currently logged into Student View

Resetting the test student will clear all history for this student, allowing you to view the course as a brand new student.

Reset Student

Leave Student View

Topic: Participation - Introduct

umd.instructure.com/courses/1340623/discussion_topics/4854786

Update

INST414 › Discussions › Participation - Introductions

Account
Dashboard
Courses
Calendar
Inbox
Portfolium
History
CourseExp
Help
EMT
Course Policies

Spring 2023

Home
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Quizzes
Modules
BigBlueButton
Collaborations
Chat
Panopto Recordings
Clickers
Course Reserves
Adobe Creative Cloud

This is a graded discussion: 100 points possible — due Jan 27

Participation - Introductions

Use this space to introduce yourself, answering at least the following:

What do you prefer to be called (include pronunciation if possible)?

What are your preferred pronouns (e.g., he/him, she/her, they/them)?

Search entries or author | Unread | Subscribe

Reply

Avani Badugu (*she/her*)
12:10pm

My name is Avani Badugu and I am a senior. I use she/her pronouns.

Reply

Noah Blackwell
2:55pm

You are currently logged into Student View

Resetting the test student will clear all history for this student, allowing you to view the course as a brand new student.

Reset Student | Leave Student View

umd.instructure.com/courses/1380765/assignments/7072918

Relaunch to update

My Drive - Google... | Inf.Eco.UMD - Drive | AWS Login | ELMS | Personal | Trello | UMIACS Object St... | iSchool IT Service... | MDDC AWS

INST414 › Assignments › In-class Exercise, Week 1

View as Student | Immersive Reader

Account | Dashboard | Courses | Calendar | Inbox | Portfolium | History | Commons | CourseExp | Help | EMT | Course Policies

Spring 2025

Home
Announcements
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Outcomes
Rubrics
Quizzes
Modules
BigBlueButton
Collaborations
Chat
Panopto Recordings
New Analytics
Clickers
Course Reserves
Adobe Creative Cloud
Quiz Extensions
Attendance

In-class Exercise, Week 1

Published | Assign To | Edit

Instructions

You will be told to focus **on one of the following** exercises. Read the scenario and consider the prompt. Then, describe an answer to the provided prompt. We will review answers in class. At the end of the exercise, upload a document describing your solution to the exercise.

For your answer to the prompt, provide the following:

- Identify one single main stakeholder you are assisting.
- What domain expertise do you think is necessary to answer this prompt?
- What data do you think would be ideal data to address this prompt?
- How might you collect this data?

Exercise 1. Airline Networks and Pandemic Prevention

Scenario: Consider the case of the Global Health Organization (GHO), a (fictional) organization charged with preventing the spread of disease. In this fictitious context, a disease is spreading internationally, and a major vector of this spread is travel through international airports (1,200 or so exist in the world today). The GHO has a treatment that can effectively cure an infection of the disease, but this treatment provides **no lasting immunity**–that is, if you are exposed to the disease again post-treatment, you can still get it and pass it on. GHO resources are limited such that they can only deploy this treatment at 20 airports at a given time.

Prompt: Describe a data-driven strategy for the GHO to identify 20 airports at which they should deploy their treatment.

Exercise 2. Recommending Videos

Scenario: The developers of the new short-video app, MeTok, r
have watched the current video. To ensure user satisfaction, th
to the user. As the app developer, you have access to the user's video-watching history and other on-app meta-data, like friends and contacts.

24/7 Canvas Chat Support

....or call 1-833-566-3347 (staff/faculty)
1-877-399-4090 (students)

Related Items

SpeedGrader

How to use UMD Canvas

Textbooks

Adopt Textbook

Friday, an in-class exercise on comms

What questions do you have?

Prof. Cody Buntain | @codybuntain | cbuntain@umd.edu