NLP Project Schedule - Phase 2 - Period 5

Maastricht University

Date Format	ddd m/dd/yy	
Project Start Date	4/2/2025 (Wednesday)	
Project Lead	Noam Favier	
Display Week	1	

Week 1 31 Mar 2025 · **Week 2** 7 Apr 2025 · **Week 3** 14 Apr 2025 · **Week 4** 21 Apr 2025 · **Week 5** 28 Apr 2025 · **Week 6** 5 May 2025 · **Week 7** 12 May 2025 · **Week 8** 19 May 2025

Midway evaluation

WBS	TASK	START	END	DAYS	% DONE	WHO ?
1	**Database & Data Pipeline Integratoin**					
1.1	**Finalize and Implement the Email Database**					
1.1.1	Design the core SQLite schema for emails and metadata	Wed 4/02/25	Sun 4/06/25	5	30%	Esteban
1.1.2	Build C++ bindings for DB (pybind11)	Wed 4/02/25	Tue 4/08/25	7	50%	Noam
1.1.3	Implement DB schema in code and validate it	Mon 4/07/25	Fri 4/11/25	5	0%	Esteban
1.1.4	Stress test DB with large email volume	Mon 4/14/25	Fri 4/18/25	5	0%	Esteban
1.2	**Dataset Processing System**					
1.2.1	Preprocess Enron dataset for NLP tasks	Wed 4/02/25	Tue 4/08/25	7	10%	Jiang
1.2.2	Add multithreaded loading for >10k emails	Wed 4/09/25	Tue 4/15/25	7	0%	Jiang
1.2.3	CLI/GUI dataset import interface	Wed 4/09/25	Wed 4/16/25	8	0%	Noam
1.2.4	Implement anonymization filter for personal data	Wed 4/16/25	Tue 4/22/25	7	0%	Jiang
1.2.5	Extend support for Kaggle/UCI datasets	Mon 4/21/25	Fri 4/25/25	5	0%	Esteban
2	**Natural Language Processing & Classification**					
2.1	**Email Category Classification System**					
2.1.1	Migrate baseline to RoBERTa/BERT	Wed 4/02/25	Tue 4/08/25	7	10%	Giorgos
2.1.2	Benchmark vs hybrid model (accuracy/speed)	Wed 4/09/25	Tue 4/15/25	7	0%	Giorgos
2.1.3	Add confidence thresholds via config	Wed 4/16/25	Tue 4/22/25	7	0%	Giorgos
2.1.4	Serialize model predictions into DB	Wed 4/23/25	Tue 4/29/25	7	0%	Jiang
2.2	**Named Entity Recognition Integration**					
2.2.1	Integrate HuggingFace NER pipeline	Wed 4/09/25	Tue 4/15/25	7	0%	Remi
2.2.2	Tagging output mapping and entity types	Mon 4/28/25	Fri 5/02/25	5	0%	Esteban
2.2.3	Visualize NER tags in GUI	Wed 4/30/25	Tue 5/06/25	7	0%	Octavian
2.2.4	Store and index entities in DB	Tue 5/06/25	Tue 5/13/25	8	0%	Jiang
2.3	**Emotion & Tone Detection**					
2.3.1	Replace TextBlob with VADER/FinBERT	Wed 4/02/25	Wed 4/09/25	8	5%	Remi
2.3.2	Add tone classification (casual, formal, sarcasm)	Thu 4/10/25	Fri 4/18/25	9	0%	Remi
2.3.3	Integrate tone into reply and GUI	Wed 4/30/25	Tue 5/06/25	7	0%	Octavian
3	**Smart Response & Summarization** -					
3.1	**Summarization Engine**					
3.1.1	Build logic to choose best summarization method	Mon 4/07/25	Fri 4/11/25	5	0%	Giorgos
3.1.2	Implement extractive summarization (TextRank or BERTSum)	Wed 4/09/25	Tue 4/15/25	7	0%	Noam
3.1.3	Integrate summarization into pipeline output	Wed 4/16/25	Tue 4/22/25	7	0%	Noam
3.1.4	Add summary method selector (based on email length)	Wed 4/23/25	Tue 4/29/25	7	0%	Giorgos
3.2	**Smart Reply Generator**					
3.2.1	Add urgency/tone awareness to reply logic	Mon 4/21/25	Sun 4/27/25	7	0%	Remi
3.2.2	Implement thread-based context memory	Mon 4/28/25	Mon 5/05/25	8	0%	Remi
3.2.3	Fine-tune small LLM for reply suggestions	Wed 4/30/25	Tue 5/06/25	7	0%	Giorgos
3.2.4	Connect smart reply to GUI approve/edit UI	Wed 5/07/25	Tue 5/13/25	7	0%	Octavian
4	**Backend Logic & API**					
4.1	**Modular Pipeline & Logic System**					
4.1.1	Modularize main flow (Loader --> Classifier --> Summary)	Wed 4/02/25	Tue 4/08/25	7	20%	Octavian
4.1.2	Add config system for thresholds	Wed 4/23/25	Tue 4/29/25	7	0%	Noam
4.1.3	Add async processing queue (multiprocessing/Celery)	Wed 4/30/25	Tue 5/06/25	7	0%	Noam
4.2	**REST API for Predictions**					
4.2.1	Add endpoints for predictions and metadata search	Wed 4/30/25	Tue 5/06/25	7	0%	Jiang
4.2.2	Create backend API (Flask or FastAPI)	Wed 5/07/25	Tue 5/13/25	7	0%	JIang
4.2.3	Add endpoints for metadata search	Wed 5/07/25	Tue 5/13/25	7	0%	Esteban
5	**Desktop GUI – C++ Interface**					
5.1	**Interface Design & Tagging**					
5.1.1	Design inbox layout and mock UI	Wed 4/02/25	Fri 4/11/25	10	30%	Octavian
5.1.2	Design tags for urgency, tone, and category	Mon 4/14/25	Mon 4/21/25	8	0%	Octavian
5.1.3	Implement Qt layout with dummy data	Wed 5/07/25	Tue 5/13/25	7	0%	Noam
5.2	**GUI Logic & Integration**					
5.2.1	Display email + model outputs in GUI	Mon 5/05/25	Fri 5/09/25	5	0%	Noam
5.2.2	Connect GUI with backend predictions	Wed 5/07/25	Tue 5/13/25	7	0%	Giorgos
5.3	**Smart User Interactions**					
5.3.1	Add smart reply approve/edit dropdown	Tue 4/22/25	Tue 4/29/25	8	0%	Octavian
5.3.2	Build inbox analytics view	Mon 5/05/25	Fri 5/09/25	5	0%	Esteban
5.3.3	Add filters and search bar	Tue 5/06/25	Tue 5/13/25	8	0%	Remi

Milestones — M1 Database Schema & Initial Setup complete · M2 Cor ML models Integrated · M3 NLP pipeline Working · M4 Backend API & Processing Complete · M5 Complete System integration & Testing