Formalising mathematics in Lean - Week 5
A GlaMS course

M. Abu Omar, S. Castellan, A. Doña Mateo, & P. Kinnear

a.k.a. **The Lean Team**

February 27th, 2024

Projects

Anyone taking this course for a credit will need to complete a (group) project.

A project can be:

1. a theorem you want to formalise,
2. a game that explains a topic in mathematics using Lean,

What is a project (1)

A theorem you want to formalise:

- ▶ This can be some theorem from a lecture/book you like.
- ▶ This can be a theorem that already is in `mathlib`. You can reinvent the wheel!
- ▶ This can be something new that you want to add to `mathlib`.[1]
- ▶ It can also be some result from your research.

Note that, in some cases, formalising the statement of a theorem can be enough.

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[1]For people who want to do something new to add to `mathlib` and would like some guidance and ideas, then please talk to us.

What is a project (2)

Making a Lean 4 game[2] that explains the formalisation of a topic in mathematics.

- ▶ This can be a topic in Topology, Analysis, Algebra, Graph theory, etc...

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[2]There is a Template for you to use:
`https://github.com/hhu-adam/GameSkeleton`.

Logistics

- ▶ The deadline of choosing your projects is on the
  11th of March.
  - ▶ This includes discussing with us exactly what you would like to formalise.
    - ▶ If it's a theorem, then state the theorem and why you want to formalise it and how you would like to approach it.
    - ▶ If it's a game, then state the goal you are aiming for.
  - ▶ It can be easy to over-estimate what we *can* formalise, so do not worry if your goal slightly changes a week or two later.
  - ▶ It can also be easy to under-estimate what we *can* formalise, in that case, you should expand your plan!
- ▶ The expected deadline of the projects is at the end of April.
- ▶ You are then expected to give a presentation afterwards.

Logistics (cont.)

▶ It is also expected for you to join the GitHub Organisation and to make your private repository there with your team members.

▶ So please send your GitHub usernames so that we can add you to the organisation.

▶ When you pick your team member(s), please let us know so that we can make a team on the organisation for you!