**COMP6062001-Compilation Techniques**
**FINAL PROJECT**

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## Compiler/Interpreter Construction Applications

**Due : Week 13**
Group Project: Max 3 students per group, cross class

The main goal of this project is to **apply the principles of compiler design to solve the problem**. In working on this project, you are also expected to develop your coding, research, teamwork, presentation and writing skills.

The project requires you to:

- Choose a specific problem
  - What is the background?
  - What is the problem?
- Determine how to solve the problem
- Follow the principles of compiler design and implement it in code
- Provide the proof you have solved the problem
- Report the results of the project
- Use the references from books/journals/proceedings (minimum 3)

You're encouraged to pick a topic close to your own interests (e.g. another area of CS, or something else entirely).

Some examples of the problems that you can choose for this project:

- Your "…." language Interpreter
- Your "….." language Compiler
- HTML Checker
- HTML Parser
- Malicious Code Detection
- Translating LaTeX to HTML
- A Graph-Drawing Tool
- Audio to Text Tool in English or Indonesia
- Video to Text Tool in English or Indonesia
- Audio-command User Interface

### Solution Implementation Instructions

You may work in group of minimum 2 persons and maximum 3 persons. The job division among group members should be clear from the beginning.

Your solution should be in a form of an application (and a data structure library if your problem requires an algorithm that is not yet implemented in any specific language libraries). You are free

to implement the solution using your preferred language (recommended using C++/Python_, use/implement relevant libraries, and use a GIT website to store all your codes.

Please mark or put references to all things (code, pictures, methods, etc.) that you use from external sources for your project. So please indicate clearly in your code by proper comments the things that you take from external sources. As a guideline, please **do not use more than 60%** of your code from external sources.

## Marking guide for the project

The project will be marked using the following marks breakdown:

| **Marking Components** | **Marks** |
|---|---|
| Interestingness of the problem | 10 |
| Correctness of the method-algorithms | 15 |
| Efficiency of the method-algorithms | 15 |
| Quality of implementation | 15 |
| Difficulty of the implementation | 10 |
| Teamwork | 10 |
| Presentation | 10 |
| Documentation | 15 |
| Total | 100 |

## What to Hand In

Hand in a project report (max. 30 pages single space) using MS Word standard template and use minimum 3 references (books/journals/proceedings). The report should contain:

- Introduction
  - Background
  - Problem description
  - Proposed solution
  - Features of your solution
  - Scope/job division of each member (name of the member and what you have done)
- Related Works (the latest "technology"/method that other researchers do)
- Implementation
  - Data Sets **(Please Use Public Data Sets)**
  - Method how to do it (from the beginning until the end). Please provide the figure.
  - Implementation details: explain the method – code – example/result
  - Test
- Evaluation & Discussion
  - Have you solved the problem? Provide the proof!
  - Analyse it
- Conclusion and Recommendation

- References (list)
- Appendix:
  - Program manual, how to execute (with screenshots)
  - Link to the application demo video (with max. length of 3 minutes)
  - Link to the GIT website

Also, hand in your project presentation, all of your data, codes, and the executable files (if any). Remember to document your code properly.

Please upload all of the required things above to a Google Drive/One Drive/… and GIT website such as Github and send the links to your lecturer (*the submission form link will be informed later*).

For the details of the project deliverables, please also consult the **Student Project Guidelines** document for the Computer Science Program.

**Timeline**

Choose the topic, explain the problem, and features = week 4

Project Milestone Presentations = week 7

- Presentation:
  - Presentation slides (max 10 slides)
  - Show the progress

Progress report (show or discuss the latest progress) = week 10

Final project Presentation & project report = week 13

- Presentation:
  - Presentation slides (max 15 slides)
  - Live Demo/show the video
  - QnA
- Submit (upload):
  - Presentation slides
  - Project Report (max 30 pages)
  - All of your data, codes, and the executable files
  - Demo video (with max. length of 3 minutes)

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