**Group Project – Developing Full-Stack Intelligent Apps**

**Due Date:** Group presentation in Week 14.

Purpose: The purpose of this project is to:

1. Design and code a full-stack app that incorporates AI solutions
2. Build a Rest or Graph QL API
3. Build a Front-End the Rest/Graph QL API
4. Apply appropriate design patterns and principles
5. Use AI to make intelligent use of data

References: Read the textbook, lecture slides, class examples, and additional references provided here. This material provides the necessary information that you need to complete the project. You may need to read and use more materials and tools to implement a good solution.

Be sure to read the following general instructions carefully:

* This Project **may be completed in groups of 3-4 students**.
* You will have to **present and demonstrate your solution in Week 14** and upload the solution on eCentennial through the assignment link**.**
* **Your project should be named “YourGroupNameCOMP377Project” and should be zipped in a file YourGroupNameCOMP377Project.zip**.

**Project Requirements**

Your client needs an application to automate the classify/predict tasks. Develop a full-stack app composed of:

1. A friendly UI that allows users and administrators to use/administer the system
2. **Structured and/or unstructured data** access API
3. A modern backend API to perform classification tasks

You are supposed to use an AI algorithm and build a full-stack solution for any of the following problems:

* Object classification
* Facial recognition
* Image classification
* Predicting various diseases
* Predicting prices

Apply **the correct architectural patterns for the both front-end backend** parts. **(100 marks)**

**Evaluation of software solution (all items need to be shown during the group presentation):**

|  |  |
| --- | --- |
| **Evaluation Component** | **Percentage** |
| **Functionality**: |  |
| Correct data storage option | 10% |
| Correct Rest API MVC or Graph QL (proper use of design patterns) | 20% |
| Correct Front End (proper use of architecture/libraries/frameworks) | 20% |
| Intelligent use of data using neural networks including:   * Data Preparation * Building the model * Training, Evaluation, Parameter tuning * Classification/Prediction | 40% |
| **Friendliness** | 10% |
| **Total** | **100%** |

References:

* Textbook
* Reference textbooks
* <https://www.tensorflow.org/>
* <https://www.tensorflow.org/guide/keras/rnn>
* <https://www.tensorflow.org/tutorials/images/cnn>
* <https://www.deeplearning.ai/the-batch/>
* <https://www.kdnuggets.com/>
* <https://dzone.com/artificial-intelligence-tutorials-tools-news>