

A9 – Main Accesses to the database and transactions

This artefact shows the main accesses to the database in the Project Management application. All the main accesses are described with the corresponding SQL code and web resource reference. It also includes all the required transactions for this application.

1. Main Accesses

M01 Create new user

SQL101	Creates new user in the platform
Web resource	R105
<pre>INSERT INTO User (e_mail, password, URL, username) VALUES (\$e_mail, \$password, \$URL, \$username)</pre>	

M02 Projects

SQL201	Search project
Web resource	R603
<pre>SELECT id, name, description, start_date, ts_rank_cd(textsearch, query) AS rank FROM Project, to_tsquery(\$search) AS query, to_tsvector(name ' ' description) AS textsearch WHERE query @@ textsearch\\ ORDER BY rank DESC;</pre>	

M03 Boards

SQL301	Search board
Web resource	R215
<pre>SELECT id, name, description ts_rank_cd(textsearch, query) AS rank FROM Board, to_tsquery(\$search) AS query, to_tsvector(name ' ' description) AS textsearch WHERE query @@ textsearch\\ ORDER BY rank DESC;</pre>	

M04 Tasks

SQL401	Search task
Web resource	R307
<pre>SELECT id, name, description ts_rank_cd(textsearch, query) AS rank FROM Task, to_tsquery(\$search) AS query, to_tsvector(name ' ' description) AS textsearch WHERE query @@ textsearch\\ ORDER BY rank DESC;</pre>	

M05 Users

SQL501	Retrieve user's current projects
Web resource	R503

```
SELECT username, full_name, e_mail FROM User
WHERE username LIKE '%$search%' OR full_name LIKE '%$search%';
ORDER BY username;
```

M06 User's projects

SQL601	Retrieve user's current projects
Web resource	R113
<pre>SELECT * FROM Project INNER JOIN Project_team ON Project.id=Project_team.id_project WHERE Project.id_coordinator=\$user OR Project_team.id_user=\$user</pre>	

2. Transactions

T01	Update task progress
Isolation level	
Justification	The task progress must be updated in two different tables, which means that if information is retrieved in the middle of the transaction, the information will not be coherent.
<pre>BEGIN TRANSACTION SET TRANSACTION ISOLATION LEVEL READ COMMITTED -- Insert new progress_update INSERT INTO Progress_update (new_value, id_user, id_task) VALUES (\$new_value, \$id_user, \$id_task) -- Update column progress in table Task UPDATE Task SET progress = \$new_value WHERE id = \$id_task COMMIT</pre>	

T02	Send message to forum
Isolation level	
Justification	When a new message is sent (new instance in Message table), the last messages sent to the forum must be re-selected, or the user will not have access to updated information.
<pre>BEGIN TRANSACTION SET TRANSACTION ISOLATION LEVEL READ COMMITTED -- Insert new message INSERT INTO Message (message, id_user, id_project) VALUES (\$message, \$id_user, \$id_project)</pre>	

```

-- Select last messages
SELECT *
    FROM Message
    WHERE Message.id_project=$projectId AND Message.date >=
DATEADD(day, -7, GETDATE())

COMMIT

```

T03	Create task
Isolation level	
Justification	The board's tasks must be re-read after the addition of each new task, or the user will not have access to updated information.

```

BEGIN TRANSACTION
SET TRANSACTION ISOLATION LEVEL READ COMMITTED

-- Insert new task
INSERT INTO Task (description, name, id_creator, id_board, deadline,
budget)
VALUES ($description, $name, $id_creator, $id_project, $deadline,
$budget)

-- Select tasks from board
SELECT Task.id
    FROM Task
    WHERE Task.id_board=$boardId

COMMIT

```

T04	Create board
Isolation level	
Justification	The project's boards must be re-read after the addition of each new board, or the user will not have access to updated information.

```

BEGIN TRANSACTION
SET TRANSACTION ISOLATION LEVEL READ COMMITTED

-- Insert new board
INSERT INTO Board (description, name, id_creator, id_project)
VALUES ($description, $name, $id_creator, $id_project)

-- Select boards from project and user
SELECT * FROM Board
    INNER JOIN Board_team ON Board.id=Board_team.id_board
    WHERE Board.id_project=$projectId AND Board_team.id_user=$id_user

COMMIT

```

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