**CS2209 Information Storage and Management II**

*2023/2024*

**Assignment**

**Due: 2359hrs 16th April 2024**

**The assignment is worth 10% of the final module score**

**All work must be your own**

**Group No:** \_\_\_\_\_\_\_\_\_\_\_

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| Group Member 1  **Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Student No:** \_\_\_\_\_\_\_\_\_\_\_ | Group Member 2  **Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Student No:** \_\_\_\_\_\_\_\_\_\_\_ | Group Member 3  **Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Student No:** \_\_\_\_\_\_\_\_\_\_\_ |
| Group Member 4  **Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Student No:** \_\_\_\_\_\_\_\_\_ \_ | Group Member 5  **Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **Student No:** \_\_\_\_\_\_\_\_\_\_\_ |  |

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| **Student Declaration**  This is to certify that the work we are submitting is our own and has been done by us solely without using any AI-generated contents and not in consultation with anyone else. Neither we nor anyone else have submitted this work for assessment, either at University College Cork or elsewhere. We have read and understood the regulations of University College Cork concerning plagiarism. Where breaches of the declaration are detected, these will be reviewed under UCC student conduct and plagiarism policies. Any breach of the assignment rules is a serious issue and can incur penalties. |

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**You should submit this worksheet with your solution via Canvas.**

**Please start your answers on the next page.**

The overall objective of this assignment is to put the information storage and management II (CS2209) concepts that we learn in class to use in a real-world context. Your group members need to answer **ALL** questions using **ONE (1)** of the following project options, based on your group number (e.g., group #**15** will work on the project **#15**).

**1**. Plone Foundation - Python-based CMS, with React front-end - <https://summerofcode.withgoogle.com/programs/2024/organizations/plone-foundation>

**2**. CVAT - Computer Vision Data Annotation Platform for AI - <https://summerofcode.withgoogle.com/programs/2024/organizations/cvat>

**3**. Jitsi - State-of-the-art video conferencing - <https://summerofcode.withgoogle.com/programs/2024/organizations/jitsi>

**4**. omegaUp - Open CS Education as a catalyst for social change - <https://summerofcode.withgoogle.com/programs/2024/organizations/omegaup>

**5**. Mautic - Free your Marketing with Open Source! - <https://summerofcode.withgoogle.com/programs/2024/organizations/mautic>

**6**. Global Alliance for Genomics and Health - We develop genomics tools to benefit human health - <https://summerofcode.withgoogle.com/programs/2024/organizations/global-alliance-for-genomics-and-health>

**7**. Open Transit Software Foundation - Help make public transit better - <https://summerofcode.withgoogle.com/programs/2024/organizations/open-transit-software-foundation>

**8**. Wagtail - The powerful Python CMS for modern websites - <https://summerofcode.withgoogle.com/programs/2024/organizations/wagtail>

**9**. Open Chemistry - Advancing Open Source & Open Science for Chemistry - <https://summerofcode.withgoogle.com/programs/2024/organizations/open-chemistry>

**10**. Purr Data - Realtime Audio/Visual Programming Environment - <https://summerofcode.withgoogle.com/programs/2024/organizations/purr-data>

**11.** Zendalona - FOSS accessibility solutions for visually impaired - <https://summerofcode.withgoogle.com/programs/2024/organizations/zendalona>

**12.** Mixxx - DJ Mixing App With Powerful Features For All DJs - <https://summerofcode.withgoogle.com/programs/2024/organizations/mixxx>

**13.** AnkiDroid - AnkiDroid makes remembering things easy - <https://summerofcode.withgoogle.com/programs/2024/organizations/ankidroid>

**14.** Joplin - The secure note taking application - <https://summerofcode.withgoogle.com/programs/2024/organizations/joplin>

**15.** Sugar Labs - Learning software for children - <https://summerofcode.withgoogle.com/programs/2024/organizations/sugar-labs>

**16.** Organic Maps - Offline maps app for tourists, cyclers & hikers - <https://summerofcode.withgoogle.com/programs/2024/organizations/organic-maps>

**17.** Open HealthCare Network - Reimagining Healthcare Delivery - <https://summerofcode.withgoogle.com/programs/2024/organizations/open-healthcare-network>

**18.** Oppia Foundation - Free platform for interactive, tutor-like lessons - <https://summerofcode.withgoogle.com/programs/2024/organizations/oppia-foundation>

**19.** Submitty - Homework Autograding and Course Management Tools - <https://summerofcode.withgoogle.com/programs/2024/organizations/submitty>

**20.** Kiwix - Internet content available offline. - <https://summerofcode.withgoogle.com/programs/2024/organizations/kiwix>

**21.** Invesalius - 3D Medical visualization and neuronavigation tool - <https://summerofcode.withgoogle.com/programs/2024/organizations/invesalius>

**22.** Zulip - Organized team chat app designed for efficiency - <https://summerofcode.withgoogle.com/programs/2024/organizations/zulip>

You are supposed to be creative with your thinking and make your own assumptions if needed. Grading is based on the demonstration of domain understanding, technical correctness, design comprehensiveness, and innovativeness.

**Project:** <Write your project number and name here>

**Question 1**. Propose your ideas to enhance/improve the assigned open-source software. It is important to avoid overlaps in ideas/concepts among your group members.

**Part A)** Describe your features/ideas/concepts for the open-source software enhancement.   
You MUST declare any external sources if you reference them in your description (e.g., Website URLs, Books or Articles).

Group Member 1: ***(Min: 100 words – Max: 300 words)***

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| Looking at the Maths Tutor project, there are some additions that could be made to improve the accessibility and engagement of the game. While the game is already inclusive and accessible, I think we can use the concepts learned in this module to add fun features/improvements that would improve engagement, as I believe the game itself it quite barebones.  One such feature that would add a competitive edge to the game would be adding score leaderboards. This could be as simple as asking people for a name when they start a game and logging their score into a centralized database. This would, of course, require an internet connection. This would be a fun way to boost engagement in the game and get a wider audience interested in playing.  Another feature that I believe would improve the game would be to provide feedback on areas of mathematics that need the most improvement (addition, subtraction, multiplication, division). By tracking scores in each area, we could provide feedback on what types of mathematics the user needs the most help with solving quickly. |

Group Member 2: ***(Min: 100 words – Max: 300 words)***

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| <Write your answer here> |

Group Member 3: ***(Min: 100 words – Max: 300 words)***

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| <Write your answer here> |

Group Member 4: ***(Min: 100 words – Max: 300 words)***

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| <Write your answer here> |

Group Member 5: ***(Min: 100 words – Max: 300 words)***

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| <Write your answer here> |

**Part B)** Describe data structures, objects/entities/documents and types involved in your ideas/concepts.

Group Member 1: ***(Min: 100 words – Max: 300 words)***

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Group Member 2: ***(Min: 100 words – Max: 300 words)***

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| <Write your answer here> |

Group Member 3: ***(Min: 100 words – Max: 300 words)***

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| <Write your answer here> |

Group Member 4: ***(Min: 100 words – Max: 300 words)***

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| <Write your answer here> |

Group Member 5: ***(Min: 100 words – Max: 300 words)***

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| <Write your answer here> |

**Question 2**. Discuss and select a relevant database management system for the proposed ideas (e.g., relational, document-based, graph-based databases).

***(Min: 500 words – Max: 2000 words)***

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| <Write your answer here> |

**Question 3**. Design and explain your data models.

Group Member 1: ***(Min: ½ page – Max: 2 pages)***

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| <Write or draw your answer here> |

Group Member 2: ***(Min: ½ page – Max: 2 pages)***

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| <Write or draw your answer here> |

Group Member 3: ***(Min: ½ page – Max: 2 pages)***

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| <Write or draw your answer here> |

Group Member 4: ***(Min: ½ page – Max: 2 pages)***

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| <Write or draw your answer here> |

Group Member 5: ***(Min: ½ page – Max: 2 pages)***

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| <Write or draw your answer here> |

**Question 4**. Write queries to create database objects/records/documents with dummy data (3-10 records/objects/documents). Moreover, illustrate the use of these objects/records/documents in your ideas (3-5 queries/operations).

Group Member 1: ***(Min: 300 words – Max: 1000 words)***

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| <Write your answer here> |

Group Member 2: ***(Min: 300 words – Max: 1000 words)***

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| <Write your answer here> |

Group Member 3: ***(Min: 300 words – Max: 1000 words)***

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| <Write your answer here> |

Group Member 4: ***(Min: 300 words – Max: 1000 words)***

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| <Write your answer here> |

Group Member 5: ***(Min: 300 words – Max: 1000 words)***

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| <Write your answer here> |

**Question 5**. Write your reflections on contributions and lessons learnt.

Group Member 1:

***(Min: 100 words – Max: 300 words)***

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| <Write your answer here>  **Self-rating: \_\_ / 10** |

Group Member 2:

***(Min: 100 words – Max: 300 words)***

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| <Write your answer here>  **Self-rating: \_\_ / 10** |

Group Member 3:

***(Min: 100 words – Max: 300 words)***

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| <Write your answer here>  **Self-rating: \_\_ / 10** |

Group Member 4:

***(Min: 100 words – Max: 300 words)***

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| --- |
| <Write your answer here>  **Self-rating: \_\_ / 10** |

Group Member 5:

***(Min: 100 words – Max: 300 words)***

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| <Write your answer here>  **Self-rating: \_\_ / 10** |