



## 2025/26 Semester 1

### IDAT7215 Computer Programming for Product Development and Applications

#### Group Project Guidelines

#### Group Project (25%)

Version: 02 October 2025

#### Topic:

This is a group project that accounts for **25%** of the subject assessment. Students will need to form a team of 5-7 members. Each group can select one of the following topics for the project:

1. You can propose your own project topic related to your work in which you are using Python Programming. Please send the title and a brief description to [zulfiali@hku.hk](mailto:zulfiali@hku.hk) no later than 16 October 2025. However, it can not be your previous project. In the email, the subject includes **"IDAT 7215- Group XXX"**.
2. Write a Python script to develop an expert system.
3. Make a systematic comparison of different machine learning models (i.e., Linear Regression, Logistic Regression, Decision Tree, Random Forest, Naiver Bayes, KNN, SVM) and Deep Learning Models (i.e., ANN and CNN) over a meaningful dataset and conclude.
  - a. **Where can I find data?** You may obtain/choose your input data from any of the following:
    - i. Hong Kong Dataset: <https://data.gov.hk/en/>
    - ii. <https://www.v7labs.com/blog/best-free-datasets-for-machine-learning>
    - iii. <https://www.sama.com/blog/11-open-source-datasets-for-machine-learning/>
    - iv. <https://pub.towardsai.net/best-datasets-for-machine-learning-data-science-computer-vision-nlp-ai-c9541058cf4f>
    - v. Any other open sources
  - b. **Note:**
    - i. Try to find a reliable and quality dataset.
    - ii. You may need to reorganize, manipulate, clean, or even remove some data in the downloaded Excel files.

#### Deliverables:

1. A project report that includes the introduction, project description, results and discussion, conclusion, and references.
2. Source codes and a README file on how to reproduce your experiments and the plots.

## Assessment Criteria:

1. Completeness of your project. (20%)
2. Quality and quantity of your implementation. We expect you to code by yourself. If you need to use some open-source code, please clearly specify which parts of the code are from open-source and which parts are developed by you. (40%)
3. Quality of your report, with a focus on the presentation, analysis of experimental results, and visualization. (30%)
4. Quality of your Oral Presentation. (10%)

## Key Dates:

1. Soft Copies of (1) **Project Written Report**, (2) **Oral Presentation**, (3) **Zip file of source codes with a readme file**, uploaded to Moodle and Turnitin (by group leader only) on 30 November 2025 (Sunday) (no later than 05:00 pm to Moodle and Turnitin).
2. **Oral Presentation:** 20-27 November 2025 (Thursday).

## 1. Guidelines on Project Written Report (20%)

The group project report should be submitted on 30 November 2025, before 5 pm, to Moodle and Turnitin, typed on A4 paper in **single line spacing** and **font-size 12, font-style Times New Roman**. The length of the report is to be **2,000 to 4,000 words**, excluding Appendices, Charts, Tables, References, and Individual contributions. When writing up the final report, students should write professionally, including a cover page, table of contents, introduction, body, recommendations, conclusion, cited references in the content, a **reference list** at the end of the report, and contributions of members. Additional information sent in separate file(s) before and after the deadline will not be read/marked in any circumstances.

### **Word limits and penalties for assignments**

Summarizing and compressing the information in your assignment into the word limit is one of the skills that students are expected to acquire and demonstrate as part of the assignment process. No penalty will apply if the assignment is within +10% of the stated word limit. However, if the word limit exceeds the +10% limit, 10% of the mark provisionally awarded to the assignment will be deducted.

Below is a brief breakdown of the report structure. You may decide the proportion of the following topics according to the specific situation of your selected project.

1. **Cover page** (including subject code & title, class, and group number, student names and numbers, and **word count**)
2. **Table of contents**
3. **Abstract**
4. **List of Figures**
5. **List of Tables**
6. **CONTENTS**

#### **Section 1: Introduction**

- 1.1 What is the motivation?
- 1.2 What is the purpose of the selected project?
- 1.3 Provide a brief background of the selected project.
- 1.4 What are the proposed tools to handle that project?

## Section 2: Project Description

- 2.1 What is the main objective?
- 2.2 What are the techniques you are going to select to address the proposed problem?
  - Classification analysis, supervised or unsupervised learning techniques, etc.
- 2.3 Brief description of each algorithm's background and how you plan to apply it to your project.
  - **Briefly** discuss the Pseudocode for better understanding.

## Section 3: Results and Discussion

- Describe the results based on the observation of the experimental setup.
- Also, do a discussion on how we can manipulate the results via tuning the parameters.

## Section 4: Conclusion

- 7. **Individual Contribution Reports (300 - 600 words)**
- 8. **References** (Show sufficient evidence of information search, with correct IEEE citation format)
- 9. **Appendices**

## Individual Contribution Statement

An individual contribution report (**300 - 600 words**), where each student will describe their personal contribution to the project.

## 2. Guidelines on Oral Presentation (10%)

All groups must present their project work in the presentation form on 20-27 November 2025 (Thursday). Each member needs to present. Each group has been allocated 20 mins, which are further divided into 15 mins to present and 5 mins for Questions.