Introduction to Artificial Intelligence Course Project Ideas

## Project 1: Predict total sales for every product and store in the next month.

In this project you will work with a dataset of a store chain in Russia consisting of daily sales data.

For successful completion, you are required to do the following tasks:

* Data Preprocessing
* Data Exploration
* Feature Selection and Correlation
* Splitting Testing and Training Data
* Modeling
* Training and Evaluation
* Model Evaluation

Dataset format: CSV Files

Complete Dataset description will be provided.

ML Models: Open choice to choose any ML model.

## Project 2: Detect Weapons in X-Rayed videos of security scanners.

Security scanners on airport plays an integral part in airport security. Security personals watch the video of the luggage being scanned and see for any dangerous item such as weapons. In this project, you are going to train a ML model that auto detects weapons from the scanner videos.

You will work with the dataset of different kinds of weapons. You are required to train your model on the given dataset. You can annotate your own dataset as well. The task is to detect weapons in the scanner videos.

For successful completion, you are required to do the following tasks:

* Use the annotated data provided in the project or use any dataset of your choice
* Modeling – You are open to use any Deep Learning model of your choice
* Training and Evaluation

**Dataset: Uploaded in Teams**

**Dataset2: https://domingomery.ing.puc.cl/material/gdxray/**

## Project 3: Sentimental Analysis on YouTube Comments of VP and Presidential Debates

Sentiment analysis (also known as opinion mining or emotion AI) refers to the use of natural language processing, text analysis, computational linguistics, and biometrics to systematically identify, extract, quantify, and study affective states and subjective information.

In this project you will work with the dataset of comments on presidential debates. The dataset contains comments (YT comment scraped) and a sentiment calculated using the TextBlob library. The task is to sentiment the comments (and try to extract key words of each comment).

For successful completion, you are required to do the following tasks:

* Use the annotated data provided in the project or use any dataset of your choice, but the dataset should not have open solution for sentiment
* Modeling – You are open to use any Python and various other NLP Libraries followed by some data visualization tools
* Training and Evaluation

**Project Groups**

One or two students can form a group.

**Grading criteria**

We follow the guideline for bachelor theses in Engineering (<https://www.uhr.no/_f/p1/i2803bcbe-1f46-4822-8a70-f0e52f5a6a8f/eng_grade_descriptions_and_assessor_information_bachelorthesis_uhr_logo.pdf>)

**Report template**

General sections from a typical technical document are OK, a good example:

1. Introduction
   1. Project motivation
   2. Project scope
   3. What you have achieved
2. Background

Background information needed to understand the technical details in the rest of the report

1. (Your implementation, e.g., Object Dectection for Security Scanners)
2. Experiments
   1. Datasets
   2. Results
   3. Analysis, comparisons, and discussions
3. Conclusion

**Oral session (after the delivery of project reports)**

We will have a 5-minute oral Q&A session with each project group, no presentation needed. Mainly to have discussions on some technical and implementation details.