Assessment Purpose

Congratulations on passing phase one of the MSA program!

To pass Phase 2, you must complete either the *software* stream or *data science* stream. This assessment is for the *software* stream. This is an **individual assessment**. Usage of AI tools such as Github Copilot or ChatGPT is allowed. You will be ranked against your pairs.

Building on our foundational knowledge of React and REST APIs using the .NET framework from Phase 1, this assessment will challenge you to develop a full stack application with advanced features. This project aims to demonstrate your proficiency in these technologies, as well as your ability to independently research and integrate new technologies.

Task

In this assessment you are to develop a full stack web application. The application **must** be based on the theme mentioned in the following section.

All the basic requirements are required. Additionally you are to achieve at minimum three advanced requirements.

Theme

The theme for this year is **Networking**! One example of this theme could be a student networking app for study groups, projects or skill-sharing with profile and chat features. Note that originality and creativity will help you.

Basic Requirements

A frontend and backend are both required. Your application should contain all these basic requirements; neglecting any of these basic requirements will **result in an instant failure.** You may deploy your application using any service. Additionally you MUST include a README mentioned in the submission section, as well as a section explaining how your project relates to the theme.

Frontend:

- Built using React with TypeScript.
  (You may use JavaScript, but TypeScript is preferred)
- Visually appealing and responsive UI. (Web app displays nicely on both computer and mobile).
  If your web app is designed only for desktop, justify why your web app is not responsive in your readme.
- You may use a styling library such as MUI, Mantine, Tailwind, etc., or use custom styling as long as you focus on a visually appealing design.
- Navigation using React Router or a similar routing library.
- Clear use of Git with a **regular commit** history
- Deploy your frontend.

Backend:

- Built using C# with **.NET 8** or **higher.**
- Must use Entity Framework Core (EF Core).
- Data persistence using an SQL or NoSQL database.
- At minimum, implement **CRUD** operations (Create, Read, Update, Delete)
- Clear use of Git with a **regular commit** history
- Deploy your backend.

Advanced Requirements

Your application should contain at least **three** advanced requirements from this list.

Ensure that the advanced requirements you choose are listed on the repo's README or they will **not be marked**. We will only mark three features.

- Integrate all UI components with Storybook.
- Unit testing components.
- Use a state management library, e.g., Redux.
- Support for theme switching (e.g., light/dark mode).
- Dockerize your project using docker.
- Implement WebSockets.
- End-to-end testing using Cypress.

Unsure how to get started?

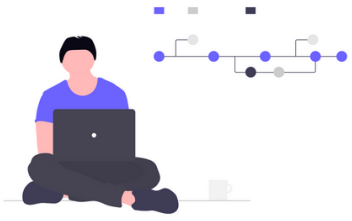
Check out the Getting Started exemplar in the software development folder of the MSA Phase 2 GitHub repository.

Marking Criteria

A formal marking criteria is not released to the public. The MSA marking team will have a set marking criteria we will follow. Each criteria we will give a score of 0 to 5.

As a general idea, the marking criteria will contain the following:

- Does your application look visually appealing?
- How is your code quality? Is it well structured and easily understood by other developers?
- Git usage. Is there evidence you have commits and have been working on your project? It does not look great if we see one commit with the entire assessment at the end.
- Presentation quality. Were the points discussed in a clear manner? Were you speaking clearly? Is it in a clear structure?



Submission Format

Your submission must include the following:

- A Github repository containing both the frontend and backend.
- A README file containing the following information:
  - A brief introduction to your project.
  - A section explaining how your project relates to the theme.
  - A section explaining what interesting features makes your project unique from others, and worth highlighting to the marker.
  - A clear checklist of advanced features you've implemented.

  Reminder: We will only mark the advanced features that are explicitly listed in your README.

A pre-recorded video (**5 minutes max**) containing the following information:

- (Videos longer than 5 minutes will be penalised)
  - A demonstration of your application and features
  - Highlight the basic requirements and advanced requirements.

  No need to show your code.

Please submit using the MSA 2025 Phase 2 submission form located in the Phase 2 GitHub repository.

Frequently Asked Questions:

Can I use ChatGPT, Github Copilot, or any other form of AI Tools?

Yes, Lucky you :)

For the backend, am I allowed to use another language/framework like my favourite langauge Java and Springboot?

No, and who even likes Java?

I can't manage to implement the minimum advanced requirements! Am I guaranteed to fail!?

We have a marking criteria that every student will go through. As long as you hit the right criteria, it's still possible to pass.

Do I own the project I made?

No.

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Just kidding, of course! It'll be a great project to put on your CV or portfolio.