## 1.Design your collection schemas

**User:**

const User = new mongoose.Schema({

name:{

type: String,

required:true

},

joined:{

type: Date ,

required:true

}

});

**Post:**

const Post = new mongoose.Schema({

author:{

type: String,

required:true,

index: true

},

content:{

type: String,

required:true

},

created:{

type:Date,

required:true,

index:true

}

},

{

timestamps: true,

});

**Follows:**

const Follow = new mongoose.Schema({

follower:{

type: mongoose.Schema.Types.ObjectId,

ref: "User",

required: true,

index:true

},

following:{

type: mongoose.Schema.Types.ObjectId,

ref: "User",

required: true,

index:true

},

created:{

type:Date,

required:true,

index:true

}

});

**Aggregation Queries**

1. **List each user followers**

aggregate([{

$match:{

following:ObjectId('68755260cfbe1fc6f54fbb0c')

},

},{

$lookup: {

from: "users",

localField: "follower",

foreignField: "\_id",

as: "user"

}

},

{

$unwind: {

path: "$user",

preserveNullAndEmptyArrays: true

}

},

{

$project: {

"\_id":"$user.\_id",

"name":"$user.name",

"joined":"$user.joined"

}

}

]);

1. **List each user Follows**

[{

$match:{

follower:ObjectId('68755064cfbe1fc6f54fbafe')

},

},{

$lookup: {

from: "users",

localField: "following",

foreignField: "\_id",

as: "user"

}

},

{

$unwind: {

path: "$user",

preserveNullAndEmptyArrays: true

}

},

{

$project: {

"\_id":"$user.\_id",

"name":"$user.name",

"joined":"$user.joined"

}

}

]

1. **Page through post in chronological order**

[{

$match: {

author:ObjectId('68755260cfbe1fc6f54fbb0c')

}

},{

$sort: {

created: -1

}

},{

$skip: 0,

},{

$limit: 10

}]

## 2. Aggregation Pipeline – for a given user ID

aggregate([

{

$lookup: {

from: "follower",

localField: "author",

foreignField: "following",

as: "follow\_relationship"

}

},

{

$match: {

"follow\_relationship.follower": ObjectId('68755064cfbe1fc6f54fbafe')

}

},

{

$lookup: {

from: "users",

localField: "author",

foreignField: "\_id",

as: "author"

}

},

{

$unwind: {

path: "$author"

}

},

{

$sort: {

created: -1

}

},

{

$project: {

\_id:1,

author:"$author.name",

content:1,

created:1

}

}

]);

## 3. Index Collection

In **Post collection** Index are create on author and created to speed up record retrieval when listing a user’s post in chronological order

Also in **follows collection** Indexes are created on the follower, following and created fields to speed up record retrieval when listing a user's followers or the users they follow.