

Assessment Task 1 - ORM

Name	Assessment 1 - ORM
Due	Friday 19th August 2022 11:59pm
Weight	50%
Type	Group (2 members) with individual
Submit	PDF Document via Blackboard

Each student submits a copy of group task 1 solution and their individual task 2 solution.

Rationale and Description

Foundational to addressing business concerns is an understanding of core concepts, principles and skills required for understanding, designing, and managing databases. This implies understanding the kinds of techniques that are used to model data, and an ability to develop a concise conceptual model that represents a given universe of discourse.

This assessment will involve creating a conceptual schema design for a given universe of discourse and the generation of a relational mapping.

You will use your knowledge from the lectures and the techniques practised in the tutorial sessions and apply both to a set of tasks that refer to some business concern. You will not only perform the necessary steps to solve the tasks, but also provide an explanation of your approach.

Learning Outcomes

A successful completion of this task will demonstrate:

1. Knowledge of conceptual data modelling principles to understand, capture and analyse an abstraction of the complex data aspect of business domains.
2. Develop rigorous database design underpinned by a conceptual data model

Instructions

This assessment will have a Group task with Individual components. You will have to solve **two tasks**:

1. Apply the Conceptual Schema Design Procedure (steps 1 – 7) to a given business concern (group task)
2. Map a conceptual schema design to a relational database schema (individual task)

For task 1, you can use any modelling tool (including MS PowerPoint, LucidChart, or even handwriting) to draw your models. Make sure the diagrams are readable. Assignment submissions are to be made via IFN554 Blackboard (including submission for formative feedback).

Groups should be of **2 members** (exceptions can be made with the approval of the teaching team). Group members should **belong to the same tutorial group**.

Assignment submissions **MUST be a single PDF file** properly identified (student name and number).

Feedback

Feedback will be provided on **specific** questions related to the assessment during the drop-in session times, and via MS Teams. Please note that the teaching team will **NOT** respond to general “is this good enough” style questions or requests to pre-assess your work.

Submission of assessment

All assessment will be submitted via standard QUT electronic submission methods (e.g. Blackboard, Turnitin), and you will need to submit your assessment in the format specified in the assessment task sheet. Assessment will not be accepted by any other method or in any other format. Please note that all assessment is due on a Friday 19th August 2022 11:59pm. You should submit early to avoid delays from technical issues. The most recent assessment prior to the due date will be used for marking. Please ensure that you are aware of QUT's policy on late assignments:

Late Submission – requesting an extension

No member of the teaching team, including the unit coordinator, can grant you an extension for an assignment. If you need one, you must apply through HiQ:

<http://external-apps.qut.edu.au/studentservices/concession/>

You now have two options for assignment extension. There is one assignment extension online form with options for longer extension and an Automatically approved 48-hour extension. You must select unit, assignment and extension type. More information and extension form: qut.to/late-assessment

If you don't have an approved extension, you should submit the work you have done by the due date, and it will be marked against the assessment criteria. Assignments submitted without an approved extension will not be marked and will receive a grade of 1 or 0%.

Reviews

We cannot remark assessments. All assessments will be returned with feedback explaining the reasons for the marks allocated. If you require additional feedback or clarification, discuss it with your tutor. If you believe that there is a component that has not been marked in accordance with the criteria sheet, you must identify it in writing to your tutor.

Academic Honesty

Any action or practice on your part which would defeat the purposes of assessment is regarded as academic dishonesty. The penalties for academic dishonesty are provided in the Student Rules. For more information, consult the QUT Library resources for avoiding plagiarism.

Resources

The following resources may assist with the completion of this task:

- Refer to tutorial materials, Microsoft Teams, and any lecture videos.
- Refer to the recommended book.

Questions

Questions related to the assessment should be directed to the teaching team during the workshops or drop-in sessions and also via MS Teams.

The teaching team will not be available to answer questions outside business hours, nor in the hours immediately before the assessment is due.

Assessment Tasks

Task 1 [25 marks] – Group

ITProjectsRus maintains information about their project team staff members and the projects for customers. Perform CSDP step 1 ~ 6 and **submit your final ORM diagram** (*not required to submit the results of the interim steps only the final diagram*) for the following business concern.

ITProjectsRus business concern

A business called ITProjectsRus employs suitably qualified IT and IS staff and organizes them into project teams to develop and implement technology for a customer. The project team staff fulfil the project roles of project manager (PM), software developer (SD), system analyst (SA), database developer (DD), user interface developer (UID), and tester (T). Other project roles are possible, and a staff member can have a different role in different projects. For example, you are the system analyst in one project, and in another project, you are a project manager. ITProjectsRus maintains information about their project team staff members and the projects performed for customers. The following table shows the list of project team staff members details including their employment start and finish dates.

Staff ID	Staff name	Staff phone	Employment	
			Start date	End date
S201	Charles	014663451	15/04/1991	
S202	Isla	014663452	01/02/2011	31/12/2014
			01/02/2018	
S203	Jack	014663453	15/04/2002	
S204	David	014663454	02/07/2016	31/12/2017
			01/04/2018	05/09/2018
S205	Hermione	014663455	01/03/2004	
S206	Jim	014663456	15/04/2018	14/12/2018
S207	Mary	014663457	12/08/2017	
S208	Kelly		01/12/2020	
S209	Amanda	014663459	15/11/2018	
S210	Thomas	014663460	01/03/2021	

A customer project is reported in a form of project description which describes some important information about the project (e.g., the project name, period, scope, members, etc.) as shown in the following. A project team staff member has only one role in the project. As shown in the examples, the full names of the roles are not used in a project description.

Project Description (Example 1)			
Project ID	P515		
Project Name	Mobile Application to purchase stadium events		
Project Sponsor	TicketsRUs		
Start Date	01/02/2020	Budget	\$100 000.00
Project Description	Mobile application so that customers can book and pay for tickets to stadium events like football and music concerts.		
Project Period (year)	2		
Scope	Identify system functionality from sample groups. Mobile App will function on all mobile devices Display list of events, seating options and prices Purchase an ETicket (securely coded). Payment options to be included. <i>... The scope goes on to explain further requirements included in the project.</i>		
.....			
Project Members	Role	Name	
	PM	Charles (S201)	
	SA	Jack (S203)	
	SD	Hermoine (S205)	
	DD	Mary (S207)	
	UID	Kelly (S208)	
	T	Amanda (S209)	
	Total Number	6	

Project Description (Example 2)			
Project ID	P417		
Project Name	Mobile application to monitor vending machines.		
Project Sponsor	VendingMachinesRus		
Start Date	15/05/2018	Budget	\$ 75 000.00
Project Description	Mobile App will function on all mobile devices Mobile App will connect via mobile phone to selected vending machine. Vending machine status will be displayed Vending machine able to view stock levels, change dispenser, and cash drawer value Vending machine activity log is viewable. Able to generate an order to supplier.		
Project Period (year)	1		
Scope	Develop and implement a mobile application to ... <i>The scope goes on to explain further requirements included in the project.</i>		
.....			

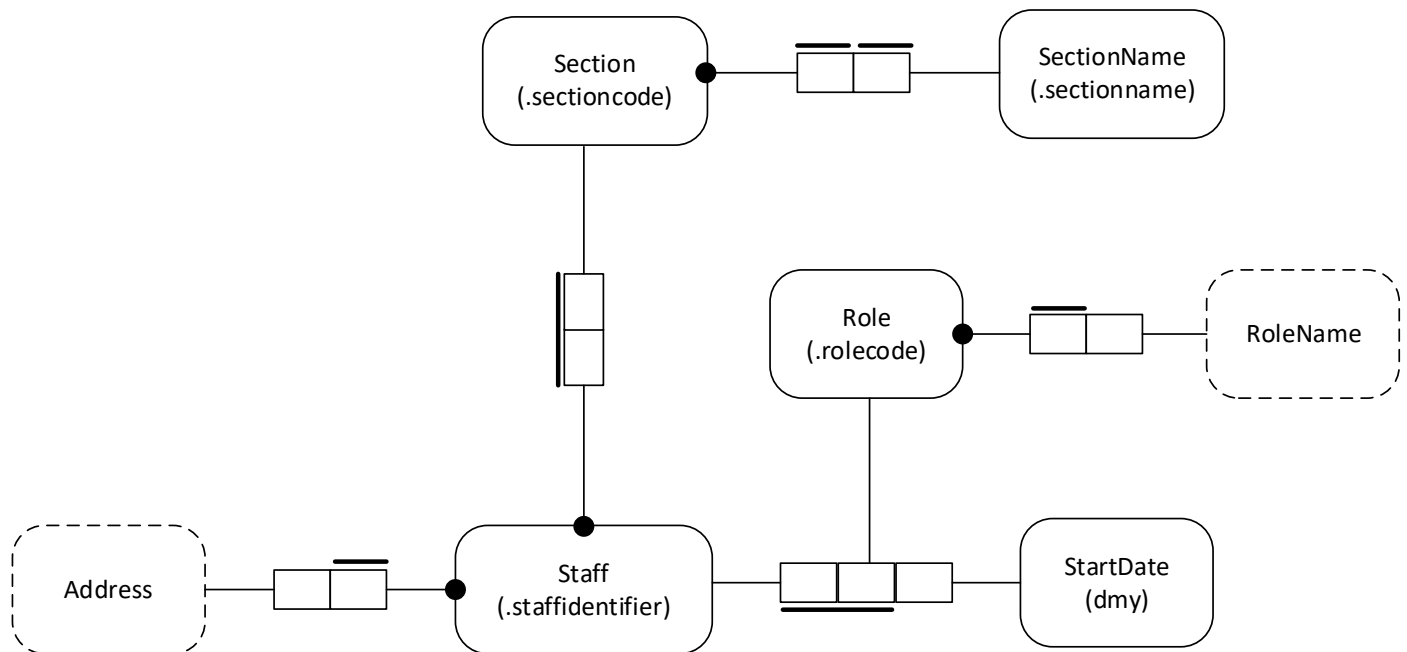
Project Members	Role	Name
	PM SA SD T	Charles (S201) Isla (S202) Jack (S203) Mary (S207)
	Total Number	4

Criteria Sheet - Task 1 [25 marks]

Criteria	High Distinction [25 – 21 marks]	Distinction / Credit [20 – 16 marks]	Credit / Pass [15 – 11 marks]	Pass / Borderline [5 – 10 marks]	Fail [4 – 0 marks]
Syntactic Correctness [7 marks]	The model is complete and fully syntactically correct	The model is complete and mostly syntactically correct	The model is mostly complete and/or reasonably syntactically correct	The model is partially complete and/or mainly syntactically incorrect	The model is mostly incomplete and/or syntactically incorrect
Semantic Correctness [15 marks]	The model fully and correctly reflects every aspect of the facts described in the scenario	The model fully and correctly reflects most aspects of the facts described in the scenario	The model correctly reflects many aspects of the facts described in the scenario, or reflects most aspects but is somewhat incorrect or inefficient in structure	The model reflects a few aspects of the facts described in the scenario and/or has an incorrect or inefficient structure	The model incorrectly reflects the facts described in the scenario
Pragmatic Correctness [3 marks]	The model has a clear structure designed for maximal understandability by stakeholders (layout, labels, annotations, etc)	The model has a mostly clear structure and/or is designed for high understandability by stakeholders (layout, labels, annotations, etc)	The model has a mainly clear structure and/or is designed for reasonable understandability by stakeholders (layout, labels, annotations, etc)	The model has a somewhat messy structure and/or does not reflect that it has been designed with consideration for stakeholder understandability	The model has an unclear structure and/or most would find it difficult to understand

Task 2 [25 marks] – Individual

Following is an ORM model for employee. Map the schema to a relational database schema. Any possible constraints need to be included (e.g., primary key, foreign key).



Please write the relations clearly showing the Primary key bolded and underlined (e.g. **CustomerId**). Foreign key shown in italics (e.g. *OrderNumber*) and separately defined beneath the relation (e.g. ShoppingCart OrderNumber FK to Order OrderNumber)

Criteria Sheet - Task 2 [25 marks]

Marks will be awarded for the following:

- Full marks will be awarded if all relations are correctly mapped with the schema including correct primary, foreign keys and other attributes.
- Any incorrect/missing relations will be deducted:
 - penalty for missing relation (entity)
5 marks
 - penalty for missing primary key, foreign key, and other attributes
 - 4 marks if a primary key or 1–2 marks if part of a primary key is missing
 - 3 marks for missing foreign key
 - 2 marks for missing non key attributes
 - 1 mark for minor errors