Project 1 Argument Impact Classification

MSBD6000H, Spring 2021

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Notes

- It is a team project with **at most 4** members (finish the form before 16 March (Tue.)).
- Kaggle submission due: 23:59, 2 April (Fri.).
- Report and code due: 23:59, 11 April (Sun.)
- **No late submission is accepted.**

1 Content

Project 1 is related to Assignment 1 & 2. The task is similar to Assignment 2, and both of them aim to classify texts. However, Assignment 2 is to classify the sentiment while this project is to determine the argument impact.

Figure 1 shows an argument tree, which consists of arguments (e.g., **Thesis**, **S1**, **S2**, **O1**, **O2**, **S3**), stances (including *Support* and *Oppose*), and impact labels (including *Impactful*, *Medium Impact*, and *Not Impactful*). Every argument is located in an argument tree for a controversial topic, and it has some correlations between its parent except the root. **Your job is to predict the impact of a text**.

2 Dataset

We provide training, validation, and test data for you to train classifiers. Data are organized as five fields illustrated in Figure 2. The unique **id** is coupled with a training/validation/test example. The **text** is the argument that you need to predict. The **context** is a path from the root to the parent of **text** in the argument tree, and the **stance_label** corresponds to the stances between two adjacent arguments in the path or the parent and the text (*NULL* is used to pad for the root). The **impact_label** includes *IMPACTFUL*, *MEDIUM_IMPACT*, *NOT_IMPACTFUL* in training and validation data, and this field is filled with *UNKNOWN* in test data. That is, this task is a 3-way classification problem.

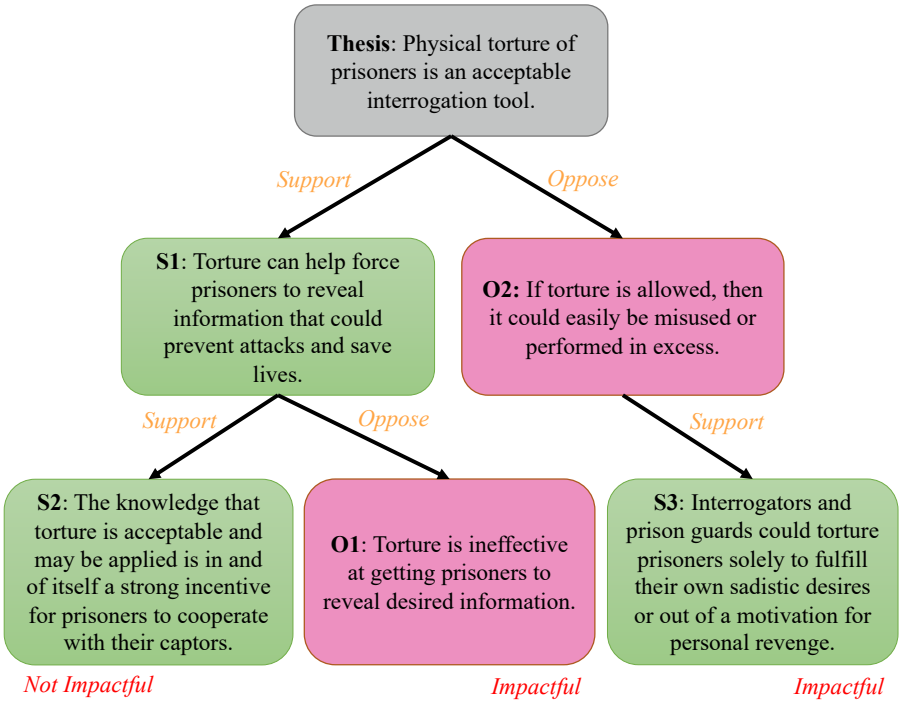

Figure 1: Example of an argument tree. Stances and impact labels are annotated in orange and red, respectively.

Out[5]:

	id	text	context	stance_label	impact_label
10	train_10	We could take advantage of this occasion to cr...	['We should have a single global language.']	['NULL', 'SUPPORT']	IMPACTFUL
11	train_11	Standing up to President Trump and refusing to...	['Democrats should not cooperate with Donald T...	['NULL', 'OPPOSE', 'OPPOSE', 'OPPOSE', 'OPPOSE...	MEDIUM_IMPACT
12	train_12	Society censors what it finds harmful to the p...	['Gender restrictions on nipple showing in the...	['NULL', 'SUPPORT', 'SUPPORT']	IMPACTFUL
13	train_13	The legalisation of drugs could lead to better...	['All drugs should be legalised.', 'The legali...	['NULL', 'SUPPORT', 'SUPPORT']	IMPACTFUL
14	train_14	Since Facebook and Twitter are legally registe...	['Facebook and Twitter should remove accounts ...	['NULL', 'OPPOSE', 'SUPPORT', 'OPPOSE', 'OPPOS...	NOT_IMPACTFUL

Figure 2: Data fields: id, text, context, stance_label, and impact_label

3 Classification

With training data, you can train classifiers with different algorithms. Then given a new coming example, the classifier should be able to predict the impact of the text. We have introduced how to preprocess data in Assignment 1 & 2, how to analyze data and build a Naive Bayes classifier in Assignment 2. You can use those materials to get started. After the submission of that classifier, you will be able to get 60 points of the classifier. Then you can think about how to improve, e.g., changing features, adding contexts, tuning hyper-parameters, and changing classifiers, etc.

The following items provide you some guidelines of the project:

- You should join ML4NLP-Argument Impact Classification and evaluate your models

online. Your team name should not be offensive or discriminatory.

- We placed several baselines on the leaderboard. If you can reach any of baselines, you can get attached scores after submitting your code and report.
- You're suggested to finish this project in a team. But plagiarism is not allowed.
- You can only make three submissions every day.
- You can use any programming language you like and any third-party libraries.
- We evaluate your model based on Macro-F1:

$$\text{Macro-F1} = \frac{1}{3} \cdot (\text{F1}_{\text{IMPACTFUL}} + \text{F1}_{\text{MEDIUM\_IMPACT}} + \text{F1}_{\text{NOT\_IMPACTFUL}})$$

4 Submission

Each team needs to submit two files besides the submission on kaggle: code of the entire pipeline used in project and one report to briefly describe your algorithm.

In the report, you need to include the following points (in one or two pages):

- Your team name, names & student_ids of team members, your final rank and scores on the leaderboard, and the display name of your kaggle account. (10%)
- What algorithms are you using in this project? (30%)
- How do you conduct parameter tuning? Is there any difference between your local validation and online results? (30%)
- How to run your code? Which third-party libraries are you using? (30%)

5 Grading Rubrics

Grade	Classifier (80%)	Report (20%)	Code (MUST)
60%	baseline 1	Submission of the report	Submission of the code
80%	baseline 2	Showing algorithms you used	
90%	baseline 3	Detailed explanation of algorithms	
100%	baseline 4	Very detailed and insightful analysis	

Table 1: Grading Rubrics.