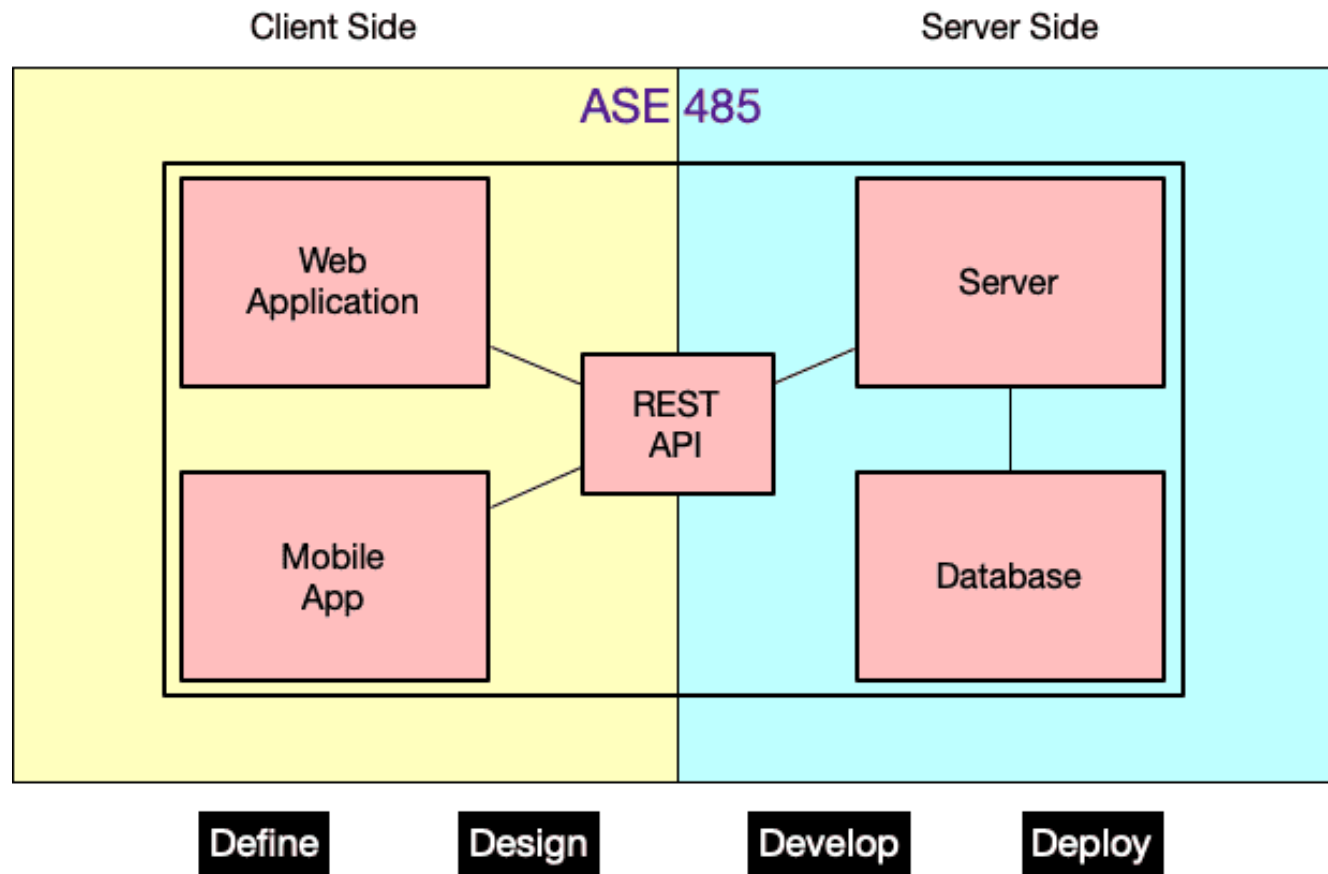# The Story of ASE 485

The Position of ASE 485 in ASE Curriculum

1. ASE 485 is the **Capstone Course** of the ASE Curriculum.

2. It is designed to bring together all the knowledge and skills learned in previous ASE courses.

3. You need to prove that you can solve real-world software engineering problems using the knowledge and skills you have acquired.

The Two Focuses of ASE 485

Prove that you are a good Software Engineer (Problem Solver) (60%)

- Choose the problem that you want/need to solve.

- Transform it into a well-defined software engineering project.

- Define, Design, Develop, and Deploy the software solution to solve the problem.

Prove that you can learn anything using AI tools effectively (20%)

- Choose any topic that you want/need to learn.

- Choose AI tools to help you learn the topic effectively.

- Learn the topic using AI tools, at the same time, learn how to learn anything using AI tools effectively.

Four Assignments (20%)

Three Assignments - HW1/HW2/HW3 (15%)

- HW1 is about being on the same page.

- HW2 is about defining your project/learning with AI.

- HW3 is about intermediate progress reporting and evaluation of peers.

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Publish/Deploy - HW4 (5%)

- The goal is to make your work accessible to the public.

- Just doing the project is not enough, you need to share it with the world; you should let others know that you are a good problem solver.

- This is a critical skill for professional software engineers.

- As a professional software engineer, you need to let others know about your work by publishing it.
- You have two options (or choose both if you are willing to):
    - Publish your project in the form of research publication or equivalent.
    - Deploy your project as a real-world software solution.

Discussion about Publish/Deploy

- If you plan to publish your project, we need to talk.

- If you plan to publish your app using AppStore or Google Play Store, you can do it alone.

- If you plan to deploy your project in the cloud, or your own VPS, or anything, you can do it alone.

Evaluation

1. Problem Solving (60%)

- You will evaluate three peers: artifacts and progress
- You will be evaluated by three peers: artifacts and progress

2. Learning with AI (20%)

- You will evaluate three peers: read their documents and process
- You will share your learning documents and process, and evaluated by three peers

3. Four Assignments (HW1 - HW4) Publish/Deploy (5%)

HW1 - HW3: Canvas submission

HW4: Canvas submission + public sharing (Paper, App, Website, etc.)

Problem Solving Project Timeline

Three Stages (as usual):

1. Stage 1: Preparation

2. Stage 2: Prototype/MVP

3. Stage 3: Project

- This is a guideline and ceremonial: you can adjust the timeline as needed.

- Start early to finish early if you already started the project.

Stage 1: Preparation (Weeks 1-3)

- I'll Make A Canvas Page for your project (by the end of week 1)
- I'll let you know whom you are going to evaluate using email(by the end of week 1)
  - You **should not know** the peers who evaluate you.

- Define the problem to solve (by the end of week 2): HW1
    - Make GitHub Repository for your project
    - Make README.md for your project
    - Upload your plans for your peers

- Make ready for the PPP: HW2
  - Write your PPP document and upload it to your GitHub Repository (by the end of week 3)
  - Read your peers' PPP documents (by the end of week 3) for evaluation

Stage 2: Prototype/MVP (Weeks 4-8)

- PPP (Project Planning Presentation) (First meeting of Week 4)

- 1 or 2 presentations for project, and the other 1 or 2 presentation for learning with AI*

- S1R (Sprint 1 Retrospective) & S1P (Sprint 1 Presentation) (Last meeting of Week 8)

The same format as the individual project presetation.

Stage 3: Project (Weeks 9-16)

- Work on your project

- 1 – 3 presentations for project, and the other 1 – 3 presentations for learning with AI*

- S2R (Sprint 2 Retrospective) & FP (Final Presentation at the last week)

The same format as the individual project presetation.

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Class Schedule

- One meeting per week (3 hours)

- First part of the class: presentations by students (project and learning with AI)

- Second part of the class: discussions of importantSE topics

Tentative Schedule of Each Class Meeting

Stage 1

- Mainly project discussion

Stage 2

- SE Topics to Discuss

Stage 3

- Focus mainly on project, possibly individual project discussion and such

Possible SE Topics to Discuss

Planned

1. Functional Programming

   - Design Patterns in Functional Programming

   - Monads: "Monoid in the Category of Endofunctors"

2. Logic Programming

   - How Logic Programming Works

   - Why Logic Programming is Important for SE in the Age of AI

3. AI and System Design

- How software engineers survive in the age of AI

4. Any topics you want to discuss