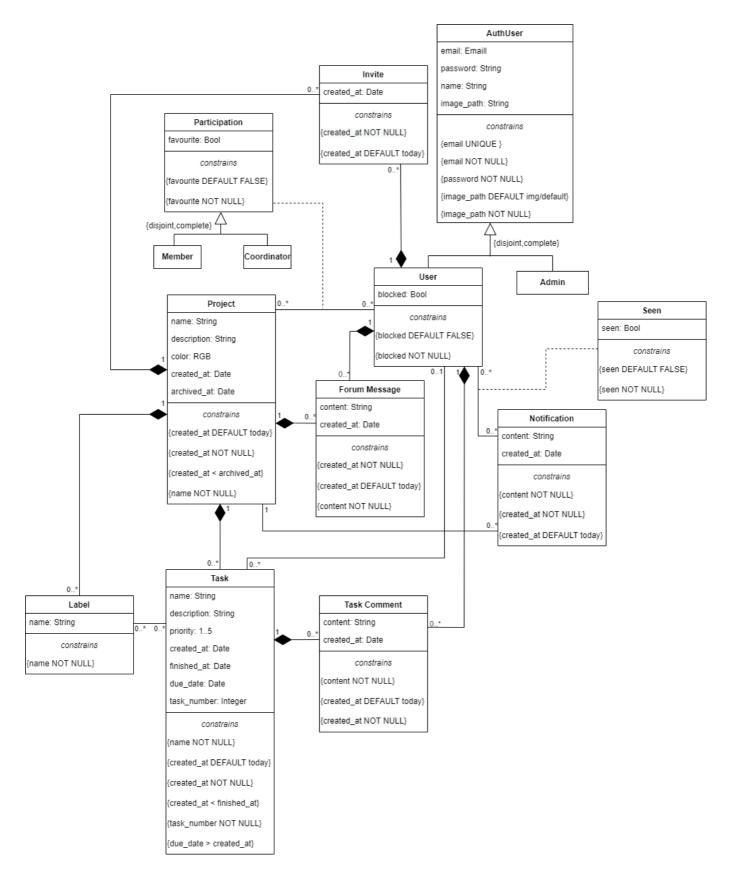# EBD: Database Specification Component

With the development of toEaseManage we intend to create a useful and acessible platform that helps users to organize projects as well as grow as web developers throughout the curricular unit.

A4: Conceptual Data Model

For this artefact, we built the UML diagram for toEaseManage showing all of the classes of the attributes for our website. We also mantain a group of business functionalities.

1. Class diagram

UML class diagram containing the classes, associations, multiplicity and constraints.

AuthUser
email: Emaill
password: String
name: String
image_path: String

constrains
{email UNIQUE }
{email NOT NULL}
{password NOT NULL}
{image_path DEFAULT img/default}
{image_path NOT NULL}

Invite
created_at: Date

constrains
{created_at NOT NULL}
{created_at DEFAULT today}

Participation
favourite: Bool

constrains
{favourite DEFAULT FALSE}
{favourite NOT NULL}

{disjoint,complete}

Member

Coordinator

{disjoint,complete}

User
blocked: Bool

constrains
{blocked DEFAULT FALSE}
{blocked NOT NULL}

Admin

Seen
seen: Bool

constrains
{seen DEFAULT FALSE}
{seen NOT NULL}

Project
name: String
description: String
color: RGB
created_at: Date
archived_at: Date

constrains
{created_at DEFAULT today}
{created_at NOT NULL}
{created_at < archived_at}
{name NOT NULL}

Forum Message
content: String
created_at: Date

constrains
{created_at NOT NULL}
{created_at DEFAULT today}
{content NOT NULL}

Notification
content: String
created_at: Date

constrains
{content NOT NULL}
{created_at NOT NULL}
{created_at DEFAULT today}

Label
name: String

constrains
{name NOT NULL}

Task
name: String
description: String
priority: 1..5
created_at: Date
finished_at: Date
due_date: Date
task_number: Integer

constrains
{name NOT NULL}
{created_at DEFAULT today}
{created_at NOT NULL}
{created_at < finished_at}
{task_number NOT NULL}
{due_date > created_at}

Task Comment
content: String
created_at: Date

constrains
{content NOT NULL}
{created_at DEFAULT today}
{created_at NOT NULL}

2. Additional Business Rules

These are the business rules, from the previous component, that can't be explained and applied in the UML Class diagram. Its numbers refer to the previous ones.

Identifier	Name	Description

Identifier	Name	Description
BR01	Account deletion	Upon account deletion, all the shared social data must be kept as anonymous author
BR04	Leave project with task	Upon being removed from a project, all the tasks assignments not finished assigned to the member must be deleted
BR06	User Block	Upon being blocked a User is removed from all his projects
BR08	Member Comments	A project member can comment on its own assigned or created tasks

Editor

Beatriz Lopes dos Santos

A5: Relational Schema, validation and schema refinement

For this artefact our main objective was to convert the UML Class diagram to a Relational Schema that follows all the Forms to enhance performance of our databases.

1. Relational Schema

Our relation schema for toEaseManage is presented below in a compact version that only shows the atributtes and some constraints concerning them. Note that some of the constraints refering two atributtes are only shown in the sql version of the schema.

Relation reference	Relation Compact Notation
R01	User(<u>id</u>, email **UK NN**, password **NN**, name **NN**, image_path **NN DF** img/default, blocked **NN DF** false)
R02	Admin(<u>id</u>, email **UK NN**, password **NN**, name **NN**, image_path **NN DF** img/default)
R03	Project(<u>id</u>, name **NN**, description, color, created_at **NN DF** today, archived_at **CK** archived_at > created_at)
R04	Participation(<u>id</u>, favourite **NN**, role **NN CK** role **IN** Role, id_project → Project **NN**, id_user → User **NN**)
R05	Task (<u>id</u>, name **NN**, description, priority **CK** priority>=1 AND priority<=5, created_at **NN DF** Today, finished_at **CK** finished_at > created_at, task_number **NN**, due_date **CK** due_date > created_at, id_project → Project **NN**, id_user → User)
R06	Label(<u>id</u>, name **NN**, id_project → Project **NN**)
R07	TaskLabel(<u>id</u>, id_label → Label **NN**, id_task →Task **NN**)
R08	TaskComment(<u>id</u>, content **NN**, created_at **NN DF** Today, id_task →Task **NN**, id_user → User **NN**)

Relation reference	Relation Compact Notation
R09	ForumMessage(id, content **NN**, created_at **NN DF** Today, id_project → Project **NN**, id_user → User **NN**)
R010	Invite(id, created_at **NN DF** Today, id_user → User **NN**, id_project → Project **NN**)
R011	Notification(id, content **NN**, created_at **NN DF** Today, id_project → Project **NN**)
R012	Seen(id, id_user → User **NN**, id_notification → Notification **NN**, seen **NN DF** FALSE)

Legend:

- UK = UNIQUE KEY
- NN = NOT NULL
- DF = DEFAULT
- CK = CHECK

2. Domains

This are domains used in the relational schema above.

Domain Name	Domain Specification
Today	DATE DEFAULT CURRENT_DATE
Role	ENUM ('Member', 'Coordinator')

3. Schema validation

For each table of the relational schema we excuted a validation of the Normal Form and the normalization is acomplished. Below we present the functional dependencies, keys an normal form for each table.

TABLE R01	User
Keys	{ id }, { email }
Functional Dependencies:	
FD0101	{ id } → {email, password, name, image_path, blocked}
FD0102	{ email } → {id, password, name, image_path, blocked}
NORMAL FORM	BCNF
Justication	For each functional dependency, the group of atributtes of the left side are keys, therefore, this table is in the BCNF Form.
TABLE R02	**Admin**
Keys	{ id }, { email }

TABLE R02	Admin
Functional Dependencies:	
FD0201	{ id } → {email, password, name, image_path}
FD0202	{ email } → {id, password, name, image_path}
NORMAL FORM	BCNF
Justication	For each functional dependency, the group of atributtes of the left side are keys, therefore, this table is in the BCNF Form.
TABLE R03	**Project**
Keys	{ id }
Functional Dependencies:	
FD0301	{ id } → {name, description, color, created_at, archived_at}
NORMAL FORM	BCNF
Justication	For each functional dependency, the group of atributtes of the left side are keys, therefore, this table is in the BCNF Form.
TABLE R04	**Participation**
Keys	{ id } , { id_project, id_user }
Functional Dependencies:	
FD0401	{ id } → {favourite, role, id_project, id_user}
FD0402	{ id_project, id_user } → {id, favourite, role }
NORMAL FORM	BCNF
Justication	For each functional dependency, the group of atributtes of the left side are keys, therefore, this table is in the BCNF Form.
TABLE R05	**Task**
Keys	{ id }, { task_number, id_project }
Functional Dependencies:	
FD0501	{ id } → {name, description, priority, created_at, finished_at, task_number, id_project, due_date}
FD0502	{ task_number, id_project } → {id, name, description, priority, created_at, finished_at, id_user, due_date}
NORMAL FORM	BCNF

TABLE R05	Task
Justication	For each functional dependency, the group of atributtes of the left side are keys, therefore, this table is in the BCNF Form.
TABLE R06	**Label**
Keys	{ id }
Functional Dependencies:	
FD0601	{ id } → {name, id_project}
NORMAL FORM	BCNF
Justication	For each functional dependency, the group of atributtes of the left side are keys, therefore, this table is in the BCNF Form.
TABLE R07	**TaskLabel**
Keys	{ id }, { id_label, id_task }
Functional Dependencies:	
FD0701	{ id } → {id_lable, id_task}
FD0702	{ id_lable, id_task } → {id}
NORMAL FORM	BCNF
Justication	For each functional dependency, the group of atributtes of the left side are keys, therefore, this table is in the BCNF Form.
TABLE R08	**TaskComment**
Keys	{ id }
Functional Dependencies:	
FD0801	{ id } → {content , created_at, id_task, id_user }
NORMAL FORM	BCNF
Justication	For each functional dependency, the group of atributtes of the left side are keys, therefore, this table is in the BCNF Form.
TABLE R09	**ForumMessage**
Keys	{ id }
Functional Dependencies:	
FD0901	{ id } → { content, created_at, id_project, id_user}

TABLE R09	**ForumMessage**
NORMAL FORM	BCNF
Justication	For each functional dependency, the group of atributtes of the left side are keys, therefore, this table is in the BCNF Form.
TABLE R10	**Invite**
Keys	{ id } , {id_project, id_user}
Functional Dependencies:	
FD01001	{ id } → { created_at, id_project, id_user}
FD01002	{id_project, id_user} → { id, created_at}
NORMAL FORM	BCNF
Justication	For each functional dependency, the group of atributtes of the left side are keys, therefore, this table is in the BCNF Form.
TABLE R11	**Notification**
Keys	{ id }
Functional Dependencies:	
FD01101	{ id } → { content, created_at, id_project}
NORMAL FORM	BCNF
Justication	For each functional dependency, the group of atributtes of the left side are keys, therefore, this table is in the BCNF Form.
TABLE R12	**Seen**
Keys	{ id } , { id_user, id_notification}
Functional Dependencies:	
FD1201	{ id } → { id_user, id_notification, seen}
FD1202	{ id_user, id_notification } → {id, seen}
NORMAL FORM	BCNF
Justication	For each functional dependency, the group of atributtes of the left side are keys, therefore, this table is in the BCNF Form.

Editor

Matilde Oliveira

A6: Indexes, triggers, transactions and database population

This artefact main goal is to create a more solid and prepared database schema for our website. By starting to analyse the database workload (1.) we can make more correct decisions about triggers, transactions and indexes need to boost the performance of our database.

1. Database Workload

This is a study and an estimative of the use of our website that is going to be important e some decisions we need to make after this.

Relation reference	Relation Name	Order of magnitude	Estimated growth
R01	User	10 k (tens of thousands)	10 (tens) / day
R02	Admin	1 (units)	no growth
R03	Project	1 k (thousands)	1 (units) / day
R04	Participation	10 k (tens of thousands)	1 (units) / day
R05	Task	10 k (tens of thousands)	10 (tens) / day
R06	Label	1 k (hundreds)	1 (units) / day
R07	TaskLabel	10 k (thousands)	10 (units) / day
R08	TaskComment	100 k (hundreds of thousands)	100 (hundreds) / day
R09	ForumMessage	100 k (hundreds of thousands)	100 (hundreds) / day
R10	Invite	100 (hundreds)	1 (units) / day
R11	Notification	100 k (hundreds of thousands)	100 (hundreds) / day
R12	Seen	100 k (hundreds of thousands)	100 (hundreds) / day

2. Proposed Indices

Note: SQL automatically creates indexes by key (in this case the tables id), and by unique constraints. So, the performance indexes below are the ones that complete the set of indexes for our database.

2.1. Performance Indices

Based on the workload we predicted for our tables, some indexes below were chosen to boost efficiency of some searching aspects of our database.

Index	IDX01
Relation	Seen
Attribute	id_user, seen
Type	B-Tree
Cardinality	Medium

Index	IDX01
Clustering	No
Justification	Table 'Seen' is very large. Seen tabel is frequentely accessed to obtain user's notifications, since we are only seeing notifications by user. Update frequency is medium, because each row of table must be updated only one time, changing the seen atributte value. We choose to create this index based on a b-tree that organizes and orders by id_user and then diferentiates between being or not seen.
SQL code	`CREATE INDEX user_seen ON Seen USING btree (id_user, seen);`
Index	**IDX02**
Relation	TaskComment
Attribute	id_task
Type	Hash
Cardinality	Medium
Clustering	No
Justification	Table 'TaskComment' is very large. Several queries need to frequently filter access to task comments by task, since we are only seeing tasks comments in its task page. Filtering is done by exact match (id_task), thus an hash type index would be best suited since it groups task comments by task. It can be frequently updated, because users have the ability to change its content, though clustering is not an option.
SQL code	`CREATE INDEX task_taskComment ON TaskComment USING hash (id_task);`
Index	**IDX03**
Relation	ForumMessage
Attribute	id_project
Type	Hash
Cardinality	Medium
Clustering	No
Justification	Table 'ForumMessage' is very large. Several queries need to frequently filter access to forum messages by project, since we are only seeing forum messages in their project forum. This table can be frequently updated, because users have the ability to edit its content, though clustering is not an option. We came to the conclusion that this index should be an hash table that organizes forum messages by the project where they belong.
SQL code	`CREATE INDEX project_message ON ForumMessage USING hash (id_project);`
Index	**IDX04**
Relation	Task
Attribute	id_project

Index	IDX04
Type	Hash
Cardinality	High
Clustering	No
Justification	Table 'Task' is large. Several queries need to frequently filter access to task by their project, since we are only seeing tasks in their project page. Therefore, we decided to use an hash index that arranges the tasks by the project where they belong. It can be frequently updated and new elements are also usually created, so clustering was not a good aproach.
SQL code	CREATE INDEX project_task ON Task USING hash (id_project);
Index	**IDX05**
Relation	Participation
Attribute	id_user
Type	Hash
Cardinality	Medium
Clustering	No
Justification	'Participation' table is large. Participation tabel is frequentely accessed to obtain user's participation in projects, since we are only seeing the projects of an user in its users page. As it can be constantly updated (favourite atribute, as well as role) it is not a good candidate for clustering, due to the update frequency being high. Hence, the index type chosen was hash, that groups the participation rows from the same user.
SQL code	CREATE INDEX user_participation ON Participation USING hash (id_user);

2.2. Full-text Search Indices

toEaseManage website provides full-text search that habilitates the users to search for tasks, projects and users by their names. Below we present the implemented indexes, as well as some justification for its type and other decisions.

Index	IDX06
Relation	Users
Attribute	name
Type	GIN
Clustering	No
Justification	To search for a specific user based on his name we provide full-text search features to look for him based on matching names. The type of this index is GIN because we do not expect users to change name frequently.
SQL code	

```
ALTER TABLE Users
ADD COLUMN tsvectors TSVECTOR;

CREATE FUNCTION user_search_update() RETURNS TRIGGER AS $$
BEGIN
 IF TG_OP = 'INSERT' THEN
        NEW.tsvectors = (
         setweight(to_tsvector('english', NEW.name), 'A')
        );
 END IF;
 IF TG_OP = 'UPDATE' THEN
         IF (NEW.name <> OLD.name) THEN
           NEW.tsvectors = (
             setweight(to_tsvector('english', NEW.name), 'A')
           );
         END IF;
 END IF;
 RETURN NEW;
END $$
LANGUAGE plpgsql;

CREATE TRIGGER user_search_update
BEFORE INSERT OR UPDATE ON Users
FOR EACH ROW
EXECUTE PROCEDURE user_search_update();

CREATE INDEX search_name ON Users USING GIN (tsvectors);
```

Index	IDX07
Relation	Project
Attribute	name
Type	GIN
Clustering	No
Justification	To provide full-text search features to search for projects based on matching names or related description content we created an index, with type GIN, since the indexed fields (name and description) are not expected to change too often.

SQL code

```
ALTER TABLE Project
ADD COLUMN tsvectors TSVECTOR;

CREATE FUNCTION project_search_update() RETURNS TRIGGER AS $$
BEGIN
 IF TG_OP = 'INSERT' THEN
        NEW.tsvectors = (
```

```
        setweight(to_tsvector('english', NEW.name), 'A') ||
        setweight(to_tsvector('english', NEW.description), 'C')
      );
  END IF;
  IF TG_OP = 'UPDATE' THEN
        IF (NEW.name <> OLD.name OR NEW.description <> OLD.description) THEN
          NEW.tsvectors = (
            setweight(to_tsvector('english', NEW.name), 'A') ||
            setweight(to_tsvector('english', NEW.description), 'C')
          );
        END IF;
  END IF;
  RETURN NEW;
END $$
LANGUAGE plpgsql;

CREATE TRIGGER project_search_update
BEFORE INSERT OR UPDATE ON Project
FOR EACH ROW
EXECUTE PROCEDURE project_search_update();

CREATE INDEX search_project ON Project USING GIN (tsvectors);
```

Index	**IDX08**
Relation	Task
Attribute	name
Type	GIN
Clustering	No
Justification	Searching tasks for its name and description is easier with full-text search features with an index type GIN, since this atributtes are not expected to change often.

SQL code

```
ALTER TABLE Task
ADD COLUMN tsvectors TSVECTOR;

CREATE FUNCTION task_search_update() RETURNS TRIGGER AS $$
BEGIN
  IF TG_OP = 'INSERT' THEN
        NEW.tsvectors = (
          setweight(to_tsvector('english', NEW.name), 'A') ||
          setweight(to_tsvector('english', NEW.description), 'C')
        );
  END IF;
  IF TG_OP = 'UPDATE' THEN
        IF (NEW.name <> OLD.name OR NEW.description <> OLD.description) THEN
          NEW.tsvectors = (
```

```
            setweight(to_tsvector('english', NEW.name), 'A') ||
            setweight(to_tsvector('english', NEW.description), 'C')
        );
      END IF;
  END IF;
  RETURN NEW;
END $$
LANGUAGE plpgsql;

CREATE TRIGGER task_search_update
  BEFORE INSERT OR UPDATE ON Task
  FOR EACH ROW
  EXECUTE PROCEDURE task_search_update();

CREATE INDEX search_task ON Task USING GIN (tsvectors);
```

3. Triggers

Our triggers below present functionalities that our database needs to have and follow to correctly work upon
some user stories or business rules defined in the previous ER. Their description

Trigger	TRIGGER01
Description	Update task number when adding a task

SQL code

```
CREATE FUNCTION task_number() RETURNS TRIGGER AS
$BODY$
BEGIN
        NEW.task_number := (SELECT count(*)
                                  FROM Task
                                  WHERE Task.id_project = NEW.id_project);
        RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER task_number
        BEFORE INSERT ON Task
        FOR EACH ROW
        EXECUTE PROCEDURE task_number();
```

Trigger	TRIGGER02
Description	Update user's info to anonymous info upon account deletion, reference to business rule BR01.

SQL code

```
CREATE FUNCTION user_anonymous() RETURNS TRIGGER AS
$BODY$
BEGIN
        UPDATE Users
        SET name = 'Anonymous', email = 'anonymous' || OLD.id || '@anonymous.pt'
        WHERE OLD.id = Users.id;

        RETURN NULL; -- check if this really dont delete user
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER user_anonymous
        BEFORE DELETE ON Users
        FOR EACH ROW
        EXECUTE PROCEDURE user_anonymous();
```

Trigger	TRIGGER03
Description	Remove user assignment to a task when he leaves project, reference to business rule BR04.

SQL code

```
CREATE FUNCTION remove_task() RETURNS TRIGGER AS
$BODY$
BEGIN

        UPDATE Task
        SET Task.id_user = NULL
        WHERE OLD.id_user = Task.id_user AND Task.finished_at = NULL;

        RETURN VOID;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER remove_task
        AFTER DELETE ON Participation
        FOR EACH ROW
        EXECUTE PROCEDURE remove_task();
```

Trigger	TRIGGER04
Description	Remove user from project when he is blocked, reference to business rule BR06.

SQL code

```
CREATE FUNCTION block_user() RETURNS TRIGGER AS
$BODY$
```

```
BEGIN
        DELETE FROM Participation
        WHERE Participation.id_user = OLD.id;

        RETURN VOID;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER block_user
        AFTER UPDATE OF blocked
        ON Users
        FOR EACH ROW
        WHEN (OLD.blocked = FALSE)
        EXECUTE PROCEDURE block_user();
```

Trigger	TRIGGER05
Description	Send notification to Project Coordinator and Assigned Member when a task is finished, references FR.601.

SQL code

```
CREATE FUNCTION finished_task() RETURNS TRIGGER AS
$BODY$
BEGIN

        INSERT INTO Notification (content, id_project)
        VALUES ('Task ' || OLD.task_number || ' completed!', OLD.id_project)
        RETURNING id AS notification_id;

        IF (OLD.id_user IS NOT NULL) THEN
            INSERT INTO Seen (seen, id_user, id_notification)
            Select False, OLD.id_user, notification_id.id
            FROM notification_id;
        END IF;

        INSERT INTO Seen (seen, id_user, id_notification)
        SELECT (False, id_user, notificationid_notification)
        FROM Participation
        WHERE Participation.id_project = OLD.id_project AND Participation.role =
'Coordinator';

        RETURN VOID;

END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER notification_finished_task
        AFTER UPDATE OF finished_at
```

```
        ON Task
        FOR EACH ROW
        WHEN (OLD.finished_at = NULL)
        EXECUTE PROCEDURE finished_task();
```

Trigger	TRIGGER06
Description	Notification creation on task assignment, references FR.602.

SQL code

```
CREATE FUNCTION assign_task() RETURNS TRIGGER AS
$BODY$
BEGIN
        WITH notification_id AS (INSERT INTO Notification (content, id_project)
        VALUES ('New task ' || NEW.task_number || ' assigned to you!',
NEW.id_project)
        RETURNING id)

        INSERT INTO Seen (seen, id_user, id_notification)
        VALUES (False, NEW.id_user, notification_id.id);

        RETURN VOID;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER assign_task
        AFTER INSERT OR UPDATE
        ON Task
        FOR EACH ROW
        WHEN (NEW.id_user <> NULL)
        EXECUTE PROCEDURE assign_task();
```

Trigger	TRIGGER07
Description	Notification for Project Coordinator when a member accepts invitation, references FR.603.

SQL code

```
CREATE FUNCTION accept_invite() RETURNS TRIGGER AS
$BODY$
BEGIN

        WITH notification_id AS (INSERT INTO Notification (content, id_project)
        VALUES ('New ' || NEW.role || ' in your project!', NEW.id_project)
        RETURNING id)

        INSERT INTO Seen (seen, id_user, id_notification)
```

```
        SELECT False, Participation.id_user, notification_id.id
        FROM Participation, notification_id
        WHERE Participation.id_project = NEW.id_project AND Participation.role =
'Coordinator';

        RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER notification_accept_invite
        AFTER INSERT
        ON Participation
        FOR EACH ROW
        EXECUTE PROCEDURE accept_invite();
```

Trigger	TRIGGER08
Description	Notification for a member when he is invited to a project, references FR.501.

SQL code

```
CREATE FUNCTION notify_invitation() RETURNS TRIGGER AS
$BODY$
BEGIN
        WITH notification_id AS (INSERT INTO Notification (content, id_project)
        VALUES ('Invite to a new project!', NEW.id_project)
        RETURNING id)

        INSERT INTO Seen (seen, id_user, id_notification)
        SELECT False, NEW.id_user, notification_id.id
        FROM notification_id;

        RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER invite_notification
        AFTER INSERT
        ON Invite
        FOR EACH ROW
        EXECUTE PROCEDURE notify_invitation();
```

Trigger	TRIGGER09
Description	Add other coordinator to the project, references FR.502.

SQL code

```
CREATE FUNCTION coordinator_change() RETURNS TRIGGER AS
$BODY$
BEGIN
        WITH notification_id AS (INSERT INTO Notification (content, id_project)
        VALUES ('Your project has a new Coordinator!', NEW.id_project)
        RETURNING id)

        INSERT INTO Seen (seen, id_user, id_notification)
        SELECT False, id_user, notification_id.id
        FROM Participation, notification_id
        WHERE Participation.id_project = NEW.id_project;

        RETURN VOID;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER coordinator_change
        AFTER UPDATE
        ON Participation
        FOR EACH ROW
        WHEN (NEW.role = 'Coordinator' AND OLD.role = 'Member')
        EXECUTE PROCEDURE coordinator_change();
```

Trigger	TRIGGER10
Description	Restrict deletion of a coordinator of a project if he is the only coordinator.

SQL code

```
CREATE FUNCTION no_delete_coordinator() RETURNS TRIGGER AS
$BODY$
BEGIN
        IF EXISTS(SELECT *
                    FROM Participation
                    WHERE Participation.role = 'Coordinator'
                        AND Participation.id_project = OLD.id_project
                        AND Participation.id_user <> OLD.id_user)
        THEN RAISE EXCEPTION 'You can not have a project(%) without a
coordinator(%)',OLD.id_project,OLD.id_user;
        END IF;
        RETURN OLD;

END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER no_delete_coordinator
        BEFORE DELETE
        ON Participation
        FOR EACH ROW
```

```
        WHEN (OLD.role = 'Coordinator')
        EXECUTE PROCEDURE no_delete_coordinator();
```

Trigger	TRIGGER11
Description	Restrict invite if the user is already participating.

SQL code

```
CREATE FUNCTION no_invite_participant() RETURNS TRIGGER AS
$BODY$
BEGIN
        IF EXISTS(SELECT *
                    FROM Participation
                    WHERE Participation.id_project = NEW.id_project
              AND Participation.id_user = NEW.id_user)
        THEN RAISE EXCEPTION 'You can not invite a participant(%) of the
project(%)',NEW.id_user, NEW.id_project ;
        END IF;
        RETURN NEW;

END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER no_invite_participant
        BEFORE INSERT
        ON Invite
        FOR EACH ROW
        EXECUTE PROCEDURE no_invite_participant();
```

Trigger	TRIGGER12
Description	Can only be assigned to a task if a user is participating in the project.

SQL code

```
CREATE FUNCTION task_if_participating() RETURNS TRIGGER AS
$BODY$
BEGIN
        IF NOT EXISTS(SELECT *
                    FROM Participation
                    WHERE Participation.id_project = NEW.id_project
              AND Participation.id_user = NEW.id_user)
        THEN RAISE EXCEPTION 'User(%) not in the project(%)',NEW.id_user,
NEW.id_project ;
        END IF;
        RETURN NEW;
```

```
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER task_if_participating
        BEFORE INSERT
        ON Task
        FOR EACH ROW
        EXECUTE PROCEDURE task_if_participating();
```

Trigger	TRIGGER13
Description	Can only comment a task if a user is participating in the project.

SQL code

```
CREATE FUNCTION comment_if_participating() RETURNS TRIGGER AS
$BODY$
BEGIN
        IF NOT EXISTS ( SELECT *
                        FROM Participation, Task
                        WHERE Participation.id_project = Task.id_project
                AND Participation.id_user = NEW.id_user
                                AND Task.id = NEW.id_task)
        THEN RAISE EXCEPTION 'User(%) can not comment in the task(%)',NEW.id_user,
NEW.id_task ;
        END IF;
        RETURN NEW;

END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER comment_if_participating
        BEFORE INSERT
        ON TaskComment
        FOR EACH ROW
        EXECUTE PROCEDURE comment_if_participating();
```

Trigger	TRIGGER14
Description	Can only post a message a user is participating in the project.

SQL code

```
CREATE FUNCTION message_if_participating() RETURNS TRIGGER AS
$BODY$
BEGIN
```

```
        IF NOT EXISTS ( SELECT *
                        FROM Participation
                        WHERE Participation.id_project = NEW.id_project
                 AND Participation.id_user = NEW.id_user)
        THEN RAISE EXCEPTION 'User(%) can not send message in
project(%)',NEW.id_user, NEW.id_project;
        END IF;
        RETURN NEW;

END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER message_if_participating
        BEFORE INSERT
        ON ForumMessage
        FOR EACH ROW
        EXECUTE PROCEDURE message_if_participating();
```

4. Transactions

Transactions needed to assure the integrity of the data are included here.1

SQL Reference	Accept invite
Justification	When a invite is accepted it must be deleted and a participation row must be created without any interruption. Since we need to block all the interactions with the tables used, we came to the conclusion that REPETABLE READ is the isolation level that should be used in this transaction.
Isolation level	REPETABLE READ

Complete
SQL Code

```
BEGIN TRANSACTION;

SET TRANSACTION ISOLATION LEVEL REPEATABLE READ;

DELETE FROM Invite
WHERE Invite.id_user = $user_id
      AND Invite.id_project = $project_id;

INSERT INTO Participation (role,id_project,id_user)
VALUES ('Member',$project_id,$user_id);

END TRANSACTION;
```

SQL Reference	Coordinator assignement
Justification	We must turn a member into a coordinator inside a transaction not allowing him to leave the project in the middle of it, only beeing able to leave at the end, if there is another coordinator allocated to the project. Since we only need to change an atribute we must block all the interactions with the row that is being updated. To do this jobs we came to the conclusion that Read Commited is the isolation level for the job
Isolation level	READ COMMITED

Complete
SQL Code

```
BEGIN TRANSACTION;

SET TRANSACTION ISOLATION LEVEL READ COMMITED;

UPDATE Participation
SET Participation.role = 'Coordinator'
WHERE Participation.id_user = $user_id;

END TRANSACTION;
```

Annex A. SQL Code

A.1. Database schema

```
DROP TABLE IF EXISTS Participation CASCADE;
DROP TABLE IF EXISTS TaskLabel CASCADE;
DROP TABLE IF EXISTS Label CASCADE;
DROP TABLE IF EXISTS TaskComment CASCADE;
DROP TABLE IF EXISTS ForumMessage CASCADE;
DROP TABLE IF EXISTS Invite CASCADE;
DROP TABLE IF EXISTS Notification CASCADE;
DROP TABLE IF EXISTS Seen CASCADE;
DROP TABLE IF EXISTS Task CASCADE;
DROP TABLE IF EXISTS Users CASCADE;
DROP TABLE IF EXISTS Admin CASCADE;
DROP TABLE IF EXISTS Project CASCADE;

DROP TYPE IF EXISTS Role CASCADE;


----------------------------------------
-- Types
----------------------------------------
```

```
CREATE TYPE Role AS ENUM ('Member', 'Coordinator') ;

-----------------------------------------
-- Tables
-----------------------------------------


-- Note that a plural 'users' name was adopted because user is a reserved word in
PostgreSQL.

CREATE TABLE Users (
    id                      SERIAL PRIMARY KEY,
    email                   TEXT NOT NULL
                            CONSTRAINT user_email_uk UNIQUE,
    password                TEXT NOT NULL,
    name                    TEXT NOT NULL,
    image_path              TEXT NOT NULL DEFAULT './img/default',
    blocked                 BOOLEAN NOT NULL DEFAULT false
);

CREATE TABLE Admin (
    id                      SERIAL PRIMARY KEY,
    email                   TEXT NOT NULL
                            CONSTRAINT admin_email_uk UNIQUE,
    password                TEXT NOT NULL,
    name                    TEXT NOT NULL,
    image_path              TEXT NOT NULL DEFAULT 'img/default'
                            CONSTRAINT a_image_path_uk UNIQUE
);

CREATE TABLE Project (
    id                      SERIAL PRIMARY KEY,
    name                    TEXT NOT NULL,
    description             TEXT,
    color                   TEXT,
    created_at              TIMESTAMP NOT NULL DEFAULT now(),
    archived_at             TIMESTAMP,
    CONSTRAINT project_dates CHECK ((archived_at IS NULL) OR (archived_at >
created_at))
);

CREATE TABLE Participation (
    id                      SERIAL PRIMARY KEY,
    favourite               BOOL NOT NULL DEFAULT False,
    role                    Role NOT NULL,
    id_project              INTEGER NOT NULL REFERENCES Project(id) ON DELETE
CASCADE ON UPDATE CASCADE,
    id_user                 INTEGER NOT NULL REFERENCES Users(id) ON DELETE CASCADE
ON UPDATE CASCADE,
    CONSTRAINT participation_uk UNIQUE (id_user,id_project)
);

CREATE TABLE Task (
    id                      SERIAL PRIMARY KEY,
```

```
    name                    TEXT NOT NULL,
    description             TEXT,
    priority                INTEGER,
    created_at              TIMESTAMP NOT NULL DEFAULT now(),
    finished_at             TIMESTAMP,
    task_number             INT NOT NULL,
    due_date                TIMESTAMP,
    id_project              INTEGER NOT NULL REFERENCES Project(id) ON DELETE
CASCADE ON UPDATE CASCADE,
    id_user                 INTEGER REFERENCES Users(id) ON DELETE CASCADE ON
UPDATE CASCADE,
    CONSTRAINT task_dates CHECK ((finished_at IS NULL) OR (finished_at >
created_at)),
    CONSTRAINT priority_range CHECK ((priority > 0) AND (priority < 6)),
    CONSTRAINT project_task_number UNIQUE (id_project, task_number),
    CONSTRAINT task_due_date CHECK (due_date > created_at)
);

CREATE TABLE Label (
    id                      SERIAL PRIMARY KEY,
    name                    TEXT NOT NULL,
    id_project              INTEGER REFERENCES Project(id) ON DELETE CASCADE ON
UPDATE CASCADE
);

CREATE TABLE TaskLabel (
    id                      SERIAL PRIMARY KEY,
    id_task                 INTEGER NOT NULL REFERENCES Task(id) ON DELETE CASCADE
ON UPDATE CASCADE,
    id_label                INTEGER NOT NULL REFERENCES Label(id) ON DELETE CASCADE
ON UPDATE CASCADE,
    CONSTRAINT task_label UNIQUE (id_task, id_label)
);

CREATE TABLE TaskComment (
    id                      SERIAL PRIMARY KEY,
    content                 TEXT NOT NULL,
    created_at              TIMESTAMP NOT NULL DEFAULT now(),
    id_task                 INTEGER NOT NULL REFERENCES Task(id) ON DELETE CASCADE
ON UPDATE CASCADE,
    id_user                 INTEGER NOT NULL REFERENCES Users(id) ON DELETE CASCADE
ON UPDATE CASCADE
);

CREATE TABLE ForumMessage (
    id                      SERIAL PRIMARY KEY,
    content                 TEXT NOT NULL,
    created_at              TIMESTAMP NOT NULL DEFAULT now(),
    id_project              INTEGER NOT NULL REFERENCES Project(id) ON DELETE
CASCADE ON UPDATE CASCADE,
    id_user                 INTEGER NOT NULL REFERENCES Users(id) ON DELETE CASCADE
ON UPDATE CASCADE
);
```

```sql
CREATE TABLE Invite (
    id                      SERIAL PRIMARY KEY,
    created_at              TIMESTAMP NOT NULL DEFAULT now(),
    id_user                 INTEGER NOT NULL REFERENCES Users(id) ON DELETE CASCADE
ON UPDATE CASCADE,
    id_project              INTEGER NOT NULL REFERENCES Project(id) ON DELETE
CASCADE ON UPDATE CASCADE,
    CONSTRAINT invite_uk UNIQUE (id_user,id_project)
);

CREATE TABLE Notification (
    id                      SERIAL PRIMARY KEY,
    content                 TEXT NOT NULL,
    created_at              TIMESTAMP NOT NULL DEFAULT now(),
    id_project              INTEGER NOT NULL REFERENCES Project(id) ON DELETE
CASCADE ON UPDATE CASCADE
);

CREATE TABLE Seen (
    id                      SERIAL PRIMARY KEY,
    seen                    BOOLEAN NOT NULL DEFAULT False,
    id_user                 INTEGER NOT NULL REFERENCES Users(id) ON DELETE CASCADE
ON UPDATE CASCADE,
    id_notification         INTEGER NOT NULL REFERENCES Notification(id) ON DELETE
CASCADE ON UPDATE CASCADE,
    CONSTRAINT seen_uk UNIQUE (id_user,id_notification)
);


-----------------------------------------
-- INDEXES
-----------------------------------------

DROP INDEX IF EXISTS user_seen;
DROP INDEX IF EXISTS task_taskComment;
DROP INDEX IF EXISTS project_message;
DROP INDEX IF EXISTS project_task;
DROP INDEX IF EXISTS user_participation;

DROP INDEX IF EXISTS search_name;
DROP INDEX IF EXISTS search_project;
DROP INDEX IF EXISTS search_task;

DROP TRIGGER IF EXISTS user_search_update ON Users;
DROP TRIGGER IF EXISTS project_search_update ON Project;
DROP TRIGGER IF EXISTS task_search_update ON Task;

DROP FUNCTION IF EXISTS user_search_update();
DROP FUNCTION IF EXISTS project_search_update();
DROP FUNCTION IF EXISTS task_search_update();

-- Index 1
CREATE INDEX user_seen ON Seen USING btree (id_user, seen);
```

```
-- Index 2
CREATE INDEX task_taskComment ON TaskComment USING hash (id_task);

-- Index 3
CREATE INDEX project_message ON ForumMessage USING hash (id_project);

-- Index 4
CREATE INDEX project_task ON Task USING hash (id_project);

-- Index 5
CREATE INDEX user_participation ON Participation USING hash (id_user);

-- FTS INDEXES

-- Index 6
ALTER TABLE Users
ADD COLUMN tsvectors TSVECTOR;

CREATE FUNCTION user_search_update() RETURNS TRIGGER AS $$
BEGIN
 IF TG_OP = 'INSERT' THEN
        NEW.tsvectors = (
         setweight(to_tsvector('english', NEW.name), 'A')
        );
 END IF;
 IF TG_OP = 'UPDATE' THEN
        IF (NEW.name <> OLD.name) THEN
          NEW.tsvectors = (
            setweight(to_tsvector('english', NEW.name), 'A')
          );
        END IF;
 END IF;
 RETURN NEW;
END $$
LANGUAGE plpgsql;

CREATE TRIGGER user_search_update
BEFORE INSERT OR UPDATE ON Users
FOR EACH ROW
EXECUTE PROCEDURE user_search_update();

CREATE INDEX search_name ON Users USING GIN (tsvectors);

-- Index 7
ALTER TABLE Project
ADD COLUMN tsvectors TSVECTOR;

CREATE FUNCTION project_search_update() RETURNS TRIGGER AS $$
BEGIN
 IF TG_OP = 'INSERT' THEN
        NEW.tsvectors = (
         setweight(to_tsvector('english', NEW.name), 'A') ||
         setweight(to_tsvector('english', NEW.description), 'C')
        );
```

```
      END IF;
      IF TG_OP = 'UPDATE' THEN
            IF (NEW.name <> OLD.name OR NEW.description <> OLD.description) THEN
              NEW.tsvectors = (
                 setweight(to_tsvector('english', NEW.name), 'A') ||
                 setweight(to_tsvector('english', NEW.description), 'C')
              );
            END IF;
      END IF;
      RETURN NEW;
END $$
LANGUAGE plpgsql;

CREATE TRIGGER project_search_update
 BEFORE INSERT OR UPDATE ON Project
 FOR EACH ROW
 EXECUTE PROCEDURE project_search_update();

CREATE INDEX search_project ON Project USING GIN (tsvectors);

-- Index 8
ALTER TABLE Task
ADD COLUMN tsvectors TSVECTOR;

CREATE FUNCTION task_search_update() RETURNS TRIGGER AS $$
BEGIN
 IF TG_OP = 'INSERT' THEN
         NEW.tsvectors = (
          setweight(to_tsvector('english', NEW.name), 'A') ||
          setweight(to_tsvector('english', NEW.description), 'C')
         );
 END IF;
 IF TG_OP = 'UPDATE' THEN
            IF (NEW.name <> OLD.name OR NEW.description <> OLD.description) THEN
              NEW.tsvectors = (
                 setweight(to_tsvector('english', NEW.name), 'A') ||
                 setweight(to_tsvector('english', NEW.description), 'C')
              );
            END IF;
 END IF;
 RETURN NEW;
END $$
LANGUAGE plpgsql;

CREATE TRIGGER task_search_update
 BEFORE INSERT OR UPDATE ON Task
 FOR EACH ROW
 EXECUTE PROCEDURE task_search_update();

CREATE INDEX search_task ON Task USING GIN (tsvectors);


-----------------------------------------
-- TRIGGERS and UDFs
```

```
        -----------------------------------------

DROP FUNCTION IF EXISTS task_number();
DROP FUNCTION IF EXISTS user_anonymous();
DROP FUNCTION IF EXISTS remove_task();
DROP FUNCTION IF EXISTS block_user();
DROP FUNCTION IF EXISTS finished_task();
DROP FUNCTION IF EXISTS assign_task();
DROP FUNCTION IF EXISTS accept_invite();
DROP FUNCTION IF EXISTS notify_invitation();
DROP FUNCTION IF EXISTS coordinator_change();
DROP FUNCTION IF EXISTS no_delete_coordinator();
DROP FUNCTION IF EXISTS no_invite_participant();
DROP FUNCTION IF EXISTS task_if_participating();
DROP FUNCTION IF EXISTS comment_if_participating();
DROP FUNCTION IF EXISTS message_if_participating();

DROP TRIGGER IF EXISTS task_number ON Task;
DROP TRIGGER IF EXISTS user_anonymous ON Users;
DROP TRIGGER IF EXISTS remove_task ON Participation;
DROP TRIGGER IF EXISTS block_user ON Users;
DROP TRIGGER IF EXISTS notification_finished_task ON Task;
DROP TRIGGER IF EXISTS assign_task ON Task;
DROP TRIGGER IF EXISTS notification_accept_invite ON Participation;
DROP TRIGGER IF EXISTS invite_notification ON Invite;
DROP TRIGGER IF EXISTS coordinator_change ON Participation;
DROP TRIGGER IF EXISTS no_delete_coordinator ON Participation;
DROP TRIGGER IF EXISTS no_invite_participant ON Invite;
DROP TRIGGER IF EXISTS task_if_participating ON Task;
DROP TRIGGER IF EXISTS comment_if_participating ON TaskComment;
DROP TRIGGER IF EXISTS message_if_participating ON ForumMessage;

-- Trigger 1

CREATE FUNCTION task_number() RETURNS TRIGGER AS
$BODY$
BEGIN
        NEW.task_number := (SELECT count(*)
                                FROM Task
                                WHERE Task.id_project = NEW.id_project);
        RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER task_number
        BEFORE INSERT ON Task
        FOR EACH ROW
        EXECUTE PROCEDURE task_number();



-- Trigger 2

CREATE FUNCTION user_anonymous() RETURNS TRIGGER AS
```

```
$BODY$
BEGIN
        UPDATE Users
        SET name = 'Anonymous', email = 'anonymous' || OLD.id || '@anonymous.pt'
        WHERE OLD.id = Users.id;

        RETURN NULL; -- check if this really dont delete user
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER user_anonymous
        BEFORE DELETE ON Users
        FOR EACH ROW
        EXECUTE PROCEDURE user_anonymous();



-- Trigger 3

CREATE FUNCTION remove_task() RETURNS TRIGGER AS
$BODY$
BEGIN

        UPDATE Task
        SET Task.id_user = NULL
        WHERE OLD.id_user = Task.id_user AND Task.finished_at = NULL;

        RETURN VOID;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER remove_task
        AFTER DELETE ON Participation
        FOR EACH ROW
        EXECUTE PROCEDURE remove_task();



-- Trigger 4

CREATE FUNCTION block_user() RETURNS TRIGGER AS
$BODY$
BEGIN
        DELETE FROM Participation
        WHERE Participation.id_user = OLD.id;

        RETURN VOID;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER block_user
        AFTER UPDATE OF blocked
        ON Users
```

```
          FOR EACH ROW
          WHEN (OLD.blocked = FALSE)
          EXECUTE PROCEDURE block_user();



-- Trigger 5

CREATE FUNCTION finished_task() RETURNS TRIGGER AS
$BODY$
BEGIN

        INSERT INTO Notification (content, id_project)
        VALUES ('Task ' || OLD.task_number || ' completed!', OLD.id_project)
        RETURNING id AS notification_id;

        IF (OLD.id_user IS NOT NULL) THEN
            INSERT INTO Seen (seen, id_user, id_notification)
            Select False, OLD.id_user, notification_id.id
            FROM notification_id;
        END IF;

        INSERT INTO Seen (seen, id_user, id_notification)
        SELECT (False, id_user, notificationid_notification)
        FROM Participation
        WHERE Participation.id_project = OLD.id_project AND Participation.role =
'Coordinator';

        RETURN VOID;

END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER notification_finished_task
        AFTER UPDATE OF finished_at
        ON Task
        FOR EACH ROW
        WHEN (OLD.finished_at = NULL)
        EXECUTE PROCEDURE finished_task();


-- Trigger 6

CREATE FUNCTION assign_task() RETURNS TRIGGER AS
$BODY$
BEGIN
        WITH notification_id AS (INSERT INTO Notification (content, id_project)
        VALUES ('New task ' || NEW.task_number || ' assigned to you!',
NEW.id_project)
        RETURNING id)

        INSERT INTO Seen (seen, id_user, id_notification)
        VALUES (False, NEW.id_user, notification_id.id);

        RETURN VOID;
```

```
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER assign_task
        AFTER INSERT OR UPDATE
        ON Task
        FOR EACH ROW
        WHEN (NEW.id_user <> NULL)
        EXECUTE PROCEDURE assign_task();

-- Trigger 7

CREATE FUNCTION accept_invite() RETURNS TRIGGER AS
$BODY$
BEGIN

        WITH notification_id AS (INSERT INTO Notification (content, id_project)
        VALUES ('New ' || NEW.role || ' in your project!', NEW.id_project)
        RETURNING id)

        INSERT INTO Seen (seen, id_user, id_notification)
        SELECT False, Participation.id_user, notification_id.id
        FROM Participation, notification_id
        WHERE Participation.id_project = NEW.id_project AND Participation.role =
'Coordinator';

        RETURN NEW;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER notification_accept_invite
        AFTER INSERT
        ON Participation
        FOR EACH ROW
        EXECUTE PROCEDURE accept_invite();

-- Trigger 8

CREATE FUNCTION notify_invitation() RETURNS TRIGGER AS
$BODY$
BEGIN
        WITH notification_id AS (INSERT INTO Notification (content, id_project)
        VALUES ('Invite to a new project!', NEW.id_project)
        RETURNING id)

        INSERT INTO Seen (seen, id_user, id_notification)
        SELECT False, NEW.id_user, notification_id.id
        FROM notification_id;

        RETURN NEW;
END
$BODY$
```

```
LANGUAGE plpgsql;

CREATE TRIGGER invite_notification
        AFTER INSERT
        ON Invite
        FOR EACH ROW
        EXECUTE PROCEDURE notify_invitation();

-- Trigger 9

CREATE FUNCTION coordinator_change() RETURNS TRIGGER AS
$BODY$
BEGIN
        WITH notification_id AS (INSERT INTO Notification (content, id_project)
        VALUES ('Your project has a new Coordinator!', NEW.id_project)
        RETURNING id)

        INSERT INTO Seen (seen, id_user, id_notification)
        SELECT False, id_user, notification_id.id
        FROM Participation, notification_id
        WHERE Participation.id_project = NEW.id_project;

        RETURN VOID;
END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER coordinator_change
        AFTER UPDATE
        ON Participation
        FOR EACH ROW
        WHEN (NEW.role = 'Coordinator' AND OLD.role = 'Member')
        EXECUTE PROCEDURE coordinator_change();

-- Trigger 10

CREATE FUNCTION no_delete_coordinator() RETURNS TRIGGER AS
$BODY$
BEGIN
        IF EXISTS(SELECT *
                    FROM Participation
                    WHERE Participation.role = 'Coordinator'
                          AND Participation.id_project = OLD.id_project
                          AND Participation.id_user <> OLD.id_user)
        THEN RAISE EXCEPTION 'You can not have a project(%) without a
coordinator(%)',OLD.id_project,OLD.id_user;
        END IF;
        RETURN OLD;

END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER no_delete_coordinator
```

```
              BEFORE DELETE
              ON Participation
              FOR EACH ROW
              WHEN (OLD.role = 'Coordinator')
              EXECUTE PROCEDURE no_delete_coordinator();



-- Trigger 11

CREATE FUNCTION no_invite_participant() RETURNS TRIGGER AS
$BODY$
BEGIN
         IF EXISTS(SELECT *
                        FROM Participation
                        WHERE Participation.id_project = NEW.id_project
                  AND Participation.id_user = NEW.id_user)
         THEN RAISE EXCEPTION 'You can not invite a participant(%) of the
project(%)',NEW.id_user, NEW.id_project ;
         END IF;
         RETURN NEW;

END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER no_invite_participant
         BEFORE INSERT
         ON Invite
         FOR EACH ROW
         EXECUTE PROCEDURE no_invite_participant();



-- Trigger 12

CREATE FUNCTION task_if_participating() RETURNS TRIGGER AS
$BODY$
BEGIN
         IF NOT EXISTS(SELECT *
                        FROM Participation
                        WHERE Participation.id_project = NEW.id_project
                  AND Participation.id_user = NEW.id_user)
         THEN RAISE EXCEPTION 'User(%) not in the project(%)',NEW.id_user,
NEW.id_project ;
         END IF;
         RETURN NEW;

END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER task_if_participating
         BEFORE INSERT
         ON Task
         FOR EACH ROW
```

```
        EXECUTE PROCEDURE task_if_participating();


-- Trigger 13

CREATE FUNCTION comment_if_participating() RETURNS TRIGGER AS
$BODY$
BEGIN
        IF NOT EXISTS ( SELECT *
                        FROM Participation, Task
                        WHERE Participation.id_project = Task.id_project
                AND Participation.id_user = NEW.id_user
                            AND Task.id = NEW.id_task)
        THEN RAISE EXCEPTION 'User(%) can not comment in the task(%)',NEW.id_user,
NEW.id_task ;
        END IF;
        RETURN NEW;

END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER comment_if_participating
        BEFORE INSERT
        ON TaskComment
        FOR EACH ROW
        EXECUTE PROCEDURE comment_if_participating();



-- Trigger 14

CREATE FUNCTION message_if_participating() RETURNS TRIGGER AS
$BODY$
BEGIN
        IF NOT EXISTS ( SELECT *
                        FROM Participation
                        WHERE Participation.id_project = NEW.id_project
                AND Participation.id_user = NEW.id_user)
        THEN RAISE EXCEPTION 'User(%) can not send message in
project(%)',NEW.id_user, NEW.id_project;
        END IF;
        RETURN NEW;

END
$BODY$
LANGUAGE plpgsql;

CREATE TRIGGER message_if_participating
        BEFORE INSERT
        ON ForumMessage
        FOR EACH ROW
        EXECUTE PROCEDURE message_if_participating();
```

A.2. Database population

```
insert into Admin (id, email, password, name) values (1, 'admin@admin.com',
'dFOpt7DPBRn', 'Admin');



insert into Users (id, email, password, name) values (1,
'mferries0@yellowpages.com', 't6AyMFhWp', 'Mahalia Ferries');
insert into Users (id, email, password, name) values (2, 'aoakly1@gmpg.org',
'vKfzRx', 'Abby Oakly');
insert into Users (id, email, password, name) values (3, 'sbennallck2@is.gd',
'zkzjLzNkMX7', 'Shirl Bennallck');
insert into Users (id, email, password, name) values (4, 'ewestrip3@ebay.com',
'DWSrN8Wy7vBk', 'Eamon Westrip');
insert into Users (id, email, password, name) values (5, 'esutlieff4@prlog.org',
'h7gjfpCl', 'Eliot Sutlieff');
insert into Users (id, email, password, name) values (6, 'aormesher5@blogs.com',
'nTCjBU7', 'Albie Ormesher');
insert into Users (id, email, password, name) values (7, 'jwatts6@t-online.de',
'5KSKOIDC', 'Jae Watts');
insert into Users (id, email, password, name) values (8, 'fbaudet7@irs.gov',
'1K8K295ZP', 'Fritz Baudet');
insert into Users (id, email, password, name) values (9,
'jbosden8@constantcontact.com', 'ndshiZExJPwu', 'Jess Bosden');
insert into Users (id, email, password, name) values (10,
'gwigmore9@vkontakte.ru', 'kZ6FN2Js4vA2', 'Gertrud Wigmore');
insert into Users (id, email, password, name) values (11, 'wpauleta@a8.net',
's79LaZP9bB', 'Winthrop Paulet');
insert into Users (id, email, password, name) values (12, 'abonseyb@over-
blog.com', 'oF2qatkV', 'Antonietta Bonsey');
insert into Users (id, email, password, name) values (13, 'cmithonc@jimdo.com',
'GlTyJMNXb', 'Carmelle Mithon');
insert into Users (id, email, password, name) values (14, 'djanderad@cdbaby.com',
'UDtKnEVn1a43', 'Daffie Jandera');
insert into Users (id, email, password, name) values (15,
'rnorthidgee@yellowpages.com', 'hurXQn', 'Rahel Northidge');
insert into Users (id, email, password, name) values (16,
'ahawkettf@yellowpages.com', 'UkHyPxW', 'Adriena Hawkett');
insert into Users (id, email, password, name) values (17,
'mtortoishellg@auda.org.au', 'Yw3chJIiaz93', 'Milena Tortoishell');
insert into Users (id, email, password, name) values (18, 'tmcatamneyh@mail.ru',
'G3d0MapX', 'Thor McAtamney');
insert into Users (id, email, password, name) values (19, 'didelli@weebly.com',
'zSojWNZQ9qPx', 'Devland Idell');
insert into Users (id, email, password, name) values (20, 'gmenicombj@mysql.com',
'56hrMRPGnn', 'Gwyneth Menicomb');
insert into Users (id, email, password, name) values (21, 'eseldonk@taobao.com',
'iD23Ld5V02', 'Enrico Seldon');
insert into Users (id, email, password, name) values (22, 'bburetl@edublogs.org',
'QrlCoJP8', 'Batholomew Buret');
insert into Users (id, email, password, name) values (23, 'dilchenkom@wufoo.com',
'bxU6dz5486', 'Deirdre Ilchenko');
```

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insert into Users (id, email, password, name) values (24,
'fdarwoodn@cloudflare.com', 'u7KOIKRs29', 'Fairleigh Darwood');
insert into Users (id, email, password, name) values (25,
'mmcmonnieso@mozilla.com', 'k4APJq1', 'Marijo McMonnies');
insert into Users (id, email, password, name) values (26,
'gdubarryp@barnesandnoble.com', 'swmR53EP', 'Georgia Dubarry');
insert into Users (id, email, password, name) values (27, 'iapplefordq@lulu.com',
'4IyBOW', 'Ingeborg Appleford');
insert into Users (id, email, password, name) values (28,
'ckeunemannr@canalblog.com', 'z60NdVoPM', 'Celinka Keunemann');
insert into Users (id, email, password, name) values (29, 'lmottleys@ow.ly',
'Og517j', 'Lorelle Mottley');
insert into Users (id, email, password, name) values (30, 'tgoraccit@pbs.org',
'jFjJgpMdla', 'Teriann Goracci');
insert into Users (id, email, password, name) values (31,
'rjakoviljevicu@state.gov', 't5p2WAKufKW', 'Robers Jakoviljevic');
insert into Users (id, email, password, name) values (32, 'pnicelyv@wiley.com',
'F7V9d2', 'Persis Nicely');
insert into Users (id, email, password, name) values (33, 'thayesmanw@hc360.com',
'AKoQDC', 'Therese Hayesman');
insert into Users (id, email, password, name) values (34,
'lchallenerx@smh.com.au', 'bXKdqW5Kfn5', 'Linoel Challener');
insert into Users (id, email, password, name) values (35, 'xellerbecky@nih.gov',
'LB0XcKer', 'Xerxes Ellerbeck');
insert into Users (id, email, password, name) values (36,
'amauchlenz@earthlink.net', 'gqtm6R', 'Audrye Mauchlen');
insert into Users (id, email, password, name) values (37,
'ldrinkhall10@latimes.com', 'oe9tzb5WLyj', 'Lanita Drinkhall');
insert into Users (id, email, password, name) values (38,
'ffranciskiewicz11@dell.com', 'ihxXrv8U', 'Fawnia Franciskiewicz');
insert into Users (id, email, password, name) values (39, 'santyshev12@wiley.com',
'JcoZBq3bpt2', 'Sebastiano Antyshev');
insert into Users (id, email, password, name) values (40,
'aedmett13@slashdot.org', 'h4Od5AmfxFC1', 'Alikee Edmett');
insert into Users (id, email, password, name) values (41,
'rkruszelnicki14@ifeng.com', '7YZ3goP0', 'Rubina Kruszelnicki');
insert into Users (id, email, password, name) values (42,
'abedding15@blinklist.com', 'hEI6T3Jp', 'Adda Bedding');
insert into Users (id, email, password, name) values (43, 'mtomalin16@msn.com',
't9oc6Yl', 'Michaeline Tomalin');
insert into Users (id, email, password, name) values (44,
'bclarage17@booking.com', 'gNw0iwSKnPLO', 'Belita Clarage');
insert into Users (id, email, password, name) values (45,
'bslyme18@blinklist.com', '4JeOHib7oWc', 'Brandon Slyme');
insert into Users (id, email, password, name) values (46, 'celsworth19@gnu.org',
'AVS4FkPl', 'Cart Elsworth');
insert into Users (id, email, password, name) values (47, 'rde1a@scribd.com',
'gZOw0V5eJq', 'Roarke de Almeida');
insert into Users (id, email, password, name) values (48,
'mlanchbury1b@about.com', '7oYV6ap72y', 'Monica Lanchbury');
insert into Users (id, email, password, name) values (49, 'gstading1c@hhs.gov',
'hvmqaw3Da2m', 'Garreth Stading');
insert into Users (id, email, password, name) values (50, 'kgarrettson1d@cnn.com',
'TSfUeXs5H', 'Katleen Garrettson');
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insert into Users (id, email, password, name) values (51,
'mdaulby1e@chronoengine.com', '6O84qc8WVBx', 'Mendel Daulby');
insert into Users (id, email, password, name) values (52,
'lpaiton1f@posterous.com', '2tjc9ckwmL', 'Lurline Paiton');
insert into Users (id, email, password, name) values (53,
'akornyshev1g@aboutads.info', 'eCITZlKsp0q', 'Armstrong Kornyshev');
insert into Users (id, email, password, name) values (54, 'yhuard1h@europa.eu',
'tSlaQ8MS6', 'Ysabel Huard');
insert into Users (id, email, password, name) values (55,
'crichardson1i@histats.com', 'IbK6Nq', 'Claus Richardson');
insert into Users (id, email, password, name) values (56, 'rst1j@indiegogo.com',
'pfeeEyuwH', 'Roley St. Hill');
insert into Users (id, email, password, name) values (57, 'sposthill1k@yelp.com',
'EGprDAVL0IY', 'Spenser Posthill');
insert into Users (id, email, password, name) values (58, 'mgunson1l@wisc.edu',
'ckct0S', 'Mandi Gunson');
insert into Users (id, email, password, name) values (59, 'melstub1m@gmpg.org',
'6GPtCP', 'Mickie Elstub');
insert into Users (id, email, password, name) values (60, 'dmycock1n@smh.com.au',
'WcbU0EAV', 'Dorey Mycock');
insert into Users (id, email, password, name) values (61,
'kbothe1o@sourceforge.net', 'VnywCG', 'Kiley Bothe');
insert into Users (id, email, password, name) values (62, 'wwalter1p@upenn.edu',
'OgIRLiHRso1C', 'Wendi Walter');
insert into Users (id, email, password, name) values (63,
'hkeighly1q@amazon.co.jp', 'r5Z8Snkle', 'Hakeem Keighly');
insert into Users (id, email, password, name) values (64,
'gmurfin1r@sourceforge.net', 'cckqkAzCK', 'Grethel Murfin');
insert into Users (id, email, password, name) values (65, 'rtear1s@mashable.com',
'5dMc2Ghz', 'Rebbecca Tear');
insert into Users (id, email, password, name) values (66, 'khathaway1t@gov.uk',
'ffPM5G', 'Kinsley Hathaway');
insert into Users (id, email, password, name) values (67,
'mweeke1u@mayoclinic.com', 'SzYYVqRGSvd', 'Mayor Weeke');
insert into Users (id, email, password, name) values (68, 'gburk1v@epa.gov',
'cHoldOFbrDJ', 'Gilberto Burk');
insert into Users (id, email, password, name) values (69, 'folanda1w@phpbb.com',
'4IGV759j9puM', 'Fionna Olanda');
insert into Users (id, email, password, name) values (70, 'bcherrie1x@umn.edu',
'rYpxgA9o', 'Birch Cherrie');
insert into Users (id, email, password, name) values (71, 'cluto1y@wisc.edu',
'SMM5R36ruUon', 'Cristina Luto');
insert into Users (id, email, password, name) values (72, 'dquarton1z@fotki.com',
'0sXgHZyk9jI', 'Deva Quarton');
insert into Users (id, email, password, name) values (73,
'gjosiah20@pinterest.com', 'mKN26mJhE', 'Genevra Josiah');
insert into Users (id, email, password, name) values (74, 'dduval21@tinyurl.com',
'vpNmz9y', 'Delila Duval');
insert into Users (id, email, password, name) values (75, 'ldaulby22@storify.com',
'cuzUDg7', 'Lorene Daulby');
insert into Users (id, email, password, name) values (76, 'rlibbie23@digg.com',
'Z3hfkWgA5', 'Ruby Libbie');
insert into Users (id, email, password, name) values (77,
'lstrangeway24@redcross.org', 'YPmh396r', 'Leonhard Strangeway');
```

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insert into Users (id, email, password, name) values (78, 'dgresham25@cbc.ca',
'716ZTR', 'Dixie Gresham');
insert into Users (id, email, password, name) values (79, 'cmeynell26@mapy.cz',
'kECqL6yMUa', 'Cecelia Meynell');
insert into Users (id, email, password, name) values (80,
'whonacker27@tripod.com', 'CAv0UjSOg', 'Winnah Honacker');
insert into Users (id, email, password, name) values (81,
'pdimitrescu28@networksolutions.com', 'mkUoSy', 'Penelopa Dimitrescu');
insert into Users (id, email, password, name) values (82, 'ckulas29@sina.com.cn',
'y8dj0FKnI004', 'Carolan Kulas');
insert into Users (id, email, password, name) values (83, 'mpetren2a@prlog.org',
'7CcUymz7s', 'Marcellina Petren');
insert into Users (id, email, password, name) values (84,
'ktallowin2b@shinystat.com', 'yPy6zH', 'Katya Tallowin');
insert into Users (id, email, password, name) values (85,
'nflarity2c@vinaora.com', 'maLbQkf0', 'Nefen Flarity');
insert into Users (id, email, password, name) values (86, 'pinnes2d@icq.com',
'jjim49zyd9WO', 'Pablo Innes');
insert into Users (id, email, password, name) values (87, 'lwimms2e@a8.net',
'Rej0Kn', 'Leticia Wimms');
insert into Users (id, email, password, name) values (88,
'jmattingly2f@unblog.fr', 'iqETtBsLL', 'Julia Mattingly');
insert into Users (id, email, password, name) values (89, 'eberthe2g@netlog.com',
'DeuE5iqkZJ6', 'Esmaria Berthe');
insert into Users (id, email, password, name) values (90, 'nhallas2h@dion.ne.jp',
'Ha0HRA', 'Nikita Hallas');
insert into Users (id, email, password, name) values (91,
'mbottelstone2i@symantec.com', 'O8v33AF', 'Maddi Bottelstone');
insert into Users (id, email, password, name) values (92,
'nnapolione2j@weibo.com', 'fGWz04BS', 'Nerta Napolione');
insert into Users (id, email, password, name) values (93,
'dforryan2k@deliciousdays.com', '5D4t8R5', 'Derril Forryan');
insert into Users (id, email, password, name) values (94, 'lbeavors2l@msu.edu',
'kY5L0YLmX', 'Link Beavors');
insert into Users (id, email, password, name) values (95,
'gclelland2m@comcast.net', 'RHzy8CWmYXc', 'Gaylord Clelland');
insert into Users (id, email, password, name) values (96, 'baspenlon2n@webmd.com',
'gmGlnyEsYLu', 'Beret Aspenlon');
insert into Users (id, email, password, name) values (97, 'rardley2o@fda.gov',
'm7Xgh3SRg4x', 'Robby Ardley');
insert into Users (id, email, password, name) values (98,
'mheggs2p@scientificamerican.com', 'oV3oOUBo', 'Maryellen Heggs');
insert into Users (id, email, password, name) values (99, 'mthemann2q@un.org',
'c978cHPO3x', 'Maritsa Themann');
insert into Users (id, email, password, name) values (100,
'abosward2r@shareasale.com', 'fDJqmf2', 'Audie Bosward');


insert into Project (id, name, description, color, created_at) values (1,
'disintermediate dynamic schemas', 'sed ante vivamus tortor duis mattis egestas
metus aenean fermentum donec ut mauris eget massa tempor convallis nulla neque
libero convallis eget eleifend luctus', null, '2018-04-18');
insert into Project (id, name, description, color, created_at) values (2,
'incentivize magnetic experiences', 'felis ut at dolor quis odio consequat varius
```

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integer ac leo pellentesque ultrices mattis odio donec', '#bcdbe5', '2021-03-24');
insert into Project (id, name, description, color, created_at) values (3,
'transform end-to-end infrastructures', 'augue vestibulum rutrum rutrum neque
aenean auctor gravida sem praesent id massa id nisl venenatis lacinia aenean sit
amet justo morbi ut odio cras', null, '2018-04-18');
insert into Project (id, name, description, color, created_at) values (4,
'syndicate innovative infomediaries', 'cursus vestibulum proin eu mi nulla ac enim
in tempor turpis nec euismod scelerisque quam turpis adipiscing lorem vitae mattis
nibh ligula nec', '#b1d8d3', '2017-06-23');
insert into Project (id, name, description, color, created_at) values (5, 'e-
enable scalable technologies', 'sagittis dui vel nisl duis ac nibh fusce lacus
purus', '#3fbcdd', '2020-01-24');
insert into Project (id, name, description, color, created_at) values (6,
'cultivate robust applications', 'quis turpis eget elit sodales scelerisque mauris
sit amet eros suspendisse accumsan tortor quis', '#f5b3c8', '2020-11-23');
insert into Project (id, name, description, color, created_at) values (7, 'empower
killer web services', 'justo morbi ut odio cras mi pede malesuada in imperdiet et
commodo vulputate justo in blandit ultrices enim lorem ipsum dolor sit amet
consectetuer adipiscing', '#3c0dd4', '2018-01-25');
insert into Project (id, name, description, color, created_at) values (8, 'engage
cross-media supply-chains', 'placerat ante nulla justo aliquam quis turpis eget
elit sodales scelerisque mauris sit amet eros', null, '2021-02-21');
insert into Project (id, name, description, color, created_at) values (9,
'recontextualize synergistic deliverables', 'lorem ipsum dolor sit amet
consectetuer adipiscing elit proin risus praesent lectus vestibulum quam sapien
varius ut', '#c2f9df', '2018-11-03');
insert into Project (id, name, description, color, created_at) values (10, 'seize
customized metrics', 'nam congue risus semper porta volutpat quam pede lobortis
ligula sit amet eleifend pede libero quis orci nullam molestie nibh in lectus',
'#636f99', '2021-10-17');
insert into Project (id, name, description, color, created_at) values (11, 'mesh
one-to-one markets', 'vitae consectetuer eget rutrum at lorem integer tincidunt
ante vel ipsum praesent blandit lacinia erat vestibulum sed magna at nunc', null,
'2020-03-02');
insert into Project (id, name, description, color, created_at) values (12,
'expedite intuitive e-commerce', 'turpis adipiscing lorem vitae mattis nibh ligula
nec sem duis aliquam convallis nunc proin at', '#f0f8dc', '2018-01-02');
insert into Project (id, name, description, color, created_at) values (13,
'leverage killer synergies', 'eu mi nulla ac enim in tempor turpis nec euismod
scelerisque quam turpis adipiscing lorem vitae mattis nibh ligula nec sem duis
aliquam convallis nunc', null, '2020-09-07');
insert into Project (id, name, description, color, created_at) values (14,
'monetize 24/7 technologies', 'sagittis sapien cum sociis natoque penatibus et
magnis dis parturient montes nascetur ridiculus mus etiam vel augue vestibulum
rutrum rutrum neque aenean auctor gravida', '#5ef159', '2021-08-28');
insert into Project (id, name, description, color, created_at) values (15, 'deploy
granular platforms', 'consequat morbi a ipsum integer a nibh in quis justo
maecenas rhoncus aliquam lacus morbi', '#023712', '2021-07-22');
insert into Project (id, name, description, color, created_at) values (16,
'cultivate value-added users', 'tincidunt eu felis fusce posuere felis sed lacus
morbi sem mauris laoreet ut rhoncus', '#ae8e31', '2018-01-20');
insert into Project (id, name, description, color, created_at) values (17,
'repurpose innovative content', 'turpis enim blandit mi in porttitor pede justo eu
massa donec', null, '2020-06-14');
```

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insert into Project (id, name, description, color, created_at) values (18,
'utilize open-source users', 'proin eu mi nulla ac enim in tempor turpis nec
euismod scelerisque quam turpis adipiscing lorem vitae mattis nibh ligula nec
sem', '#2a4b49', '2018-03-17');
insert into Project (id, name, description, color, created_at) values (19,
'leverage bricks-and-clicks models', 'nisi nam ultrices libero non mattis pulvinar
nulla pede ullamcorper augue a suscipit nulla elit ac nulla sed vel enim sit amet
nunc', '#a347a0', '2017-06-23');
insert into Project (id, name, description, color, created_at) values (20, 'engage
transparent functionalities', 'donec pharetra magna vestibulum aliquet ultrices
erat tortor sollicitudin mi sit', null, '2017-12-13');
insert into Project (id, name, description, color, created_at) values (21,
'revolutionize turn-key users', 'nulla nunc purus phasellus in felis donec semper
sapien a libero nam dui proin leo odio porttitor', null, '2017-05-02');
insert into Project (id, name, description, color, created_at) values (22,
'whiteboard mission-critical markets', 'at velit vivamus vel nulla eget eros
elementum pellentesque quisque porta volutpat erat quisque erat eros viverra eget
congue eget', '#ae1576', '2018-04-06');
insert into Project (id, name, description, color, created_at) values (23,
'exploit viral e-business', 'in hac habitasse platea dictumst morbi vestibulum
velit id pretium iaculis diam erat fermentum justo nec condimentum neque sapien
placerat ante nulla justo aliquam', '#e0eef3', '2020-10-09');
insert into Project (id, name, description, color, created_at) values (24,
'empower e-business users', 'ipsum primis in faucibus orci luctus et ultrices
posuere cubilia curae', '#2143a6', '2018-05-03');
insert into Project (id, name, description, color, created_at) values (25,
'iterate innovative bandwidth', 'id massa id nisl venenatis lacinia aenean sit
amet justo morbi ut odio cras mi pede malesuada in imperdiet', '#84a31a', '2021-
01-16');
insert into Project (id, name, description, color, created_at) values (26, 'grow
seamless deliverables', 'condimentum neque sapien placerat ante nulla justo
aliquam quis turpis eget elit sodales scelerisque mauris', '#4e6373', '2019-11-
03');
insert into Project (id, name, description, color, created_at) values (27, 'matrix
rich e-services', 'ut nunc vestibulum ante ipsum primis in faucibus orci luctus',
null, '2021-08-12');
insert into Project (id, name, description, color, created_at) values (28,
'benchmark magnetic schemas', 'venenatis non sodales sed tincidunt eu felis fusce
posuere felis sed lacus morbi sem mauris laoreet ut rhoncus aliquet pulvinar sed',
'#89219b', '2018-06-20');
insert into Project (id, name, description, color, created_at) values (29,
'envisioneer e-business e-tailers', 'nulla nisl nunc nisl duis bibendum felis sed
interdum venenatis turpis enim blandit mi in porttitor pede justo eu massa donec
dapibus', null, '2018-04-07');
insert into Project (id, name, description, color, created_at) values (30, 'grow
granular ROI', 'ut volutpat sapien arcu sed augue aliquam erat volutpat in congue
etiam justo etiam', null, '2020-03-06');
insert into Project (id, name, description, color, created_at) values (31,
'visualize impactful networks', 'amet sapien dignissim vestibulum vestibulum ante
ipsum primis in faucibus orci luctus', '#7258a2', '2020-04-14');
insert into Project (id, name, description, color, created_at) values (32,
'disintermediate global e-markets', 'et ultrices posuere cubilia curae mauris
viverra diam vitae quam suspendisse', '#4e0718', '2019-12-02');
insert into Project (id, name, description, color, created_at) values (33, 'evolve
```

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intuitive functionalities', 'lacinia nisi venenatis tristique fusce congue diam id
ornare imperdiet sapien urna pretium nisl ut volutpat sapien arcu sed', null,
'2018-10-11');
insert into Project (id, name, description, color, created_at) values (34, 'grow
extensible experiences', 'ac nulla sed vel enim sit amet nunc viverra dapibus
nulla suscipit ligula in lacus curabitur', '#df867a', '2018-10-11');
insert into Project (id, name, description, color, created_at) values (35,
'integrate extensible niches', 'amet eleifend pede libero quis orci nullam
molestie nibh in lectus pellentesque at nulla suspendisse potenti cras in purus eu
magna vulputate', '#c87745', '2020-11-08');
insert into Project (id, name, description, color, created_at) values (36,
'transition end-to-end relationships', 'vivamus in felis eu sapien cursus
vestibulum proin eu mi nulla ac enim in tempor turpis nec euismod scelerisque quam
turpis adipiscing lorem vitae', '#685d34', '2018-05-09');
insert into Project (id, name, description, color, created_at) values (37, 'target
cross-platform web services', 'mattis nibh ligula nec sem duis aliquam convallis
nunc proin at turpis a pede', '#f91a55', '2017-03-25');
insert into Project (id, name, description, color, created_at) values (38, 'engage
user-centric applications', 'eget massa tempor convallis nulla neque libero
convallis eget eleifend luctus ultricies', '#4ef32a', '2019-08-25');
insert into Project (id, name, description, color, created_at) values (39,
'reintermediate revolutionary web-readiness', 'nisi volutpat eleifend donec ut
dolor morbi vel lectus in quam fringilla rhoncus mauris enim leo', null, '2019-02-
27');
insert into Project (id, name, description, color, created_at) values (40,
'facilitate end-to-end infrastructures', 'ut dolor morbi vel lectus in quam
fringilla rhoncus mauris enim leo rhoncus sed vestibulum sit', '#2f919f', '2021-
04-20');
insert into Project (id, name, description, color, created_at) values (41, 'seize
B2B e-tailers', 'nulla integer pede justo lacinia eget tincidunt eget tempus vel
pede morbi porttitor lorem id ligula suspendisse ornare consequat lectus in est',
null, '2017-05-07');
insert into Project (id, name, description, color, created_at) values (42,
'syndicate one-to-one architectures', 'vulputate nonummy maecenas tincidunt lacus
at velit vivamus vel nulla eget eros elementum pellentesque quisque', '#1805c5',
'2018-07-10');
insert into Project (id, name, description, color, created_at) values (43,
'disintermediate turn-key technologies', 'donec posuere metus vitae ipsum aliquam
non mauris morbi non lectus aliquam sit amet diam in magna bibendum imperdiet
nullam orci pede venenatis non', '#10a967', '2018-01-28');
insert into Project (id, name, description, color, created_at) values (44,
'innovate next-generation functionalities', 'quis turpis eget elit sodales
scelerisque mauris sit amet eros suspendisse accumsan tortor', '#7ae10d', '2021-
07-07');
insert into Project (id, name, description, color, created_at) values (45, 'brand
end-to-end infrastructures', 'ac tellus semper interdum mauris ullamcorper purus
sit amet nulla quisque arcu', null, '2018-08-28');
insert into Project (id, name, description, color, created_at) values (46,
'benchmark seamless synergies', 'felis fusce posuere felis sed lacus morbi sem
mauris laoreet ut rhoncus aliquet pulvinar sed nisl nunc rhoncus dui vel sem sed
sagittis', null, '2017-09-29');
insert into Project (id, name, description, color, created_at) values (47,
'empower cross-platform bandwidth', 'amet nunc viverra dapibus nulla suscipit
ligula in lacus curabitur at ipsum ac tellus semper interdum mauris ullamcorper
```

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purus sit amet nulla quisque arcu libero', '#8d3141', '2019-09-04');
insert into Project (id, name, description, color, created_at) values (48, 'e-
enable intuitive metrics', 'curabitur at ipsum ac tellus semper interdum mauris
ullamcorper purus sit amet nulla quisque arcu libero', '#94b02a', '2021-11-11');
insert into Project (id, name, description, color, created_at) values (49,
'deliver best-of-breed convergence', 'varius nulla facilisi cras non velit nec
nisi vulputate nonummy maecenas tincidunt', '#196d5e', '2020-08-17');
insert into Project (id, name, description, color, created_at) values (50,
'expedite holistic deliverables', 'enim sit amet nunc viverra dapibus nulla
suscipit ligula in lacus curabitur at ipsum ac tellus semper interdum mauris
ullamcorper purus sit amet', '#e9cdf8', '2021-07-18');


insert into Participation (id, favourite, role, id_project, id_user) values (1,
true, 'Member', 1, 1);
insert into Participation (id, favourite, role, id_project, id_user) values (2,
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'Persevering radical time-frame', 3, '2018-11-20', 2, 2);
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'Phased asymmetric data-warehouse', 3, '2020-01-13', 3, 3);
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'Down-sized logistical function', 2, '2021-07-29', 4, 4);
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'Robust transitional firmware', 1, '2020-07-29', 5, 5);
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'Quality-focused radical installation', 3, '2020-03-08', 6, 6);
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'Fundamental empowering intranet', 5, '2020-11-17', 7, 7);
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'Customer-focused 3rd generation ability', 2, '2020-08-28', 10, 10);
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'Organized methodical toolset', 5, '2020-04-28', 11, 11);
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'Visionary 24 hour time-frame', 2, '2019-03-17', 12, 12);
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'Mandatory high-level migration', 5, '2020-07-12', 13, 13);
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'Object-based interactive methodology', 3, '2020-08-09', 14, 14);
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insert into TaskComment (id, content, id_task, id_user) values (1, 'blandit nam
nulla integer pede justo lacinia eget tincidunt eget tempus vel', 3, 3);
insert into TaskComment (id, content, id_task, id_user) values (2, 'fusce lacus
purus aliquet at feugiat non pretium quis lectus suspendisse potenti in eleifend',
8, 8);
insert into TaskComment (id, content, id_task, id_user) values (3, 'hac habitasse
platea dictumst aliquam augue quam sollicitudin vitae consectetuer eget rutrum at
lorem integer', 9, 9);
insert into TaskComment (id, content, id_task, id_user) values (4, 'massa tempor
convallis nulla neque libero convallis eget eleifend luctus ultricies eu nibh',
10, 10);
insert into TaskComment (id, content, id_task, id_user) values (5, 'convallis
tortor risus dapibus augue vel accumsan tellus nisi eu orci mauris lacinia', 18,
18);
insert into TaskComment (id, content, id_task, id_user) values (6, 'quis orci eget
orci vehicula condimentum curabitur in libero ut', 19, 19);
insert into TaskComment (id, content, id_task, id_user) values (7, 'mattis nibh
ligula nec sem duis aliquam convallis nunc proin', 20, 20);
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insert into TaskComment (id, content, id_task, id_user) values (8, 'eget tempus
vel pede morbi porttitor lorem id ligula suspendisse ornare consequat lectus in',
21, 21);
insert into TaskComment (id, content, id_task, id_user) values (9, 'sit amet sem
fusce consequat nulla nisl nunc nisl duis', 22, 22);
insert into TaskComment (id, content, id_task, id_user) values (10, 'vestibulum
quam sapien varius ut blandit non interdum in ante vestibulum ante ipsum primis
in', 26, 26);
insert into TaskComment (id, content, id_task, id_user) values (11, 'accumsan
felis ut at dolor quis odio consequat varius integer ac leo', 27, 27);
insert into TaskComment (id, content, id_task, id_user) values (12, 'elementum
ligula vehicula consequat morbi a ipsum integer a nibh in quis justo maecenas
rhoncus', 30, 30);
insert into TaskComment (id, content, id_task, id_user) values (13, 'interdum
mauris ullamcorper purus sit amet nulla quisque arcu libero rutrum ac lobortis vel
dapibus', 35, 35);
insert into TaskComment (id, content, id_task, id_user) values (14, 'nisl nunc
rhoncus dui vel sem sed sagittis nam congue risus semper porta volutpat', 38, 38);
insert into TaskComment (id, content, id_task, id_user) values (15, 'id turpis
integer aliquet massa id lobortis convallis tortor risus dapibus augue', 39, 39);
insert into TaskComment (id, content, id_task, id_user) values (16, 'nibh fusce
lacus purus aliquet at feugiat non pretium quis lectus suspendisse', 41, 41);
insert into TaskComment (id, content, id_task, id_user) values (17, 'lacus
curabitur at ipsum ac tellus semper interdum mauris ullamcorper purus sit amet',
43, 43);
insert into TaskComment (id, content, id_task, id_user) values (18, 'sit amet nunc
viverra dapibus nulla suscipit ligula in lacus', 47, 47);
insert into TaskComment (id, content, id_task, id_user) values (19, 'ipsum integer
a nibh in quis justo maecenas rhoncus aliquam', 48, 48);
insert into TaskComment (id, content, id_task, id_user) values (20, 'diam cras
pellentesque volutpat dui maecenas tristique est et tempus semper est quam
pharetra magna', 50, 50);
insert into TaskComment (id, content, id_task, id_user) values (21, 'venenatis non
sodales sed tincidunt eu felis fusce posuere felis sed lacus morbi sem mauris',
55, 55);
insert into TaskComment (id, content, id_task, id_user) values (22, 'pulvinar sed
nisl nunc rhoncus dui vel sem sed sagittis', 56, 56);
insert into TaskComment (id, content, id_task, id_user) values (23, 'sed sagittis
nam congue risus semper porta volutpat quam pede lobortis ligula', 58, 58);
insert into TaskComment (id, content, id_task, id_user) values (24, 'commodo
vulputate justo in blandit ultrices enim lorem ipsum dolor sit amet', 60, 60);
insert into TaskComment (id, content, id_task, id_user) values (25, 'sit amet
consectetuer adipiscing elit proin interdum mauris non ligula pellentesque
ultrices phasellus', 61, 11);
insert into TaskComment (id, content, id_task, id_user) values (26, 'dolor sit
amet consectetuer adipiscing elit proin risus praesent lectus vestibulum quam
sapien varius', 62, 12);
insert into TaskComment (id, content, id_task, id_user) values (27, 'id ornare
imperdiet sapien urna pretium nisl ut volutpat sapien arcu', 63, 13);
insert into TaskComment (id, content, id_task, id_user) values (28, 'duis faucibus
accumsan odio curabitur convallis duis consequat dui nec nisi', 64, 14);
insert into TaskComment (id, content, id_task, id_user) values (29, 'in est risus
auctor sed tristique in tempus sit amet sem fusce consequat nulla', 65, 15);
insert into TaskComment (id, content, id_task, id_user) values (30, 'ultrices vel
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augue vestibulum ante ipsum primis in faucibus orci luctus et', 68, 18);
insert into TaskComment (id, content, id_task, id_user) values (31, 'sed sagittis
nam congue risus semper porta volutpat quam pede lobortis ligula sit', 70, 20);
insert into TaskComment (id, content, id_task, id_user) values (32, 'elit proin
risus praesent lectus vestibulum quam sapien varius ut blandit non interdum in
ante', 75, 25);
insert into TaskComment (id, content, id_task, id_user) values (33, 'sapien a
libero nam dui proin leo odio porttitor id consequat in consequat', 79, 29);
insert into TaskComment (id, content, id_task, id_user) values (34, 'orci vehicula
condimentum curabitur in libero ut massa volutpat convallis morbi odio odio
elementum eu', 83, 33);
insert into TaskComment (id, content, id_task, id_user) values (35, 'suspendisse
potenti nullam porttitor lacus at turpis donec posuere metus vitae ipsum', 84,
34);
insert into TaskComment (id, content, id_task, id_user) values (36, 'in tempor
turpis nec euismod scelerisque quam turpis adipiscing lorem vitae mattis', 88,
38);
insert into TaskComment (id, content, id_task, id_user) values (37, 'odio donec
vitae nisi nam ultrices libero non mattis pulvinar nulla', 89, 39);
insert into TaskComment (id, content, id_task, id_user) values (38, 'lorem quisque
ut erat curabitur gravida nisi at nibh in hac habitasse platea', 90, 40);
insert into TaskComment (id, content, id_task, id_user) values (39, 'penatibus et
magnis dis parturient montes nascetur ridiculus mus etiam vel augue vestibulum
rutrum', 94, 44);
insert into TaskComment (id, content, id_task, id_user) values (40, 'bibendum
felis sed interdum venenatis turpis enim blandit mi in', 100, 50);
insert into TaskComment (id, content, id_task, id_user) values (41, 'lobortis
convallis tortor risus dapibus augue vel accumsan tellus nisi eu', 105, 5);
insert into TaskComment (id, content, id_task, id_user) values (42, 'fermentum
justo nec condimentum neque sapien placerat ante nulla justo aliquam', 108, 8);
insert into TaskComment (id, content, id_task, id_user) values (43, 'viverra eget
congue eget semper rutrum nulla nunc purus phasellus in', 110, 10);
insert into TaskComment (id, content, id_task, id_user) values (44, 'morbi sem
mauris laoreet ut rhoncus aliquet pulvinar sed nisl nunc rhoncus dui vel', 116,
16);
insert into TaskComment (id, content, id_task, id_user) values (45, 'nibh in hac
habitasse platea dictumst aliquam augue quam sollicitudin vitae', 117, 17);
insert into TaskComment (id, content, id_task, id_user) values (46, 'vestibulum
ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia', 118, 18);
insert into TaskComment (id, content, id_task, id_user) values (47, 'ipsum dolor
sit amet consectetuer adipiscing elit proin risus praesent lectus vestibulum',
119, 19);
insert into TaskComment (id, content, id_task, id_user) values (48, 'habitasse
platea dictumst etiam faucibus cursus urna ut tellus nulla ut', 120, 20);
insert into TaskComment (id, content, id_task, id_user) values (49, 'ultrices
posuere cubilia curae nulla dapibus dolor vel est donec', 123, 23);
insert into TaskComment (id, content, id_task, id_user) values (50, 'tortor quis
turpis sed ante vivamus tortor duis mattis egestas', 127, 27);



insert into ForumMessage (id, content, created_at, id_project, id_user) values (1,
'pede malesuada in imperdiet et commodo vulputate justo', '2021-10-23', 1, 1);
insert into ForumMessage (id, content, created_at, id_project, id_user) values (2,
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'eros viverra eget congue eget semper', '2020-10-23', 2, 2);
insert into ForumMessage (id, content, created_at, id_project, id_user) values (3,
'dapibus dolor vel est donec odio justo sollicitudin ut suscipit', '2021-01-27',
3, 3);
insert into ForumMessage (id, content, created_at, id_project, id_user) values (4,
'fusce lacus purus aliquet at feugiat non', '2020-02-12', 4, 4);
insert into ForumMessage (id, content, created_at, id_project, id_user) values (5,
'cursus urna ut tellus nulla ut erat id mauris', '2020-03-06', 5, 5);
insert into ForumMessage (id, content, created_at, id_project, id_user) values (6,
'lacus morbi sem mauris laoreet', '2021-08-18', 6, 6);
insert into ForumMessage (id, content, created_at, id_project, id_user) values (7,
'cras non velit nec nisi vulputate nonummy maecenas tincidunt lacus', '2020-09-
12', 7, 7);
insert into ForumMessage (id, content, created_at, id_project, id_user) values (8,
'accumsan tellus nisi eu orci mauris', '2021-10-20', 8, 8);
insert into ForumMessage (id, content, created_at, id_project, id_user) values (9,
'tristique fusce congue diam id', '2021-06-08', 9, 9);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(10, 'convallis morbi odio odio elementum eu', '2020-10-30', 10, 10);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(11, 'morbi quis tortor id nulla', '2021-04-26', 11, 11);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(12, 'vestibulum vestibulum ante ipsum primis in faucibus orci luctus', '2021-09-
20', 12, 12);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(13, 'volutpat in congue etiam justo etiam pretium iaculis justo in', '2020-08-
30', 13, 13);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(14, 'sit amet cursus id turpis integer', '2020-07-14', 14, 14);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(15, 'vulputate ut ultrices vel augue vestibulum', '2020-10-07', 15, 15);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(16, 'congue etiam justo etiam pretium', '2021-01-22', 16, 16);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(17, 'suspendisse accumsan tortor quis turpis sed ante vivamus tortor duis',
'2021-04-28', 17, 17);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(18, 'risus semper porta volutpat quam pede lobortis ligula sit', '2021-07-24',
18, 18);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(19, 'est et tempus semper est quam pharetra magna ac', '2021-05-17', 19, 19);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(20, 'semper rutrum nulla nunc purus phasellus in felis donec', '2021-06-19', 20,
20);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(21, 'lorem vitae mattis nibh ligula', '2020-11-24', 21, 21);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(22, 'at dolor quis odio consequat', '2020-03-02', 22, 22);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(23, 'donec dapibus duis at velit', '2020-12-19', 23, 23);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(24, 'quam fringilla rhoncus mauris enim leo rhoncus sed vestibulum', '2021-11-
09', 24, 24);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
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(25, 'cursus urna ut tellus nulla ut erat id', '2021-11-16', 25, 25);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(26, 'sit amet sem fusce consequat nulla nisl', '2020-12-13', 26, 26);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(27, 'ultrices mattis odio donec vitae', '2020-11-18', 27, 27);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(28, 'ipsum primis in faucibus orci luctus et ultrices posuere cubilia', '2020-08-
12', 28, 28);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(29, 'tortor sollicitudin mi sit amet', '2020-03-20', 29, 29);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(30, 'quis lectus suspendisse potenti in eleifend quam a', '2020-02-26', 30, 30);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(31, 'auctor sed tristique in tempus sit amet', '2021-09-23', 31, 31);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(32, 'libero nullam sit amet turpis elementum ligula vehicula consequat morbi',
'2020-08-10', 32, 32);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(33, 'lorem ipsum dolor sit amet consectetuer adipiscing elit proin interdum',
'2020-10-18', 33, 33);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(34, 'bibendum imperdiet nullam orci pede venenatis', '2020-04-20', 34, 34);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(35, 'augue aliquam erat volutpat in congue etiam justo etiam', '2021-05-05', 35,
35);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(36, 'ac diam cras pellentesque volutpat', '2021-10-01', 36, 36);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(37, 'hac habitasse platea dictumst maecenas', '2021-02-07', 37, 37);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(38, 'velit donec diam neque vestibulum eget vulputate', '2020-04-15', 38, 38);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(39, 'nisl duis ac nibh fusce lacus purus aliquet at feugiat', '2021-04-15', 39,
39);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(40, 'fusce consequat nulla nisl nunc', '2020-10-03', 40, 40);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(41, 'diam neque vestibulum eget vulputate ut', '2021-08-28', 41, 41);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(42, 'tempor turpis nec euismod scelerisque quam turpis adipiscing lorem', '2020-
04-28', 42, 42);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(43, 'mi in porttitor pede justo', '2020-09-17', 43, 43);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(44, 'justo aliquam quis turpis eget', '2020-03-26', 44, 44);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(45, 'odio in hac habitasse platea dictumst maecenas ut massa', '2020-06-10', 45,
45);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(46, 'nulla elit ac nulla sed vel', '2021-04-11', 46, 46);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(47, 'in est risus auctor sed', '2021-07-11', 47, 47);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(48, 'amet turpis elementum ligula vehicula consequat', '2020-04-16', 48, 48);
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insert into ForumMessage (id, content, created_at, id_project, id_user) values
(49, 'velit id pretium iaculis diam erat fermentum', '2021-04-08', 49, 49);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(50, 'porttitor lacus at turpis donec posuere', '2020-08-02', 50, 50);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(51, 'gravida nisi at nibh in hac', '2021-08-17', 1, 51);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(52, 'tristique est et tempus semper', '2020-06-16', 2, 52);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(53, 'ornare consequat lectus in est risus auctor sed tristique', '2021-11-10', 3,
53);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(54, 'faucibus cursus urna ut tellus nulla ut', '2021-01-29', 4, 54);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(55, 'cras non velit nec nisi vulputate nonummy', '2020-05-07', 5, 55);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(56, 'quis odio consequat varius integer ac leo pellentesque ultrices', '2020-09-
08', 6, 56);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(57, 'eleifend luctus ultricies eu nibh', '2020-04-21', 7, 57);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(58, 'fusce congue diam id ornare imperdiet sapien urna pretium nisl', '2020-11-
26', 8, 58);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(59, 'aliquam erat volutpat in congue etiam', '2020-09-29', 9, 59);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(60, 'integer ac neque duis bibendum', '2020-05-26', 10, 60);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(61, 'sed augue aliquam erat volutpat in congue', '2020-11-13', 11, 61);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(62, 'aliquam quis turpis eget elit sodales scelerisque', '2020-06-14', 12, 62);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(63, 'consequat lectus in est risus auctor sed tristique in tempus', '2021-01-16',
13, 63);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(64, 'in quis justo maecenas rhoncus aliquam lacus morbi quis', '2021-05-03', 14,
64);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(65, 'neque sapien placerat ante nulla', '2020-04-06', 15, 65);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(66, 'eros vestibulum ac est lacinia nisi venenatis tristique fusce congue',
'2020-12-08', 16, 66);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(67, 'augue quam sollicitudin vitae consectetuer eget rutrum at', '2021-09-17',
17, 67);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(68, 'lacus at turpis donec posuere metus vitae ipsum aliquam', '2021-08-04', 18,
68);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(69, 'proin risus praesent lectus vestibulum quam sapien varius ut', '2021-10-11',
19, 69);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(70, 'lectus pellentesque eget nunc donec quis orci eget', '2020-02-14', 20, 70);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
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(71, 'est quam pharetra magna ac consequat', '2021-09-04', 21, 71);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(72, 'sapien iaculis congue vivamus metus arcu', '2020-03-09', 22, 72);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(73, 'montes nascetur ridiculus mus etiam vel augue vestibulum', '2021-06-20', 23,
73);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(74, 'non mattis pulvinar nulla pede ullamcorper augue', '2020-08-05', 24, 74);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(75, 'fermentum justo nec condimentum neque sapien placerat ante', '2021-10-14',
25, 75);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(76, 'bibendum felis sed interdum venenatis turpis enim', '2021-03-19', 26, 76);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(77, 'lacus morbi quis tortor id nulla ultrices aliquet maecenas', '2020-09-09',
27, 77);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(78, 'enim leo rhoncus sed vestibulum sit amet cursus id', '2020-05-15', 28, 78);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(79, 'luctus tincidunt nulla mollis molestie lorem quisque ut erat', '2021-05-11',
29, 79);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(80, 'mattis odio donec vitae nisi nam ultrices libero', '2020-02-03', 30, 80);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(81, 'eu orci mauris lacinia sapien quis libero nullam sit amet', '2020-02-27',
31, 81);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(82, 'erat fermentum justo nec condimentum neque sapien placerat ante', '2021-01-
02', 32, 82);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(83, 'faucibus orci luctus et ultrices posuere cubilia', '2020-01-30', 33, 83);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(84, 'nulla ac enim in tempor turpis', '2021-11-26', 34, 84);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(85, 'rutrum nulla tellus in sagittis dui vel nisl duis ac', '2020-11-16', 35,
85);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(86, 'in quis justo maecenas rhoncus aliquam lacus morbi quis', '2020-11-12', 36,
86);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(87, 'lorem ipsum dolor sit amet', '2020-03-30', 37, 87);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(88, 'nulla elit ac nulla sed vel enim sit amet', '2020-02-15', 38, 88);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(89, 'eu tincidunt in leo maecenas pulvinar lobortis est', '2021-10-10', 39, 89);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(90, 'volutpat quam pede lobortis ligula sit', '2020-01-09', 40, 90);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(91, 'ut erat id mauris vulputate elementum nullam varius nulla facilisi', '2020-
06-14', 41, 91);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(92, 'id mauris vulputate elementum nullam varius nulla facilisi cras', '2020-01-
18', 42, 92);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
```

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(93, 'vulputate vitae nisl aenean lectus pellentesque eget nunc donec', '2021-02-
21', 43, 93);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(94, 'quis tortor id nulla ultrices aliquet maecenas leo', '2021-01-27', 44, 94);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(95, 'quisque erat eros viverra eget congue eget', '2021-10-21', 45, 95);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(96, 'praesent blandit nam nulla integer pede justo', '2020-04-03', 46, 96);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(97, 'nulla quisque arcu libero rutrum ac lobortis', '2020-04-09', 47, 97);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(98, 'in ante vestibulum ante ipsum primis in faucibus', '2020-03-04', 48, 98);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(99, 'congue risus semper porta volutpat quam pede lobortis', '2020-06-22', 49,
99);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(100, 'vestibulum sagittis sapien cum sociis natoque penatibus et magnis', '2021-
08-27', 50, 100);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(101, 'praesent id massa id nisl venenatis lacinia aenean sit', '2020-09-24', 1,
1);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(102, 'justo sollicitudin ut suscipit a feugiat et', '2020-09-21', 2, 2);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(103, 'sit amet turpis elementum ligula vehicula consequat morbi a ipsum', '2020-
07-21', 3, 3);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(104, 'turpis integer aliquet massa id lobortis', '2020-11-19', 4, 4);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(105, 'mauris non ligula pellentesque ultrices phasellus id', '2021-10-22', 5, 5);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(106, 'ultrices erat tortor sollicitudin mi sit amet lobortis', '2021-09-19', 6,
6);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(107, 'tortor quis turpis sed ante vivamus tortor duis mattis', '2020-08-19', 7,
7);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(108, 'odio cras mi pede malesuada', '2021-10-07', 8, 8);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(109, 'arcu libero rutrum ac lobortis vel dapibus', '2020-05-04', 9, 9);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(110, 'luctus ultricies eu nibh quisque', '2020-05-23', 10, 10);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(111, 'a nibh in quis justo maecenas', '2021-04-26', 11, 11);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(112, 'orci luctus et ultrices posuere cubilia curae', '2021-05-08', 12, 12);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(113, 'ultrices erat tortor sollicitudin mi sit amet', '2021-01-10', 13, 13);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(114, 'rutrum at lorem integer tincidunt ante vel ipsum praesent', '2020-11-19',
14, 14);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(115, 'fermentum justo nec condimentum neque sapien placerat ante', '2020-09-09',
15, 15);
```

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insert into ForumMessage (id, content, created_at, id_project, id_user) values
(116, 'leo pellentesque ultrices mattis odio', '2020-01-04', 16, 16);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(117, 'nulla nunc purus phasellus in felis donec semper sapien', '2020-06-08', 17,
17);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(118, 'nisl nunc rhoncus dui vel sem sed', '2021-07-30', 18, 18);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(119, 'nibh fusce lacus purus aliquet at feugiat non pretium', '2020-12-03', 19,
19);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(120, 'laoreet ut rhoncus aliquet pulvinar sed nisl nunc rhoncus dui', '2021-07-
23', 20, 20);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(121, 'felis fusce posuere felis sed lacus morbi', '2020-11-24', 21, 21);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(122, 'sed interdum venenatis turpis enim blandit mi in porttitor', '2021-01-19',
22, 22);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(123, 'id ornare imperdiet sapien urna pretium nisl ut volutpat sapien', '2020-08-
04', 23, 23);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(124, 'sed accumsan felis ut at dolor quis', '2021-01-12', 24, 24);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(125, 'in ante vestibulum ante ipsum primis in faucibus', '2020-06-06', 25, 25);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(126, 'faucibus orci luctus et ultrices posuere cubilia', '2020-05-29', 26, 26);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(127, 'etiam justo etiam pretium iaculis justo', '2020-12-17', 27, 27);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(128, 'duis faucibus accumsan odio curabitur', '2021-01-13', 28, 28);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(129, 'odio condimentum id luctus nec molestie', '2021-06-24', 29, 29);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(130, 'eu est congue elementum in hac habitasse platea dictumst', '2021-10-06',
30, 30);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(131, 'pretium iaculis justo in hac habitasse platea', '2021-08-10', 31, 31);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(132, 'dolor vel est donec odio justo sollicitudin ut', '2021-11-11', 32, 32);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(133, 'tellus semper interdum mauris ullamcorper purus sit amet', '2020-06-19',
33, 33);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(134, 'purus aliquet at feugiat non pretium', '2021-11-14', 34, 34);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(135, 'a libero nam dui proin', '2021-09-24', 35, 35);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(136, 'nulla nunc purus phasellus in felis donec semper', '2020-04-30', 36, 36);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(137, 'cursus id turpis integer aliquet massa', '2021-07-28', 37, 37);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(138, 'nisl nunc nisl duis bibendum felis', '2020-03-13', 38, 38);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
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(139, 'vitae nisl aenean lectus pellentesque eget', '2020-10-25', 39, 39);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(140, 'eu sapien cursus vestibulum proin eu mi nulla ac enim', '2020-08-20', 40,
40);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(141, 'sit amet eleifend pede libero quis orci nullam molestie', '2020-12-26', 41,
41);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(142, 'risus praesent lectus vestibulum quam sapien varius ut', '2020-08-11', 42,
42);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(143, 'orci pede venenatis non sodales', '2021-07-07', 43, 43);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(144, 'sapien cum sociis natoque penatibus et magnis dis', '2020-09-04', 44, 44);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(145, 'ipsum primis in faucibus orci luctus et', '2021-01-13', 45, 45);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(146, 'id pretium iaculis diam erat fermentum', '2021-07-14', 46, 46);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(147, 'orci vehicula condimentum curabitur in', '2021-02-25', 47, 47);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(148, 'curabitur in libero ut massa volutpat convallis', '2021-05-28', 48, 48);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(149, 'mauris morbi non lectus aliquam sit amet', '2021-05-21', 49, 49);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(150, 'quis augue luctus tincidunt nulla mollis molestie lorem quisque', '2020-03-
04', 50, 50);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(151, 'ultrices vel augue vestibulum ante ipsum primis in faucibus orci', '2020-
11-02', 1, 51);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(152, 'blandit mi in porttitor pede justo eu', '2021-05-13', 2, 52);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(153, 'nisl duis bibendum felis sed interdum venenatis turpis enim', '2020-10-22',
3, 53);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(154, 'velit vivamus vel nulla eget eros', '2021-02-26', 4, 54);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(155, 'est quam pharetra magna ac consequat metus sapien ut', '2021-10-07', 5,
55);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(156, 'metus arcu adipiscing molestie hendrerit', '2021-10-16', 6, 56);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(157, 'eu interdum eu tincidunt in leo', '2020-10-04', 7, 57);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(158, 'platea dictumst morbi vestibulum velit id pretium iaculis', '2021-02-12',
8, 58);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(159, 'justo eu massa donec dapibus duis at velit eu est', '2020-06-14', 9, 59);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(160, 'nullam varius nulla facilisi cras non velit nec nisi vulputate', '2021-05-
15', 10, 60);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(161, 'nulla nisl nunc nisl duis bibendum felis sed', '2021-06-26', 11, 61);
```

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insert into ForumMessage (id, content, created_at, id_project, id_user) values
(162, 'augue quam sollicitudin vitae consectetuer', '2020-05-15', 12, 62);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(163, 'vestibulum sit amet cursus id turpis integer aliquet massa id', '2020-12-
02', 13, 63);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(164, 'libero nam dui proin leo odio', '2021-06-04', 14, 64);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(165, 'ipsum primis in faucibus orci luctus et', '2021-03-29', 15, 65);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(166, 'interdum in ante vestibulum ante ipsum primis in faucibus orci', '2020-01-
28', 16, 66);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(167, 'non pretium quis lectus suspendisse potenti in eleifend quam', '2020-03-
16', 17, 67);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(168, 'donec semper sapien a libero nam', '2021-03-28', 18, 68);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(169, 'dictumst morbi vestibulum velit id pretium', '2020-07-07', 19, 69);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(170, 'ac tellus semper interdum mauris ullamcorper purus sit amet', '2021-01-19',
20, 70);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(171, 'sapien placerat ante nulla justo aliquam quis turpis eget', '2020-11-01',
21, 71);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(172, 'lorem quisque ut erat curabitur gravida nisi at nibh', '2021-09-01', 22,
72);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(173, 'pretium iaculis justo in hac habitasse platea dictumst etiam', '2021-04-
26', 23, 73);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(174, 'enim leo rhoncus sed vestibulum sit amet', '2020-11-12', 24, 74);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(175, 'vitae mattis nibh ligula nec sem duis aliquam convallis', '2021-08-27', 25,
75);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(176, 'nulla suscipit ligula in lacus', '2021-06-14', 26, 76);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(177, 'at diam nam tristique tortor eu', '2020-02-21', 27, 77);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(178, 'cum sociis natoque penatibus et', '2021-09-03', 28, 78);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(179, 'orci mauris lacinia sapien quis libero nullam sit', '2020-05-31', 29, 79);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(180, 'quis augue luctus tincidunt nulla mollis molestie lorem quisque ut', '2021-
08-28', 30, 80);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(181, 'amet justo morbi ut odio cras mi pede malesuada in', '2021-07-02', 31, 81);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(182, 'massa donec dapibus duis at velit eu', '2020-07-23', 32, 82);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(183, 'eget congue eget semper rutrum nulla nunc purus phasellus in', '2020-05-
16', 33, 83);
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insert into ForumMessage (id, content, created_at, id_project, id_user) values
(184, 'nec nisi vulputate nonummy maecenas tincidunt lacus at', '2021-07-13', 34,
84);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(185, 'molestie sed justo pellentesque viverra', '2020-03-07', 35, 85);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(186, 'vestibulum velit id pretium iaculis diam', '2020-10-18', 36, 86);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(187, 'praesent blandit lacinia erat vestibulum sed', '2020-06-11', 37, 87);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(188, 'molestie nibh in lectus pellentesque at nulla suspendisse potenti cras',
'2020-05-04', 38, 88);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(189, 'et ultrices posuere cubilia curae nulla dapibus dolor vel', '2021-02-12',
39, 89);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(190, 'elementum pellentesque quisque porta volutpat erat quisque erat', '2021-09-
08', 40, 90);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(191, 'consequat nulla nisl nunc nisl duis bibendum felis sed interdum', '2020-07-
28', 41, 91);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(192, 'est et tempus semper est quam pharetra magna', '2020-11-30', 42, 92);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(193, 'consectetuer eget rutrum at lorem integer tincidunt ante vel ipsum', '2020-
10-09', 43, 93);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(194, 'nunc commodo placerat praesent blandit nam nulla', '2020-05-03', 44, 94);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(195, 'habitasse platea dictumst maecenas ut massa', '2021-11-21', 45, 95);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(196, 'eleifend luctus ultricies eu nibh quisque', '2020-02-12', 46, 96);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(197, 'primis in faucibus orci luctus et', '2021-01-04', 47, 97);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(198, 'justo pellentesque viverra pede ac diam cras pellentesque volutpat', '2021-
02-27', 48, 98);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(199, 'pede ac diam cras pellentesque volutpat', '2021-10-22', 49, 99);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(200, 'sed interdum venenatis turpis enim blandit', '2020-05-01', 50, 100);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(201, 'nulla nisl nunc nisl duis bibendum felis sed interdum venenatis', '2020-04-
26', 1, 1);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(202, 'nisl ut volutpat sapien arcu sed augue aliquam', '2021-09-28', 2, 2);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(203, 'aliquam augue quam sollicitudin vitae consectetuer eget rutrum', '2021-08-
01', 3, 3);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(204, 'aliquam erat volutpat in congue', '2021-06-15', 4, 4);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(205, 'accumsan tortor quis turpis sed ante vivamus tortor duis', '2021-04-09', 5,
5);
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insert into ForumMessage (id, content, created_at, id_project, id_user) values
(206, 'sit amet erat nulla tempus vivamus in felis eu', '2020-03-07', 6, 6);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(207, 'congue etiam justo etiam pretium', '2021-01-05', 7, 7);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(208, 'adipiscing elit proin interdum mauris non', '2021-09-30', 8, 8);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(209, 'vitae nisi nam ultrices libero', '2020-09-28', 9, 9);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(210, 'ac diam cras pellentesque volutpat dui maecenas', '2020-09-18', 10, 10);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(211, 'non sodales sed tincidunt eu felis fusce posuere', '2020-11-19', 11, 11);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(212, 'non mi integer ac neque duis bibendum morbi', '2021-02-15', 12, 12);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(213, 'faucibus accumsan odio curabitur convallis', '2020-03-30', 13, 13);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(214, 'vestibulum ante ipsum primis in', '2020-01-12', 14, 14);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(215, 'volutpat erat quisque erat eros viverra eget congue', '2021-09-06', 15,
15);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(216, 'convallis morbi odio odio elementum eu interdum eu tincidunt', '2020-08-
20', 16, 16);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(217, 'magna bibendum imperdiet nullam orci pede', '2020-01-22', 17, 17);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(218, 'ipsum ac tellus semper interdum mauris ullamcorper purus sit', '2021-10-
28', 18, 18);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(219, 'suspendisse potenti in eleifend quam a odio in hac', '2020-04-09', 19, 19);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(220, 'sapien quis libero nullam sit amet turpis', '2021-03-07', 20, 20);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(221, 'erat nulla tempus vivamus in felis eu', '2020-05-31', 21, 21);
insert into ForumMessage (id, content, created_at, id_project, id_user) values
(222, 'quis tortor id nulla ultrices aliquet maecenas leo odio', '2021-08-28', 22,
22);

insert into Invite (id, created_at, id_user, id_project) values (1, '2020-03-12',
21, 1);
insert into Invite (id, created_at, id_user, id_project) values (2, '2020-09-10',
3, 2);
insert into Invite (id, created_at, id_user, id_project) values (3, '2021-01-29',
4, 3);
insert into Invite (id, created_at, id_user, id_project) values (4, '2021-01-28',
8, 4);
insert into Invite (id, created_at, id_user, id_project) values (5, '2020-04-02',
60, 5);
insert into Invite (id, created_at, id_user, id_project) values (6, '2021-07-20',
7, 6);
insert into Invite (id, created_at, id_user, id_project) values (7, '2020-07-16',
8, 7);
insert into Invite (id, created_at, id_user, id_project) values (8, '2020-08-14',
```

```
  9, 8);
  insert into Invite (id, created_at, id_user, id_project) values (9, '2021-08-19',
  10, 9);
  insert into Invite (id, created_at, id_user, id_project) values (10, '2020-11-08',
  11, 10);
  insert into Invite (id, created_at, id_user, id_project) values (11, '2021-08-24',
  12, 11);
  insert into Invite (id, created_at, id_user, id_project) values (12, '2020-09-07',
  13, 12);
  insert into Invite (id, created_at, id_user, id_project) values (13, '2020-05-23',
  14, 13);
  insert into Invite (id, created_at, id_user, id_project) values (14, '2021-02-12',
  15, 14);
  insert into Invite (id, created_at, id_user, id_project) values (15, '2021-10-20',
  16, 15);
  insert into Invite (id, created_at, id_user, id_project) values (16, '2021-11-04',
  17, 16);
  insert into Invite (id, created_at, id_user, id_project) values (17, '2021-10-09',
  18, 17);
  insert into Invite (id, created_at, id_user, id_project) values (18, '2020-12-22',
  19, 18);
  insert into Invite (id, created_at, id_user, id_project) values (19, '2020-03-28',
  11, 19);
  insert into Invite (id, created_at, id_user, id_project) values (20, '2020-06-14',
  21, 20);
  insert into Invite (id, created_at, id_user, id_project) values (21, '2020-06-30',
  22, 21);
  insert into Invite (id, created_at, id_user, id_project) values (22, '2021-09-18',
  23, 22);
  insert into Invite (id, created_at, id_user, id_project) values (23, '2020-08-31',
  24, 23);
  insert into Invite (id, created_at, id_user, id_project) values (24, '2020-04-10',
  25, 24);
  insert into Invite (id, created_at, id_user, id_project) values (25, '2020-04-22',
  26, 25);
  insert into Invite (id, created_at, id_user, id_project) values (26, '2021-09-18',
  27, 26);
  insert into Invite (id, created_at, id_user, id_project) values (27, '2020-07-29',
  28, 27);
  insert into Invite (id, created_at, id_user, id_project) values (28, '2020-07-04',
  29, 28);
  insert into Invite (id, created_at, id_user, id_project) values (29, '2020-08-22',
  4, 29);
  insert into Invite (id, created_at, id_user, id_project) values (30, '2020-10-07',
  4, 30);
```

Editor

André Pereira

Revision history

28/11/2021: First Version

GROUP2102, 29/11/2021

- André Pereira, up201905650@up.pt
- Beatriz Lopes dos Santos, up201906888@up.pt
- Matilde Oliveira, up201906954@up.pt
- Ricardo Ferreira, up201907835@up.pt