

Project

This should be completed in groups of 4 – 5. There will be a presentation and a final report for the project.

Suppose you are engaged as a database designer for an organization to support its operations. You have first to choose and determine the exact nature of the organization. You may pick one that you have encountered in real-life or one that you are interested to work for after graduation (e.g. university, sports association, retail, and manufacturing). You have to make certain assumptions concerning the organization's operations, as well as the underlying entities, attributes and relationships. You should state and justify these assumptions clearly, and these assumptions should be reasonable and realistic. Your project must include the following.

1. Analyze the requirements of the organization
2. Identify the relevant entities, attributes and relationships together with any constraints and properties
3. Produce an E-R diagram for the database
4. Convert the E-R diagrams to relational schemas (clearly indicating the primary keys, foreign keys, functional and/or multivalued dependencies, as well as justifying that your designs are in good normalized form)
5. Populate the schemas with a reasonable amount of realistic data
6. Produce sample SQL queries on these relations that are used for practical daily operations and activities
7. Produce sample SQL queries on these relations which are of an analytic or data mining nature (this part is optional and carries extra bonus points of up to 5% of the total project mark)
8. Suggest which data fields of the relational schemas should be indexed or hashed, and explain your decision
9. Implement 4 to 6 (and possibly 7) of the above.

This project should be completed by Week 13, during which project presentations will be held. You should prepare a short presentation of 10 minutes (including Q & A). In addition,

you should submit a project report by **11 pm of the Saturday of Week 13**. The project report should be submitted via Blackboard. Only one submission is required per group. You may submit your report before or after your presentation.

The entire project will account for 20% of the total mark of the subject, with 5% allocated to the presentation, and 15% to the report. With the extra bonus points, the total project mark will not exceed 21%. The report should indicate the nature of contribution of each member, including the division of labor. It is possible and acceptable that all members contribute equally to all aspects of the project, and if so, this should be indicated. However, no member should be unaware of the work of other members, and each member must have a good overall knowledge of the entire project. Good, grammatically correct English is the mark of a good report, and this will be taken into consideration in the assessment of the report.

Project presentations will be held during Week 13. Each group should prepare a presentation of 10 minutes (including Q & A). All members should take part in the presentation. For each group, you should appoint a Group Coordinator, who is responsible for coordinating the various activities and the submission of the final report. Attending the presentation of other groups is not mandatory but is strongly recommended, and you may also interact by asking questions.

By the end of Week 11, each Group Coordinator should email the lead TA (Songyang Ge: 219019040@link.cuhk.edu.cn), informing her the members in your group together with the title and abstract (i.e. summary) of the project. She will produce a presentation schedule by the Thursday of Week 12.

In your report, you should include the following main sections:

1. Introduction and motivation
2. Design and implementation
3. Conclusion and self-evaluation
4. References
5. Appendices

Additional sections or subsections may be included as appropriate. Please feel free to use your judgment concerning the report organization, and to include diagrams and other illustrations. It is expected that the main report (excluding Appendices) should be no more than around 12 pages. The presentation slides, together with any codes or relevant files, should be included as appendices in the report or submitted as additional files.