

Project Name	Knowledge Graph Extractor (Hella)
Online team meeting	https://fau.zoom-x.de/j/67111681334?pwd=LzdBM3lXeXhPTETWL3lGUUnFqbTAzZz09
Production system (if any)	...
Test system (if any)	...
GitHub repository	https://github.com/amosproj/amos2024ss05-knowledge-graph-extractor
GitHub feature board	https://github.com/orgs/amosproj/projects/56/views/2
GitHub impediments backlog	...
Team T-shirt (white)	...
Team T-shirt (black)	https://www.shirtinator.de/s/pYjJO4qcR3u9lSKbgQdyiw
Additional materials	...
Team mailing list	oss-amos-proj5@lists.fau.de
Project notes	https://docs.google.com/document/d/1OlcUP4HQkkPC0CHgqSkg_3PN46-r5dKddH-FLOZh-uo/edit
Questions for Industry Partner	https://docs.google.com/document/d/1DsWOP9P-WQFEtSQg0-_vFGQ1AePdJhCbIhrcKZ2X8oE/edit

Last Name	First Name	GitHub User Name	Email Address
Kuo	Irene	kuoirene	kuo.irene.y@gmail.com
Greiner	Rebecca	RebeccaGreiner	rebecca.greiner@fau.de
Rauscher	Nikolas	nikolas-rauscher	nikolas.rauscher@gmail.com
Ozseker	Irem	iremozs	iremozseker@gmail.com
Müller	Hanna	hanna-212	hanna.mueller@fau.de
Fabian Borges	Filipe Alexandre	borges-filipe	filipe.af.borges@gmail.com
Kotini	Kristi	kristikotini	kristi.kotini@fau.de
Bhesaniya	Yash	yashbhesaniya	yashbhesaniya1999@gmail.com
Ramesh	Sandeepkumar	Sandeep-kumar-Ramesh	sandeepkumar.ramesh@fau.de
Hoffmann	Florian	get4flo	f.hoffmann@campus.tu-berlin.de

#	Meeting Day	Product Owners	Software Developer	Release Manager	Scrum Master	Comment
1	2024-04-17	Irene Kuo, Rebecca Greiner	Everyone else	n/a	Hanna Müller	
2	2024-04-24	Irene Kuo, Rebecca Greiner	Everyone else	n/a	Hanna Müller	
3	2024-05-01	Irene Kuo, Rebecca Greiner	Everyone else	n/a	Hanna Müller	
4	2024-05-08	Irene Kuo, Rebecca Greiner	Everyone else	n/a	Hanna Müller	
5	2024-05-15	Irene Kuo, Rebecca Greiner	Everyone else	Kristi Kotini	Hanna Müller	
6	2024-05-22	Irene Kuo, Rebecca Greiner	Everyone else	Nikolas Rauscher	Hanna Müller	
7	2024-05-29	Irene Kuo, Rebecca Greiner	Everyone else	Sandeepkumar Ramesh	Hanna Müller	Mid-term due
8	2024-06-05	Irene Kuo, Rebecca Greiner	Everyone else	Yash Bhesaniya	Hanna Müller	
9	2024-06-12	Irene Kuo, Rebecca Greiner	Everyone else	Florian Hoffmann	Hanna Müller	
10	2024-06-19	Irene Kuo, Rebecca Greiner	Everyone else	Filipe Borges	Hanna Müller	
11	2024-06-26	Irene Kuo, Rebecca Greiner	Everyone else	Kristi Kotini	Hanna Müller	
12	2024-07-03	Irene Kuo, Rebecca Greiner	Everyone else	Irem Ozseker	Hanna Müller	
13	2024-07-10	Irene Kuo, Rebecca Greiner	Everyone else	Yash Bhesaniya	Hanna Müller	
14	2024-07-17	Irene Kuo, Rebecca Greiner	Everyone else	Sandeepkumar Ramesh	Hanna Müller	Demo day!
15	2024-07-24	Irene Kuo, Rebecca Greiner	Everyone else	n/a	Hanna Müller	Retrospective

Goals	1. Finish tasks for each sprint on time.	
Meeting norms	1. Be on time! (send a msg in WhatsApp if you'll be late) 2. Show up (unless deathly sick) 3. Try to participate actively	
Working norms	1. Good comments/documentation of work so everyone can follow easily. 2. Don't do everything the day before it's due. 3. Reach out if you have questions, help each other out!	
Coordination norms	1. Make it clear on the feature board what you're working on. 2. If you're overwhelmed, communicate so we can reassign tasks.	
Communication norms	1. Create WhatsApp group and reach out for questions and concerns there first (informal quick chats) 2. Discord for screenshots, code concerns, one point of reference for project items.	
Consideration norms	1. Be kind to each other.	
Cont. improvement norms	1. Have a retrospective after each sprint.	
Rewards	Everyone bring your own treat and we can have a celebratory meeting at the end!	
Sanctions	If you're more than 5min late without notice, 1pushup per minute late is owed.	
Signatures		
Scrum Master	Hanna Müller	
Product owner	Irene Kuo	
Product owner	Rebecca Greiner	
Software developer	Nikolas Rauscher	
Software developer	Irem Ozseker	
Software developer	Yash Bhesaniya	
Software developer	Filipe Borges	
Software developer	Kristi Kotini	
Software developer	Florian Hoffmann	
Software developer	Sandeepkumar Ramesh	

Product Vision	Project Mission
<p>An AI-powered chatbot that helps any user query and extract knowledge from uploaded document(s). Through generating knowledge graphs from a corpus of text, information and knowledge is organized in a smarter way that is able to reveal different insights that may not have been noticed before.</p> <p>The knowledge graph will include communities of concepts and can be used to uncover insights and links between seemingly disconnected concepts. Through querying knowledge graphs, users can more quickly gather the correct information and potentially gain additional understandings that are not noticeable without the graph communities.</p>	<p>The mission of this project is to create a MVP for the knowledge graph generation in order to visually see clusters of information and how they're linked. The knowledge graph will include a basic search function to query information.</p> <p>Core functionality will be ingesting user document(s), processing the data and extracting relationship entities through the use of LLMs, building and storing the knowledge graph, an interactive visual representation of the knowledge graph, and a basic search function for entities in the knowledge graph.</p>

[illegible]

Sprint #	Sprint goal
1	None
2	None
3	None
4	Optional
5	Finish all basic components/functions in preparation for connecting them all for the end-to-end functionality (upload -> knowledge graph visualization).
6	MVP for mid-project with upload through 1st basic visualization of knowledge graph
7	
8	
9	
10	
11	
12	
13	
14	
15	

Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
Release						
Total			124	124		
Sprints						
1	Getting started		0	124	0	124
2	Define technologies, create software architecture and user interface design		13	124	13	124
3	Setup project environment		16	111	14	111
4	Ingestion of documents and LLM setup with POC of data processings		32	95	31	97
5	Preparation of individual functions to connect for the MVP		32	63	32	66
6	MVP for mid-project with upload through 1st basic visualization of knowledge graph		31	31		
	Sum					
Features						
1	Getting started	Setup feature board	n/a		n/a	
2	Define technologies, create software architecture and user interface	Team logo	n/a		n/a	
		Create software architecture overview	5		5	
		Design user interface	8		8	
3	Setup project environment	Set up initial project environment (backend excluding LLM container)	8		8	
4	Ingestion of documents and LLM setup with POC of data processings	PDF parsing into text	5		3	
		Text to .json chunks	3		3	
		Interface setup	3		3	
		Allow user to upload PDF document(s)	5		5	
		POC: Graph visualization	5		5	
		Setup Mistral locally: documentation	3		2	
		POC: Prompt template for LLM	3		5	
		Syntax checking for JSON and converting to graph format	5		5	
5	Preparation of individual functions to connect for the MVP	Update software architecture diagram and documentation	1		1	
		Prepare LLM setup for dev team	2		2	
		POC: combine graph pieces with LLM	8		8	
		Create record in database	5		5	
		LLM function	3		3	
		Generate graph button	5		5	
		CORS implementation	3		3	
		CI/CD improvements	2		3	
		HW: Build process video	3		2	

[illegible]

Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
Release						
Total			124	124		
Sprints						
1	Getting started		0	124	0	124
2	Define technologies, create software architecture and user interface design		13	124	13	124
3	Setup project environment		16	111	14	111
4	Ingestion of documents and LLM setup with POC of data processings		32	95	31	97
5	Preparation of individual functions to connect for the MVP		32	63	32	66
6	MVP for mid-project with upload through 1st basic visualization of knowledge graph		31	31		
7	Streamline UX and additional KG generation POC's					
8	Update UI of existing functionality and LLM fine-tuning					
9	Enhance UI/UX and LLM-usage					
10	Additional graph search and KG fine-tuning					
11	Bug fixes and last fine-tuning tasks					
12	Finish final project release and prepare for demo day					
	Sum					
Features						
1	Getting started	Setup feature board	n/a		n/a	
2	Define technologies, create software architecture and user interface design	Team logo	n/a		n/a	
		Create software architecture overview	5		5	
		Design user interface	8		8	
3	Setup project environment	Set up initial project environment (backend excluding LLM container)	8		8	
4	Ingestion of documents and LLM setup with POC of data processings	PDF parsing into text	5		3	
		Text to .json chunks	3		3	
		Interface setup	3		3	
		Allow user to upload PDF document(s)	5		5	
		POC: Graph visualization	5		5	
		Setup Mistral locally: documentation	3		2	
		POC: Prompt template for LLM	3		5	
		Syntax checking for JSON and converting to graph format	5		5	
5	Preparation of individual functions to connect for the MVP	Update software architecture diagram and documentation	1		1	
		Prepare LLM setup for dev team	2		2	
		POC: combine graph pieces with LLM	8		8	
		Create record in database	5		5	
		LLM function	3		3	
		Generate graph button	5		5	
		CORS implementation	3		3	
		CI/CD improvements	2		3	
		HW: Build process video	3		2	

Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
6	MVP for mid-project with upload through 1st basic visualization of knowledge graph	POC: Save graph data int Graph DB	8			
		User documentation	3			
		Connecting components from documents to entities	5			
		Deploy documentation	3			
		Connect entities to graph data	5			
		Generate graph visualization from database	5			
		Technical/design documentation	2			
7	Streamline UX and additional KG generation POC's	Linting/Formatting				
		Create landing page				
		View list/table of existing knowledge graphs				
		Create new knowledge graph button (link to current user flow)				
		Delete uploaded document from upload screen				
		Refine .json extraction from LLM results				
		Refine graph connections				
		POC: ordering size of nodes in graph visualization				
		Remove JanusGraph				
8	Update UI of existing functionality and LLM fine-tuning	Update upload page to design theme				
		Update knowledge graph visualization page to design theme				
		View details of a specific knowledge graph				
		Graph display consistency				
		After LLM, eliminate duplicate entities				
		Find dataset for Natural Language to Knowledge Graphs				
		Allow users to delete knowledge graph				
		POC: extract categories of entities				
		Follow up on POC from Sprint 7 depending on outcome				
9	Enhance UI/UX and LLM-usage	Draggable nodes				
		Graph "zoom"				
		Finetuning of prompt template and ontology				
		POC: Use categories to connect sub-graphs with LLM				
		Graph search in database - return table results				
		Graph "search" bar from UI				
10	Additional graph search and KG fine-tuning	Follow up on POC from Sprint 9				
		Graph search in database - return text results				
		Another iteration of knowledge graph fine-tuning				
		Bug fixes				
11	Bug fixes and last fine-tuning tasks	Demo day slide				
		Demo day video				
		Bug fixes				
		Final iteration of knowledge graph fine-tuning				
		Final iteration of graph search				
		Clean-up codebase				
12	Finish final project release and prepare for demo day	Finalize user, (technical) design, and build/deploy documentation				
		End-to-end testing of application and features				

Sprint	Goal	Feature Name	Est. Size	Est. Remaining	Real Size	Real Remaining
		Finalize demo day workflow				
		Final project report				

[illegible]

Type	Link / reference

	Context	Name	Version	License	Comment
1	PDF text extraction	pypdf	v4.2.0	new BSD	pdf2text
2	Splitting text into chunks	LangChain	v0.1.17	MIT	
3	LLM	Mistral-7B Instruct	v0.2	Apache 2.0	
4	Locally running LLM	Ollama	v0.1.33	MIT	
5	Working with the data	pandas	v2.2.2	new BSD	
6	Generating graph from data	NetworkX	v3.3	new BSD	python package, this version requires Python 3.10, 3.11, or 3.12.
7	Graph database	JanusGraph	v1.0	Apache 2.0	
8	Upload documents	Filepond	4.31.1	MIT	
9	Network service	Axios	1.6.8	MIT	
10	Visualization	D3	v7.9.0	ISC License (functionally equivalent to MIT)	
	Visualization	Cytoscape	3.10.2	MIT	
	Visualization	Vis.js	v9.1.9.	Apache 2.0 / MIT	
	Visualization	G6	4.8.24	MIT	
11	Operational database	Postgres	16.2	PostgreSQL license (similar to MIT)	
12	LLM (more powerful option)	Gemini	1.5	Google API Terms of Service	might switch to this LLM from the original one

Last Name	First Name	Value					
Ramesh	Sandeepkumar	5		5.00	OK		
Hoffmann	Florian	5					
Rauscher	Nikolas	5					
Ozseker	Irem	5					
Bhesaniya	Yash	5		0	No size		
Fabian Borges	Filipe Alexandre	5		1	Trivial size		
Kotini	Kristi	5		2	Small size		
				3	Medium size		
				5	Large size		
				8	Very large size		
				13	Too large (size)		