DUY TÂN UNIVERSITY
International School

Capstone Project 2

CMU-SE 451

Database Design

Version 1.1

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SENIOR PROJECT MANAGEMENT SYSTEM
FOR INTERNATIONAL SCHOOL

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PROJECT INFORMATION

Project acronym	Senior Project Management System for International School		
Project Title	SPMS		
Start Date	18 Feb 2022	**End Date**	15 May 2022
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REVISION HISTORY

Version	Date	Comments	Author	Approval
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SIGNATURE

Document Approvals: *The following signatures are required for approval of this document.*

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1. Introduction

1.1. Purpose

Place information system's database design document describes structure of database and file structure of system. Database Design document will introduce all attribute the System that will help developer and tester base on this design to implement and test.

1.2. Scope

- This Database Design Document provides the basic for "SPMS" Database design.

- It describes both logical and physical definition, non-functional issues, and the database interfaces; storage aspects are defined in the physical database design sections.

- The tables performance considerations requirements. The following topics are covered in this document:

- Assumptions and decisions on database design.

- Entity-mapping.

- Table column definitions.

- Primary, unique and foreign key definitions.

- Column and row level validation rules (check constraints).

- Rule for populating specific columns (sequences, derivations, demoralized (column)).

- Interfaces and dependencies with other components.

- Data access description.

- The database design is composed of definitions for database objects derived by mapping entities to tables attributes to columns, unique identifiers to unique keys and relationships to foreign keys.

- During design, these initial definitions are enhanced to support the functionality described in the functional specification/ user stories and defined in the primary and supporting modules of the application high level design.

1.3. Data Storage Platform

- Data of application is stored in PostgreSQL database.

- In PostgreSQL, data structure is stored as tables that the database objects that behave as containers for the data, in which the data will be logically organized in rows and columns format.

1.4. Definition, Acronyms and Abbreviations

Table 1.4: *Definition, Acronyms and Abbreviations.*

Abbreviations	Description	Comment
PK/FK	Primary/ Foreign Key	Use to indicate a file is a Primary or Foreign key in a table
ERD	Entity Relationship Diagram	Show the relationship between entities in the system

2. Database Design

2.1. Collection Overview

Table 2.1: *Table Overview.*

No.	Table name	Description
1	departments	This table shows all information about the department.
2	majors	This table shows all information about major.
3	councils	This table shows all information about council.
4	roles	This table shows all information about roles in the system.
5	users	This table shows all information about user
6	file_storages	This table shows all information about files storage in the system
7	notifications	This table shows all information about notification
8	user_roles	This table shows all information about the user's role
9	notification_files	This table shows all information about the file attached to the notification
10	lecturers	This table shows all information about lecturer
11	groups	This table shows all information about groups
12	student	This table shows all information about student

13	group_lecturers	This table shows all information about the group's mentor
14	projects	This table shows all information about topic template and project
15	project_files	This table shows all information about the file attached to the topic template
16	stages	This table shows all information about the stages
17	listTasks	This table shows all information about the stage's task list
18	tasks	This table shows all information about the task in task list
19	task_assignments	This table shows all information about the members assign to the task
20	comments	This table shows all information about the member's comments on the task
21	council_members	This table shows all information about the council's member
22	scores	This table shows all information about the student's score

2.2. Detail

2.2.1. departments

Table 2.2.1: *departments table.*

Attribute	Data Type	Null	Note
depId	uuid	No	Primary key
depCode	varchar(10)	No	
depName	varchar(50)	No	
depDesc	text	Yes	
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.2. majors

Table 2.2.2: *majors table.*

Attribute	Data Type	Null	Note
majorId	uuid	No	Primary key
majorCode	varchar(10)	No	
majorName	varchar(50)	No	
majorDesc	text	Yes	
depId	uuid	Yes	Foreign key
createdAt	timestamptz	No	
updateAt	timestamptz	No	

2.2.3. councils

Table 2.3.3: *councils table.*

Attribute	Data Type	Null	Note
councilId	uuid	No	Primary key
councilName	varchar(50)	Yes	
councilDesc	varchar(100)	Yes	
time	timestamptz	Yes	
location	varchar(100)	Yes	
createdAt	timestamptz	No	
updateAt	timestamptz	No	

2.2.4. roles

Table 2.3.4: *roles table.*

Attribute	Data Type	Null	Note
roleId	uuid	No	Primary key
roleName	varchar(10)	No	
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.5. users

Table 2.3.5: *users table.*

Attribute	Data Type	Null	Note
userId	uuid	No	Primary key
firstName	varchar(20)	Yes	
lastName	varchar(15)	Yes	
dateOfBirth	timestamptz	Yes	
email	varchar(30)	Yes	
password	varchar(100)	Yes	
phone	varchar(11)	Yes	
majorId	uuid	Yes	Foreign key
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.6. file_storages

Table 2.3.6: *file_storages table.*

Attribute	Data Type	Null	Note
fileId	uuid	No	Primary key
fileName	varchar(255)	No	
type	varchar(255)	No	
path	text	No	
userId	uuid	Yes	Foreign key
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.7. notifications

Table 2.3.7: *notifications table.*

Attribute	Data Type	Null	Note
notificationId	uuid	No	Primary key
title	varchar(150)	No	
content	text	No	
userId	uuid		Foreign key
fileId1	uuid		Foreign key
fileId2	uuid		Foreign key
fileId3	uuid		Foreign key
fileId4	uuid		Foreign key
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.8. user_roles

Table 2.3.8: *user_roles table.*

Attribute	Data Type	Null	Note
userId	uuid	No	Primary key Foreign key
roleId	uuid	No	Primary key Foreign key
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.9. notification_files

Table 2.3.9: *notification_files table.*

Attribute	Data Type	Null	Note
notificationId	uuid	No	Primary key Foreign key
fileId	uuid	No	Primary key Foreign key
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.10. lecturers

Table 2.2.10: *lecturers table.*

Attribute	Data Type	Null	Note
notificationId	uuid	No	Primary key
userId	uuid	Yes	Foreign key
academiLevel	varchar(50)	Yes	
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.11. groups

Table 2.2.11: *groups table.*

Attribute	Data Type	Null	Note
groupId	uuid	No	Primary key
groupName	varchar(50)	No	
groupDesc	varchar(100)	Yes	
isScientificGroup	boolean	Yes	
typeCapstone	integer	Yes	
councilId	uuid	Yes	Foreign key
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.12. students

Table 2.2.12: *students table.*

Attribute	Data type	Null	Note
stuId	uuid	No	Primary key
stuCode	varchar(11)	Yes	
gpa	float	Yes	
courseCredits	integer	Yes	
codeLevel	integer	Yes	
note	text	Yes	
class	varchar(10)	Yes	
isApproved	boolean	Yes	
userId	uuid	Yes	Foreign key
groupId	uuid	Yes	Foreign key
typeCapstone	integer	Yes	
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.13. group_lecturers

Table 2.2.13: *group_lecturers table.*

Attribute	Data Type	Null	Note
groupId	uuid	No	Primary key Foreign key
lecturerId	uuid	No	Primary key Foreign key
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.14. projects

Table 2.2.14: *projects table.*

Attribute	Data Type	Null	Note
projectId	uuid	No	Primary key
projectName	varchar(255)	No	
projectDesc	text	No	
startDate	timestamptz	Yes	
endDate	timestamptz	Yes	
note	text	Yes	
groupId	uuid	Yes	Foreign key
leaderId	uuid	Yes	Foreign key
lecturerId	uuid	Yes	Foreign key
isApproved	varchar(255)	Yes	
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.15. project_files

Table 2.2.15: *project_files table.*

Attribute	Data Type	Null	Note
projectId	uuid	No	Primary key Foreign key
fileId	uuid	No	Primary key Foreign key
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.16. stages

Table 2.2.16: *stages table.*

Attribute	Data Type	Null	Note
stageId	uuid	No	Primary key
stageName	varchar(50)	Yes	
stageDesc	text	Yes	
projectId	uuid	Yes	Foreign key
startDate	timestamptz	Yes	
endDate	timestamptz	Yes	
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.17. listTasks

Table 2.2.17: *listTasks table.*

Attribute	Data Type	Null	Note
listTaskId	uuid	No	Primary key
stageId	uuid	No	Foreign key
titile	varchar(50)	No	
description	text	Yes	
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.18. tasks

Table 2.2.18: *tasks table.*

Attribute	Data Type	Null	Note
taskId	uuid	No	Primary key
listTaskId	uuid	No	Foreign key
taskName	varchar(50)	No	
taskDesc	text	Yes	
startDate	timestamptz	Yes	
endDate	timestamptz	Yes	
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.19. task_assignments

Table 2.2.19: *task_assignments table.*

Attribute	Data Type	Null	Note
stuId	uuid	No	Primary key Foreign key
taskId	uuid	No	Primary key Foreign key
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.20. comments

Table 2.2.20: *comments table.*

Attribute	Data Type	Null	Note
commentId	uuid	No	Primary key Foreign key
content	text	No	
userId	uuid	Yes	Foreign key
taskId	uuid	Yes	Foreign key
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.21. council_members

Table 2.2.21: *council_members table.*

Attribute	Data Type	Null	Note
councilId	uuid	No	Primary key Foreign key
lecturerId	uuid	No	Primary key Foreign key
roleId	uuid	Yes	Foreign key
workUnit	varchar(10)	Yes	
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.22. scores

Table 2.2.22: *scores table.*

Attribute	Data Type	Null	Note
scoreId	uuid	No	Primary key
councilId	uuid	Yes	Foreign key
stuId	uuid	Yes	Foreign key
lecturerId	uuid	Yes	Foreign key
mentorScore	float	Yes	
presidentScore	float	Yes	
assistantScore	float	Yes	
reviewerScore	float	Yes	
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.2.23. evaluate_stages

Table 2.2.23: *evaluate_stages table.*

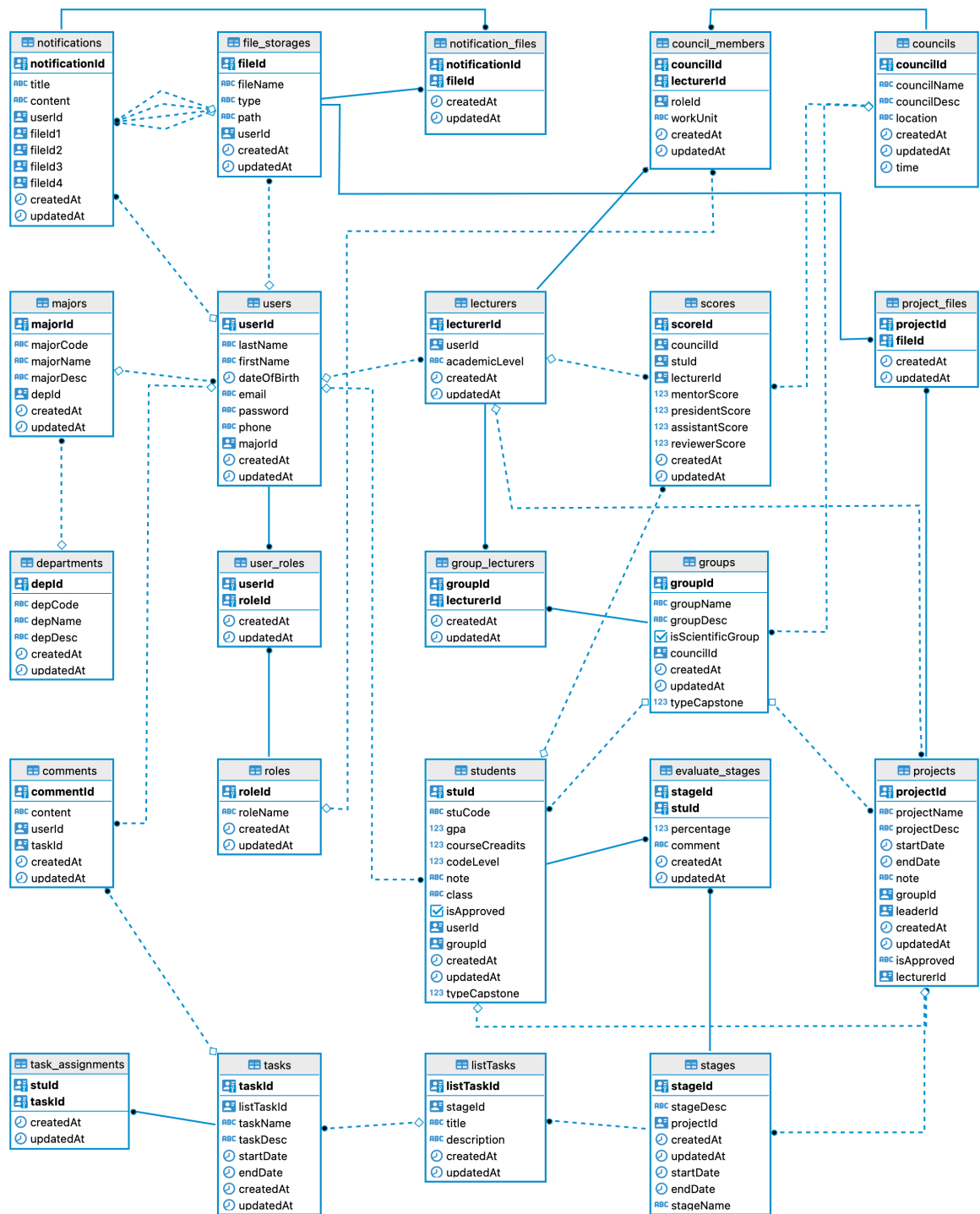| Attribute	Data Type	Null	Note
stageId	uuid	No	Primary key Foreign key
stuId	uuid	No	Primary key Foreign key
percentage	float	No	
comment	text	Yes	
createdAt	timestamptz	No	
updatedAt	timestamptz	No	

2.3. Entity Relationship Diagram

Figure 2.3: *Entity Relationship Diagram.*

3. References