

Project Part 3 Deliverable

GROUP 60

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Q1. Stored procedure:

Adding a post requires 3 concurrent table updates. The stored procedure 'post' allows for these updates with a single query.

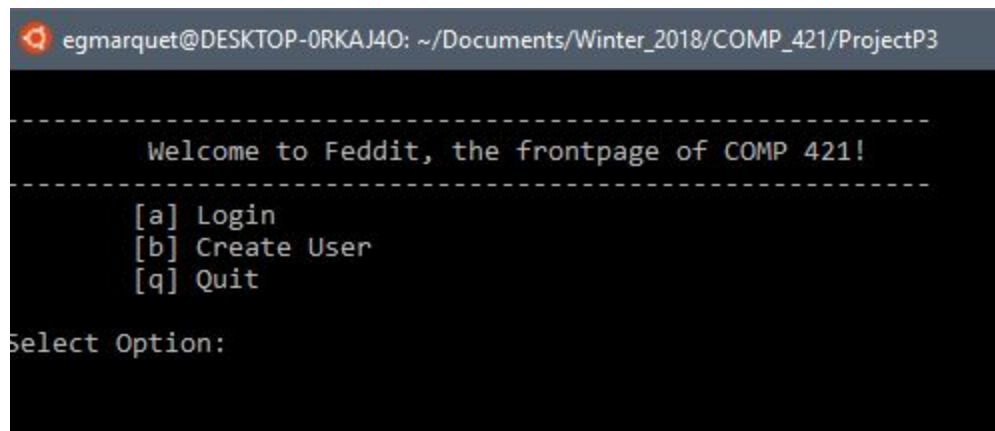
-----Stored procedure-----

```
CREATE OR REPLACE FUNCTION post(sid INTEGER, title TEXT, ccontent TEXT, username
VARCHAR(50), boardurl VARCHAR(255), datet DATE)
RETURNS void AS $$
    BEGIN
        INSERT INTO submissions VALUES(sid, 'true', datet, username);
        INSERT INTO posts VALUES(sid, boardurl, title, ccontent, 'false');
        INSERT INTO user_posts VALUES(sid);
    END;
$$ LANGUAGE plpgsql
```

Q2: Application:

The option path shown mainly focus on options that modify/query the database in some way. Options 'logout', 'quit', and 'back' do not interact with the database, they are completely application side.

Upon launching the application, the user is greeted with a login screen:

A screenshot of a terminal window. The title bar shows the user 'egmarquet@DESKTOP-0RKAJ40' and the path '~/Documents/Winter_2018/COMP_421/ProjectP3'. The terminal content displays a welcome message 'Welcome to Feddit, the frontpage of COMP 421!' enclosed in dashed lines. Below this, there is a list of options: '[a] Login', '[b] Create User', and '[q] Quit'. At the bottom, the prompt 'Select Option:' is visible.

```
egmarquet@DESKTOP-0RKAJ40: ~/Documents/Winter_2018/COMP_421/ProjectP3
-----
Welcome to Feddit, the frontpage of COMP 421!
-----
[a] Login
[b] Create User
[q] Quit
Select Option:
```

Attempting to login with a unregistered user gives an error:

```
-----  
Welcome to Feddit, the frontpage of COMP 421!  
-----  
[a] Login  
[b] Create User  
[q] Quit  
Select Option: a  
Please input a valid username (Note, usernames are CaSe Sensitive): DoesntExist
```

Therefore I will try to create a new user, Joseph D'silva:

```
User not found  
  
-----  
Welcome to Feddit, the frontpage of COMP 421!  
-----  
[a] Login  
[b] Create User  
[q] Quit  
Select Option: b  
Enter a new username: Joseph D'silva  
Enter an email: joseph.dsilva@mail.mcgill.ca  
Enter your home country: Canada
```

Logging into the system as Joseph D'silva, I'm greeted by the main menu page

```
-----  
Welcome Joseph D'silva!  
| MAIN MENU |  
-----  
[a] Goto board  
[b] Create board  
[c] Logout  
[q] Quit  
Select Option:
```

I will now create a new board:

```
Board creation successful

-----

Welcome Joseph D'silva!
| MAIN MENU |

-----

[a] Goto board
[b] Create board
[c] Logout
[q] Quit

Select Option: a
Please type in a valid board name or board URL: Comp421
```

With the board creation successful, I can now view it

```
Board creation successful

-----

Welcome Joseph D'silva!
| MAIN MENU |

-----

[a] Goto board
[b] Create board
[c] Logout
[q] Quit

Select Option: a
Please type in a valid board name or board URL: Comp421
```

Going to the new board, I'm greeted by the board screen. Since there are no posts, it is fairly empty.

```
-----

| Comp421 | Subscribers: 0 Owner: Joseph D'silva

-----

This is the Comp421 board for all your Comp421 questions!

-----

[0-None] View post
[a] Create Post
[b] Back

Select Option:
```

Now I will create a post:

```
-----
      | Comp421 | Subscribers: 0 Owner: Joseph D'silva
-----
This is the Comp421 board for all your Comp421 questions!
-----

      [0-None] View post
      [a] Create Post
      [b] Back

Select Option: a
Enter a post title: Ask me comp421 questions1
Enter post content: Ask me anything related to comp421 here, I will try to answer as soon as possible
```

Upon the creation of the post, the board is automatically re-rendered to show the new post. I will insert a second post for example sake:

```
-----
      | Comp421 | Subscribers: 0 Owner: Joseph D'silva
-----
This is the Comp421 board for all your Comp421 questions!
-----

[0] Ask me comp421 questions1
Posted by Joseph D'silva on 2018-03-25T00:00:00
-----

      [0-0] View post
      [a] Create Post
      [b] Back

Select Option: a
Enter a post title: This is a test post for testing needs!
Enter post content: Please ignore this!
```

Now I want to view one of the posts I created. I can select the [post-number] to view the post I'm interested in. In particular, I want to see the "Ask me comp421 questions" post:

```
-----
      | Comp421 | Subscribers: 0 Owner: Joseph D'silva
-----
This is the Comp421 board for all your Comp421 questions!
-----

[0] Ask me comp421 questions1
Posted by Joseph D'silva on 2018-03-25T00:00:00
-----

[1] This is a test post for testing needs!
Posted by Joseph D'silva on 2018-03-25T00:00:00
-----

      [0-1] View post
      [a] Create Post
      [b] Back

Select Option: 0
```

Accessing the post leads me to post screen. It shows the post title, content, and comments.

```
Viewing post on www.feddit.com/boards/Comp421
-----
Ask me comp421 questions1
-----
-----
Ask me anything related to comp421 here, I will try to answer as soon as possible
-----
Posted by Joseph D'silva on 2018-03-25 00:00:00

Comments:

      [0-None] Reply to comment
      [a] Create new comment
      [b] Back

Select option:
```

There are no comments at the moment, so we'll enter one:

```
Viewing post on www.feddit.com/boards/Comp421

-----
Ask me comp421 questions1
-----
-----
Ask me anything related to comp421 here, I will try to answer as soon as possible
-----
Posted by Joseph D'silva on 2018-03-25 00:00:00

Comments:

    [0-None] Reply to comment
    [a] Create new comment
    [b] Back

Select option: a
Reply to post: Hello, is anyone here?
```

Like the boards gui, comments are automatically rendered once they are input. Now we can try to reply to the comment we just made

```
Viewing post on www.feddit.com/boards/Comp421

-----
Ask me comp421 questions1
-----
-----
Ask me anything related to comp421 here, I will try to answer as soon as possible
-----
Posted by Joseph D'silva on 2018-03-25 00:00:00

Comments:
[0] | Hello, is anyone here?
    | - Comment by Joseph D'silva on 2018-03-25 00:00:00
    |

    [0-0] Reply to comment
    [a] Create new comment
    [b] Back

Select option: 0
Reply to comment: Please answer, its very lonely
```

Note comments can be infinitely nested. We can try replying to the comment that replied to our original comment.

Viewing post on www.feddit.com/boards/Comp421

Ask me comp421 questions1

Ask me anything related to comp421 here, I will try to answer as soon as possible

Posted by Joseph D'silva on 2018-03-25 00:00:00

Comments:

```
[0] | Hello, is anyone here?
```

- Comment by Joseph D'silva on 2018-03-25 00:00:00

1

```
[1] | Please answer, its very lonely
```

- Comment by Joseph D'silva on 2018-03-25 00:00:00

1

[0-1] Reply to comment

```
[a] Create new comment
```

[b] Back

```
Select option: 1
```

Reply to comment: Please ;_;

Once again, it renders:

```
Viewing post on www.feddit.com/boards/Comp421

-----
Ask me comp421 questions1
-----
-----
Ask me anything related to comp421 here, I will try to answer as soon as possible
-----
Posted by Joseph D'silva on 2018-03-25 00:00:00

Comments:
[0] | Hello, is anyone here?
    | - Comment by Joseph D'silva on 2018-03-25 00:00:00
    |

    [1] | Please answer, its very lonely
        | - Comment by Joseph D'silva on 2018-03-25 00:00:00
        |

        [2] | Please ;_;
            | - Comment by Joseph D'silva on 2018-03-25 00:00:00
            |

    [0-2] Reply to comment
    [a] Create new comment
    [b] Back

Select option:
```


As an example, here's replying to a comment logged in as another user (Etienne)

```
Viewing post on www.feddit.com/boards/Comp421

-----
Ask me comp421 questions1
-----
Ask me anything related to comp421 here, I will try to answer as soon as possible
-----
Posted by Joseph D'silva on 2018-03-25 00:00:00

Comments:
[0] | Hello, is anyone here?
    | - Comment by Joseph D'silva on 2018-03-25 00:00:00
    |
    |
    | [1] | Please answer, its very lonely
    |     | - Comment by Joseph D'silva on 2018-03-25 00:00:00
    |
    |
    | [3] | I am here!
    |     | - Comment by Etienne on 2018-03-25 00:00:00
    |
    |
    | [2] | Please ;_;
    |     | - Comment by Joseph D'silva on 2018-03-25 00:00:00
    |
    |
    | [0-3] Reply to comment
    | [a] Create new comment
    | [b] Back

Select option:
```

Q3: Indexes:

Given that many posts are posted on different times, it would be useful to put a CLUSTER to retrieve them very quickly on subsequent pages, instead of searching one page for dates and then going to a farther page for the other. Simply put, in the BETWEEN clause, all the date values are being checked ,therefore it would be useful to have the similar ones on the same pages. Every date has a unique sid associated with it, otherwise we wouldn't know which post on a specific date is associated with which user.

```
CREATE UNIQUE INDEX time_post ON submissions(date,sid);
ALTER TABLE submissions CLUSTER ON time_post;
```

Query example: If we want the posts from in a specific time period, the index would help.

```
SELECT * from submissions WHERE date BETWEEN '2001-01-01' AND '2015-01-01';
```

```
CREATE INDEX user_score ON users(score,username);
```

Query example: `SELECT username from users where score<-500;`

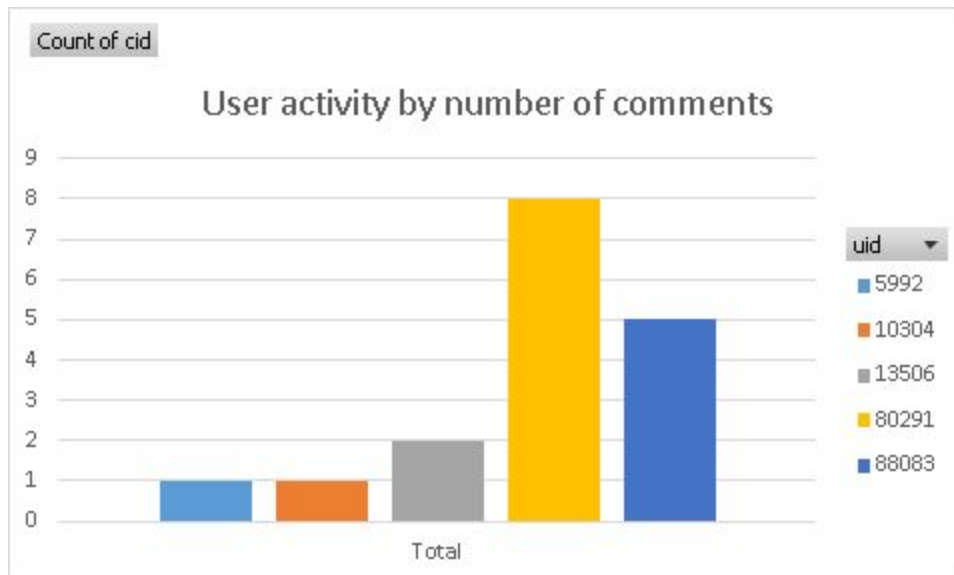
We would be able to decrease the search time of users with `score<-500` for effective moderation of the sites. Moderators could keep a close eye on thlse users.

Similarly, admins got send congratulatory messages to users with top scores and the index speeds up the search of those users

Query:

```
SELECT username
FROM users
WHERE score IN
(
  SELECT score
  FROM users
  ORDER by score DESC
  LIMIT 5
);
```

Q4: Data Visualization:



Count of uid

Annual number of submissions

