University of Windsor
Faculty of Science

COMP 8157 Advanced Database Topics
University of Windsor, School of Computer Science
Group Project
Weight: 25 %

Each student should carefully read the following information of the final project.
You will have to perform significant background research before you submit the project proposal.

In September 2015, the General Assembly adopted the 2030 Agenda for Sustainable Development that includes 17 Sustainable Development Goals (SDGs). Building on the principle of "leaving no one behind", the new Agenda emphasizes a holistic approach to achieving sustainable development for all. Please see the complete list at https://www.un.org/development/desa/disabilities/envision2030.html.

Each team will select a project that can be applied to any one of the 17 themes.

You can propose topics in **one** of the two broad areas:

a) **Research-based**: Your final project is intended to be significant research to advanced database topic of your choice. Topics may include big data/distributed databases/non-relational databases. You can search for contemporary research topics in conferences/journals and extend them.

b) **Application-based**: Develop advanced database applications. Your project should be interesting, valuable and goes in-depth on database implementation on various aspects within the field of databases. Please note that these applications have to be relatively complex and cannot include applications like Hotel Management system, Hospital management system etc.
Focus on value to the outcome.
Be realistic and Think of a project you can complete (you will have a limited timeline).

Project submission phases are as below:

Forming Group - Deadline: 20th May 2023

You will get in groups of 3 or 4 with students from the same section. Students may not work on projects in groups of 2 or individually. Each group will enter the group name and the member names, project topic and project lead in the document, shared through One Drive (links below).

- Section 4 (MO 08:30 am):Section4_Project_Groups.docx
- Section 1 (MO 11:30 am): Section1_Project_Groups.docx
- Section 2 (TU 08:30 am): Section2_Project_Groups.docx
- Section 3 (WE 11:30 am):Section3_Project_Groups.docx

P1: Project Proposal - Grades: 5 % points, Deadline: (Sec 1 & 4: May 28; Sec 2: May 29; Sec 3: May 30)

Your project proposal should be a document (**3 pages max**) that includes title, group name, team members and description of the following information. **Submit the proposal as a Word file**. Your proposal will be reviewed thoroughly. You can proceed with your project ONLY upon receiving a confirmation email from your Instructor/GA.

- **Abstract** (20% points)
  Aim and objectives of your project. Why and how you plan to achieve this aim. What is the expected end result.

- **Problem description**: a description of the problem (20% points)
  A description of the problem. Provide the reason why your project is important/useful (your reason should convince the audience that you are doing something great in your project).

- **Motivation for the problem** (20% points)
  What motivates you to take up this problem? Why is the problem interesting, why is it challenging, who will benefit from a solution to the problem, etc.)

- **Solution statement/technology** to be used for implementation (20% points)
  statement/technology to be used for implementation.

- **References** (10% points)
  Use and write relevant and latest (mostly 2019 - 2023) references in IEEE format for the project. Citations and references must be correctly listed according to the requirement.

- **Presentation** (10%)
  Each group will present their work for 5 minutes during your class. If any member of your group did not present for the presentation, they would get ZERO for the presentation.

P2: Project Milestone - Grades: 10% points, Deadline: (Sec 1 & 4: Jun 25; Sec 2: Jun 26; Sec 3: Jun 27)

Your milestone report is a **word document** (**max 6 pages)** that include title, group name, team members and description of the following information.

- **Abstract** (5% points): Revise your abstract from phase 1, based on the new findings.
- **Introduction** (5% points)
  Statement of the project purpose must be clearly and completely described. Summarize everything done in phase 1 (except Abstract) under this heading (with sub-headings). You may need to restructure and redraft this section. Make sure that aim, objectives and uniqueness of your work is clearly given.

- **Literature/ Background Study** (30% points)

- If your project builds on previous work, clearly distinguish what they did from what your new contribution is.
- State their significant work
- Limitation of their model/ product.
- Last paragraph should be the summary of your findings and your analysis of the work done by other researchers
- Support your comments with references from journals and conference publications

- **Proposed Model / Implementation Details** (30% points)
  It shows the overall model or idea. Provide the required information (explanation) about your model. Include the workflow diagram and provide the required explanation.

  Discuss how your proposed model differs from the existing works. include all the features of your product. get a screenshot of an important feature and explain it

- **System Definition (Functional Requirements)** (10% points)
  Clarity in product features or functions that you plan to implement to accomplish the task.

- **References** (10% points):
  Use and write relevant and latest (mostly 2019 - 2023) references in IEEE format for the project. Citations and references must be correctly listed according to the requirement.

- **Presentation** (10%)
  Each group will present their work for 5 minutes during your class. If any member of your group did not present for the presentation, they would get ZERO for the presentation.

P3: Final Report Submission - Grades: 10% points, Deadline: Sec 1 & 4: Jul 30; Sec 2: Jul 31; Sec 3: Aug 1.

Your final report is a word document (max 10 pages) that include title, group name, team members contribution percentage and description of the following information. You should write a final report in an IEEE format (2 columns). It should be structured as below. You must format your report in two columns. Font size of 12pt.

i. **Abstract** (5% points) Revise your abstract from Phase 2. Make sure to add your results.

ii. **Introduction and Motivation** (5% points) that states the Updated introduction from Phase 2.

iii. **Literature/ Background Study** (5% points): Refined literature review from phase 2.

iv. **Proposed Model** (5% points) Refinement of work done in Phase 2. This task shows the overall model or idea. Provide the required information (explanation) about your model. Include the workflow diagram and provide the required explanation.

v. **Results** (30% points). Includes analysis and results of your work. if it is a research work, show the result of your work and comparison with other approaches. If you created UI for displaying your task, show the demo. Give higher priority to the database concept that you implemented in your model. It may also include following (provide a required explanation)

- Required or necessary figures related to your product.
- Results as a chart or any other format
- Screen shots of your demo

vi. **Limitations or Challenges** (15% points) of your approach.

- Describe some settings in which we'd expect your approach to performing poorly.
- Try to guess or explain why these limitations.
- Explain the challenges you faced with the project.

vii. **Conclusions and future work** (15% points)

- Highlight the key points in your analysis or findings.
- Summarize your thoughts and conveying the larger implications of your study.
- Demonstrate the importance of your ideas. Elaborate on the significance of your findings.
- Introduce possible new or expanded ways of thinking about the research problem. Offer new insight and creative approaches for framing/contextualizing the research problem based on the results of your study.

viii. **References** (10% points)
Use and write relevant and latest (mostly 2019 - 2023) references in IEEE format for the project. Citations and references must be correctly listed according to the requirement.

ix. **Presentation** (10%)
Each group will present their work for 5 minutes during your class. If any member of your group did not present for the presentation, they would get ZERO for the presentation.

NOTE:

1. Each progress step should be submitted on Brightspace. Email submissions will not be accepted.

2. Do not miss any deadline. Late submission of each step is 10% per day including weekends and holidays, for the group. Component more than 3 days late will be graded ZERO.

Sources:
You can find research articles from the following journals and/or conferences.

- **Journals**
    - ACM Transactions on Database Systems
    - Data and Knowledge Engineering

- **Conferences**
    - ACM Special Interest Group on Management of Data
    - ACM Principles of Database Systems
    - Very Large Databases (VLDB)
    - IEEE International Conference on Data Engineering
    - SIGKDD