

1. User management microservice (micro-1)

- Tables: user

```
User (  
    id INTEGER primary key AUTOINCREMENT,  
    first_name TEXT,  
    last_name TEXT,  
    username TEXT(20) UNIQUE,  
    email TEXT(50) UNIQUE,  
    group_name TEXT,  
    password TEXT,  
    salt TEXT  
)
```

- **Explanation:** Table user is used to store user information, support create_user and login endpoint.

2. Document management microservice (micro-2)

- Tables: document

```
Document (  
    id INTEGER primary key AUTOINCREMENT,  
    filename TEXT,  
    body TEXT,  
    owner TEXT  
)
```

- Tables: group_doc

```
Group_doc (  
    id INTEGER primary key AUTOINCREMENT,  
    doc_name TEXT,  
    name TEXT,  
    FOREIGN KEY (doc_name) REFERENCES document(filename)  
)
```

- **Explanation:** Table document is used to store basic information of the document (filename, body, owner), the application will input username of the user into owner record. Table group_doc is used to store record of the group linked with the document. Column doc_name references filename from Table document with foreign key constraint.

3. Document search microservice (micro-3)

- No database for this microservice

4. Log Management Service (micro-4)

- Tables: logs

Logs (

id INTEGER primary key AUTOINCREMENT,
username TEXT,
event TEXT,
filename TEXT

)

- **Explanation:** Table logs is used to store log records from each important endpoint called successfully (user_creation, login, doc_creation, doc_edit, and doc_search). Column username and filename will store the username of who requested the endpoint and the filename requested by that user. Event will be the one of the 5 event names specified above.

Additional APIs endpoint support communication between microservices:

1. **GET:** micro-1/get_user

- **Param:** username
- This endpoint will get user data from user management services (Table user), return username and group name of the searched user. Used to support checking JWT authentication and document permissions in 2 document microservices.

2. **GET:** micro-2/get_doc

- **Param:** filename
- This endpoint will get document data from document management services (Table document), return document information (filename, body, owner username, and group allowed to view this document). Used to support checking document permissions in document search microservices.

3. **POST:** micro-4/write_log

- **Post data:** username, event type, filename
- This endpoint is used to write log record into log table after each successful request from the user. Event types are user_creation, login, doc_creation, doc_edit, and doc_search.

4. **GET:** micro-4/search_log

- **Param:** filename
- This endpoint supports document search microservices by getting log record of the document with filename input. Return key information which are last modification user and modification count for document search response .