# CS 246 Artificial Intelligence
# Group Project Requirements and Info

Monika Stepanyan
mstepanyan@aua.am


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# Deliverables

Aim: complete an in-depth analysis of a particular topic by considering and solving problems and present your findings to the class

- Team formation, topic and timeslot selection due **Tuesday, October 17, end of the day**.
  - 3-4 members in each group.
  - Enough if only one person from the group submits this info.
  - Select **all** the timeslots that work for all team members.
  - If you don't have a group, submit the topic only (and choose a timeslot).
  - You cannot chose a topic that you already worked on previously.
- Draft report submission due **Saturday, Nov 18, 23:59**.
  - 2000–3000 words, should include literature review, current progress and plan (and any additional info you wish to include).
  - Should follow the format and content outlined in *"Guidelines for Writing the Project Report"*.

# Deliverables

- Project presentation on **Dec 2, Dec 4, Dec 6 or Dec 8**
  - 12 minutes for presentation + 3 minutes for Q&A.
  - All team-members should participate (with equal input).
  - Present the problem (the solutions that exist), your own solution and implementation, **the results/comparisons/analysis**, potential difficulties and conclusions.
  - Include additional info if you find it reasonable.
  - You should perform **enough** tests and analysis.
  - **Don't present your code.**

- Final report, code and presentation slides due **Saturday, December 9**.
  - 3000–4000 words, augmented version of the draft report that includes results and conclusions.
  - Provide a ReadMe file for the code if it is written by you.

# Should we code?

**Yes, you should provide your own implementations**

You can use chatGPT or other AI tools to help you with implementations.

# Topics that are not allowed

**PAC-MAN**

# Potential Topics

1. choose a topic for the project
2. identify problems to be solved as part of the project
3. if these problems allow you to use the material covered by this course, move to the next step otherwise, go to step 1

- checkers
- $n$-puzzle
- crosswords
- $n$-queens
- kalah variations
- chess variations
- sudoku
- boolean satisfiability problems
- multiplayer games
- (non-)zero sum games
- etc.

# Potential Techniques

- Informed and Uninformed search strategies
- Weighted $A^*$ search
- Memory-bounded search strategies
- Pattern databases
- Local search strategies
- Non-deterministic search strategies
- Online Search
- Adversarial search strategies
- Monte Carlo Tree Search
- Inference in CSPs
- CSP search strategies
- etc.