



R3DDIT

REDDIT CLONE

PROJECT PRESENTATION
PROGRAMMING III

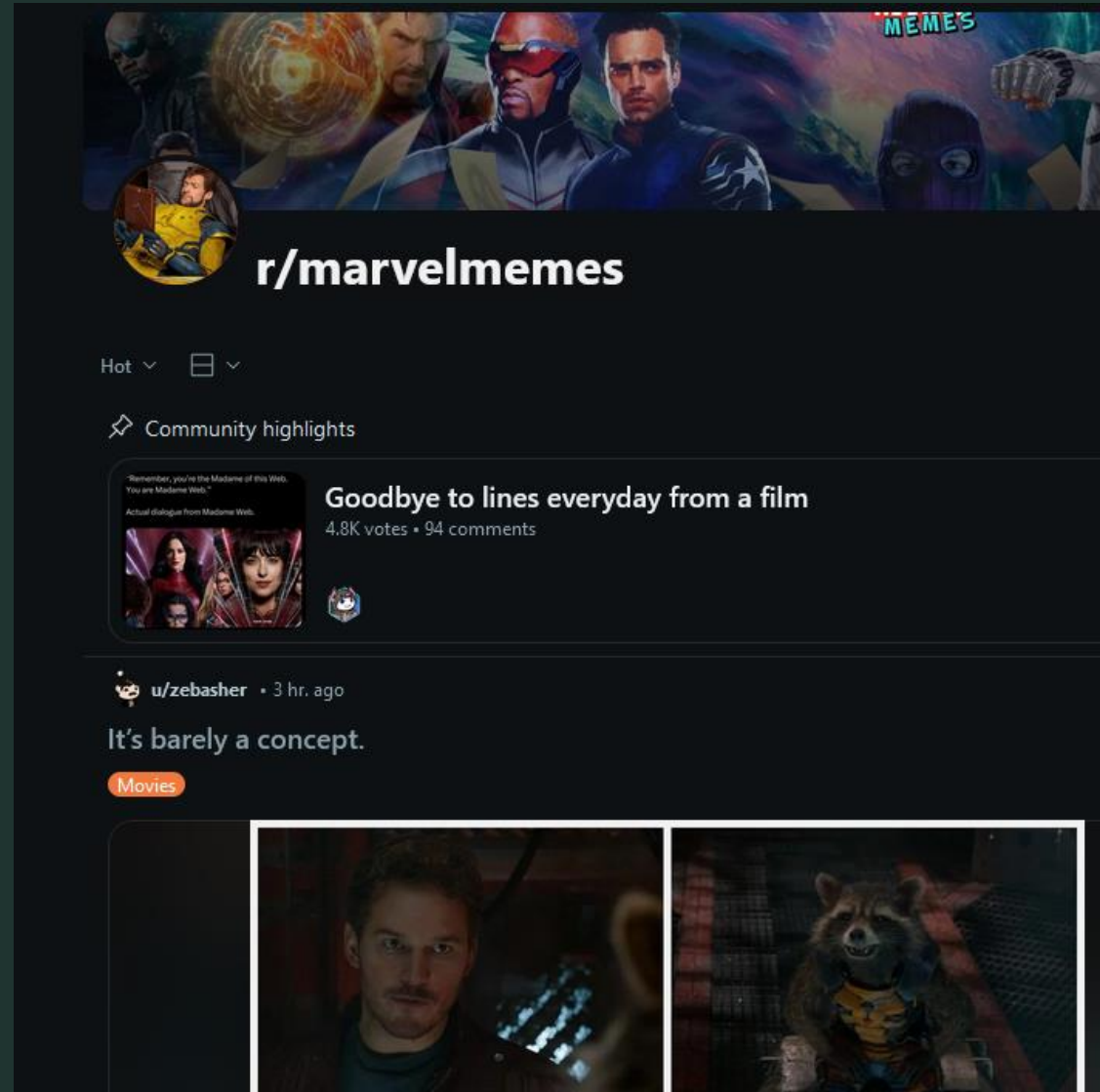
Tamara Plante | Dimitri Teolis | Iana Setrakova

PROJECT PURPOSE

Platform for online communities

- Join communities of various topics of interest
- Share content
- Engage in discussions

R3DDIT

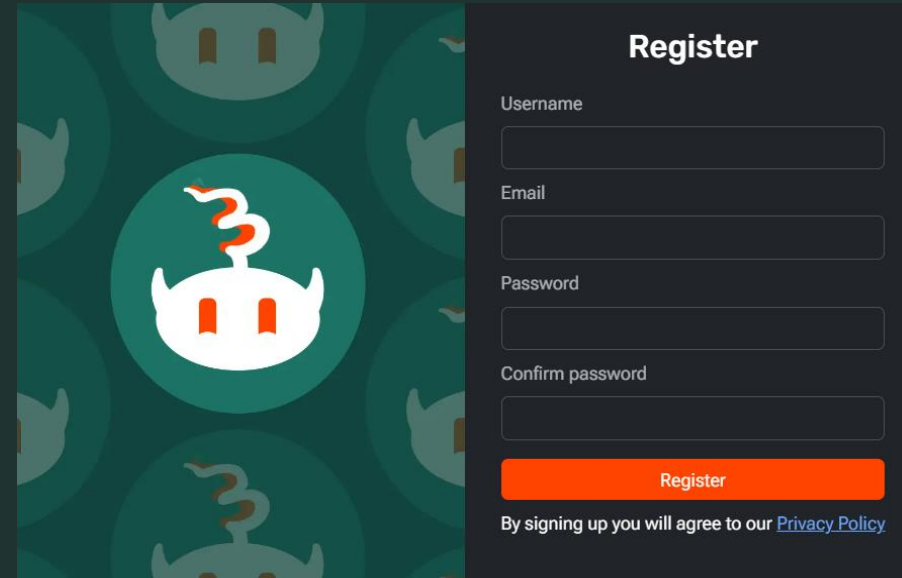


PROJECT SOLUTION

Features and Functionalities

- Forms & Thymeleaf blocks

R3DDIT



Register

Username

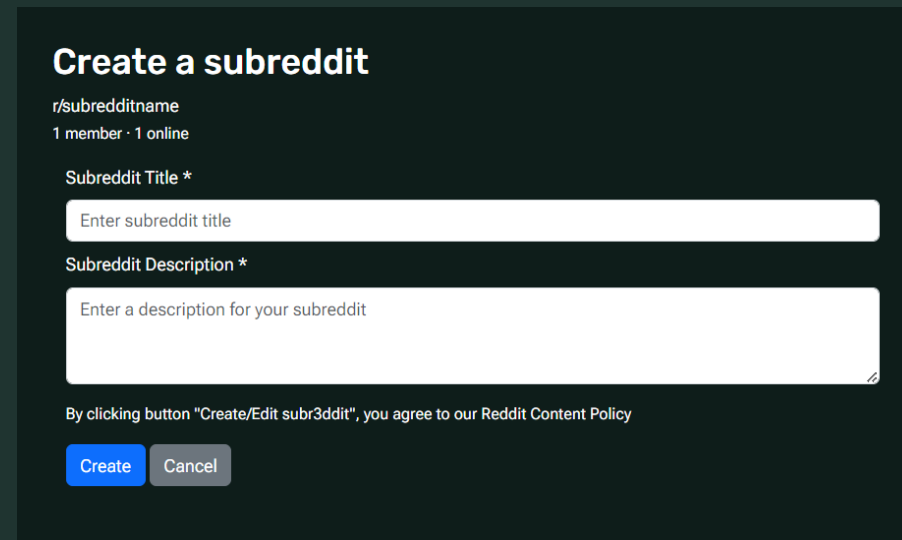
Email

Password

Confirm password

Register

By signing up you will agree to our [Privacy Policy](#)



Create a subreddit

r/subredditname
1 member · 1 online

Subreddit Title *

Subreddit Description *

By clicking button "Create/Edit subr3ddit", you agree to our Reddit Content Policy

Create Cancel

PROJECT SOLUTION

Features and Functionalities

- Subreddit Admin

R3DDIT

ADMIN DASHBOARD

You are an admin of these subreddits

MARVEL

This is a subreddit dedicated to Marvel Comics, its publications and hundreds of characters. It is not affiliated with Marvel Entertainment, LLC and is an unofficial community owned and operated by dedicated fans.

[View](#) [Edit](#) [Delete](#)

Manage users

Username

harry

[Remove from subreddit](#)

Technology_Den

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

[View](#) [Edit](#) [Delete](#)

Manage users

Search...

[Search](#)

Username

harry

[Remove from subreddit](#)

Angel

[Remove from subreddit](#)

Alex

[Remove from subreddit](#)

PROJECT SOLUTION

Features and Functionalities

- Subreddits & Posts

All Subr3ddits

learnprogramming 0 Members 0 Posts Join	gamedev 3 Members 1 Posts Joined	MARVEL 2 Members 1 Posts Joined
Scene_Harry 3 Members 0 Posts Admin	Technology_Den 4 Members 1 Posts Joined	Music_Harry 3 Members 0 Posts Admin
Denis_subreddit 2 Members 0 Posts Joined		

r/ MARVEL

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u/ harry • 21-09-2024 21:40

What if Captain America super soldier serum was temporary?

What if Steve Rogers' Super Soldier Serum was temporary and when he got stuck in ice, 70 years later he'd come out but without the serum, making him small and weak again.

6 0

+ Create Post

Joined

r/ MARVEL

This is a subreddit dedicated to Marvel Comics, its publications and hundreds of characters. It is not affiliated with Marvel Entertainment, LLC and is an unofficial community owned and operated by dedicated fans.

2
Members

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PROJECT SOLUTION

Features and Functionalities

- Nested comments
- Search features

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← r/ Technology_Den • 21-09-2024 20:31

u/ Angel

WHAT IT SKILLS/TECHNOLOGIES ARE MOST FUTURE-PROOF?

I cannot help but wonder what skillset should I invest my time into to have a career that will be in demand for years to come.



12



2

Add a comment

Submit

Comments



harry • 22/09/2024 18:12:05

If you could instantly master one skill, what would it be?



3



Reply



harry • 9/22/2024, 6:12:11 PM

I'm going into college this year and would like to make a decision as to which tech field to pursue so as to be best equipped for the job market when I graduate in 4 years or 6 years if I do a master's too.



0



Reply



denis • 9/23/2024, 8:05:07 AM

Data engineering, cloud infrastructure, machine learning operations. Knowing how to develop, test and deploy all of this



1

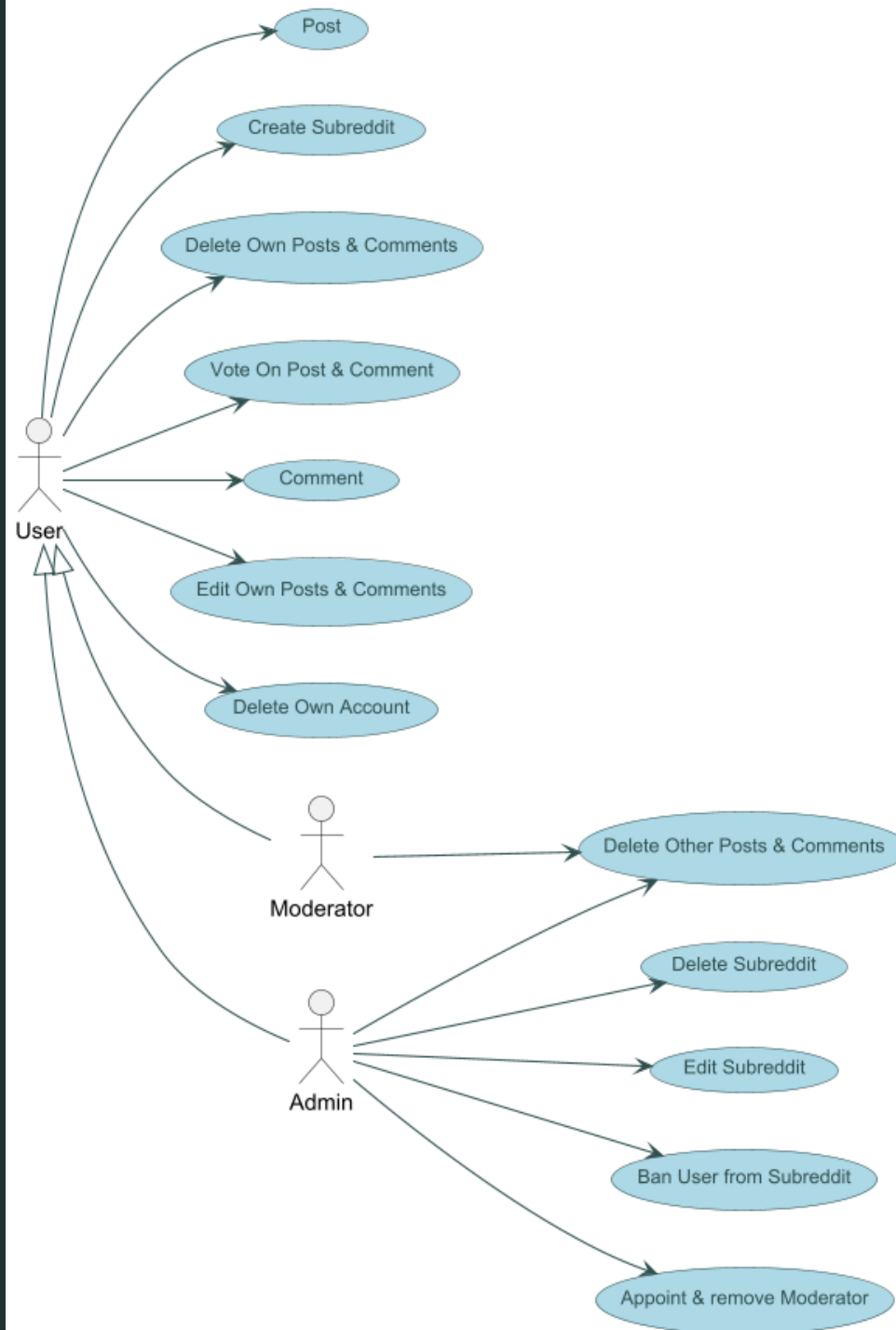


Reply

PROJECT SOLUTION

USE CASE DIAGRAM

R3DDIT

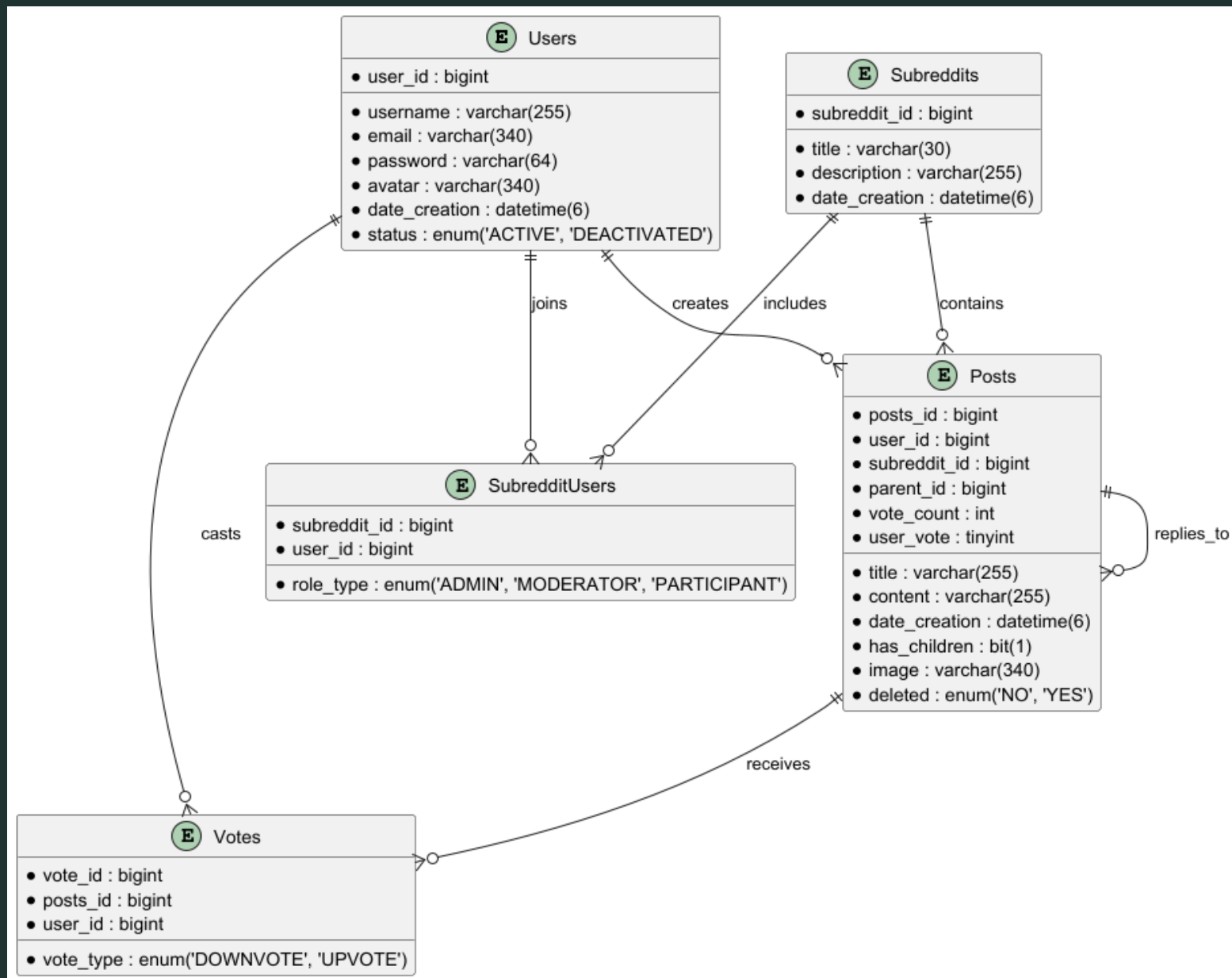


PROJECT SOLUTION

- Non-Users:
 - Can view feed → view subreddits → view posts → view comments
(but can't generate content, vote, or comment).
- Users:
 - Can create accounts → log in
 - After logging in, users can:
 - create/join subreddits
 - In subreddits, users can:
 - create posts
 - vote (upvote/downvote)
 - comment on posts
 - If a user creates a subreddit, they become the **admin**, which allows them to:
 - edit subreddit
 - delete subreddit

PROJECT SOLUTION

E/R DIAGRAM



PROJECT SOLUTION

TRELLO BOARD

Backlog

- Moderator can manage subreddit
0/2
- Admin can manage moderators
0/3
- User can delete a comment
0/2
- Code optimization
0/4 (IS, TP)
- Further development
0/7
- + Add a card

StartedInProgress

- User can edit a post/comment
0/2 (DT)
- User can create a subreddit
7/8 (IS)
- User can delete a post
0/4 (DT)
- Admin can manage subreddit users
1/3 (IS)
- User can write a post
10/13 (DT)
- + Add a card

DoneNeedsTesting

- User can join/leave a subreddit
2/3 (IS)
- Admin can edit a subreddit
2/2 (IS)
- Admin can delete a subreddit
4/4 (IS)
- User can vote on post/comment
5/5 (IS)
- User can comment on posts
6/7 (DT, TP)
- + Add a card

Finished

- Create R3ddit branding
2/2 (TP)
- User can register
6/6 (TP)
- User can login
5/5 (DT, TP)
- User can update their profile
7/7 (TP)
- Project setup
8/8 (IS, DT, TP)
- User can delete their account
3/3 (DT)
- Everyone can view posts from subreddits
1/1 (IS)
- + Add a card

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PROJECT SOLUTION

Technologies and libraries:

- Java using the Spring Boot framework
- JPA with MySQL database
- Thymeleaf for templates
- AJAX API requests
- Heroku for hosting
- AWS S3 bucket

CHALLENGES AND SOLUTIONS

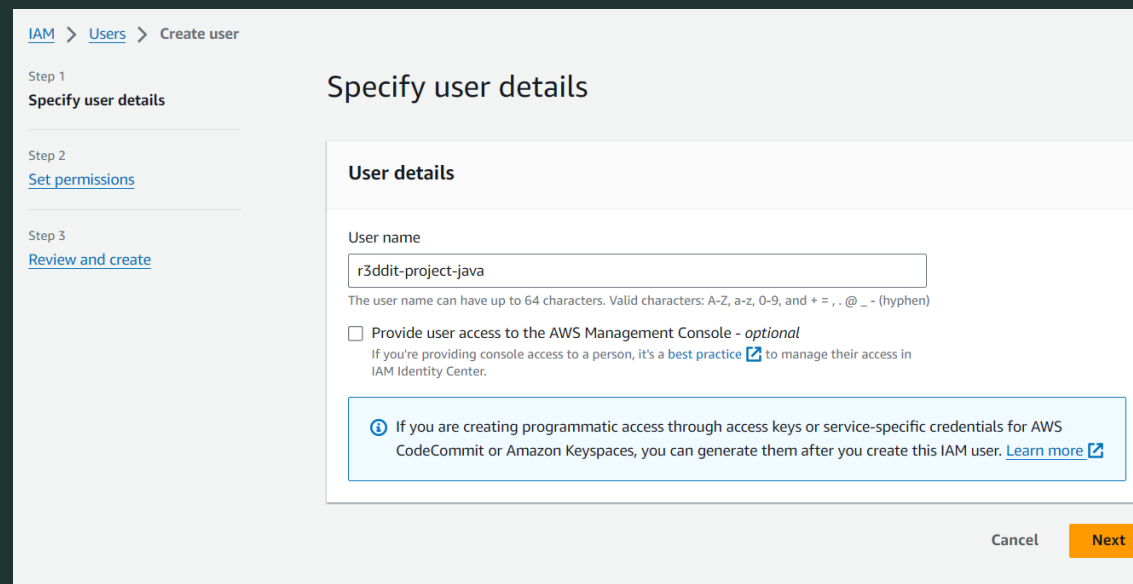
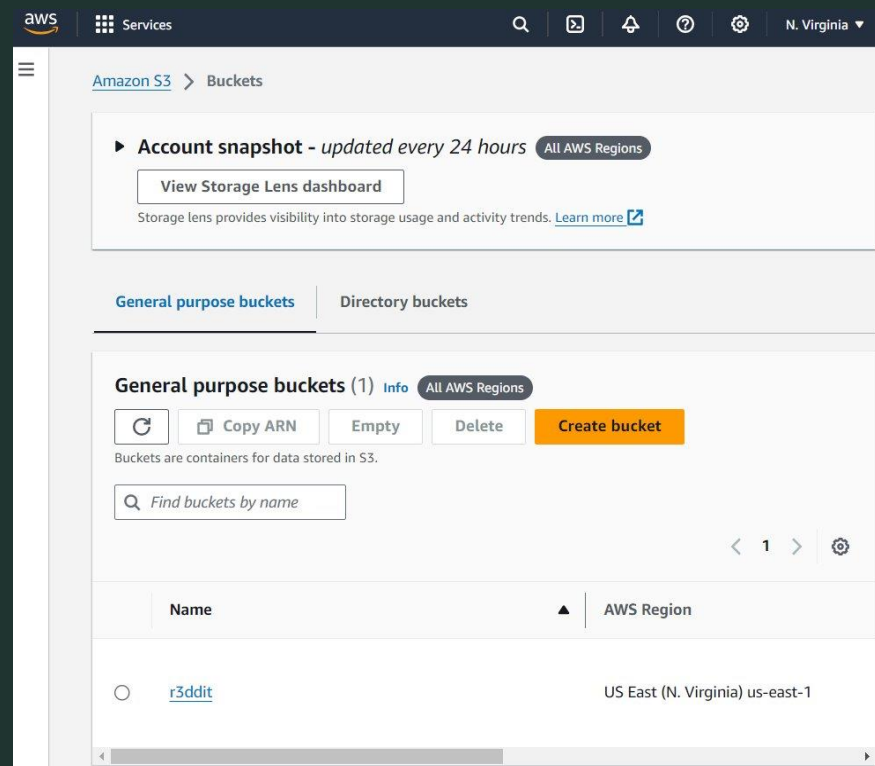
- ❑ Subreddits with role permissions
- ❑ Voting system for posts
- ❑ Updating the content real-time
- ❑ Nested posts (comments)
- ❑ Security setup and JWT

CHALLENGES AND SOLUTIONS

Technologies:

Amazon S3

R3DDIT



CHALLENGES AND SOLUTIONS

Technologies:

Amazon S3

R3DDIT

Bucket policy

EditDelete

The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts. [Learn more](#)

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": {
        "AWS": "arn:aws:iam::[REDACTED]:root"
      },
      "Action": "s3:*",
      "Resource": "arn:aws:s3:::r3ddit/*"
    },
    {
      "Sid": "PublicReadGetObject",
      "Effect": "Allow",
      "Principal": "*",
      "Action": "s3:GetObject",
      "Resource": "arn:aws:s3:::r3ddit/*"
    }
  ]
}
```

Copy

CHALLENGES AND SOLUTIONS

Technologies:

Amazon S3

The screenshot displays the Amazon S3 console interface. The left sidebar shows the 'Amazon S3' service with various options like Buckets, Access Grants, and Storage Lens. The main content area shows the 'r3ddit' bucket with a list of 7 objects. The objects are listed in a table with columns for Name, Type, and Last modified. The objects are:

Name	Type	Last modified
1726987254629-avatar.png	png	September 22, 2024, 02:40:59
1727060786765-images.jpg	jpg	September 22, 2024, 23:06:28
1727090790763-avatar_default_1.png	png	September 23, 2024, 07:26:31
1727090842888-communityicon_xg8k3q1u1z271.png	png	September 23, 2024, 07:27:23
1727090927826-b1bcf27b-2749-443f-9fc5-26cedc8eb208.png	png	September 23, 2024, 07:28:48
1727097223422-TFND1179.JPG	JPG	September 23, 2024, 09:13:44

R3DDIT

AMAZON S3, VERSION 2

CHALLENGES AND SOLUTIONS

```
//upload files to s3
private void uploadFileToS3bucket(String fileName, File file) { 1 usage  👤 Tamara Plante
    PutObjectRequest putObjectRequest = PutObjectRequest
        .builder()
        .bucket(bucketName)
        .key(fileName)
        .build();

    amazonS3.putObject(putObjectRequest, RequestBody.fromFile(file));
}

/**
 * Delete the file from Amazon S3 bucket.
 * @param fileUrl the file url
 */
public void deleteFileFromS3Bucket(String fileUrl) throws SdkException { 1 usage  👤 Tamara Plante
    String fileName = fileUrl.replace(url, replacement: "");
    DeleteObjectRequest deleteObjectRequest = DeleteObjectRequest
        .builder()
        .bucket(bucketName)
        .key(fileName)
        .build();

    amazonS3.deleteObject(deleteObjectRequest);
}
```



```

java    © User.java ×    © CommentDto.java    © UserProfileDto.java    ©
12    @NoArgsConstructor
13    @AllArgsConstructor
14    public class User {
15
16        @Id
17        @GeneratedValue(strategy = GenerationType.IDENTITY)
18        private Long userId;
19
20        @Column(nullable = false, unique = true)
21        private String username;
22
23        @Column(length = 340)
24        private String email;
25
26        @Column(length = 64)
27        private String password;
28
29        @Column(length = 340)
30        private String avatar;
31
32        @Temporal(TemporalType.TIMESTAMP)
33        private LocalDateTime dateCreation;
34
35
36        @Enumerated(EnumType.STRING)
37        private Status status;
38
39        public enum Status { 7 usages  vvaraksn

```

DTO

```

UserProfileDto.java ×
public class UserProfileDto {
    private Long userId;

    @Size(min = 4, max = 20, message = "Username must be between 4 and 20 characters.")
    private String username;

    @Email
    private String email;

    @Size(max = 64, message = "Password can't exceed 64 characters.")
    private String password; // Encrypted

    @Transient
    @Pattern.List({
        @Pattern( // Empty string or match pattern
            regexp = "^$|(?=.*[a-z])(?=.*[A-Z])(?=.*[0-9])(?=.*[\\W_]).*",
            message = "Password must contain at least one uppercase, one lowercase letter, one number and
        @Pattern( // Empty string or match length
            regexp = "^$|.{6,40}.+",
            message = "Password must be between 6 and 40 characters."
        })
    })
    private String passwordTemp;
}

```

DATA TRANSFER OBJECT

```

@Data 14 usages  Tamara Plante
@AllArgsConstructor
@NoArgsConstructor
public class UserSlimDto {

    private Long userId;

    private String username;

    private String avatar;

}

```

CHALLENGES AND SOLUTIONS

JOIN QUERIES WITH JPA

An interesting problem, voting on social media.

JPA works with Entity associations.

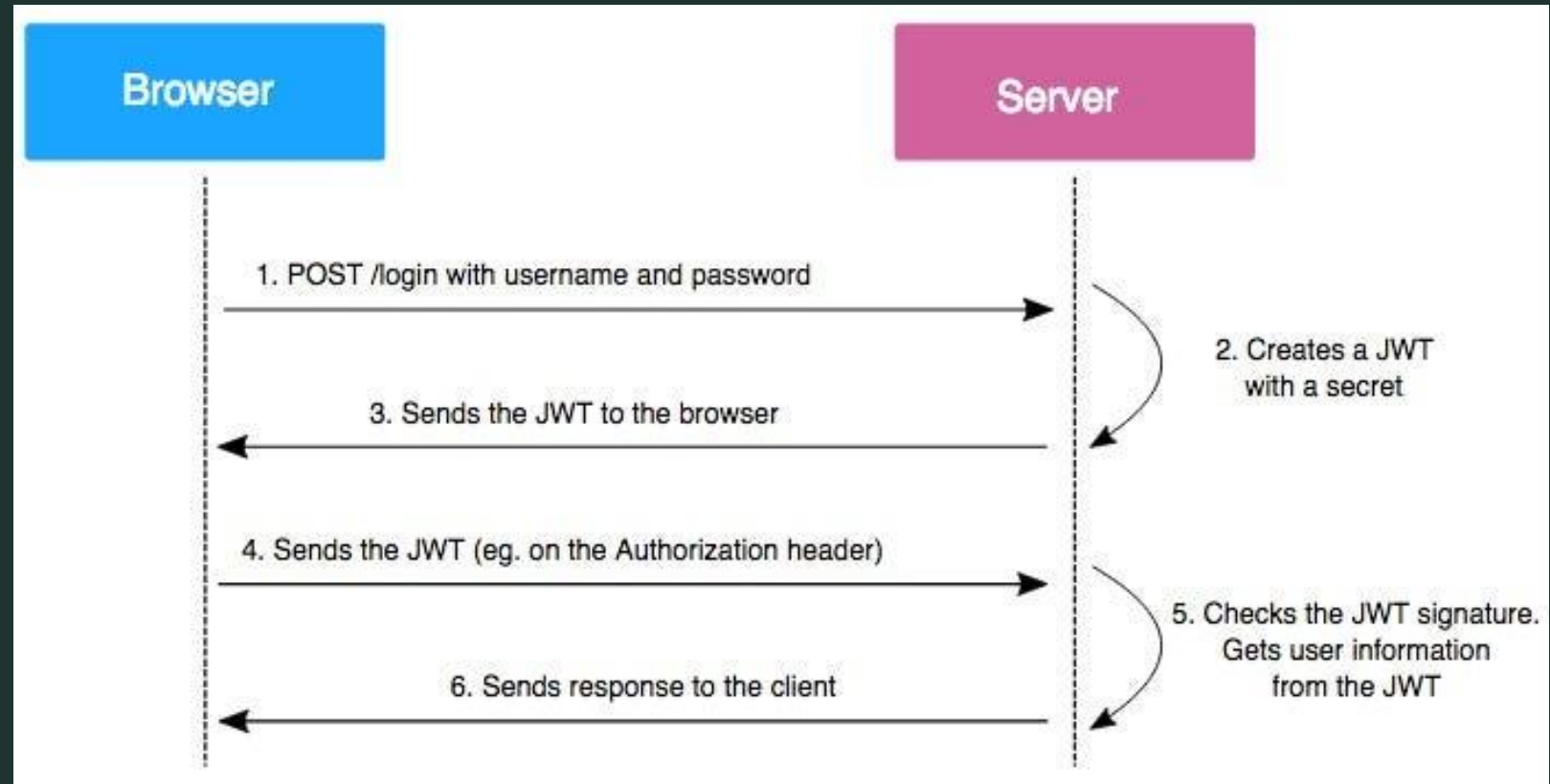
Filtering beyond associations becomes complex.

WHAT WE LEARNED

Technologies:

JWT

JSON Web Token




```
$.ajax({
  url: "http://localhost:8080/login",
  type: 'GET',
  // Fetch the stored token from localStorage and set in the header
  headers: {"Authorization": "Bearer " + localStorage.getItem('token')}
});
```

WHAT WE LEARNED


Made up of 3 components:

Header
Payload
Signature

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 **JWT**

Debugger Libraries Introduction Ask

Crafted by  Auth0 by Okta

Algorithm HS256

Encoded PASTE A TOKEN HERE

```
eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJzdWIiOiIxMjM0NTY3ODkwIiwibmFtZSI6IkpvaG4gRG9lIiwiaWF0IjoxNTE2MjM5MDIyfQ.SflKxwRJSMeKKF2QT4fwpMeJf36P0k6yJV_adQssw5c
```

Decoded EDIT THE PAYLOAD AND SECRET

HEADER: ALGORITHM & TOKEN TYPE


```
{  "alg": "HS256",  "typ": "JWT"}
```

PAYLOAD: DATA

```
{  "sub": "1234567890",  "name": "John Doe",  "iat": 1516239022}
```

VERIFY SIGNATURE

```
HMACSHA256(  
  base64UrlEncode(header) + "." +  
  base64UrlEncode(payload),  
  your-256-bit-secret  
) ☐ secret base64 encoded
```

 Signature Verified

SHARE JWT

FUTURE WORK

- Posting video
- Notifications
- Login with Google, etc.
- Add subreddit rules
- Reset password with email
- Mobile Friendly
- Lazy loading as content grows
- Avoid using username for authentication and display name



SUMMARY

Fully functional Reddit clone with

- creating communities
- participating in discussions
- see updates in joined communities
- enjoying the website !



R3DDIT