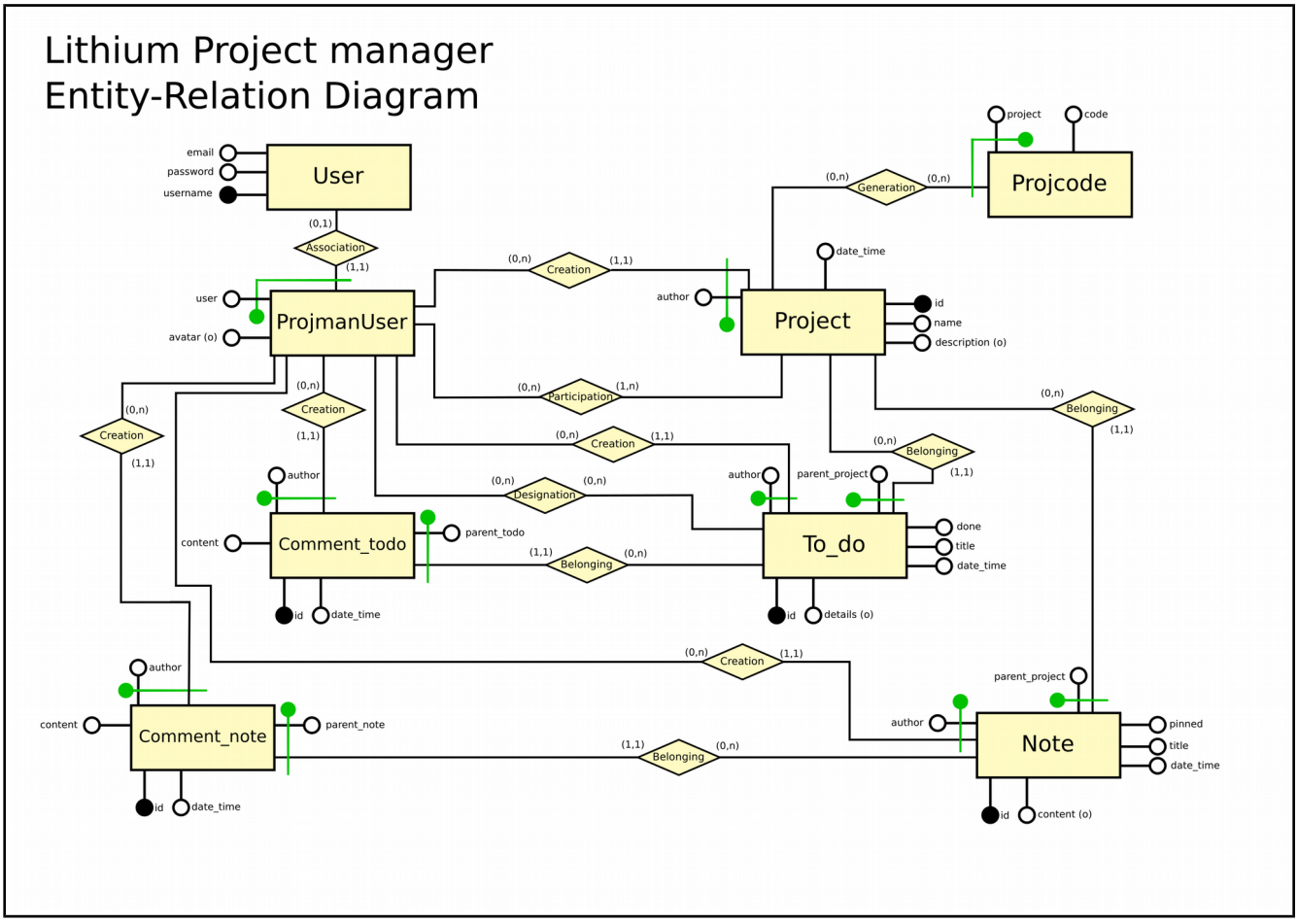
Logical design



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Entities Glossary

Entity	Description	Attributes	Identificator
User	User registered to the Lithium Project Management platform	Username, email, password, avatar	Username
Project	User created instance of a project to manage	Id, author, name, description, private, date_time	Id
Projcode	Randomly generated code, used to invite another person in one's own project	Id, project, code	Project, code
To_do	Activity to be done in a project	Id, parent_project, author, title, details, done, date_time	Id
Note	A note containing informations relevant to the project it belongs to	Id, parent_project, title, content, pinned, date_time	Id
Comment_todo	A comment to a To_do instance	Id, content, author, parent_todo, date_time	Id
Comment_note	A comment to a Note instance	Id, content, author, parent_note, date_time	Id

Relations Glossary

Relation	Description	Involved entities	Attributes
Creation	Indicates which user created an entity (ie: a Project has been created by a User)	User (0, n) Project (1, 1) To_do (1, 1) Note (1, 1) Comment_todo (1, 1) Comment_note (1, 1)	Author

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Relation	Description	Involved entities	Attributes
Participation	Indicates the projects a user is participating to	User (0, n) Project (1, n)	User, Project
Belonging	Indicates the belonging of an entity to its parent entity (ie: a To_do instance belongs to a project)	To_do (1, 1) Project (0, n) Comment_todo (1,1) To_do (0, n) Note (1, 1) Project (0, n) Comment_note (1, 1) Note (0, n)	parent_project parent_todo parent_project parent_note
Designation	Indicates the User(s) designated to accomplish a certain To_do	User (0, n) To_do (0, n)	
Generation	Indicates to which Project refers the Projcode	Project (0, n) Projcode (0,n)	project

Restriction Rules

- A project author must be participating said project

Operations

- **OP1:** Register a new user
- **OP2:** A user creates a project
- **OP3:** A user creates a new To_do
- **OP4:** A user changes (adds, removes) the designation to a To_do
- **OP5:** A user edits the title/details of a To_do
- **OP6:** A user creates a comment on a To_do
- **OP7:** A user completes a To_do
- **OP8:** A user creates a project Note
- **OP9:** A user edits a Note
- **OP10:** A user edits a Note

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- **OP11:** A user creates a comment to a Note
- **OP12:** A user deletes a To_do
- **OP13:** A user deletes a Note
- **OP14:** A user leaves a Project
- **OP15:** A user deletes its Project
- **OP16:** A user deletes a comment_todo
- **OP17:** A user deletes a comment_note
- **OP18:** A user kicks another user from his project
- **OP19:** A user invites another user to his project
- **OP20:** A user accepts the invitation and joins a project
- **OP21:** Show all the To_do entries for a project, showing first the ones with done==False, ordering by date_time
- **OP22:** Show all the Note entries for a project, showing first the ones with pinned==True, ordering by date_time
- **OP23:** Show all the partecipants of a project, including the Project author
- **OP24:** Show all the notes of a projects with pinned==True.
- **OP25:** Show a particular To_do entry, with all the relative comments ordered by date_time
- **OP26:** Show a particular Note entry, with all the relative comments ordered by date_time
- **OP27:** Show all the projects participated by a particular User
- **OP28:** Show all the todos from various projects designated to a particular User
- **OP29:** A user kicks another user from one of his projects
- **OP30:** Delete a user and all entities that he created

Physical design

```
CREATE TABLE IF NOT EXISTS User(username text PRIMARY KEY NOT NULL,
password varchar(128) NOT NULL, email varchar(254) NOT NULL);

CREATE TABLE IF NOT EXISTS ProjmanUser(user text NOT NULL UNIQUE
REFERENCES User (username), avatar varchar(100) NULL);

CREATE TABLE IF NOT EXISTS Project(id integer PRIMARY KEY NOT NULL
AUTOINCREMENT, author text NOT NULL REFERENCES ProjmanUser (user),
date_time datetime NOT NULL, name varchar(250) NOT NULL, description
text NOT NULL);

CREATE TABLE IF NOT EXISTS Projcode(project integer NOT NULL
REFERENCES Project (id), code text NOT NULL);

CREATE TABLE IF NOT EXISTS To_do(id integer PRIMARY KEY NOT NULL
```


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```
AUTOINCREMENT, author text NOT NULL REFERENCES ProjmanUser (user),
parent_project integer NOT NULL REFERENCES Project (id), title text
NOT NULL, details text NOT NULL, date_time datetime NOT NULL, done
bool NOT NULL);

CREATE TABLE IF NOT EXISTS Comment_todo(id integer PRIMARY KEY NOT
NULL AUTOINCREMENT, author text NOT NULL REFERENCES ProjmanUser
(user), parent_todo integer NOT NULL REFERENCES To_do (id), content
text NOT NULL, date_time datetime NOT NULL);

CREATE TABLE IF NOT EXISTS Note(id integer PRIMARY KEY NOT NULL
AUTOINCREMENT, author text NOT NULL REFERENCES ProjmanUser (user),
parent_project integer NOT NULL REFERENCES Project (id), title text
NOT NULL, content text NOT NULL, date_time datetime NOT NULL, pinned
bool NOT NULL);

CREATE TABLE IF NOT EXISTS Comment_note(id integer PRIMARY KEY NOT
NULL AUTOINCREMENT, author text NOT NULL REFERENCES ProjmanUser
(user), parent_note integer NOT NULL REFERENCES Note (id), content
text NOT NULL, date_time datetime NOT NULL);
```


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