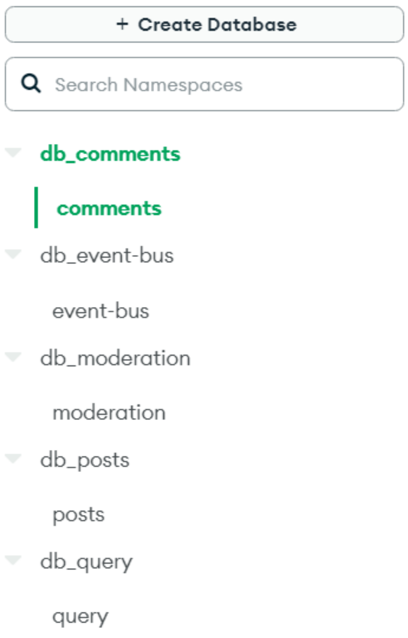
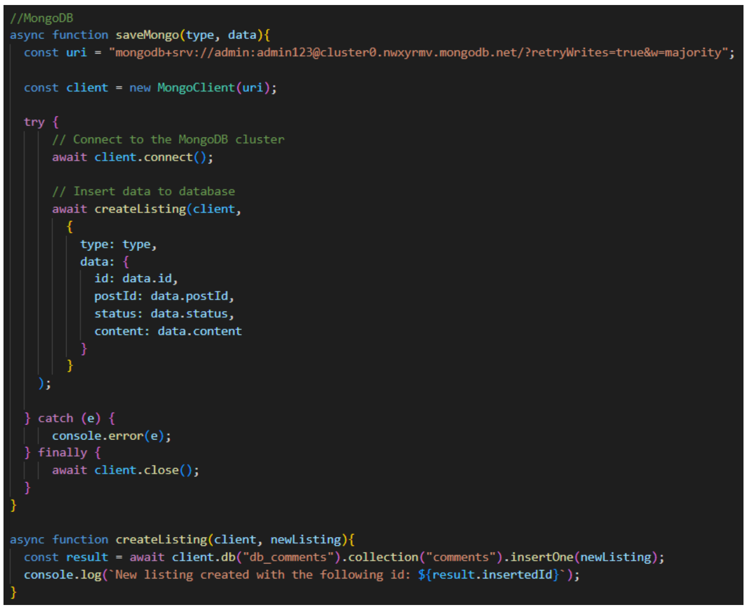
TeFa T8C2
Muhammad Faiz Abdurrahman Djauhar

1. Pertanyaan
    a. Jika dilihat ternyata Async memang lebih advance ketimbang Sync namun mengapa beberapa sistem yang masih menggunakan Sync?
    b. Apa saja yang diperlukan dalam melakukan migrasi dari Sync ke Async?
    c. Adakah sistem yang menggunakan Sync dan Async secara sekaligus dan mengapa menggunakannya seperti itu?
2. Berikut untuk database dalam mongoDB



3. Berikut implementasi untuk setiap service
    a. Comments



```
//MongoDB
async function saveMongo(type, data){
  const uri = "mongodb+srv://admin:admin123@cluster0.nwxyrmv.mongodb.net/?retryWrites=true&w=majority";

  const client = new MongoClient(uri);

  try {
      // Connect to the MongoDB cluster
      await client.connect();

      // Insert data to database
      await createListing(client,
        {
          type: type,
          data: {
            id: data.id,
            postId: data.postId,
            status: data.status,
            content: data.content
          }
        }
    );

  } catch (e) {
      console.error(e);
  } finally {
      await client.close();
  }
}

async function createListing(client, newListing){
  const result = await client.db("db_comments").collection("comments").insertOne(newListing);
  console.log(`New listing created with the following id: ${result.insertedId}`);
}
```

Dalam app.post

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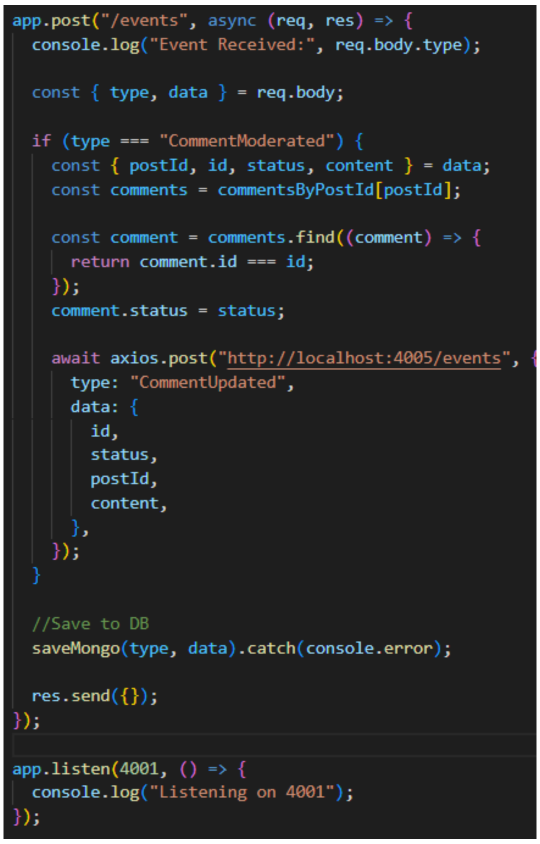
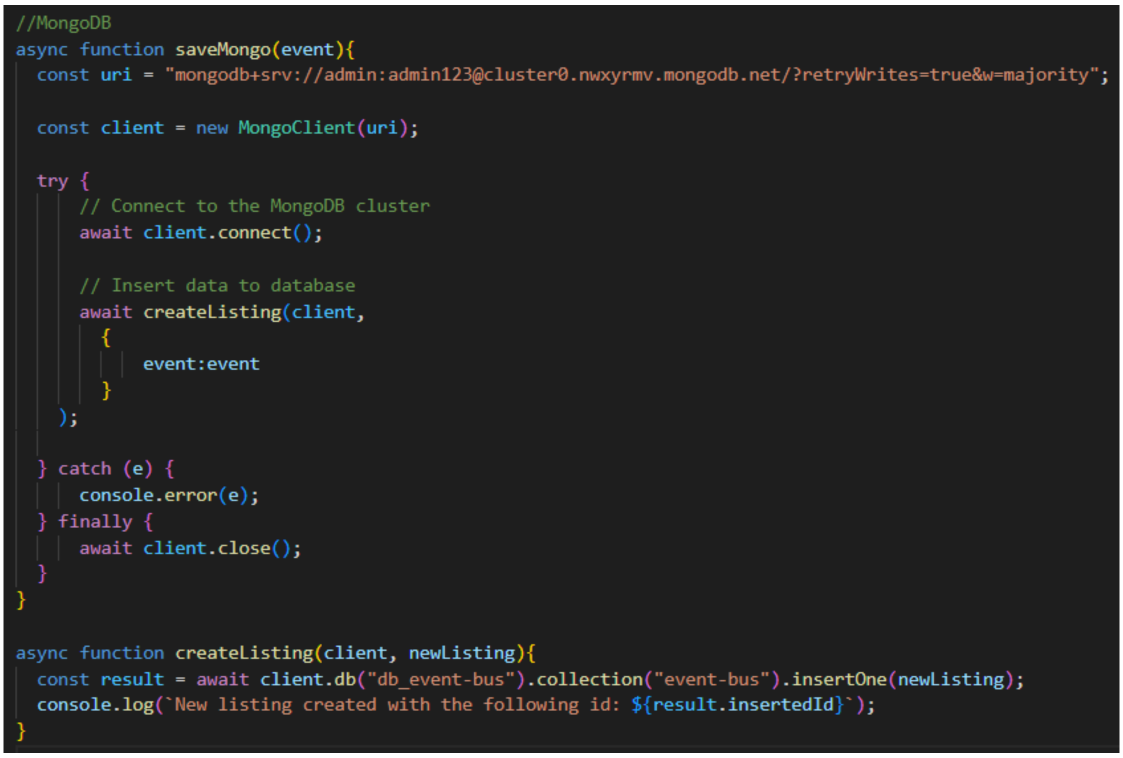


```
app.post("/events", async (req, res) => {
  console.log("Event Received:", req.body.type);

  const { type, data } = req.body;

  if (type === "CommentModerated") {
    const { postId, id, status, content } = data;
    const comments = commentsByPostId[postId];

    const comment = comments.find((comment) => {
      return comment.id === id;
    });
    comment.status = status;

    await axios.post("http://localhost:4005/events", {
      type: "CommentUpdated",
      data: {
        id,
        status,
        postId,
        content,
      },
    });
  }

  //Save to DB
  saveMongo(type, data).catch(console.error);

  res.send({});
});

app.listen(4001, () => {
  console.log("Listening on 4001");
});
```

b. Event-bus



```
//MongoDB
async function saveMongo(event){
  const uri = "mongodb+srv://admin:admin123@cluster0.nwxyrmv.mongodb.net/?retryWrites=true&w=majority";

  const client = new MongoClient(uri);

  try {
      // Connect to the MongoDB cluster
      await client.connect();

      // Insert data to database
      await createListing(client,
        {
          event:event
        }
      );

  } catch (e) {
      console.error(e);
  } finally {
      await client.close();
  }
}

async function createListing(client, newListing){
  const result = await client.db("db_event-bus").collection("event-bus").insertOne(newListing);
  console.log(`New listing created with the following id: ${result.insertedId}`);
}
```

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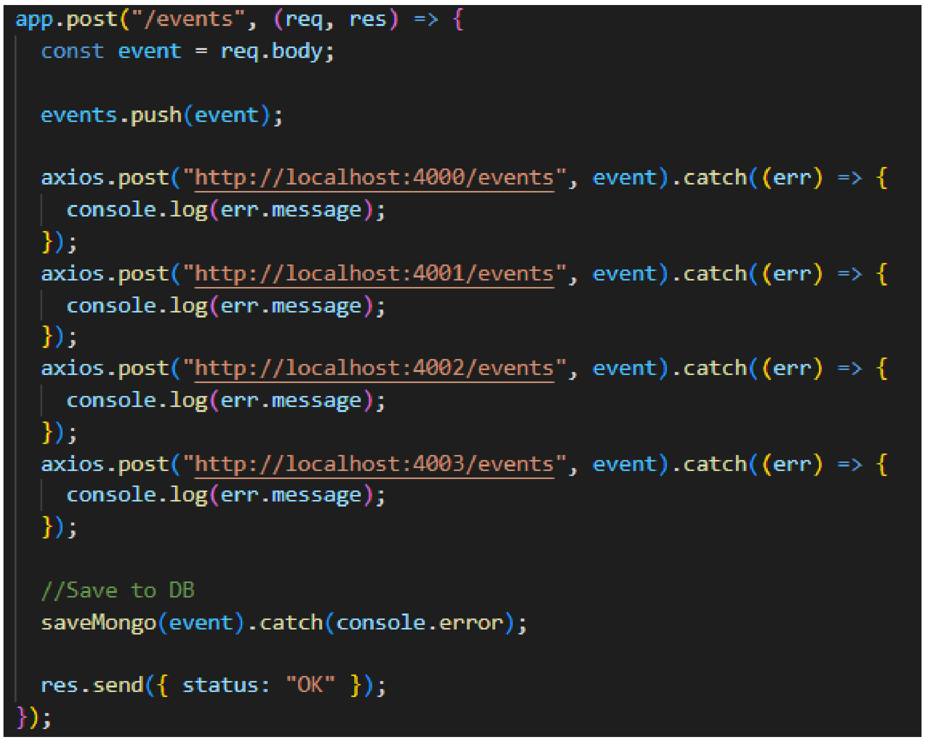
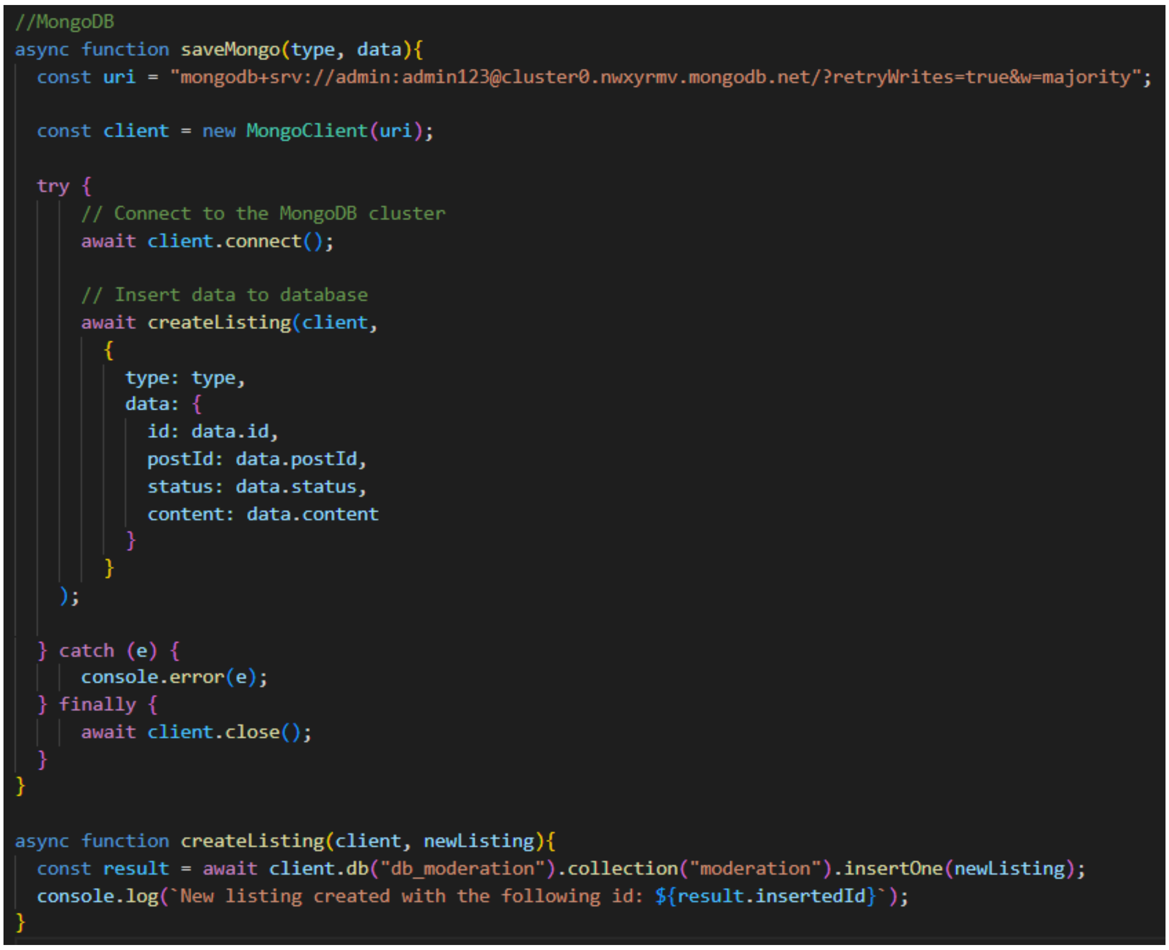
Dalam app.post



```
app.post("/events", (req, res) => {
  const event = req.body;

  events.push(event);

  axios.post("http://localhost:4000/events", event).catch((err) => {
    console.log(err.message);
  });
  axios.post("http://localhost:4001/events", event).catch((err) => {
    console.log(err.message);
  });
  axios.post("http://localhost:4002/events", event).catch((err) => {
    console.log(err.message);
  });
  axios.post("http://localhost:4003/events", event).catch((err) => {
    console.log(err.message);
  });

  //Save to DB
  saveMongo(event).catch(console.error);

  res.send({ status: "OK" });
});
```

c. Moderation



```
//MongoDB
async function saveMongo(type, data){
  const uri = "mongodb+srv://admin:admin123@cluster0.nwxyrmv.mongodb.net/?retryWrites=true&w=majority";

  const client = new MongoClient(uri);

  try {
      // Connect to the MongoDB cluster
      await client.connect();

      // Insert data to database
      await createListing(client,
        {
          type: type,
          data: {
            id: data.id,
            postId: data.postId,
            status: data.status,
            content: data.content
          }
        }
      );

  } catch (e) {
      console.error(e);
  } finally {
      await client.close();
  }
}

async function createListing(client, newListing){
  const result = await client.db("db_moderation").collection("moderation").insertOne(newListing);
  console.log(`New listing created with the following id: ${result.insertedId}`);
}
```

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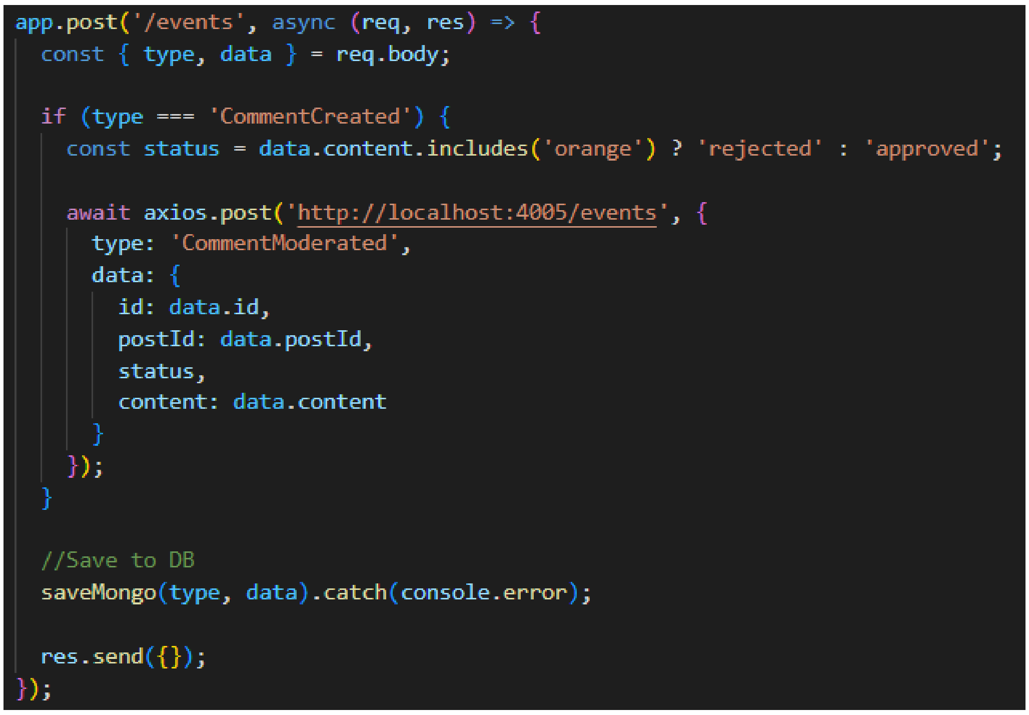
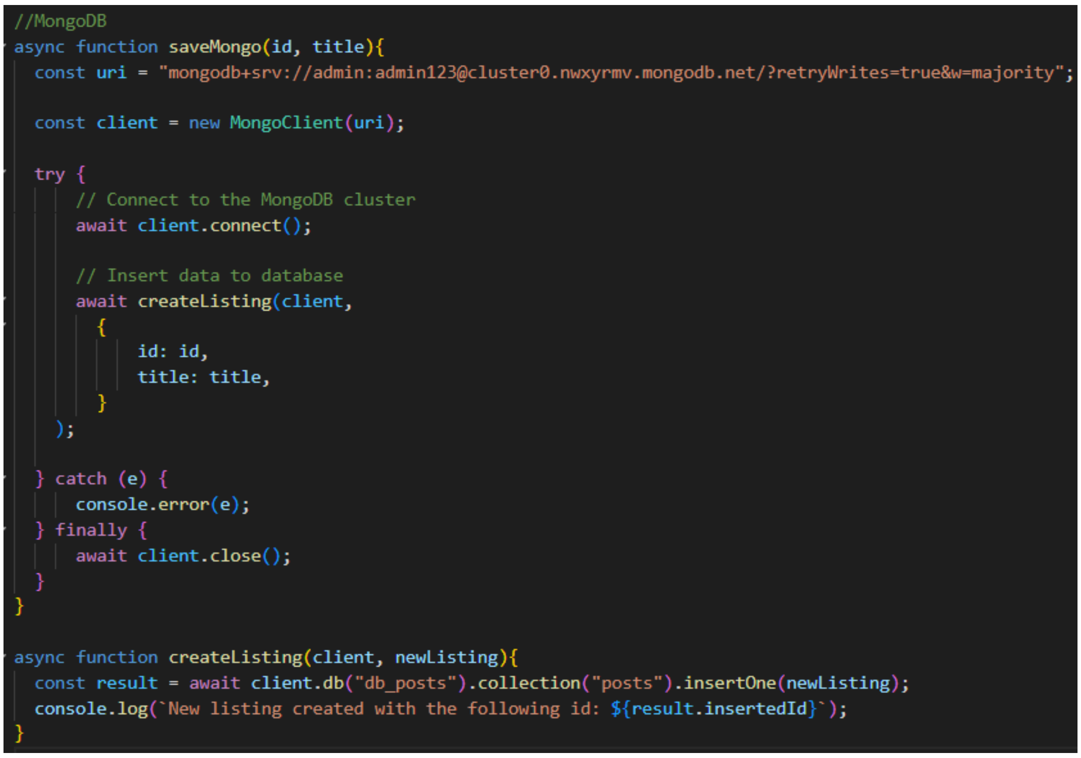
Dalam app.post



```
app.post('/events', async (req, res) => {
  const { type, data } = req.body;

  if (type === 'CommentCreated') {
    const status = data.content.includes('orange') ? 'rejected' : 'approved';

    await axios.post('http://localhost:4005/events', {
      type: 'CommentModerated',
      data: {
        id: data.id,
        postId: data.postId,
        status,
        content: data.content
      }
    });
  }

  //Save to DB
  saveMongo(type, data).catch(console.error);

  res.send({});
});
```

d. Posts



```
//MongoDB
async function saveMongo(id, title){
  const uri = "mongodb+srv://admin:admin123@cluster0.nwxyrmv.mongodb.net/?retryWrites=true&w=majority";

  const client = new MongoClient(uri);

  try {
      // Connect to the MongoDB cluster
      await client.connect();

      // Insert data to database
      await createListing(client,
        {
          id: id,
          title: title,
        }
    );

  } catch (e) {
      console.error(e);
  } finally {
      await client.close();
  }
}

async function createListing(client, newListing){
  const result = await client.db("db_posts").collection("posts").insertOne(newListing);
  console.log(`New listing created with the following id: ${result.insertedId}`);
}
```

Dalam app.post

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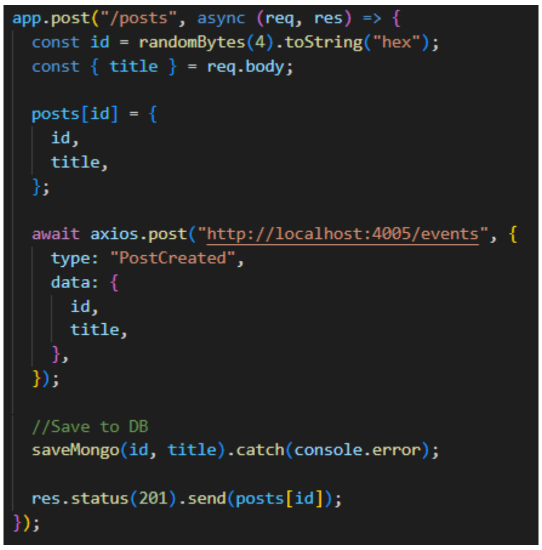
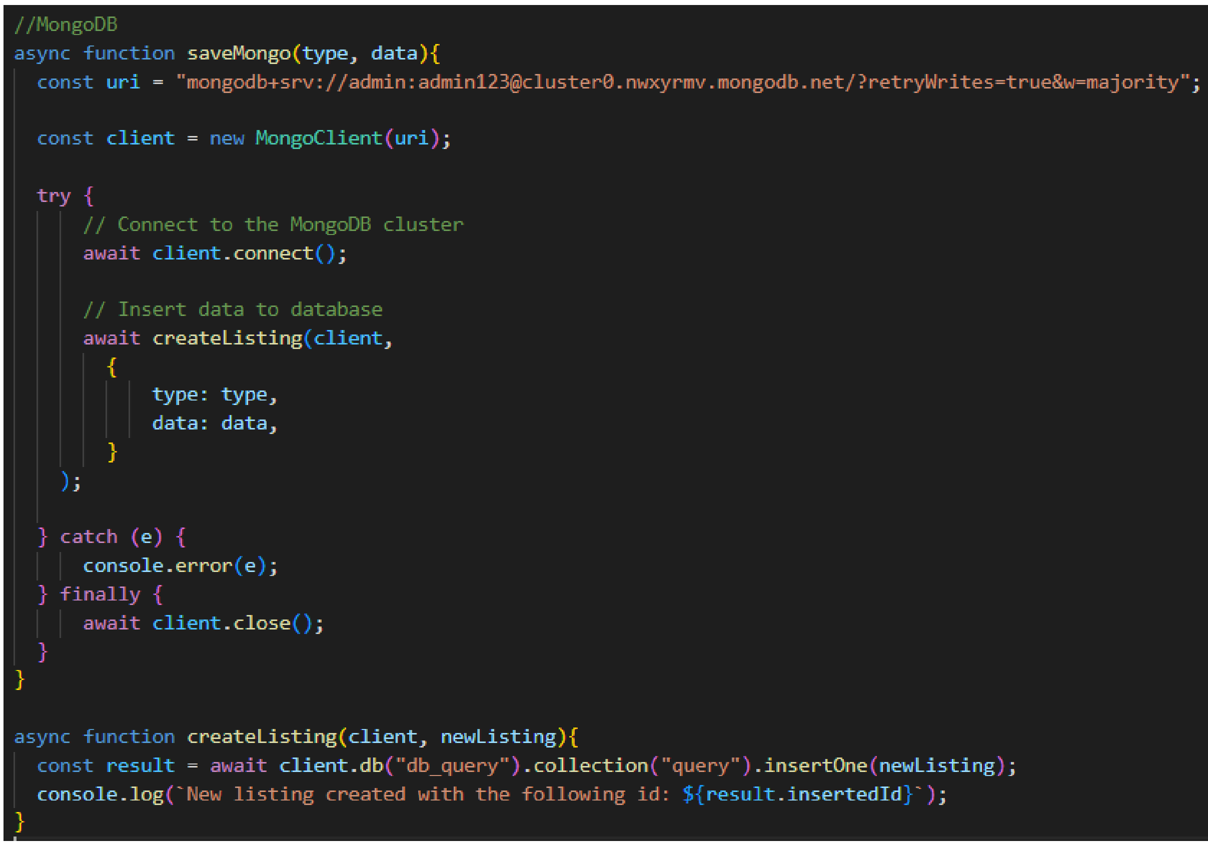


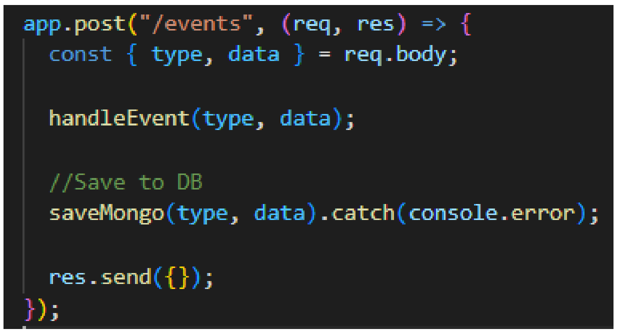
```
app.post("/posts", async (req, res) => {
  const id = randomBytes(4).toString("hex");
  const { title } = req.body;

  posts[id] = {
    id,
    title,
  };

  await axios.post("http://localhost:4005/events", {
    type: "PostCreated",
    data: {
      id,
      title,
    },
  });

  //Save to DB
  saveMongo(id, title).catch(console.error);

  res.status(201).send(posts[id]);
});
```

e. Query



```
//MongoDB
async function saveMongo(type, data){
  const uri = "mongodb+srv://admin:admin123@cluster0.nwxyrmv.mongodb.net/?retryWrites=true&w=majority";

  const client = new MongoClient(uri);

  try {
      // Connect to the MongoDB cluster
      await client.connect();

      // Insert data to database
      await createListing(client,
        {
            type: type,
            data: data,
        }
      );

  } catch (e) {
      console.error(e);
  } finally {
      await client.close();
  }
}

async function createListing(client, newListing){
  const result = await client.db("db_query").collection("query").insertOne(newListing);
  console.log(`New listing created with the following id: ${result.insertedId}`);
}
```

Dalam app.post



```
app.post("/events", (req, res) => {
  const { type, data } = req.body;

  handleEvent(type, data);

  //Save to DB
  saveMongo(type, data).catch(console.error);

  res.send({});
});
```

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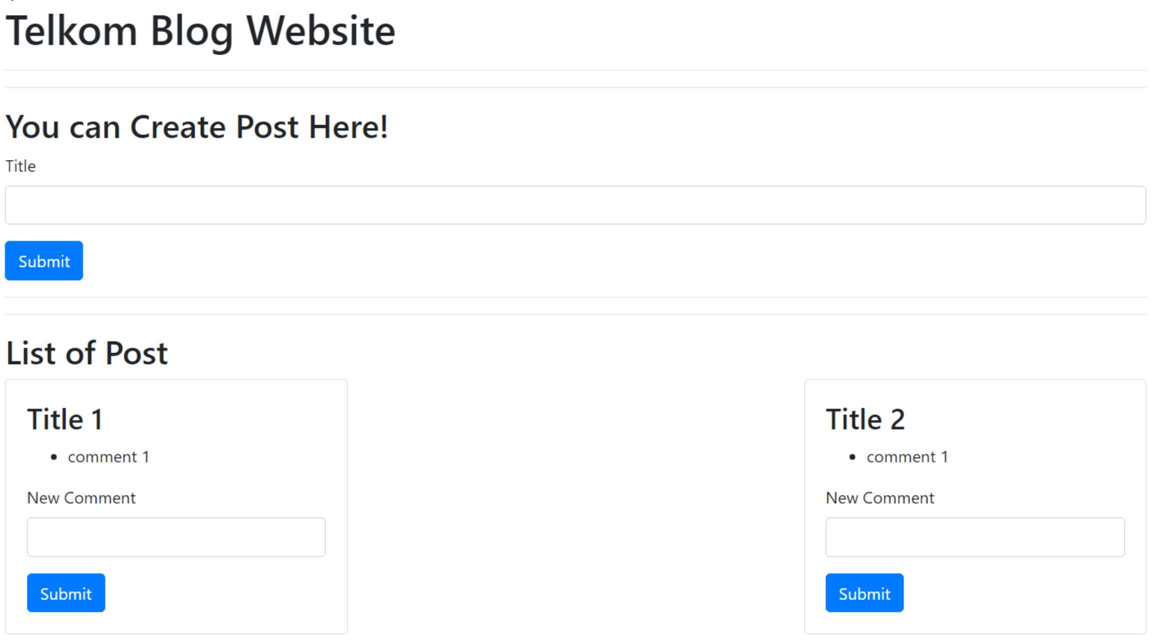
Berikut input dan yang disimpan pada database

Input :



Telkom Blog Website

You can Create Post Here!

Title

Submit

List of Post

Title 1
- comment 1

New Comment

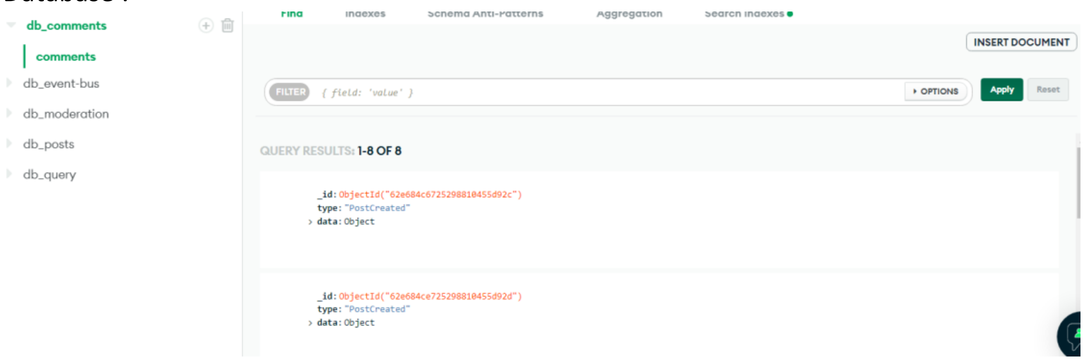
Submit

Title 2
- comment 1

New Comment

Submit

Database :

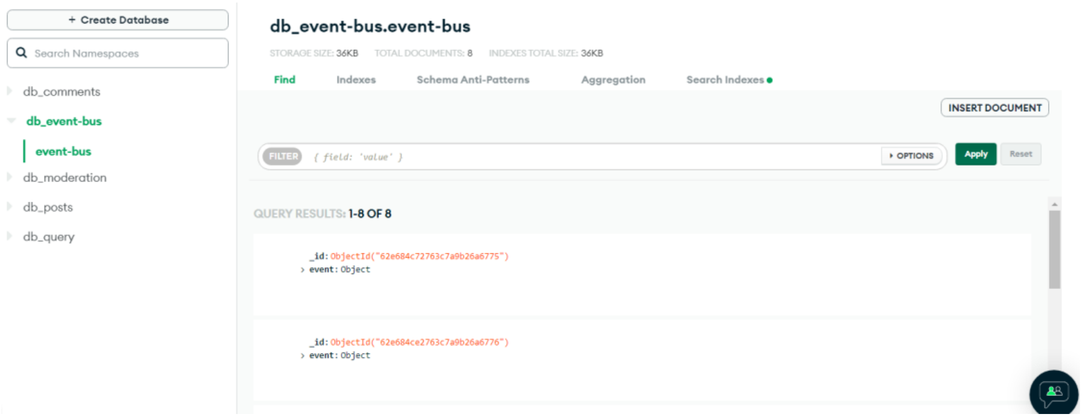


```
{ field: 'value' }

QUERY RESULTS: 1-8 OF 8

  _id: ObjectId("62e684c6725298810455d92c")
  type: "PostCreated"
> data: Object

  _id: ObjectId("62e684ce725298810455d92d")
  type: "PostCreated"
> data: Object
```



db_event-bus.event-bus

STORAGE SIZE: 36KB TOTAL DOCUMENTS: 8 INDEXES TOTAL SIZE: 36KB

```
{ field: 'value' }

QUERY RESULTS: 1-8 OF 8

  _id: ObjectId("62e684c72763c7a9b26a6775")
> event: Object

  _id: ObjectId("62e684ce2763c7a9b26a6776")
> event: Object
```

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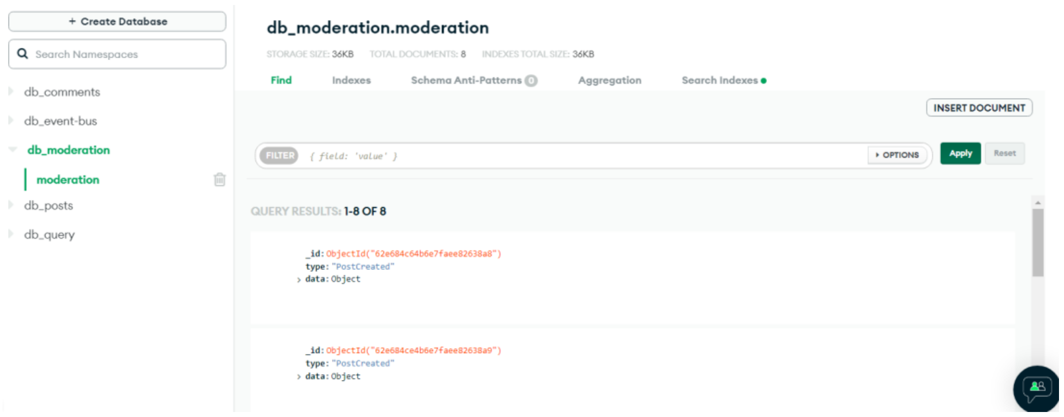


db_moderation.moderation

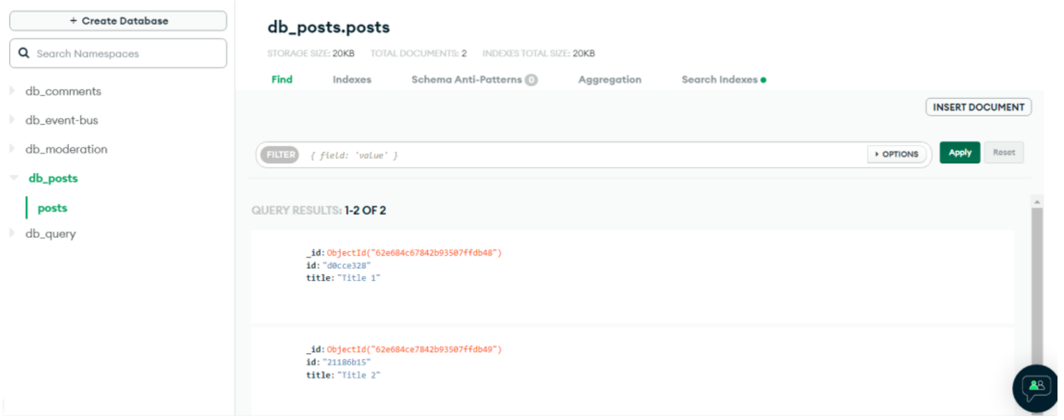
STORAGE SIZE: 36KB TOTAL DOCUMENTS: 8 INDEXES TOTAL SIZE: 36KB

```
{ field: 'value' }
```

QUERY RESULTS: 1-8 OF 8

```
  _id: ObjectId("62e684c64b6e7faee82638a8")
  type: "PostCreated"
> data: Object

  _id: ObjectId("62e684ce4b6e7faee82638a9")
  type: "PostCreated"
> data: Object
```



db_posts.posts

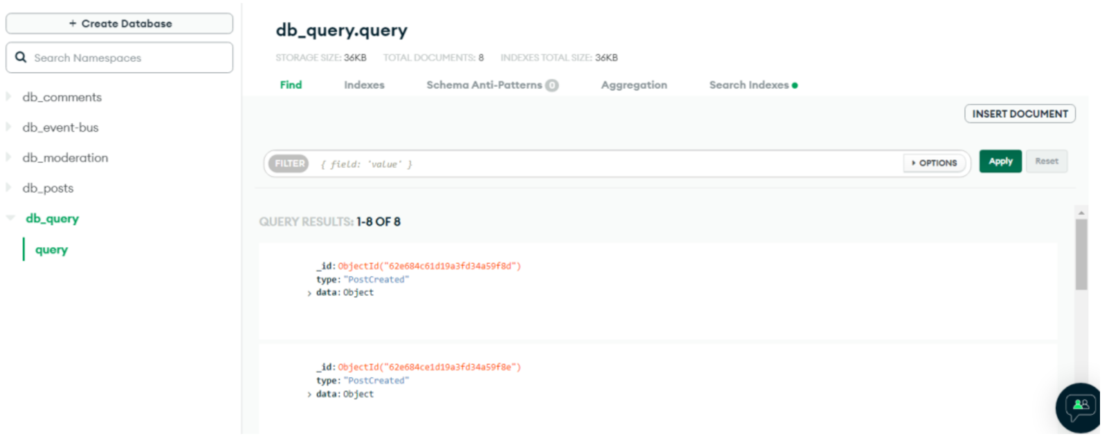
STORAGE SIZE: 20KB TOTAL DOCUMENTS: 2 INDEXES TOTAL SIZE: 20KB

```
{ field: 'value' }
```

QUERY RESULTS: 1-2 OF 2

```
_id: ObjectId("62e684c67842b93507ffdb48")
id: "d0cce328"
title: "Title 1"

_id: ObjectId("62e684ce7842b93507ffdb49")
id: "21186b15"
title: "Title 2"
```



db_query.query

STORAGE SIZE: 36KB TOTAL DOCUMENTS: 8 INDEXES TOTAL SIZE: 36KB

```
{ field: 'value' }
```

QUERY RESULTS: 1-8 OF 8

```
  _id: ObjectId("62e684c61d19a3fd34a59f8d")
  type: "PostCreated"
> data: Object

  _id: ObjectId("62e684ce1d19a3fd34a59f8e")
  type: "PostCreated"
> data: Object
```