

MIDDLE TENNESSEE STATE UNIVERSITY

DEPARTMENT OF COMPUTER SCIENCE

CSCI-3080 DISCRETE STRUCTURE

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# OLA1: Set Operations & Combinatorics in Python

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Instructor: Dr. Xin Yang

**Due date:** Feb 4th, 2022 (23:59 PM) Friday

January 25, 2022



## 1. Download and Install Anaconda

**Windows users:** <https://docs.anaconda.com/anaconda/install/windows/>

**Mac users:** <https://docs.anaconda.com/anaconda/install/mac-os/>

**Linux users:** <https://docs.anaconda.com/anaconda/install/linux/>



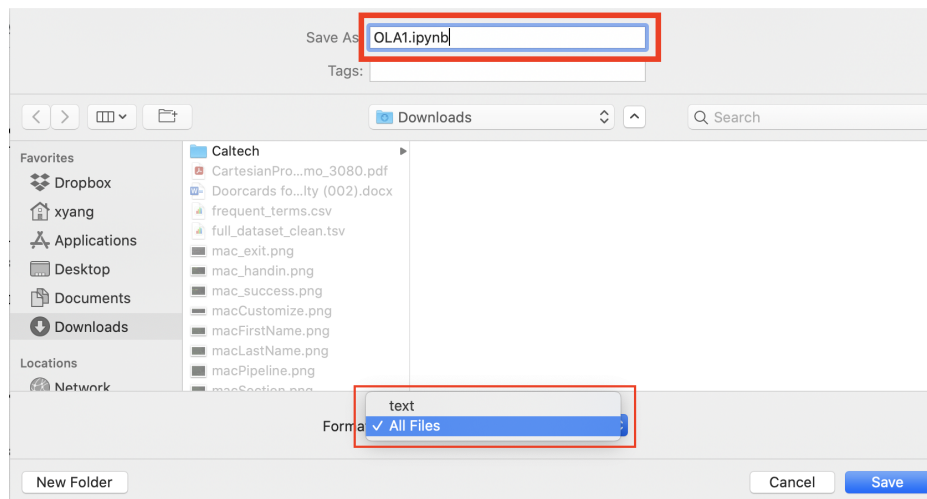
Figure 1: Anaconda: Data Science Platform

## 2. Download the Starter Jupyter Notebook

Please download the starter Jupyter Notebook (OLA1.ipynb) from my course calendar:

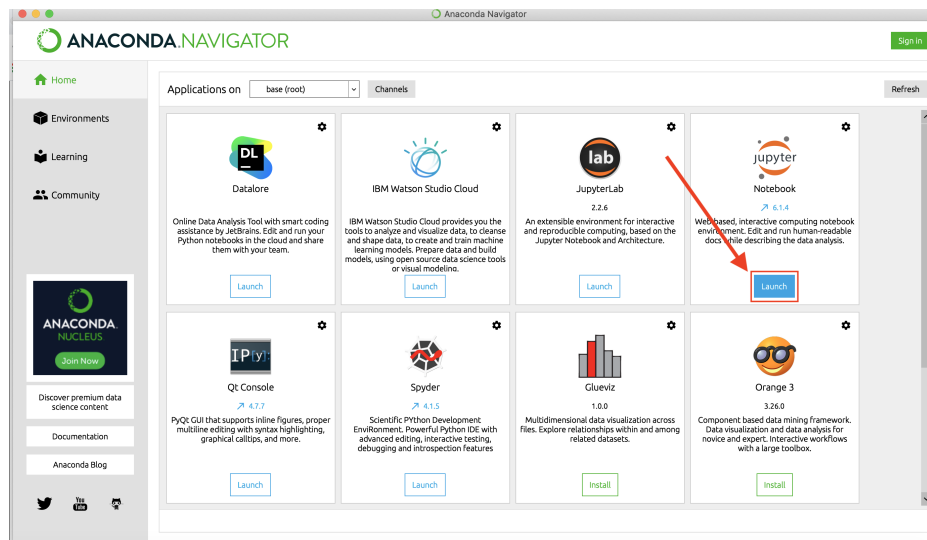
<https://www.cs.mtsu.edu/~xyang/3080/OLA/OLA1.ipynb>

- **Right click** the page.
- Click: “**Save As**”
- Select Format: **All Files**
- **Remove** the extension **.txt**.



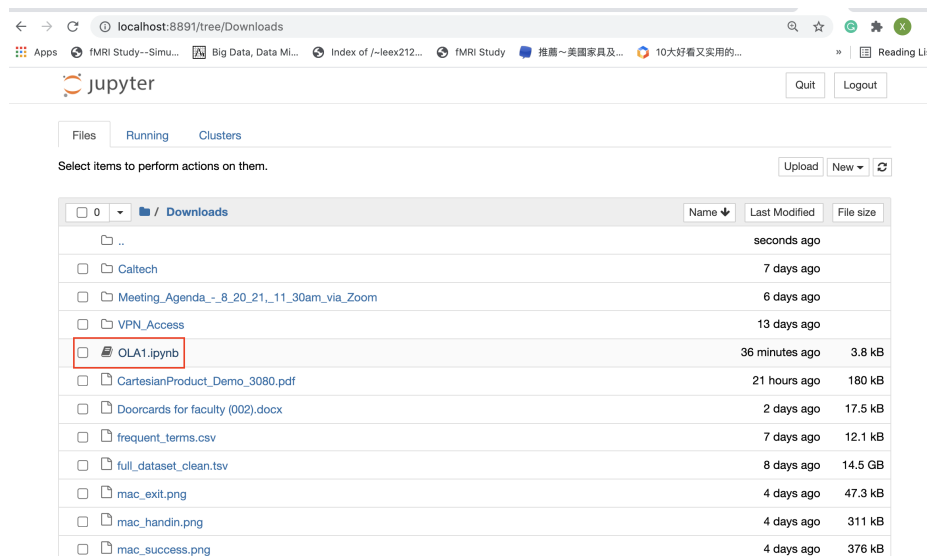
### 3. Launch Jupyter Notebook

- (1) Open Anaconda.
- (2) Launch Jupyter Notebook through Anaconda.



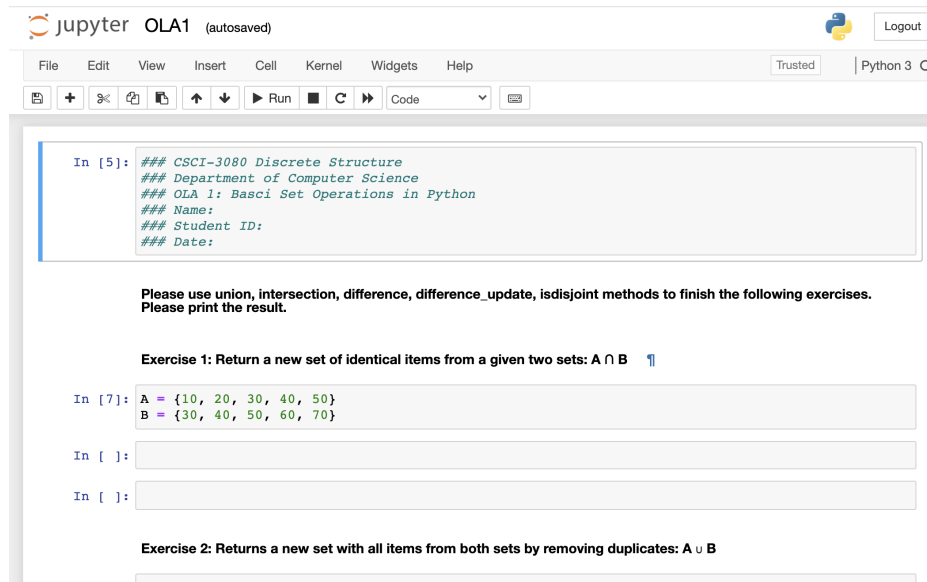
## 4. Open Jupyter Notebook OLA1

(1) Locate OLA1.ipynb in your Download Folder.



(2) You should see the following page after you click

OLA1.ipynb :



- (3) Please fill in your Name, ID, and Date.
- (4) Please finish all exercises in Jupyter Notebook. Part 1: 5 exercises. Part 2: 4 exercises.

#### 4. Save OLA1 as a PDF

Please save your OLA1 as a PDF after you finish all the exercises.

- (1) Please right click your mouse, and click **Print**.

red)

Help Trusted

▼

ability of randomly drawing five cards from a deck and getting exactly c

which the cards are drawn is not important (since the player s hand ar

te the possible number. For the **numerator**, we need the num and four

**denominator**, we need to compute the possible number of cards in to

result. Please call the function **nCr** defined above.

of randomly drawing five cards from a deck and getting exactly two Ace

result. Please call the function **nCr** defined above

(2) Then select **Save as PDF**, and click **SAVE**.

12/31/21, 12:27 PM OLA1 - Jupyter Notebook

```
In [35]: ## CBCI-3080 Discrete Structure
## Department of Computer Science
## OLA 1: Set Operations & Combinatorics in Python
## Name:
## Student ID:
## Date:
## Total Points: 30 Points
```

**Part 1: Please use union, intersection, difference, difference.update, isdisjoint methods to finish the following exercises. Please print the result. (10 points)**

**Exercise 1: Return a new set of identical items from a given two sets:  $A \cap B$  (2 points)**

```
In [27]: A = {10, 20, 30, 40, 50}
B = {30, 40, 50, 60, 70}

In [ ]:
```

**Exercise 2: Returns a new set with all items from both sets by removing duplicates:  $A \cup B$  (2 points)**

```
In [28]: A = {10, 20, 30, 40, 50}
B = {30, 40, 50, 60, 70}

In [ ]:
```

**Exercise 3: Given two Python sets, update the first set A with items that exist only in the first set and not in the second set:  $A - B$  (2 points)**

```
In [29]: A = {10, 20, 30, 40, 50}
B = {30, 40, 50, 60, 70}

In [ ]:
```

**Exercise 4: Remove items 10, 20, 30 from the following set A at once using difference.update (2 points)**

```
In [30]: A = {10, 20, 30, 40, 50}

In [ ]:
```

**Exercise 5: Check if two sets have any elements in common. If yes, display the common elements, else display "two sets have no items in common". (2 points)**

localhost:8888/notebooks/OLA1.ipynb 1/3

Print 3 pages

Destination Save as PDF

Pages All

Layout Portrait

More settings

Cancel Save

(3) Please make sure your PDF file name is **OLA1: OLA1.pdf**.

## 5. Submission

1. log in the gus sytem using your **cNumber** and **Password**:

<https://www.cs.mtsu.edu/cgi-bin/gus/gus.py>

← → ↻ [cs.mtsu.edu/cgi-bin/gus/gus.py](https://www.cs.mtsu.edu/cgi-bin/gus/gus.py)

[Apps](#) [fMRI Study--Simu...](#) [Big Data, Data Mi...](#) [Index of](#)

**GUS: Homework repository system start screen.**

**Please enter your C-number and Password below:**

C-number:

Password:

2.

- (a) Select **ola1** from the drop-down menu.
- (b) Click **Submit**
- (c) Click **Perform Action**

**Action options:**

Select an assignment from the dropdown menu and check an action on right:

ola1 (Deadline: 2021-09-03 23:59) ☒ Submit ☐ Status/Retrieval

List of current valid assignment identification codes, followed by (if applicable) time stamp and graded status.

Assignment:	Time Stamp:	Status:	Due Date:	Deadline:
ola1	. . .	.	2021-09-03-23:59	2021-09-03-23:59

handin command finished.

- 3.
- (a) click **Choose File** to attach your OLA1.pdf
  - (b) click **Upload**.

**To submit ola1, upload these required files:**

OLA1.pdf

OLA1.pdf OLA1.pdf

(←Once pressed, wait for next screen. A succesful upload can take a few moments.)

4. Congratulations! You are done with OLA1!