Week Two: Milestones in Software Development

Date: October 23rd

📅 Milestones = Planning for Progress

Milestones are key checkpoints in a project that help you track progress and stay aligned. They break large goals into manageable pieces and give structure to your workflow.

Why milestones matter:

- They define what needs to be done and by when
- They help identify delays early
- They make steady progress visible
- They reduce last-minute stress

Even though the final deadline might be weeks away, setting earlier planned milestones helps you stay on track and avoid surprises.

🔁 Development Models: Waterfall → Spiral → Agile

Software development models have evolved in response to the growing complexity of projects and the need for flexibility:

Waterfall

- ✅ Clear documentation and planning
- ❌ Inflexible to change; problems often discovered too late
- 🔄 **Limitation**: Once a phase is complete, it's hard to go back — making it risky for dynamic projects

🔄 Development Models: Waterfall → Spiral → Agile

Spiral

- ✅ Better at managing uncertainty
- ❌ Complex and resource-intensive
- 🔄 **Evolution**: Recognized the need for revisiting earlier decisions and adapting as new information emerged

🔁 Development Models: Waterfall → Spiral → Agile

Agile

- ✅ Fast response to change, continuous delivery, customer involvement
- 🔄 **Result**: Agile became the dominant model because it's built for uncertainty, iteration, and real-world feedback

🧪 Ugly Languages Can Be Great

In software engineering, practicality beats purity. A language doesn't need to be elegant — it needs to work.

Lesson: Use the language that solves the problem, integrates with your tools, and is supported by your environment. Beauty is optional — usefulness is not.

🐾 HW4 Example: Milestones in Action

Submission Deadline: November 7th, 2025

Even though the final deadline is November 7th, breaking the work into smaller milestones with planned dates are helping me stay on track and avoid last-minute stress.

🧩 Milestones in HW4

Milestone	What	When (Plan)
1	Create SQL database and access through PHP	October 26th, 2025
2	Create API endpoints (no authentication)	October 31st, 2025
3	Create API endpoints (with authentication)	November 2nd, 2025
4	Create frontend to access API endpoints	November 6th, 2025

🧪 "Ugly" Languages Used in HW4

- **PHP**: Often criticized for its quirks, but it's easy to deploy and works well for server-side scripting.
- **SQL**: Verbose and rigid, but essential for defining and querying structured data in your database.
- **JavaScript**: Messy at times, but it's the backbone of interactive web interfaces and frontend logic.

These languages may not be beautiful, but they're reliable and practical.