REI603M - Assignment 1
Project Proposal and Preliminary Research

Submission Instructions: Please submit this assignment via Canvas as a `.zip` file containing a PDF report and your presentation slides (either in PDF or PPT format). Please name your submission file as

`REI603M_Assignment1_YourName_YourPartnerName.zip`

The deadline for online submission is at 18:00 on the 17th of January.

Collaboration Policy: You are encouraged to collaborate with one partner from the course on this assignment. Please ensure that you work with the same partner throughout the semester[1] to have a consistent learning experience. Note that you will be grading your partners, so aim to balance the amount of work you do in a fair manner.

Project Trajectories

Throughout this course, you will engage in a project that aims to follow the AI lifecycle. While you are encouraged to commit to your initial project idea, it is advisable to have a backup plan in case you need to change your focus..

Your project can follow one or both of the following two trajectories:

- **A Product:** Develop a prototype or proof-of-concept for a product that addresses a tangible business problem, creating value for a specific target audience. This project could enhance your CV, serve as a basis for seeking funding, or even lead to a startup venture.
- **A Research Paper:** Investigate a research problem with the potential for publication. Publishing your findings in a Scopus indexed venue during the course will earn you an automatic top grade.

[1] You are allowed to split up and/or change partners if issues arise. Please inform the instructor if that happens.

Inspiration and Resources

For research inspiration, consider exploring workshops at LREC-COLING. You may also find other conferences with suitable deadlines within our course timeline.

If you opt to develop a product, the following resources can aid in finding datasets and models for your project:

- Huggingface datasets.
- Datasetlist.com
- Kaggle
- Google dataset search
- VisualData

For model exploration, Papers with code and Huggingface are excellent resources for discovering research and models shared by the community.

The Task

Your report (2-page maximum) should include the following:

- Propose ten potential problems that could be addressed in this course, providing detailed context and justification for each.
  - **Good example:** "Applying LLMs such as GPT-4 to create multiple-choice questions from textbooks. Approved questions would be automatically exported to a web app for live polling in class. Rejected questions could be improved, which could be stored as training data to fine-tune a model in such a task.".
  - **Bad example:** "A model to classify images".
- Select three of the proposed problems and conduct preliminary research on them, addressing the following points:
  - Define the business problem or research question.
  - Identify the necessary data for your project.
  - Discuss potential models or architectures for solving the problem.
  - Determine whether you need to train a model from scratch or can adapt an existing one.
  - Review recent work on similar problems, focusing on developments from the last few years.
  - Address ethical considerations, including privacy, fairness and transparency, related to your chosen problem.
- Add a short disclaimer at the end of the report on how you used LLMs such as chatGPT.

Your presentation should:

- Summarize the three problems you elaborated on in your report.
- Introduce an AI product, service, or research paper that you find compelling and believe would interest the class.
- Consist of no more than five slides.

- Last between 5-10 minutes.

Rubric and Peer Evaluation

Each peer evaluation criterion is scored on a scale from 0 to 5, with 0 indicating non-compliance and 5 representing exceptional work. To receive a full grade, one must score at least 20 points out of 25. The following provides guidance on what each score range represents:

1. **Problem Identification (0-5 points):**
    - **0 points:** No problems submitted.
    - **1-2 points:** Problems are vague, lacking context or relevance to the course.
    - **3-4 points:** Problems are clear, relevant, and show an understanding of the course material.
    - **5 points:** Problems are exceptionally well-articulated, deeply thought out, and demonstrate a high level of insight and originality.
2. **Background Research Depth (0-5 points):**
    - **0 points:** No research presented or evidence of understanding.
    - **1-2 points:** Research is superficial, with minimal effort to understand or explore the problems.
    - **3-4 points:** Research is solid, with evidence of a good understanding and some exploration beyond the basics.
    - **5 points:** Research is comprehensive and detailed, demonstrating a thorough understanding and extensive exploration of the subject matter.
3. **Ethical Considerations (0-5 points):**
    - **0 points:** No consideration of ethical issues.
    - **1-2 points:** Ethical considerations are mentioned but not explored or addressed in any depth.
    - **3-4 points:** Ethical issues are identified and addressed with a reasonable level of understanding and thoughtfulness.
    - **5 points:** Ethical considerations are deeply integrated into the project proposal, with a comprehensive and nuanced understanding of the implications and potential solutions.
4. **AI product/service/research paper (0-5 points):**
    - **0 points:** Nothing presented.
    - **1-2 points:** Brief mention of some product, service or research without any elaboration.
    - **3-4 points:** You understood what was presented and its importance.
    - **5 points:** Exceptional engagement, you feel interested in spending time on your own to learn more about what was presented.
5. **Presentation Skills (0-5 points):**
    - **0 points:** Inadequate presentation, with a lack of clarity and organization.
    - **1-2 points:** Presentation is somewhat clear but lacks engagement or organization.

- **3-4 points:** Presentation is clear and organized, with good engagement and communication of ideas.
- **5 points:** The presentation is exceptionally clear, well-organized, and engaging, with communication that significantly enhances understanding and interest.

The peer evaluation form will be distributed via Google Forms prior to the presentations. You will also use that form to grade your partner where you simply need to state how you split the workload. Your grade will be adjusted based on how you split the work. Both partners must report their workload split, and the resulting grades will be averaged.

- 40-60 and 50-50 splits result in the same grade for both participants.
- 20-80 to 30-70 splits result in the higher achiever improving their grade by 0.5 (if possible) and the lower achiever lowering their grade by 0.5.
- 10-90 splits mean that the higher achiever receives a 1 higher grade (if possible) and the lower achiever lowers their grade by 1.
- More imbalanced splits will mean that only one person receives a grade for the assignment.

Please accurately report the division of your workload. If you cannot work with your partner, then you can decide to split up. You are not stuck with each other.

Presentation Schedule

In-class presentations will take place on January 18th. If you opt to submit a recorded presentation, please ensure it is submitted by 18:00 on January 17th for playback during the class session.

For any inquiries, feel free to post your questions on Ed or contact the instructor at `hafsteinne@hi.is`.