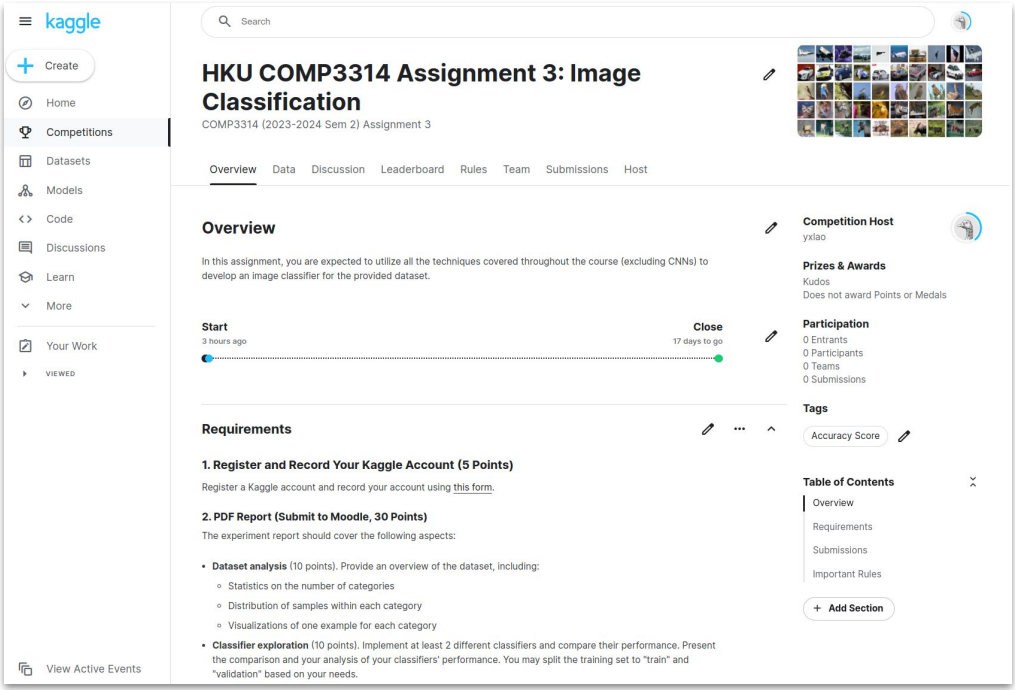
COMP3314 Tutorial 4

Tutorial for Assignment 3

TA for COMP3314

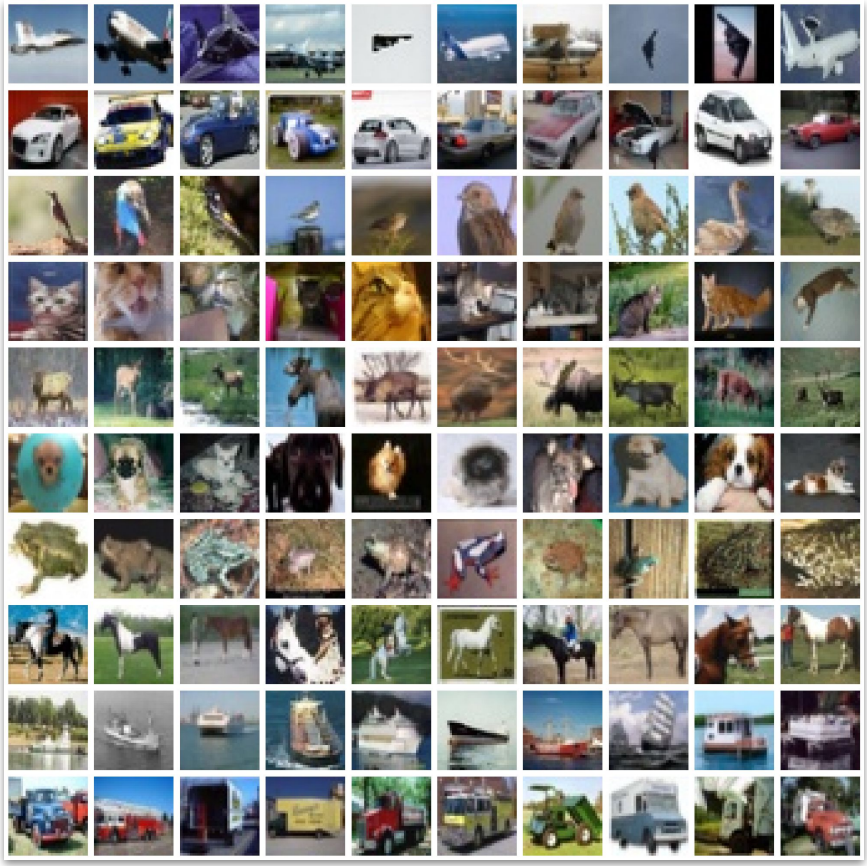
Assignment 3: image classification Kaggle challenge




```
max_team_size == 3
```

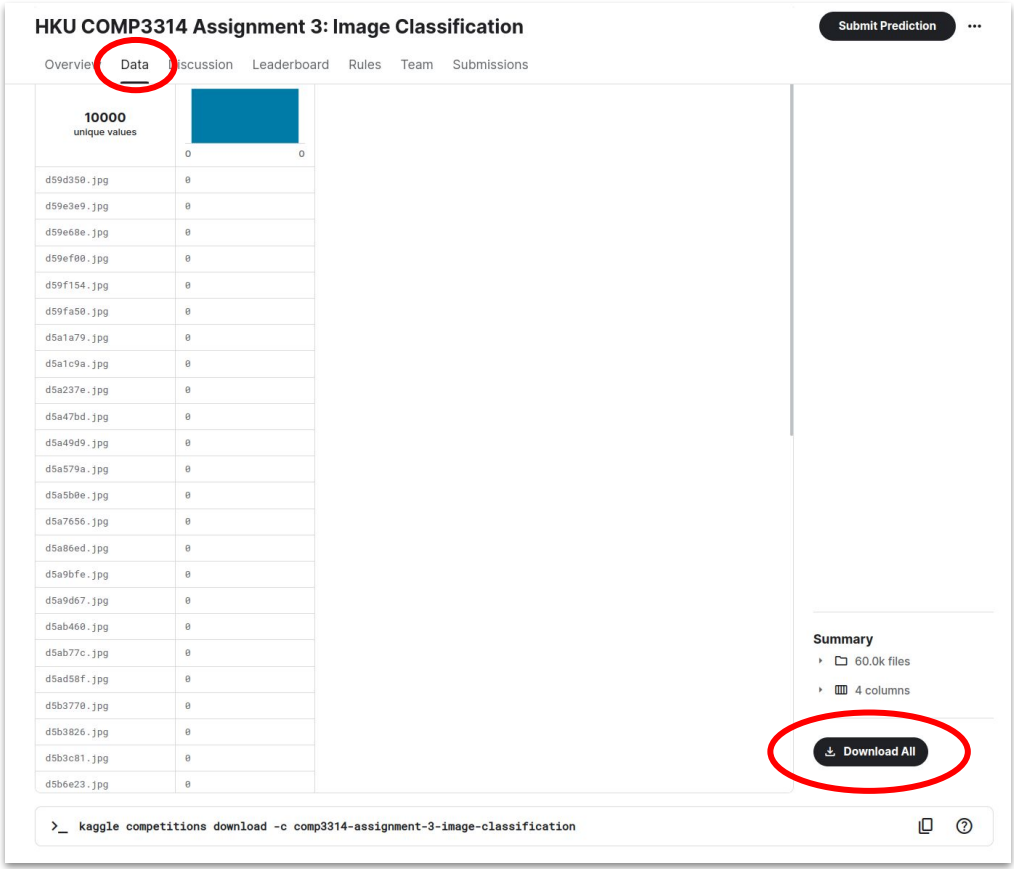
Kaggle invitation URL:
https://www.kaggle.com/t/62283d169918407e85492b2591e1c5e1
Kaggle competition URL:
https://www.kaggle.com/competitions/comp3314-assignment-3-image-classification/

Overview: image classification task



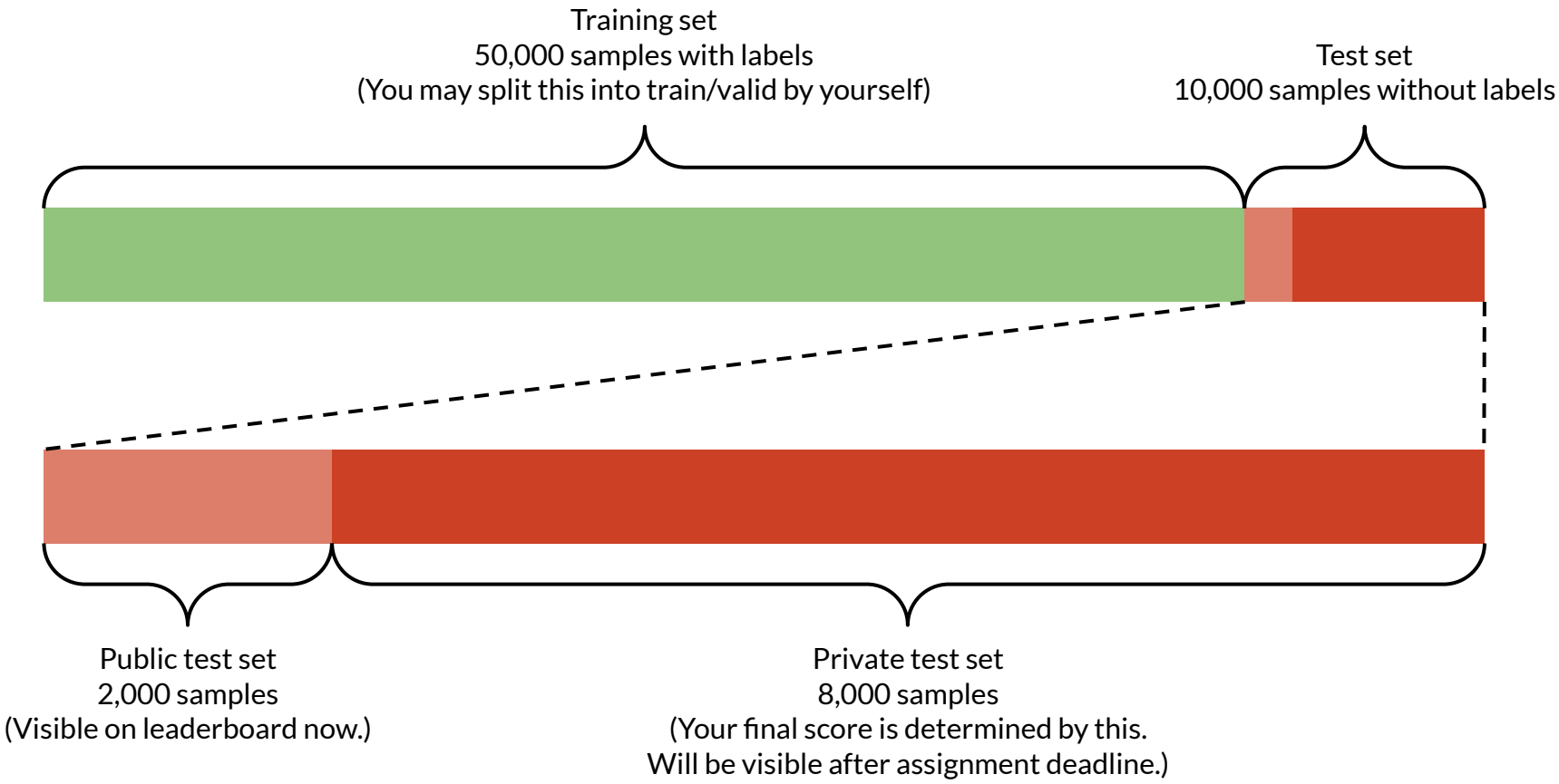
- In this assignment, you are expected to utilize all the techniques covered throughout the course to develop an image classifier for the provided dataset.
- We will be using a Kaggle **leaderboard** to manage your assignment submission.

Getting the data




```
data
├── train.csv
├── test.csv
├── train_ims
│   ├── 00016cd.jpg
│   ├── 0001808.jpg
│   ├── 0002399.jpg
│   ├── 0003973.jpg
│   ├── 00061cc.jpg
│   ...
│   └── d59d147.jpg
└── test_ims
    ├── d59d350.jpg
    ├── d59e3e9.jpg
    ├── d59e68e.jpg
    ├── d59ef00.jpg
    ├── d59f154.jpg
    ...
    └── fffe437.jpg
```

Dataset overview



Submission overview

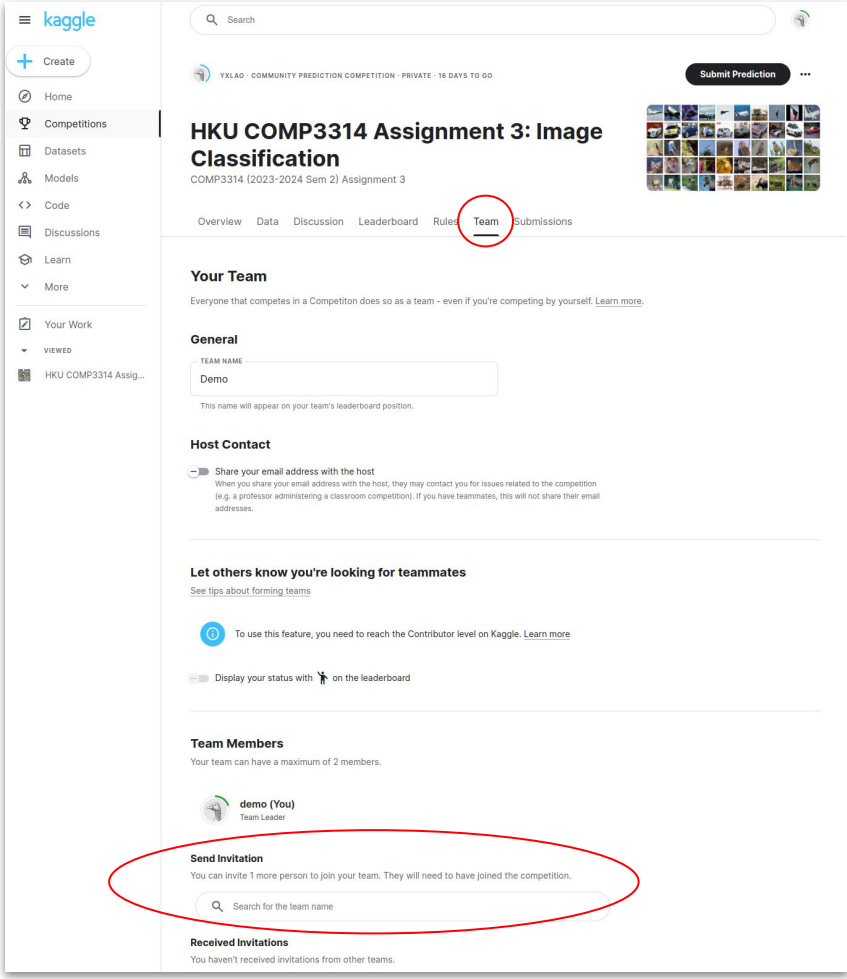
1. Kaggle Account: Record your Kaggle username via the Google form (5 pts)
   - Submission method: **Google form**
2. PDF Report: Document your process, findings, and methodology (30 pts)
   - Submission method: **Moodle**
3. Jupyter Notebook: Share your code in a runnable notebook (15 pts)
   - Submission method: **Moodle**
4. Prediction CSV: Submit your predictions on Kaggle for scoring (50 pts)
   - Submission method: **Kaggle**

Register Kaggle competition

Kaggle invitation URL:
https://www.kaggle.com/t/62283d169918407e85492b2591e1c5e1
Kaggle competition URL:
https://www.kaggle.com/competitions/comp3314-assignment-3-image-classification/

Team policy

- Max team size: 3 students
- You shall form your team on Kaggle.
- Every team member shall:
  - Register Kaggle
  - Record the account on Google Form
- Team members can share:
  - PDF report submission (Moodle)
  - Jupyter code submission (Moodle)
  - Competition submission (Kaggle)
- Only one team member need to submit on Moodle for the PDF report and Jupyter code.

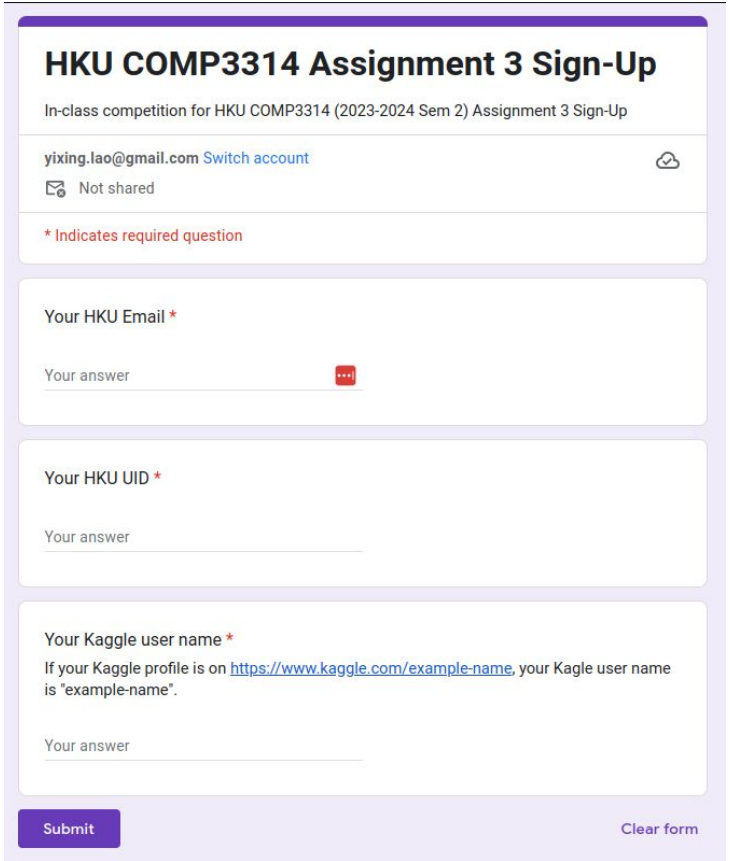


Submission 1 of 4: Record your Kaggle username

Register a Kaggle account and record your Kaggle account using this form.

You may also form a team on Kaggle afterwards. Every team member must record their Kaggle account using the Google Form.

URL: https://docs.google.com/forms/d/e/1FAIpQLSdKXKj5-MuCmn1nL3GeRM_jlQr67kaghtds24Ls__nVd84NBw/viewform



Submission 2 of 4: PDF report (on Moodle)

The experiment report should cover the following aspects:

- Dataset analysis
  - Statistics on the number of categories
  - Visualizations of one example for each category
- Classifier exploration
  - Implement at least 2 different classifiers and compare their performance. Present the comparison and your analysis of your classifiers' performance. You may split the training set to "train" and "validation" based on your needs.
- Final solution description
  - Describe the core pipeline of your final solution, highlighting key components and methodologies utilized to achieve the desired classification results.

Submission 3 of 4: Jupyter Notebook (on Moodle)

You shall submit a Jupyter notebook to validate the reproducibility of the test results submitted on the test dataset.

- The Jupyter notebook **must contain the entire pipeline** of your final solution.
- Ensure the notebook is executable, with **pre-executed logs printed** for clarity.
- Upon running the notebook, it should generate a .csv file within the same directory as the notebook.
- Do not upload the dataset. Only the Jupyter Notebook shall be uploaded.
- TA may check the Jupyter Notebook to verify the results with your submitted results on Kaggle.

Submission 4 of 4: prediction CSV file (on Kaggle)

Example **test.csv**
(filled with dummy labels)

```
im_name,label
d59d350.jpg,0
d59e3e9.jpg,0
d59e68e.jpg,0
d59ef00.jpg,0
d59f154.jpg,0
d59fa50.jpg,0
d5a1a79.jpg,0
d5a1c9a.jpg,0
...
```

Example **submission.csv**
(filled with predicted labels)

```
im_name,label
d59d350.jpg,3
d59e3e9.jpg,1
d59e68e.jpg,4
d59ef00.jpg,1
d59f154.jpg,5
d59fa50.jpg,9
d5a1a79.jpg,2
d5a1c9a.jpg,6
...
```

Note: pay attention to the image name and label mapping.

Leaderboard

- **Evaluation metric**: Accuracy score
- **Public test set**: During the competition, your submission's accuracy on the public test set will be visible on the leaderboard.
- **Private test set**: However, final rankings and the determination of award points will be based on your submission's performance on the private test set, which will be revealed at the competition's conclusion.

Grading policy based on your ranking

- 50 points if you rank within the top 0% - 10%.
- 40 points if you rank within the top 10% - 20%.
- 30 points if you rank within the top 20% - 50%.
- 20 points if you rank within the top 50% - 70%.
- 10 points if you rank within the top 70% - 100%.

Important Rules

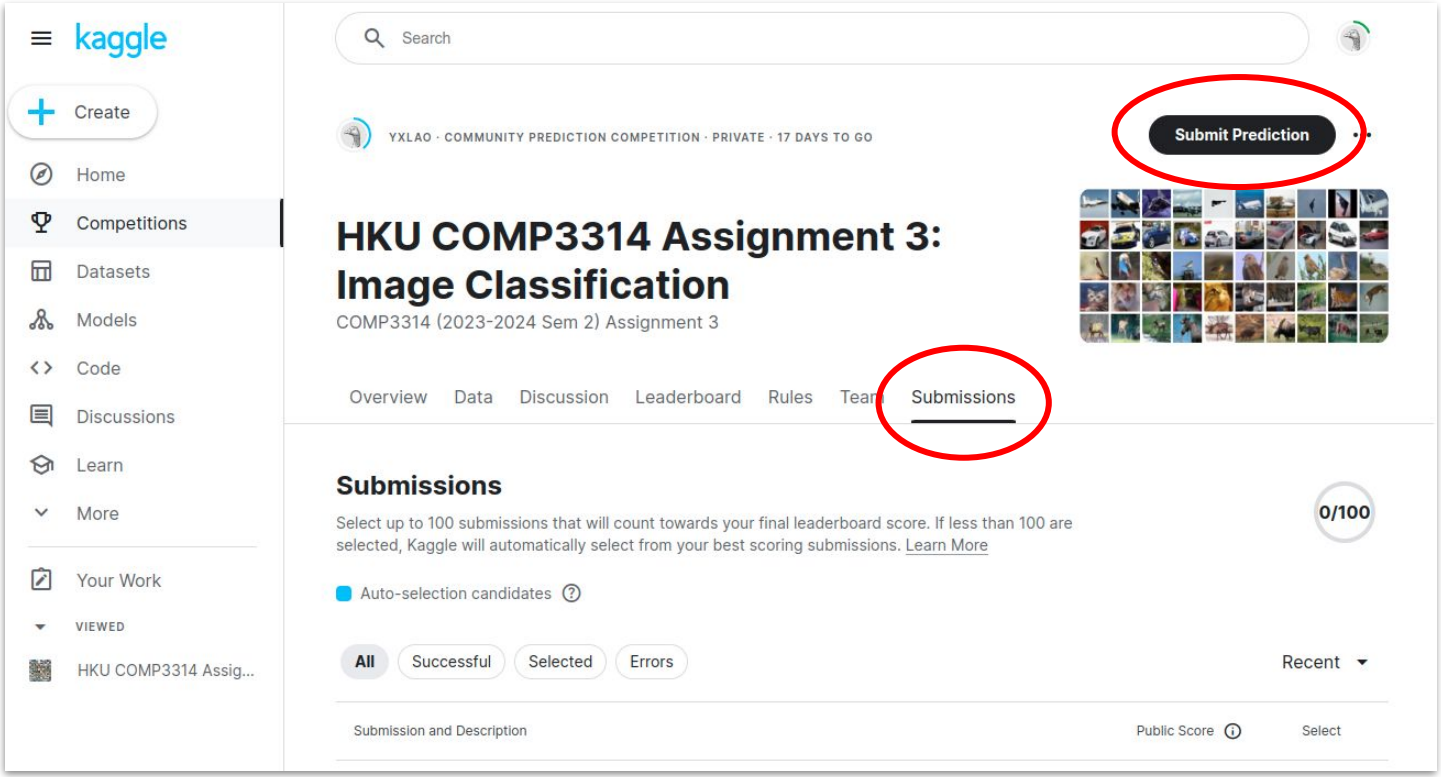
- Neural networks (CNNs, RNNs, Transformers, etc.) are not allowed.
- Additional datasets or pre-trained models can not be utilized.
- Plagiarism of code or prediction results from external sources is strictly prohibited.

Discussion policy (bonus!)

For questions and discussions, please post on **Kaggle discussion board** so that your classmates can also benefit. Unless there are privacy concerns, public discussions are preferred over emails to encourage collaboration.

To encourage class collaboration, **the top three most active student respondents (who reply to questions) will receive a bonus of 5 points** (the maximum score remains 100 points). You may only discuss topics related to this assignment. Please note that directly posting answers is not allowed.

Leaderboard submission



Timeline

- Moodle submission: Apr 21, 23:59
- Kaggle submission: Apr 22, 00:05
- Private leaderboard result will be released afterwards.

Recommendations

Form Your Team
Start Early
Have Fun

Q&A