CS445 Group Projects

A. Project Selection

In this project, you are asked to choose one of the six SemEval tasks. SemEval is a workshop held in conjunction with the EMNLP conference (a high-ranking NLP conference). Research groups release tasks with datasets, and teams compete to solve them best. Since these tasks are open-ended problems, a novel approach and a system with strong performance can lead to a published paper. We selected six tasks from this year that are interesting, and the dataset is easy to access. Some of the tasks have subtasks. We will provide the subtask you have to do. In addition to this subtask, you can choose to implement other subtasks as well. Consider this especially if the workload is not evenly distributed among team members.

1. **Task 2: Predicting Variation in Emotional Valence and Arousal over Time from Ecological Essays**
    a. Subtask 1 is mandatory. Others are optional.
2. **Task 3: SemEval-2026 Task Proposal: Dimensional Aspect-Based Sentiment Analysis (DimABSA)**
    a. Task A Subtask 1 is mandatory. Others are optional.
3. **Task 5: Rating Plausibility of Word Senses in Ambiguous Sentences through Narrative Understanding**
    a. No subtasks here so you need to complete the main task.
4. **Task 6: CLARITY - Unmasking Political Question Evasions**
    a. Task 1 is mandatory. Others are optional.
5. **Task 9: Detecting Multilingual, Multicultural and Multievent Online Polarization**
    a. Subtask 1 is mandatory. Others are optional.
6. **Task 13: Detecting Machine-Generated Code with Multiple Programming Languages, Generators, and Application Scenarios**
    a. Subtask A is mandatory. Others are optional.

You will create a system to solve your chosen task using relevant literature. You can access the group sheet here. Please write your group number in the row corresponding to your chosen task in the Project Subjects tab. There is a quota for the number of groups that can take each project, and it is filled on a first-come, first-served basis. You can only declare your project after your group is fully formed.

B. Curating a dataset

The challenge owners give the dataset. However, you can find other datasets in addition to that if you think it will help your system. You are free to curate your dataset however you like. You can also use data augmentation methods to increase your dataset.
The challenge datasets may include training/validation sets. However, they usually hide the test set and evaluate the system themselves. Since we cannot access the test dataset, you can use methods such as cross-validation to avoid overfitting. However, since some of you might compete for real, you can use all of the data without having apparent test data. If the task owners release their test data, do not use it for improvement; use it only to evaluate the performance of your system. If you are going to split the dataset, you can use a predetermined seed for splitting - this ensures the same split each time you run your code.

C. Relevant Literature

To solve the task you have chosen, you need to conduct a literature search. This is the initial step of the project: to review the methodologies researchers have used to solve the problem.

- You can select one or a few papers to follow and implement them. Discuss why you have chosen these papers.
- You can also create your novel approach to solve the task, but you still have to show why you have chosen this particular approach. This requires a small discussion of the existing methods in the literature.
- Tip: You can check the recent works of the task organizers. They might already be working on this specific task and might have papers out.

Suitable Venues

You are only allowed to use papers from the following venues. If you find a really good paper that is not on the list but you want to implement it, please contact Dilara Keküllüoğlu and explain the reasoning behind your choice.

- SCI-Expanded list of journals
- ACL
- EMNLP
- NeurIPS

- CoNLL
- NAACL
- EACL
- COLING
- LREC

Use of Existing Codes

You can use any external libraries or open-source codes, e.g., from huggingface/kaggle, to implement your approach. If you are using open-source code, clearly show your contribution. If you use an existing code without disclosing the source or passing it off as your own code, that would count as plagiarism.
We will consider your system's performance in the evaluation; however, your contribution is more important. You should not only take some code and submit its results. You should try various approaches, including your own. **Your novel contribution to the project is more important than having better F1 scores.**

D. Report Results

To relay your results, you will have a presentation and a project report. The presentation should be reflective of your project report. In the project report, you are asked to have the following sections:

1. Introduction

You should give a task description. This is an introduction to the problem, the chosen methodology, and the most important results. The introduction should give a quick overview of your project.

2. Related Work

A small literature review about related work to your task: cite at least five papers that you have found. Give in-text citations. You do not need to implement all of it, but you should do a brief review of what each paper did.

3. Methodology

What dataset are you using? Which papers have you chosen to implement? Explain why you use these specific datasets and papers.
How do you train your system? Give enough detail that people can replicate your approach.

4. Results

Give the results of your system on the task. Use plots/graphs to show essential findings. Give a confusion matrix for the classification. Please give F1-score, macro precision, and macro recall. You will also give precision-recall curves. The tasks might have specialized metrics. In that case, report your results using these metrics as well. Compare it to the state-of-the-art as well as the literature you are using in your approach. Give details of the experiment. You will also write about any other methods you have tried, even if you decide not to use them in the end. Show your journey.

5. Discussion

Please discuss these points in this section:

- The selection of your dataset and its impact on system performance.
- The selection of your particular approach - what are the advantages/disadvantages of your method?
- Comparison of your results to the existing systems - discuss the results that have been reported in the Results section.
- Limitations of the proposed system.
- Potential improvements on the system if you had more time and resources.

6. Conclusion

Give another quick overview of the problem and list the most important results/discussion points to conclude the report.

7. Individual Contributions

Write a small part on who did what part in the project. We expect team members to divide the work equally. Please divide the tasks accordingly.

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The reports should be no more than eight (8) pages (excluding references and appendices). You can add extra results/plots to the appendix if you cannot fit them into eight pages. Make sure to include the most important results in the main report and place the extras in the appendix.

Milestone Reports

For the milestone report, please use the following outline.

1. Introduction

Give an introduction to the task you have chosen. Follow with a summary of what you have done so far.

2. Dataset Selection

What datasets are you using? Give details on why you have selected these particular datasets.

3. Approach Plan

What is the progress on the methodology decision? What are some of the main papers from which you are getting inspiration? Cite at least three of them. Have you finalized your approach, or what else will you consider to finalize your approach?

4. Next Steps

What are your next steps? How did you divide the workload between the team members? Who will do what?

Milestone reports should be no more than four (4) pages (excluding references and appendices) and follow the outline given above.

E. Deliverables

There will be one milestone presentation and one final presentation. You need to submit reports along with the presentations. You will also submit your well-commented working system (Jupyter notebook and any files required to run your code) as part of the final submission.

Milestone presentations (24th November)

For the milestone, you are asked to submit a project report detailing the dataset selection. At this point, I expect you to have the dataset ready, including the extra ones you might use. You should also have a draft of your methodology plan and a list of who will do what. However, you can change your approach after the presentation if it is better for the project. (Submission for the project report - 24th November)

You are also asked to give a 5-minute presentation detailing your project and approaches, followed by a 5-minute Q&A (Total 10 minutes). You will schedule this with your assigned TA. You can select one person to do the presentation for the milestone, but we will ask questions to everyone. These question answers will count as your individual score. All of your team members must attend the presentation.

Deliverable: 5-minute presentation + milestone report

Final presentations (5th January)

For the finals, you will submit your project report and a Jupyter notebook with your well-commented code on the 5th of January. The project report should have all the components detailed in the “Report Results” section.

You will give a 25-minute presentation detailing your project and approaches, followed by a 5-minute Q&A (Total 30 minutes). You will schedule this with your assigned TA. Everyone will present their contribution in the project during the presentation. Aside from the group score, you will receive an individual score based on your contributions and the quality of your answers to the questions. All of your team members must attend the presentation.

Deliverable: A 25-minute presentation + project report + project code and files (Jupyter notebook and any files needed to run your code)

Please compress your reports and project code into a single file while submitting for the final submission.

F. Grading

- 15% from the milestone presentation and report
- 35% from your final group report and code
- 10% - submission of your project to the task website
- 40% from your individual presentation scores + question answers + your contribution (10% from milestone + 30% from finals)

G. Graduate Students

Graduate students can choose any of the default projects or give their own proposals about a project related to NLP. Please bring your idea to Dilara Keküllüoğlu for approval. The graduate team presentations will be delivered directly to Dilara Keküllüoğlu.

H. AI Use

You are allowed to use AI systems to spell-check your English and improve the flow of your report.

You are **NOT** allowed to write your report from scratch using an AI system. Write the report first, and then improve on it with AI on your wording and flow.

You are **NOT** allowed to use AI systems to write your code in whole. However, you can use AI systems as detailed in the syllabus. Write your own code and detail which parts were taken from where you are using another person's code.