HIERARCHICAL MULTI-LABEL NARRATIVE CLASSIFICATION ON ONLINE NEWS

 # Team 21

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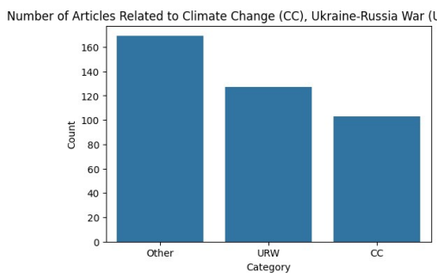
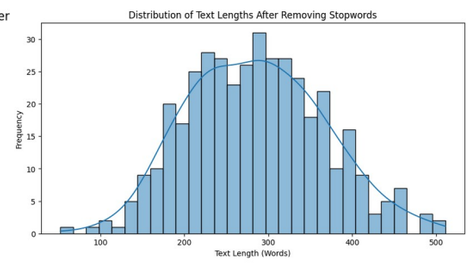
I. PROBLEM STATEMENT

The goal is to automatically classify narratives from multilingual online news, focusing on identifying and categorizing narratives to mitigate disinformation and manipulation during major crisis events.

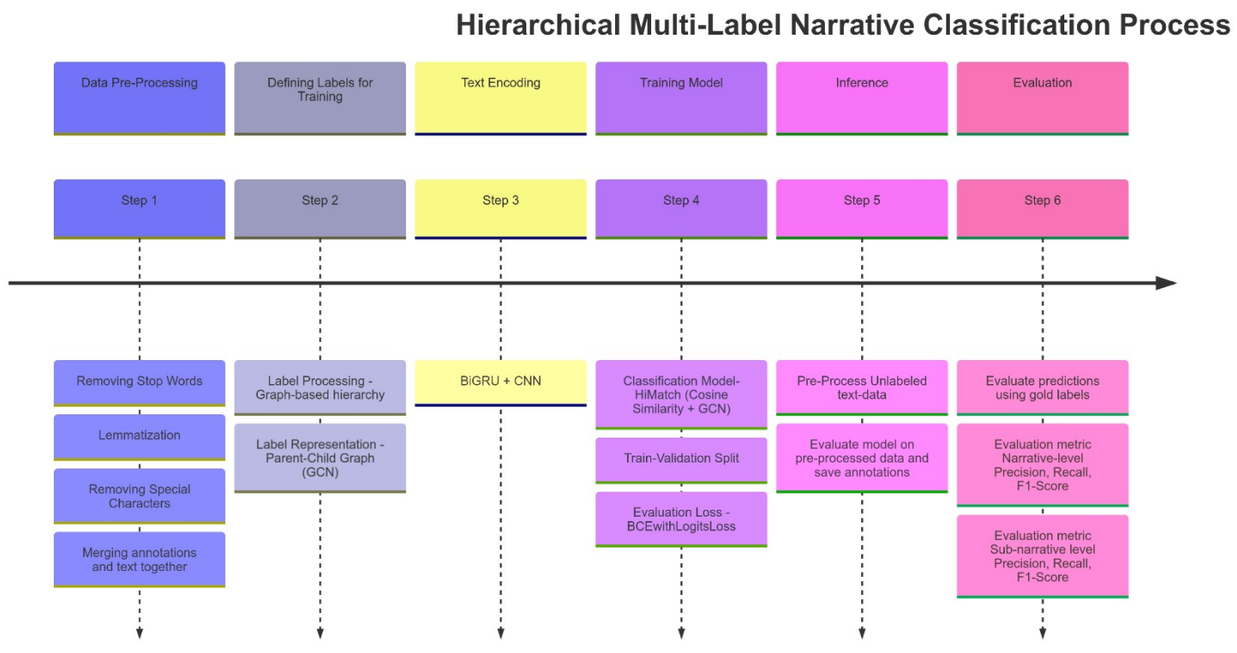
II. DATASET ANALYSIS

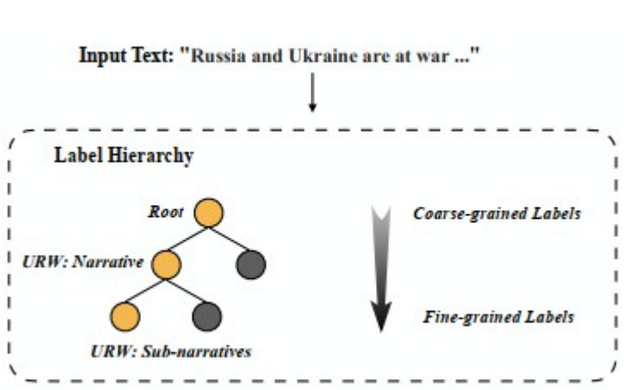
- **The dataset contains three fields: article_id, narrative labels, and sub-narrative labels.**
- **Articles are assigned coarse-level narrative labels:**
  "CC" : Climate Change
  "URW": Ukraine-Russia War
  and corresponding fine-level sub-narrative labels. If no sub-narrative fits, "Other" is used.



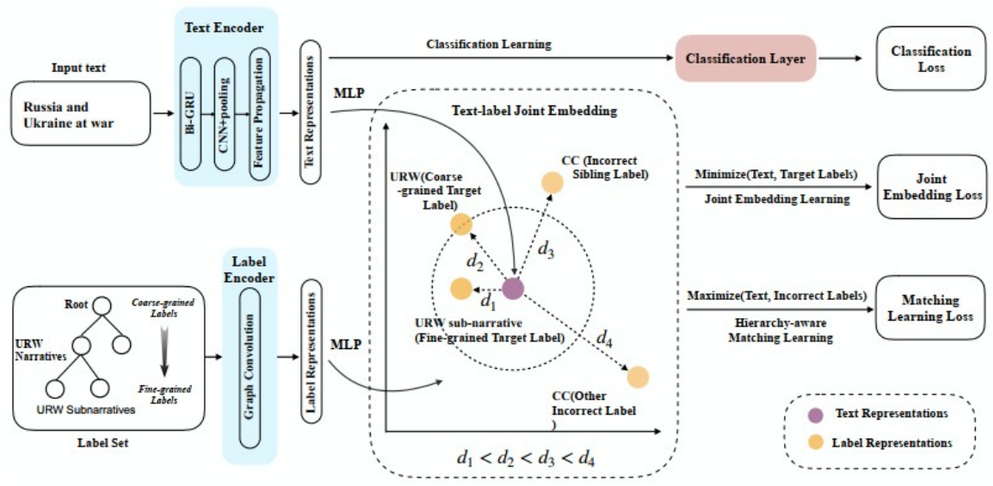


III. APPROACH



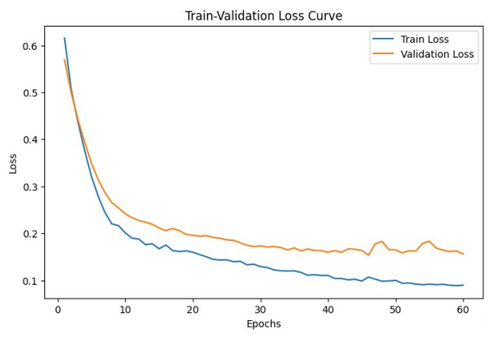


Label Hierarchy



Architecture of Model

IV. RESULTS



- **For model evaluation common evaluation metrics were used: Precision, Recall, and F1-Score. Both evaluated at a narrative and sub-narrative level.**

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Model Evaluation Results:
Narrative-Level Precision: 0.0623, Recall: 0.1610, F1-score: 0.0667
Sub-Narrative-Level Precision: 0.0780, Recall: 0.1383, F1-score: 0.0694
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Narrative Classification Report:

	precision	recall	f1-score	support
CC: Climate change is beneficial	0.00	0.00	0.00	1
CC: Controversy about green technologies	0.00	0.00	0.00	2
CC: Criticism of climate movement	0.00	0.00	0.00	8
CC: Criticism of climate policies	0.03	0.33	0.06	3
CC: Criticism of institutions and authorities	0.00	0.00	0.00	8
CC: Downplaying climate change	0.00	0.00	0.00	2
CC: Green policies are geopolitical instruments	0.00	0.00	0.00	3
CC: Hidden plots by secret schemes of powerful groups	0.09	0.50	0.15	4
CC: Questioning the measurements and science	0.33	0.50	0.40	4
Other	0.00	0.00	0.00	11
URW: Amplifying war-related fears	0.00	0.00	0.00	3
URW: Blaming the war on others rather than the invader	0.08	0.17	0.11	6
URW: Discrediting Ukraine	0.15	0.29	0.20	7
URW: Discrediting the West, Diplomacy	0.67	0.22	0.33	9
URW: Distrust towards Media	0.00	0.00	0.00	4
URW: Negative Consequences for the West	0.00	0.00	0.00	1
URW: Overpraising the West	0.00	0.00	0.00	1
URW: Praise of Russia	0.00	0.00	0.00	2
URW: Russia is the Victim	0.00	0.00	0.00	2
URW: Speculating war outcomes	0.00	0.00	0.00	4

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# Example Usage
text_sample = “climate change is something to worry about in future"

Narrative-Level Predictions:
  - CC: Criticism of climate policies
  - CC: Hidden plots by secret schemes of powerful groups
Sub-Narrative-Level Predictions:
  - CC: Hidden plots by secret schemes of powerful groups: Blaming global elites
  - CC: Criticism of climate policies: Climate policies have negative impact on the economy
  - CC: Criticism of climate policies: Other
  - CC: Hidden plots by secret schemes of powerful groups: Climate agenda has hidden motives
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V. CONCLUSION & FUTURE WORK

- **The poor evaluation metrics score is primarily due to training on very few amount of text datasets (399) as a result failed to learn the semantic meaning of text properly.**
- **In future, more focus will be given on Data Augmentation: to generate lot of synthetic data similar to training data so that the model can learn the semantics of the text more properly.**
  i. **Can be done via generating text through paraphrasing and synonyms**
  ii. **Converting other language text files to English carefully**
- **Also, we can explore out other methods for other languages. This method was implemented on Hindi text files too but it failed to predict any results. Hence, a different approach was used for it (pre-trained BERT Transformer for hindi language)**

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2) Conneau, A., & Lample, G. (2019). Cross-lingual Language Model Pretraining. arXiv preprint arXiv:1911.02116.
3) SemEval 2025 Task 10. Propaganda Techniques in Multilingual Media. https://propaganda.math.unipd.it/semeval2025task10/index.html