CAPSTONE PROJECT CHARTER

This is a living document that you will update throughout the 2025–26 academic year.

There are comments in the marginalia and additional slides in this folder. We invite you to add any slides that are helpful to your work and learning.

The star icon ⭐ indicates sections that are required for the **Conceptual Project Charter** assignment due on **12/8/24**.

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AI for PKM: Visualizing AI Generated Personal Knowledge

AI for Better develops AI driven automation pipelines that generate and update Personal Knowledge Management content. They provide the PKM automation workflow that this Capstone project will build upon.

This Capstone project designs and evaluates an education-focused visualization layer for AI-powered personal knowledge management systems, grounded in hands-on exploration of existing PKM tools.

This Capstone focuses on designing and evaluating a prototype-level visualization layer, rather than building a full PKM system.

Responsibilities:

- Tool exploration & analysis
- Requirements and design
- Prototype development
- Evaluation and documentation

Kimmy (Minju) Kim

CAPSTONE PROJECT CHARTER

⭐ **Team Information**

Kimmy (Minju) Kim
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- Tool exploration and analysis (Gobi Desktop)
- Requirements definition and design framing
- Prototype development and iteration
- Evaluation and documentation

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Sponsor Information

MinSuk Kang

AI for Better
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https://www.aiforbetter.me/index_en

Sponsor's Role
- Provide PKM data outputs
- Offer technical context on AI workflow
- Participate in feedback and review of visualization prototypes
- Sponsor will primarily serve as a reviewer and feedback provider through scheduled walkthroughs, rather than as a co-developer.

Time Commitment
Estimate the amount of time the sponsor will need to spend (hours per week is typical) in order to maintain communication and keep the project moving forward.

Communication
- How often will you update the sponsor? (e.g. Daily, Weekly, Biweekly, Monthly)
- What format does the sponsor prefer for the update? (e.g. Email, Zoom or In-Person Meeting, Phone Call, Formal Report, etc.)
- Do they have a preferred day of the week to receive project updates?
- Who will serve as an alternate point of contact at sponsoring organization in case the sponsor becomes unavailable? List full name, title, email, and phone number.
- Early design discussions explored an AI-powered PKM system where knowledge is stored in Markdown format, automatically summarized, and accessed through conversational AI and voice-based interactions.
- A key emphasis from these discussions was not simply what users learn, but how learning accumulates over time through reflection, automation, and visual feedback.

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Project Background

AI generated Personal Knowledge Management content often contains valuable insights, but it is difficult for users to interpret because the material is lengthy, unstructured, and lacks visual organization. As a result, users struggle to identify key ideas, track their learning, or understand how their knowledge evolves over time.

This project builds on an existing PKM automation workflow developed by the startup AI for Better. Their system converts Markdown based content into structured knowledge assets. However, users still need a more intuitive way to explore and understand the automated output.

The opportunity is to create a visualization layer that transforms AI generated PKM content into infographic style summaries. This will support learners by making complex information easier to grasp, helping them recognize patterns, and enabling better reflection throughout the learning cycle. Stakeholders include individual learners, educators, and anyone using PKM systems to organize their knowledge. The following items were discussed during early design conversations but are intentionally excluded from this Capstone to maintain a feasible solo project scope:

Out of Scope:
- Full curriculum orchestration or end-to-end curriculum management
- Production-level meeting recording or transcription system integration
- Large-scale language adaptation or internationalization features
- Hardware-specific implementations (e.g., tablet-optimized interfaces)

Based on this context, this Capstone deliberately narrows its scope to an education-focused visualization layer built on top of existing PKM workflows.

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Objectives

Describe what will be achieved in this project. For example, who will benefit, and how? What changes, solutions, or improvements are intended?

- Create a visualization system that turns Markdown based PKM content into clear, AI generated infographic summaries.
- Improve user understanding of PKM data by highlighting key ideas, themes, and learning patterns.
- Support the full learning cycle (discover, plan, execute, test, reflect) through visual representations that enhance comprehension.
- Develop a lightweight, feasible prototype that complements the sponsor's existing PKM automation workflow.
- Reduce manual effort in personal knowledge management by leveraging automated summaries and visual representations derived from Markdown-based content.

Key Deliverables

Describe what will be delivered to the sponsor. List the actual documents, programs, systems, artifacts, and/or events that will be produced by the project.

- A working prototype (v1 and v2) that transforms Markdown-based PKM entries into visual summaries
- 10–15 visual summaries generated from sample Markdown-based PKM entries
- An evaluation memo documenting sponsor walkthrough feedback and design improvements
- Final documentation describing the workflow, design decisions, and limitations
- Final presentation materials and demo prepared for Capstone submission

Please indicate if the sponsor has reviewed project deliverables:

✔ **Yes**, the sponsor has reviewed and approved the project deliverables outlined above.

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Evaluation

Evaluation will focus on whether automated summaries and visualizations meaningfully reduce cognitive load and support reflective learning, as discussed in early design meetings.

Formal evaluation will be conducted during Weeks 8−9 through sponsor walkthrough sessions using a predefined checklist. Formal evaluation will take place during Weeks 8−9, aligned with the Initial Work Plan.

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Initial Work Plan

Week 1: Project kickoff + Gobi Desktop immersion

- Confirm solo project structure with sponsor and instructors
- Install and explore Gobi Desktop to understand PKM structure, automation flows, and AI interaction patterns
- Analyze how Markdown-based PKM entries are created, summarized, and retrieved
- Reflect on how PKM automation and visualization could support learning and reflection processes
  Deliverable:
- Refined project scope grounded in hands-on tool exploration
- Annotated exploration notes from Gobi Desktop immersion mapping PKM workflows to educational use cases

Weeks 2–3: Requirements definition + design framing

- Translate observations from Gobi Desktop exploration into concrete requirements
- Define visualization goals focused on learning accumulation and reflection
- Draft evaluation checklist for sponsor walkthroughs
  Deliverable:
- Requirements document
- Evaluation rubric (v1)

Weeks 4–5: Prototype v1 (core transformation + basic visualization)

- Implement a minimal workflow:
  PKM text → structured summary elements → visual summary layout
- Build a demo-ready interface to display visual outputs
  Deliverable:
- Working prototype v1
- 5 sample visual summaries

Please indicate if the sponsor has reviewed the work plan:

✔ **Yes**, the sponsor has reviewed and approved
the project work plan above.

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Initial Work Plan

Weeks 6–7: Prototype v2 (iteration + educational clarity)

- Improve visual hierarchy, readability, and consistency
- Expand sample set to include different PKM note types (long notes, daily journals, mixed headings)

  Deliverable:
- Prototype v2
- 10–15 visual summaries
- Issue and improvement log

Weeks 8–9: Evaluation + sponsor review

- Conduct two sponsor walkthrough sessions using the evaluation checklist
- Consolidate feedback and finalize changes
  Deliverable:
- Evaluation memo (findings, improvements, limitations)
- Finalized prototype

Week 10: Final documentation + presentation

- Complete documentation (workflow, design decisions, educational framing, limitations)
- Prepare final demo and presentation materials
  Deliverable:
- Final deliverables package
- Presentation slides

Sponsor touchpoints

- End of Week 1: approve refined scope and direction
- Week 8: approve prototype readiness and evaluation outcomes

Please indicate if the sponsor has reviewed the work plan:

✔ **Yes**, the sponsor has reviewed and approved
the project work plan above.

STATUS REPORTS

Paste all status reports after this slide.

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[Month] Status Report: Reflection

What has gone well with your project?
Reflect on your process so far, what are you proud of?

What could be going better?
What you might do differently next time?

What support, resources, or help do you need?
Is there anything you need from your sponsor, Capstone instructor, teammates, framily, colleagues and/or TA?

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[Month] Status Report: Update

Summary
Your project status report summary should be brief—about 2-3 sentences. The goal here is to craft statements that are concise, informative, and important. It will help you in the future when you are updating folks who may not have time to read thoroughly. Your goal is a quick TL;DR of the most important facts.

Key Milestones
Choose what you've been working on the most since your last update. For example, you might bucket things out chronologically—what we've done, what we're working on, and what's coming up next. Another option is to group updates by role or by project milestones.

For each milestone, create bullets with a high-level overview that gives an update on the progress, accomplishments, and upcoming work for that milestone.

You are invited to provide links to documents or resources, especially if you'd like feedback on them from your TA or instructor.

Issues and Challenges
All projects run into roadblocks. Keep us in the loop as issues arise.

Additional Notes or Highlights
This could be a list of next steps, kudos you want to give someone, or anything else you want to highlight.

[Month] Status Report: Work Plan

Summarize the progress you've made this month and paste or link to an updated version of your work plan with items that have been completed, dropped, or rescheduled based on progress since your last update.

FINAL REPORT

Please respond to each section; some sections may be more appropriate to your project so each response may vary in length.

You are encouraged to export these pages as an update for your sponsor as well.

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Final Report: Summary

Describe what you've done and summarize your final deliverables. Note which systems, tools, processes and procedures, or data sets you've touched with your work. If your deliverables entailed working documents such as wireframes for a planned website, a written policy or protocol, a set of work processes, a presentation of recommendations, state that as your final product and also how your product is intended to be applied in the sponsor organization in the future.

Your goal is to present this information in a single page so that others can quickly understand what you've accomplished. Feel free to use visuals, if desired.

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Final Report: Recommendations

Be clear about the status of the project – are all deliverables complete? Are there deliverables that were delayed to circumstances that will not be handled by the project team (assuming that this was already discussed and agreed to with the project sponsor). What are the next steps that should be completed in this case? If the scope of the project was reduced due to timing or resources, what do you recommend as the next phase of the project?

Your goal is to present this information in a single page so that others can quickly understand what to do next. Feel free to use visuals, if desired.

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Final Report: Support

Explain the level of support and engagement with the sponsor in the future. Will a team member continue to volunteer there and further develop the deliverables? Can the sponsor contact any of the team members with questions or to request a presentation on the project? And, can the team members talk openly about the work they've done in job interviews (do they have to exclude the name of the sponsor organization to do so)? Be clear in establishing these expectations that clearly communicates your intent with regard to any continuing relationship with the sponsor.

Your goal is to present this information in a single page so that others can set accurate expectations. Feel free to use visuals, if desired.

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Final Report: Handover

Identify the individual(s) who will be taking over maintenance of the deliverables or implementation of next steps. Indicate the level of maintenance – is this a new information system that should be reviewed every year? Should new items be added to the collection? Is there a framework or procedures that should be applied – and is there a toolkit for the new owner to maintain? Are there additional items in the collection to be added / cataloged / digitized using the procedures developed? If the individuals have not been identified, provide a description of the skills required to maintain the deliverables or move the project forward.

Your goal is to present this information in a single page so that others can quickly reference it in the future. Feel free to use visuals, if desired.