

# Mini Project: Noughts & Crosses and Connect4

# Objectives

- Introduction to the scope
- Breakdown of milestones
- Demos of running sample solution

# Scope

- It's Noughts and Crosses to get you started, from a skeleton
- Then it's Connect-4, all your own work
- Individual projects
- Your own Connect-4 version is due end of week 7
- Use Javascript, HTML and CSS
- Demo each week of progress or learning points

# Milestones

- Core goals
  - show key learning objectives have been met
- Stretch goals
  - **Optional**, purely designed to challenge you

# Solo Projects: Overall

Have completed some but not necessarily all the JS exercises

Get Noughts and Crosses working (detects a winner).

Create a working Connect-4 game from scratch (detects a winner).

All in your own GitHub repo in the shared cohort Organisation.

# Solo Projects: Overall

- You can, and should, help each other!
- If you get ahead, help those who have not done as much
- Do what is right for you:
  - if you want to go over more exercises or NX then do that
  - if you want to practice HTML or CSS then do that
  - go at your own pace
- And, make your own Connect-4 that works for the end of Week 7

# No right or wrong way, or pace



We all have different experiences and backgrounds.

We all learn differently.

You will all find different bits hard, medium, or easy.

## N & X: Solution Demo

An instructor will now demo you a sample working solution, so you can see the objective.

You can also see some `console.log(s)` in the developer tools.



# N & X: Skeleton Demo

An instructor will now demo you the `./skeleton/index.html` and other files we provide.

You can also see some `console.log(s)` in the developer tools.

Here we can see how the code needs filling in!

# Noughts & Crosses: Provided files

Some you do not *need* to change (but *can*)

- `skeleton/index.html` a pre-done file with a HTML 3×3 grid
- `skeleton/main.css` a pre-done file with some basic styles (css)
- `skeleton/connectors.js` a pre-done file of the code to manage DOM-interactions

One you **do** need to update, and should:

- `skeleton/academy.js` a file of empty functions for **you** to fill in

# Noughts & Crosses: Core Goals

- Place noughts and crosses on a grid
- Alternate turns between noughts and crosses players
- Detect a winner, and display them
- Detect a draw, and display it
- Reset the game for another round

And, only after we teach you it:

- Unit tests of your pure functions
- All in your own GitHub repo in the shared cohort Organisation

# Noughts & Crosses: Stretch Goals

- Add player names and declare the victor by name!
- Unit tests of non-pure functions


# Noughts & Crosses: Bonus Goals

- Have a computer player that plays randomly
- Have a computer player that plays optimally
- Serve the files from a static folder in an express app
- Split the game into a client and server

After we have taught you Unit Testing and done the Bowling Game Kata:

- Do N & X from a TDD start
  - There is a `skeleton-tdd` set of files you can ask for to try this

# Connect-4: Solution Demo



An instructor will now demo you a sample working solution, so you can see the objective.

# Connect4: Overall Goals

Start Connect4 from scratch in your github repo.

Grid displays and is clickable.

Detect a winner.

All in your own GitHub repo in the shared cohort Organisation.

# Connect4: Core Goals

- Be able to place pieces on your connect4 grid; it should respond to click events
- Detect victory conditions i.e. in `console.log()`s
- Display the winner on screen i.e. `Red` or `Yellow`
- Have some unit tests that pass; test your (pure) functions
- All in your own GitHub repo in the shared cohort Organisation



# Connect4: Some Stretch Goals

- Add Player names and declare the winner by name
- Refactor your mini-project to use OOP or Functional styles
- Run a linter over your mini-project and correct issues


## Connect4: Bonus Goals

- Have some unit tests that pass; test your *impure* functions
- Detect victory conditions without using a for loop (advanced Functional Programming)
- Scoreboard tracking player victories
- Serve the files from a static folder in an express app

# Connect4: Super Bonus Stretch Goals

- Split into Client & Server
  - I.e an index.html with js that talks to
  - an express API server
- Use React for the front end
- Produce unit tests for the API server
- Store game scores in the server

# Core & Stretch Goals



Any questions about these?

Especially the "Core" goals of Noughts & Crosses and Connect 4?

## Connect 4: Provided files

You write this yourself from scratch - but of course by then you'll have the Noughts & Crosses code to start from.

And you'll have done some HTML and JavaScript sessions.

So this will be a chance to do all your own work!

# Connect 4: Provided files

...you provide them all



Any questions about this?

# Emoji Check:

On a high level, do you think you get the core goals of both mini projects, and appreciate the others are Optional? Say so if not!

1. 🥲 Haven't a clue, please help!
2. 😞 I'm starting to get it but need to go over some of it please
3. 😐 Ok. With a bit of help and practice, yes
4. 😊 Yes, with team collaboration could try it
5. 😄 Yes, enough to start working on it collaboratively

# Regular Demos

- Each friday we have a slot for doing breakout room demos of your work
- This is intended to help you practice public speaking
- Also to encourage sharing both positive and negative aspects of your work
- Can be about your code progress, good and bad 😊
- Or about what you've learned each week



# Final Demo

- At week 6 we expect a presentation with a small slide deck on your mini project
- This should include but is not limited to:
  - A description of the brief (in your words)
  - A demo of the final product
  - What you found hard
  - What you learnt
  - Anything else you want to mention 😊

# Demos & Final Demo



Any questions on this?

Public speaking can be a bit daunting if you're not used to it!

# Emoji Check:

On a high level, do you understand the value of the Demos, the reasons why they are weekly, and that the Final ones are "more polished", all for the practice? Say so if not!

1. 🥲 Haven't a clue, please help!
2. 😞 I'm starting to get it but need to go over some of it please
3. 😐 Ok. With a bit of help and practice, yes
4. 😊 Yes, with team collaboration could try it
5. 😄 Yes, enough to start working on it collaboratively

# Time management

We have a set of **Project / Exercises** time slots in the timetable from now on.

- It's up to you how much time you spend on Exercises vs Mini-Project vs "Misc Admin"
- The exercises we give out are to help your core skills
- Part of the learning of the Academy is balancing your time
- You also have Admin things to do (like 15-5, myTE, etc) in this time
- There's a deadline of 6 weeks for working NX & C4.

# Time management

Any questions on this one?

However much we emphasise the aspects of balancing out your project time with the various things going on, every individual always interprets this a bit differently!

# Emoji Check:

On a high level, do you think you understand the main concepts of this session? Say so if not!

1. 🥲 Haven't a clue, please help!
2. 😞 I'm starting to get it but need to go over some of it please
3. 😐 Ok. With a bit of help and practice, yes
4. 😊 Yes, with team collaboration could try it
5. 😄 Yes, enough to start working on it collaboratively