Table 1: Confusion matrices attackVector

	N	**A**	**L**	**P**	**N**	**A**	**L**	**P**	**N**	**A**	**L**	**P**	**N**	**A**	**L**
N	0.4	0.21	0.19	0.2	0.4	0.2	0.2	0.2	0.39	0.2	0.2	0.21	0.39	0.21	0.2
A	0.2	0.4	0.2	0.2	0.2	0.41	0.2	0.19	0.2	0.4	0.2	0.2	0.2	0.39	0.2
L	0.2	0.2	0.4	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.3
P	0.2	0.2	0.2	0.39	0.2	0.21	0.2	0.39	0.2	0.19	0.21	0.4	0.19	0.2	0.2

Table 2: Confusion matrices attackComplexity

	L	**H**	**L**	**H**	**L**	**H**	**L**	**H**
L	0.66	0.34	0.67	0.33	0.67	0.33	0.66	0.34
H	0.34	0.66	0.34	0.66	0.33	0.67	0.33	0.67

CVSS - Vulnerability Score Prediction
Supervisor(s): David Eyers Veronica Liesaputra

Table 1

	N	A	L	P
N	0.4	0.21	0.19	0.2
A	0.2	0.4	0.2	0.2
L	0.2	0.2	0.4	0.2
P	0.2	0.2	0.2	0.39

Table 2

	N	A	L	P
N	0.4	0.2	0.2	0.2
A	0.2	0.41	0.2	0.19
L	0.2	0.2	0.4	0.2
P	0.2	0.21	0.2	0.39

Table 3

	N	A	L	P
N	0.39	0.2	0.2	0.21
A	0.2	0.4	0.2	0.2
L	0.2	0.2	0.4	0.2
P	0.2	0.19	0.21	0.4

Table 4

	N	A	L	P
N	0.39	0.21	0.2	0.2
A	0.2	0.39	0.2	0.21
L	0.2	0.2	0.39	0.2
P	0.19	0.2	0.2	0.4

Aims The primary aim of this research is to develop sophisticated predictive models capable of accurately determining the severity levels of security threats based on the CVSS. This will involve a comprehensive review and comparison of current datasets, with a focus on leveraging natural language descriptions provided in security vulnerability reports. The project intends to utilize advanced transformer-based models to achieve this goal, contributing to the field of cybersecurity by enhancing the precision of threat severity

Table 3: Confusion matrices privilegesRequired

	N	**L**	**H**	**N**	**L**	**H**	**N**	**L**	**H**	**N**	**L**	**H**
N	0.5	0.25	0.25	0.5	0.26	0.24	0.51	0.25	0.24	0.51	0.24	0.25
L	0.24	0.51	0.25	0.26	0.5	0.25	0.25	0.5	0.25	0.26	0.5	0.25
H	0.25	0.24	0.51	0.25	0.26	0.49	0.24	0.25	0.51	0.25	0.25	0.5

Table 4: Confusion matrices userInteraction

	N	**R**	**N**	**R**	**N**	**R**	**N**	**R**
N	0.67	0.33	0.67	0.33	0.68	0.32	0.67	0.33
R	0.34	0.66	0.33	0.67	0.34	0.66	0.33	0.67

Table 5: Confusion matrices scope

	U	**C**	**U**	**C**	**U**	**C**	**U**	**C**
U	0.68	0.32	0.66	0.34	0.66	0.34	0.66	0.34
C	0.34	0.66	0.33	0.67	0.34	0.66	0.34	0.66

Table 6: Confusion matrices confidentialityImpact

	N	**L**	**H**	**N**	**L**	**H**	**N**	**L**	**H**	**N**	**L**	**H**
N	0.5	0.25	0.25	0.5	0.25	0.25	0.5	0.26	0.24	0.5	0.26	0.24
L	0.25	0.5	0.25	0.26	0.49	0.25	0.25	0.5	0.25	0.25	0.49	0.26
H	0.25	0.25	0.51	0.25	0.25	0.5	0.25	0.24	0.5	0.25	0.26	0.5

Table 7: Confusion matrices integrityImpact

	N	**L**	**H**	**N**	**L**	**H**	**N**	**L**	**H**	**N**	**L**	**H**
N	0.51	0.25	0.25	0.49	0.25	0.26	0.5	0.26	0.25	0.49	0.25	0.26
L	0.25	0.5	0.25	0.25	0.5	0.25	0.24	0.51	0.25	0.25	0.5	0.25
H	0.25	0.25	0.49	0.25	0.25	0.49	0.25	0.24	0.51	0.25	0.24	0.5

Table 8: Confusion matrices availabilityImpact

	N	**L**	**H**	**N**	**L**	**H**	**N**	**L**	**H**	**N**	**L**	**H**
N	0.5	0.25	0.24	0.5	0.25	0.24	0.5	0.25	0.25	0.5	0.25	0.25
L	0.25	0.5	0.25	0.24	0.51	0.25	0.25	0.5	0.25	0.25	0.5	0.25
H	0.25	0.25	0.5	0.25	0.25	0.5	0.25	0.24	0.51	0.25	0.25	0.5

assessments.

Objectives

- Conduct a comprehensive literature review to understand the current landscape of CVSS score prediction and the methodologies employed in existing models.
- Replicate successful methodologies to verify the accuracy of CVSS score databases, with a particular focus on alignment with recent CVSS standards and datasets.
- Explore opportunities for enhancing existing methodologies, including the investigation of data amalgamation from multiple databases to ascertain improvements in model performance.
- Experiment with various model architectures to identify the most effective approach in terms of predictive accuracy, specifically focusing on metrics such as the F1 score and balanced accuracy.

Timeline

- March: Initiate the project with a literature review, system environment setup, and resource gathering.
- March-April: Replicate existing methodologies to validate findings and ensure alignment with current standards.
- May-June: Generate preliminary results and compile an interim report detailing findings and methodologies.
- July-August: Conduct experiments with various data source combinations and model architectures to identify optimal configurations.
- September-October: Finalize experimental work, analyze results, and prepare the comprehensive final report.