**Project overview**

The practical part of the course consists of a team project in which you will design, implement, evaluate and write about a restaurant recommendations dialog system using various methods from AI, such as domain modeling, text classification using machine learning and user experience testing. The project is divided into two parts.

1. The first part of the project concerns the implementation of the dialog system: modeling the domain in a dialog model, implementing and evaluating a machine learning classifier for natural language, and developing a text-based dialog system application based on the dialog model.
2. The second part of the project is about evaluating your system: designing, carrying out and reporting on user experiments, as well as thinking about your system in the wider context of AI.

For each part you need to submit a report - the deadline for the first report is halfway through the course, and the deadline for the second report is at the end of the course.

Learning goals for Part 1:

* Understanding and modeling a specific knowledge domain
* Implementing and empirically evaluating a machine learning-based NLP algorithm
* Implement a working AI system using Python
* Writing a technical report about an AI system and its performance

Learning goals for Part 2:

* Designing an experiment with human participants as a way to test a hypothesis that follows from a research question
* Conducting an experiment with human participants as a way to test a hypothesis (and experiencing the difficulty of collecting good data, and why you need to think about this hard)
* Analyzing empirical data using statistical techniques
* Writing a scientific report about your system's empirical evaluation and its place in AI

**Teamwork**

For the project, teams of 4 students will be formed. We will aim to put students with different skills (programming, writing, experimentation) together as much as possible. In order to help us do this, we ask you to fill in a skills questionnaire. You will then be informed of the people in your team before the first lab.

The project is intended to be a good learning experience for all team members, which means that we encourage all team members to work on their own version of the project (program in Python, perform statistical tests, write a paragraph on the results) for at least a few hours before comparing their work to their team mates'. Please also try to help each other as much as you can: some of you will be experienced programmers whilst others will have performed multiple experiments. We ask you to provide an overview of the contributions of individual group members to the project, as a table containing tasks, the person that performed the task, and the amount of time spent on this task. Include a brief reflection on the planning of the project and the individual contributions.

If there is any problem with the distribution of the workload or the active participation of some of the team members, please mention this to your TA as soon as possible - a discussion after the fact is usually less productive.

**Lab rooms**

For this course lab rooms are provided on campus where you can work with your team. During lab hours teachers and teaching assistants are available for support in the lab rooms. Details on scheduling of groups in the rooms can be found in MyTimetable.

**Planning and deadlines**

Both part 1 and part 2 are divided into different subparts, for which there are different deadlines. The planning of the full project is as follows.

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| --- | --- | --- | --- |
| Link | Description | Week | Deadline |
|  | **fill in skills questionnaire** | 37 | September 8th |
|  | Part 1a: text classification | 38 | September 15th |
|  | Part 1b: dialog management | 39 | September 22th |
|  | Part 1c: reasoning and configurability | 40 | September 29st |
|  | **Part 1: submit report and implementation** | 40 | **October 8th (Sunday)** |
|  | Part 2a: experiment design | 41 | October 12th (submit report to peer group for review) October 15th (peer review) |
|  | Part 2b: method implementation and data collection | 42 | -- |
|  | Part 2c: statistical analysis and implementation | 43 | October 26th (report to peer group and workgroup teacher) October 30th (peer review) |
|  | Part 2d: finalization | 44 | -- |
|  | **Part 2: submit report** | 45 | **November 9th (Thursday)** |

For Part 1, the intermediate deadlines (September 15, 22, 29) are intended to submit the deliverables (code, diagrams, report drafts) for the various subparts. The intermediate submissions will not be graded, but you will receive remarks and suggestions for your submission during the next week. It is not mandatory to submit subparts, however you can use the provided feedback to improve your final submission of the report and implementation. We request that you only submit serious attempts for the intermediate deliverables, if you know there are large flaws or missing functionality in your code then it is not particularly useful to receive these already known flaws as feedback. All deliverables must be submitted through Blackboard, other types of submissions (via e-mail or Teams for example) will not be taken into consideration.

For part 2, intermediate submissions will be assessed using peer feedback. You will use the forms that are provided in appendix C, and submit these to the other lab group via Microsoft teams at least two days before the next meeting. Each team member provides their own independent peer-review. These peer-reviews are shared and not blind. See instructions in Appendix A and C.

**Grading criteria**

The project grade consists of separate grades for Part 1 and Part 2, each of which count for 30% towards your final grade (i.e., the full project counts for 60% of the total grade). Both project grades need to be 5.0 or higher as a prerequisite for passing the course. If you score 4.0 or higher for one of the project parts then you can submit an improved version of that part of the project for a maximum grade of 5.5 for the resubmitted part. The deadline and requirements for improvements are set on an individual basis. The requirements on the code and the reports are detailed in the descriptions of the parts.

Also see the general course information for information about grading.