HEALTH INFORMATICS

Capstone Project

Designing a Responsible Digital Health Solution

A capstone synthesizing Chapters 1–8, built for fully remote, self-paced completion on Mahara Tech.

Built for remote learners — no physical attendance required

Every part of this capstone — reading the brief, doing the work, and submitting it — happens online through Mahara Tech. There is no in-person defense, no scheduled live session, and no requirement to be anywhere at a specific time. Work at your own pace within the course's overall completion window.

1. Overview

Across eight Chapters, this course has followed one throughline: technology surfaces information — data, patterns, alerts, predictions — and a person decides what to do with it. This capstone asks you to apply that idea end to end, on a problem of your choosing, the way you'd actually encounter it in the field: as a single project that touches data, systems, people, and rules all at once, not as eight separate topics.

You will select one scenario (or propose your own), then produce a short-written report walking through your solution. Use the same structuring tool the whole course has built toward: the Data → Information → Knowledge → Wisdom ladder, applied to a real design decision.

2. What This Capstone Assesses, By Chapter

You don't need a separate section for each Chapter — a strong capstone weaves these together. Use this table as a checklist while you write.

Module	What your capstone should demonstrate
1	You can trace your scenario through the Data → Information → Knowledge → Wisdom ladder, and identify the point where a system's job ends and a person's judgment has to begin.
2	You can correctly classify the data involved (structured, semi-structured, unstructured) and identify at least one data-quality risk (accuracy, completeness, timeliness, or validity) your solution needs to guard against.
3	You can describe how your solution would actually live inside an EHR — what a clinician or user would see, and how it fits alongside documentation, ordering, and results review.
4	If your solution includes any kind of alert, reminder, or recommendation, you've designed it against the Five Rights framework and explicitly considered alert fatigue.
5	You've made a deliberate, justified decision about whether AI belongs in your solution at all — and if so, where its limitations require human oversight.
6	Where relevant, you've considered whether your solution depends on data or tools that may not perform equally well across different patient populations.
7	You've checked your solution against privacy and legal obligations (at minimum HIPAA and Egypt's Law No. 151/2020, and GDPR if relevant) and considered whether it could introduce or worsen bias.
8	You've considered how your solution could extend through emerging technology (telehealth, wearables, remote monitoring) and how it changes what's expected of the people using it.

3. Choose a Scenario

Pick one of the four scenarios below, or propose your own using the guidance at the end of this section. All four are written to be workable whether your background is clinical, IT, administrative, or something else — you are not expected to have hands-on clinical experience to complete this capstone.

Scenario A — The Missed Interaction

A clinic's medication-alert system is either missing dangerous interactions or firing so often that staff have started ignoring it. You've been asked to redesign it. Decide what the alert should actually say, who it should reach, when it should fire, and how you'd know whether your redesign is working.

Draws most heavily on: Chapters 1, 2, 4

Scenario B — The Remote Patient

A health system wants to launch a remote-monitoring program for a chronic condition (e.g., hypertension, diabetes, or heart failure). Design the data flow from device to clinician, decide what should trigger a human response versus a routine log entry, and address at least one access-equity concern.

Draws most heavily on: Chapters 3, 6, 8

Scenario C — The Data Quality Audit

You've been asked to investigate why a clinic's records are unreliable for a specific reporting purpose (your choice — e.g., readmission tracking, allergy documentation, or population health reporting). Diagnose the likely data-quality dimension(s) at fault, propose a fix, and decide whether an AI-assisted tool is an appropriate part of the solution.

Draws most heavily on: Chapters 2, 5, 7

Scenario D — The Equity Gap

You're evaluating a precision-medicine tool or clinical algorithm for a specific population and have reason to suspect it wasn't validated evenly across the group it's meant to serve. Investigate the likely source of the gap, and propose both a technical and a governance fix.

Draws most heavily on: Chapters 5, 6, 7

Proposing your own scenario

If none of the above fit your interests or background, you may propose your own — as long as it (a) involves a real decision about a digital health tool or data flow, (b) has a clear point where a human has to exercise judgment a system can't fully replace, and (c) can reasonably touch at least four of the eight chapters. Include a two-to-three sentence justification for your topic as the opening of your written report.

4. What to Submit

A. Written Report (1,500–2,500 words)

Structure your report using the four sections below. This mirrors the DIKW-and-Wisdom framework from Chapter 1 — by the time you reach Section 4, you should have earned the point you're making, not just asserted it.

- Section 1 — The Data: What raw data is involved? Where does it come from, and in what form (structured, semi-structured, unstructured)?
- Section 2 — The Information: How does that raw data get context that makes it meaningful — and to whom?
- Section 3 — The Knowledge: What system, rule, model, or standard turns that information into actionable guidance? Be specific about the technology (EHR feature, CDS alert, AI model, etc.) and its real limitations.
- Section 4 — The Wisdom: What judgment call is still left to a person, and why can't a system make it instead? This is the section that should most clearly answer “so what?”

Close with two short subsections that apply across all four:

- Compliance & Equity Check — privacy/legal considerations and any bias or access risk you identified (Chapters 6–7).
- Looking Ahead — one realistic way emerging technology could extend or improve your solution over the next few years (Chapter 8).

B. A Note on Using AI Tools

You may use AI tools while researching or drafting this capstone. In keeping with what this course has taught about transparency and accountability, briefly disclose in your report which parts, if any, involved AI assistance, and describe what you personally verified or changed. Undisclosed use that materially shaped your analysis will be treated as an academic integrity issue; disclosed, thoughtful use will not count against you.

5. Grading Rubric

Criterion	Points	What this looks like
DIKW + Wisdom framework	**20**	Each layer is distinct and correctly applied to your specific scenario — not a generic restatement of the course's own example.
Chapter integration	**25**	At least four chapters are meaningfully reflected in your analysis, not just name-dropped.
Feasibility & specificity	**15**	Your proposed solution is concrete enough that someone could actually start building it — specific alert text, specific data fields, specific workflow steps.
Ethics, privacy & equity analysis	**15**	You've identified a real, specific compliance or fairness risk relevant to your scenario, not a generic disclaimer.
Written clarity	**10**	The report is organized, readable, and free of unnecessary jargon — written for the broad Mahara Tech audience, not only specialists.

6. Submission Checklist

- Written report (1,500–2,500 words), submitted as a document upload through Mahara Tech
- AI-use disclosure included in the report, even if the answer is “none”
- Scenario chosen (or your own scenario's justification) stated clearly at the top of the report

This capstone has one purpose: showing that you can take everything from “what counts as data” in Chapter 1 all the way to “who's accountable when a system gets it wrong” in Chapter 8, and hold it together on one real problem. That's the whole course, in miniature.