Marwadi University Marwadi Chandarana Group NAAC A+	**Marwadi University** **Faculty of Technology** **Department of Information and Communication Technology**	
Subject: Advanced Web Technology (01CT1625)	**Aim:** Create a react application to perform CRUD operations with Firebase.	
Task :- 01	**Date:-**	**Enrollment No:-** 92200133030

Objective:- Create a react application to perform CRUD operations with Firebase.

Code :-

firebase_client :-

App.jsx

```
import { useState, useEffect } from 'react';
import axios from 'axios';
import AddBooks from './components/AddBooks';
import BooksTable from './components/BooksTable';
import './App.css';

const API_URL = 'http://localhost:3000/api/books';

const App = () => {
  const [Books, setBooks] = useState([]);
  const [editingbook, setEditingbook] = useState(null);
  const [loading, setLoading] = useState(false);
  const [error, setError] = useState('');

  useEffect(() => {
    fetchBooks();
  }, []);

  const fetchBooks = async () => {
    setLoading(true);
    try {
      const response = await axios.get(API_URL);
      console.log(response.data);
      setBooks(response.data);
      setError('');
    } catch (error) {
      console.error('Error fetching Books:', error);
      setError('Failed to fetch Books. Try again later.');
    } finally {
      setLoading(false);
    }
  };

  const addbook = async (newbook) => {
    try {
      if (editingbook) {
        await axios.put(`${API_URL}/${editingbook.id}`, newbook);
        setEditingbook(null);
      } else {
        await axios.post(API_URL, newbook);
```

```
      }
      fetchBooks();
    } catch (error) {
      console.error('Error adding/updating book:', error);
      setError('Failed to save book.');
    }
  };

  const deletebook = async (id) => {
    if (!window.confirm('Are you sure you want to delete this book?')) return;

    try {
      if (!id) {
        throw new Error('book ID is required');
      }
      const response = await axios.delete(`${API_URL}/${id}`);
      if (response.data) {
        setBooks((prevBooks) => prevBooks.filter((book) => book.id !== id));
        setError('');
      }
    } catch (error) {
      console.error('Error deleting book:', error);
      const errorMessage = error.response?.data?.message || 'Failed to delete book. Please check if
the ID is valid.';
      setError(errorMessage);
    }
  };

  return (
    <div className="container">
      <h1>Book Management System</h1>
      {loading && <p>Loading...</p>}
      {error && <p className="error">{error}</p>}
      <AddBooks onAdd={addbook} editingbook={editingbook} />
      <BooksTable
        Books={Books}
        onEdit={setEditingbook}
        onDelete={deletebook}
      />
    </div>
  );
};

export default App;
```

App.css

```
/* Import Poppins Font */
@import url('https://fonts.googleapis.com/css2?family=Poppins:wght@300;400;500;600&display=swap');
```

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```
/* General Reset */
* {
  box-sizing: border-box;
  margin: 0;
  padding: 0;
}

/* Full-Screen Layout */
body {
  font-family: 'Poppins', sans-serif;
  background: linear-gradient(135deg, #74EBD5, #ACB6E5);
  color: #333;
  min-height: 100vh;
  display: flex;
  justify-content: center;
  align-items: center;
  padding: 20px;
}

/* Main Container */
.container {
  background: #fff;
  box-shadow: 0 10px 20px rgba(0, 0, 0, 0.1);
  border-radius: 12px;
  max-width: 1200px;
  width: 100%;
  padding: 40px;
  animation: fadeIn 0.8s ease-in-out;
  transition: all 0.3s;
}

/* Header Styling */
h1 {
  color: #4CAF50;
  font-size: 36px;
  margin-bottom: 20px;
  text-align: center;
}

/* Form Styling */
form {
  display: grid;
  grid-template-columns: repeat(4, 1fr);
  gap: 20px;
  padding: 20px 0;
}

form input {
  padding: 12px;
  border: 1px solid #ccc;
```

```
  border-radius: 8px;
  font-size: 16px;
  color: #333;
  transition: all 0.3s;
}

form input:focus {
  outline: none;
  border-color: #4CAF50;
  box-shadow: 0 0 8px rgba(76, 175, 80, 0.5);
}

form button {
  grid-column: span 4;
  padding: 14px;
  background: #4CAF50;
  color: white;
  border: none;
  border-radius: 8px;
  font-size: 16px;
  cursor: pointer;
  transition: background 0.3s, transform 0.2s;
}

form button:hover {
  background: #45a049;
  transform: scale(1.05);
}

form button:active {
  transform: scale(0.95);
}

/* Table Styling */
table {
  width: 100%;
  border-collapse: collapse;
  margin-top: 20px;
}

thead {
  background: #4CAF50;
  color: white;
}

th, td {
  padding: 10px;
  text-align: center;
  border-bottom: 1px solid #ddd;
  font-size: 16px;
```

```
}

tbody tr:hover {
  background: #f1f1f1;
}

/* Alternating row colors */
tbody tr:nth-child(even) {
  background: #f9f9f9;
}

/* Button Styling */
button {
  cursor: pointer;
  transition: all 0.3s ease;
}

/* Edit and Delete Buttons */
.edit-btn {
  background: #2196F3;
  color: white;
  border: none;
  padding: 10px 20px;
  border-radius: 8px;
  font-size: 14px;
  margin-right: 5px;
  transition: 0.3s;
  margin-bottom: 2px;
  width: 90px;
}

.edit-btn:hover {
  background: #1976D2;
  transform: scale(1.05);
}

.delete-btn {
  background: #f44336;
  color: white;
  border: none;
  padding: 10px 20px;
  border-radius: 8px;
  font-size: 14px;
  transition: 0.3s;
  width: 90px;
}

.delete-btn:hover {
  background: #d32f2f;
  transform: scale(1.05);
```

```
}

/* Animation */
@keyframes fadeIn {
  from {
    opacity: 0;
    transform: translateY(-30px);
  }
  to {
    opacity: 1;
    transform: translateY(0);
  }
}

/* Responsive Design */
@media (max-width: 1024px) {
  form {
    grid-template-columns: repeat(2, 1fr);
  }

  form button {
    grid-column: span 2;
  }

  th, td {
    font-size: 14px;
    padding: 12px;
  }
}

@media (max-width: 768px) {
  form {
    grid-template-columns: 1fr;
  }

  form button {
    grid-column: span 1;
  }

  th, td {
    font-size: 12px;
    padding: 10px;
  }

  .container {
    padding: 20px;
  }

  h1 {
    font-size: 28px;
```

```
  }
}
```

Components/AddBooks.jsx

```
import React, { useState, useEffect } from 'react';

const AddBooks = ({ editingbook, onAdd }) => {
  const [id, setId] = useState('');
  const [title, setTitle] = useState('');
  const [authorName, setAuthorName] = useState('');
  const [date, setDate] = useState('');
  const [content , setContent] = useState('');

  // Pre-fill form with existing data during editing
  useEffect(() => {
    if (editingbook) {
      setId(editingbook.id);
      setTitle(editingbook.title);
      setAuthorName(editingbook.author);
      setDate(editingbook.date.split('T')[0]);
      setContent(editingbook.description);
    } else {
      // Reset form when not editing
      setId('');
      setTitle('');
      setAuthorName('');
      setDate('');
      setContent('');
    }
  }, [editingbook]);

  const handleSubmit = async (e) => {
    e.preventDefault();

    const bookData = {
      id : id,
      title: title,
      author: authorName,
      description : content,
      date: date || new Date().toISOString().split('T')[0] // Use current date if none provided
    };

    try {
      await onAdd(bookData);
      alert(`book ${editingbook ? 'updated' : 'added'} successfully!`);
    } catch (error) {
      console.error('Error saving book:', error);
      alert('Failed to save book');
    }
```

```
    // Clear form after submission
    setId('');
    setTitle('');
    setAuthorName('');
    setDate('');
    setContent('');
  };

  return (
    <form onSubmit={handleSubmit}>
      <input
        type="text"
        placeholder="Title"
        value={title}
        onChange={(e) => setTitle(e.target.value)}
        required
      />
      <input
        type="text"
        placeholder="Author Name"
        value={authorName}
        onChange={(e) => setAuthorName(e.target.value)}
        required
      />
      <input
        type="text"
        placeholder="Content"
        value={content}
        onChange={(e) => setContent(e.target.value)}
        required
      />
      <input
        type="date"
        placeholder="Date"
        value={date}
        onChange={(e) => setDate(e.target.value)}
        required
      />
      <button type="submit">
        {editingbook ? 'Update book' : 'Add book'}
      </button>
    </form>
  );
};

export default AddBooks;
```

Components/BooksTable.jsx

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```
import React from 'react';

const BooksTable = ({ Books, onEdit, onDelete }) => {
  if (!Books || !Array.isArray(Books) || Books.length === 0) {
    return <p>No Books available.</p>;
  }

  return (
    <div>
      <h2>Books</h2>
      <table>
        <thead>
          <tr>
            <th>ID</th>
            <th>Title</th>
            <th>Author Name</th>
            <th>Content</th>
            <th>Date</th>
            <th>Actions</th>
          </tr>
        </thead>
        <tbody>
          {Books.map((book) => {
            return (
              <tr key={book.id}>
                <td>{book.id}</td>
                <td>{book.title}</td>
                <td>{book.author}</td>
                <td>{book.description}</td>
                <td>{book.date}</td>
                <td>
                  <button className="edit-btn" onClick={() => onEdit(book)}>
                    Edit
                  </button>
                  <button className="delete-btn" onClick={() => onDelete(book.id)}>
                    Delete
                  </button>
                </td>
              </tr>
            );
          })}
        </tbody>

      </table>
    </div>
  );
};

export default BooksTable;
```

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firebase_server :-

index.js :-

```
import dotenv from "dotenv";
dotenv.config();

import express from "express";
import bodyParser from "body-parser";
import cors from "cors";

const PORT = process.env.PORT || 3000;
const app = express();
import bookRoutes from "./src/routes/book.routes.js";

app.use(cors())
app.use(bodyParser.urlencoded({ extended: true }));
app.use(bodyParser.json());
app.use(express.json());
app.use(express.urlencoded({ extended: true }));
app.use("/api/books", bookRoutes);

try {
    const db = await import("./src/config/firebase_connection.js");
    console.log("Connected to Firebase Sucessfully");
} catch (error) {
    console.log("Error connecting to Firebase");
    console.log(error.message)
}

app.get("/", (req, res) => {
    res.send("Welcome to Firebase CRUD Operation API!");
});

app.listen(PORT, () => {
    console.log(`Server running at http://localhost:${PORT}`)
});
```

.src/config/firebase_connection.js:-

```
// Import the functions you need from the SDKs you need
import { initializeApp } from "firebase/app";
import { getFirestore , collection } from 'firebase/firestore';
// TODO: Add SDKs for Firebase products that you want to use
// https://firebase.google.com/docs/web/setup#available-libraries

// Your web app's Firebase configuration
const firebaseConfig = {
  apiKey: "AIzaSyAfp4MUpDuBEZO5cOg97O6Kos3xP9FzWfM",
```

```
  authDomain: "awttask1.firebaseapp.com",
  projectId: "awttask1",
  storageBucket: "awttask1.firebasestorage.app",
  messagingSenderId: "711675249544",
  appId: "1:711675249544:web:d81f16120c745da660f03d"

};

const app = initializeApp(firebaseConfig);
const db = getFirestore(app);
const book = collection(db, "books");

// Error handling for Firebase connection
try {
  if (!app || !db || !book) {
    throw new Error('Firebase connection failed');
  }
} catch (error) {
  console.error('Firebase initialization error:', error);
  // Re-throw to be handled by calling code
  throw error;
}

export { db , book };
```

./src/routes/book.routes.js

```
import express from 'express';

import {
  createBook,
  getBook,
  getBookbyID,
  updateBook,
  deleteBook,
} from '../services/book.service.js';

const bookRoutes = express.Router();

bookRoutes.get('/', getBook);
bookRoutes.post('/', createBook);
bookRoutes.get('/:id', getBookbyID);
bookRoutes.put('/:id', updateBook);
bookRoutes.delete('/:id', deleteBook);

export default bookRoutes;
```

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./src/services/book.service.js

```
import {
  addDoc,
  collection,
  getDoc,
  getDocs,
  doc,
  updateDoc,
  deleteDoc
} from "firebase/firestore";

import { db } from "../config/firebase_connection.js";

export const createBook = async (req, res, next) => {
  try {
    const data = req.body;
    await addDoc(collection(db, 'books'), data);
    res.status(200).send('Book Created Successfully');
  } catch (error) {
    res.status(400).send(error.message);
  }
};

export const getBook = async (req, res, next) => {
  try {
    const books = await getDocs(collection(db, 'books'));
    const bookArray = [];

    if (books.empty) {
      res.send('No Books found');
    } else {
      books.forEach((doc) => {
        const book = {
          id : doc.id,
          title : doc.data().title,
          author: doc.data().author,
          description : doc.data().description,
          date : doc.data().date,
        };
        bookArray.push(book);
      });
      console.log(bookArray)
      res.status(200).send(bookArray);
    }
  } catch (error) {
    res.status(400).send(error.message);
  }
};
```

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```
export const getBookbyID = async (req, res, next) => {
  try {
    const id = req.params.id;
    const book = doc(db, 'books', id);
    const data = await getDoc(book);
    if (data.exists()) {
      res.status(200).send(data.data());
    } else {
      res.status(404).send('Book not found');
    }
  } catch (error) {
    res.status(400).send(error.message);
  }
};

export const updateBook = async (req, res, next) => {
  try {
    const id = req.params.id;
    const data = req.body;
    const book = doc(db, 'books', id);
    await updateDoc(book, data);
    res.status(200).send('Book updated successfully');
  } catch (error) {
    res.status(400).send(error.message);
  }
};

export const deleteBook = async (req, res, next) => {
  try {
    const id = req.params.id;
    await deleteDoc(doc(db, 'books', id));
    res.status(200).send('Book deleted successfully');
  } catch (error) {
    res.status(400).send(error.message);
  }
};
```

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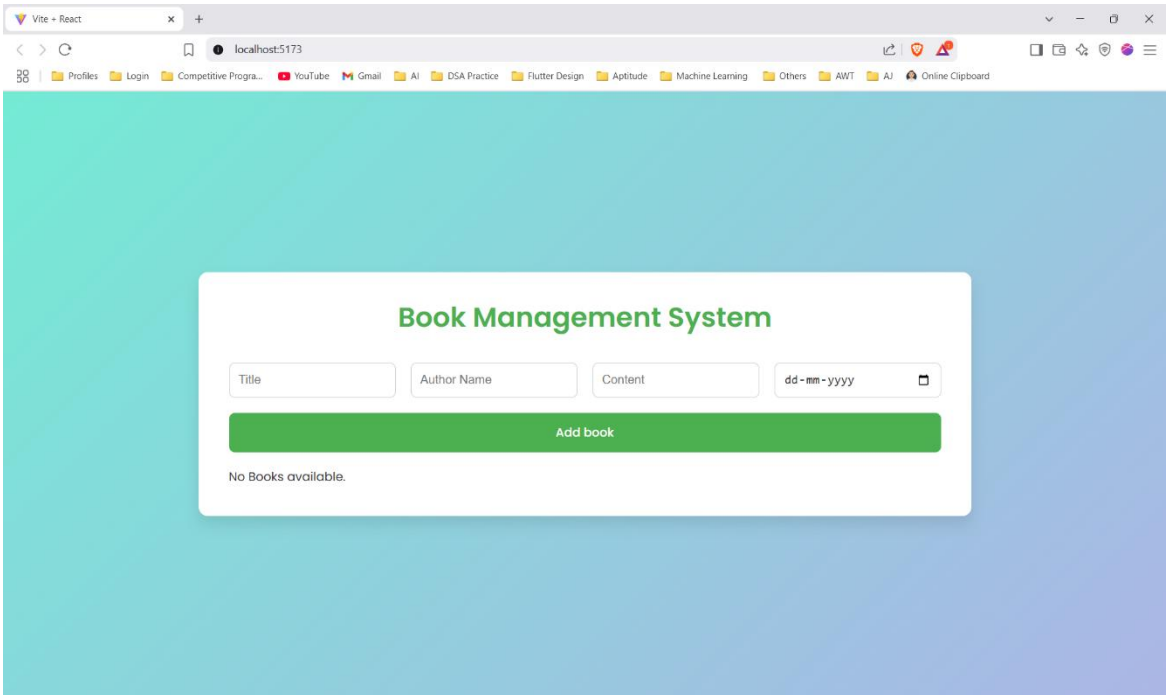
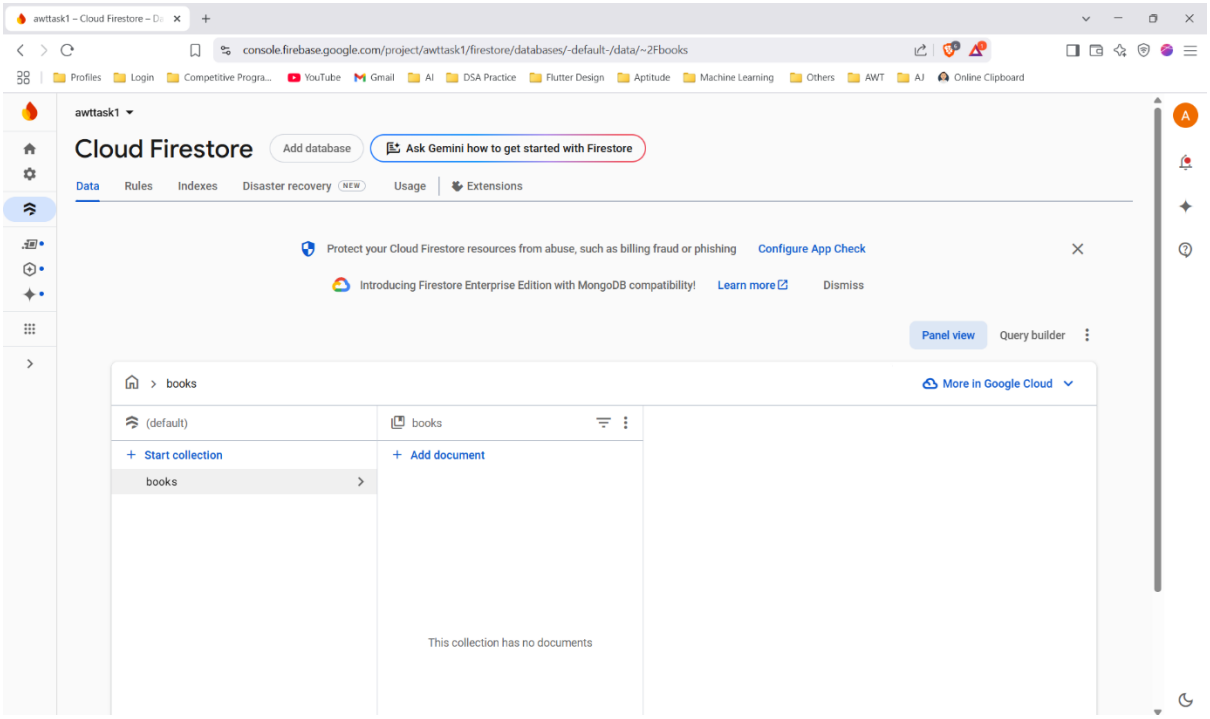
Output :-





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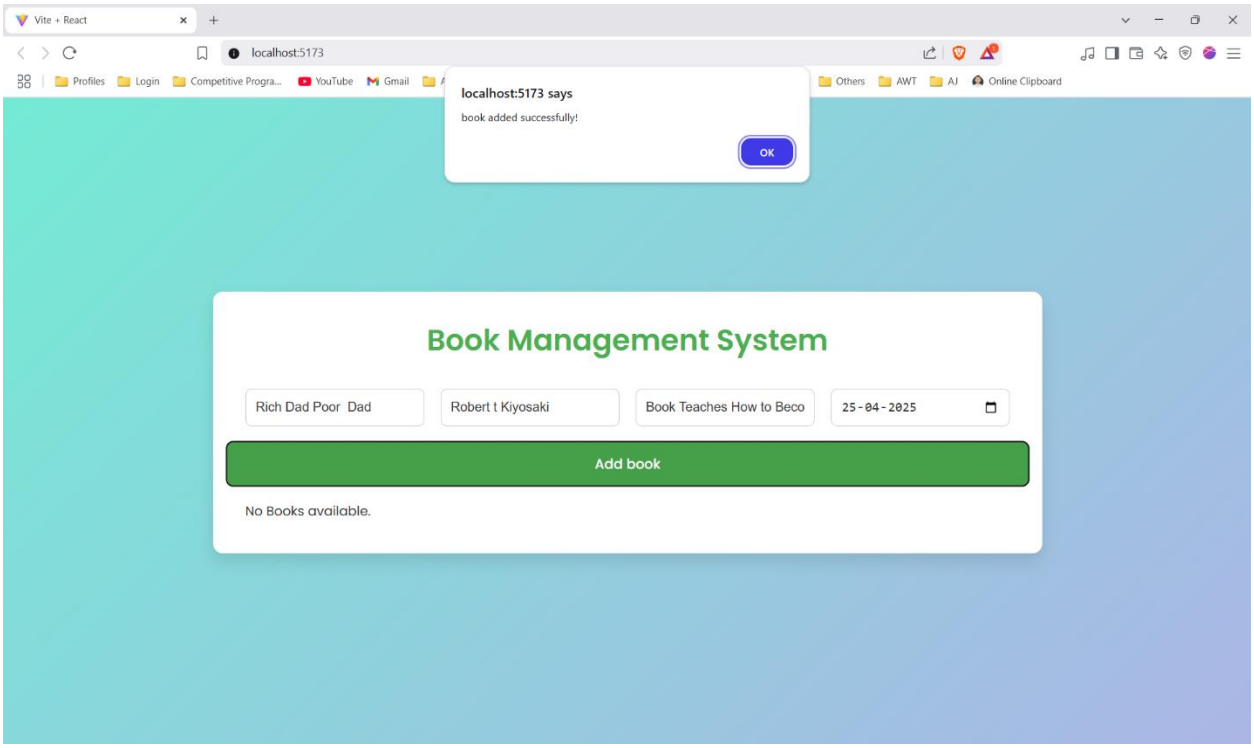

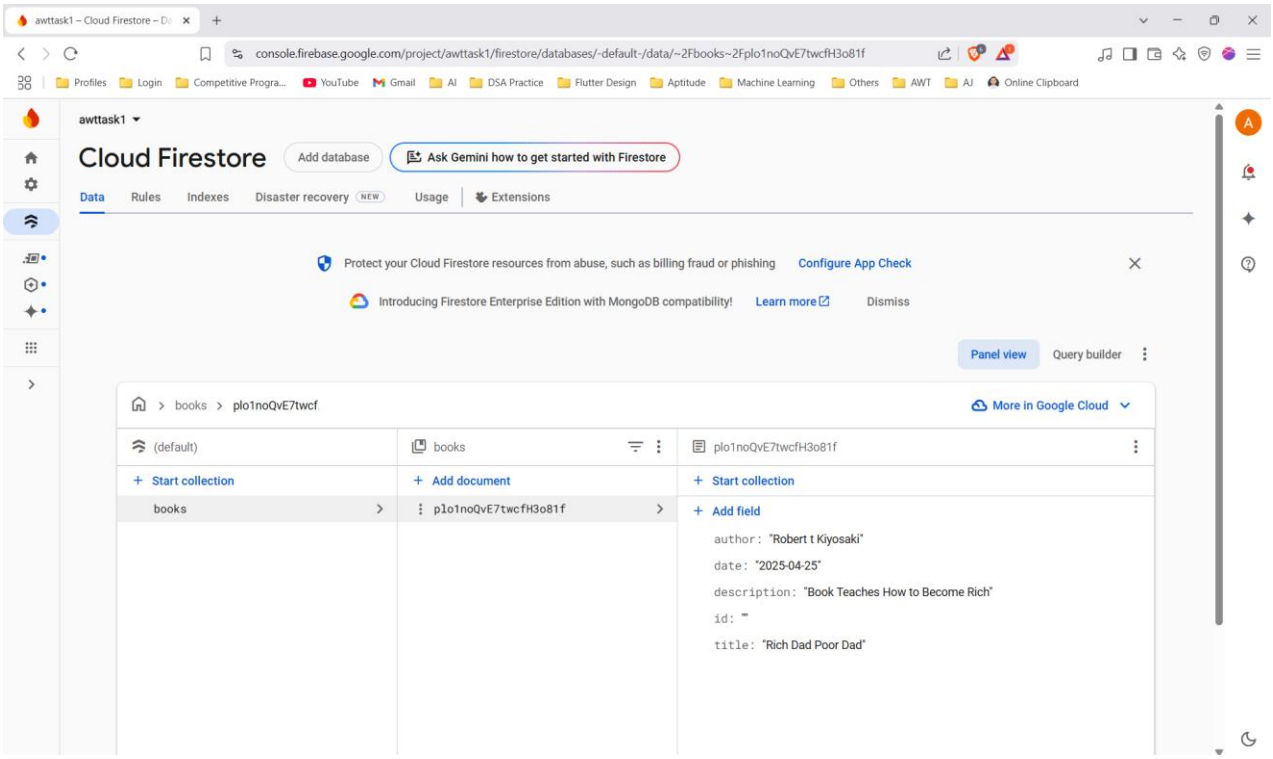

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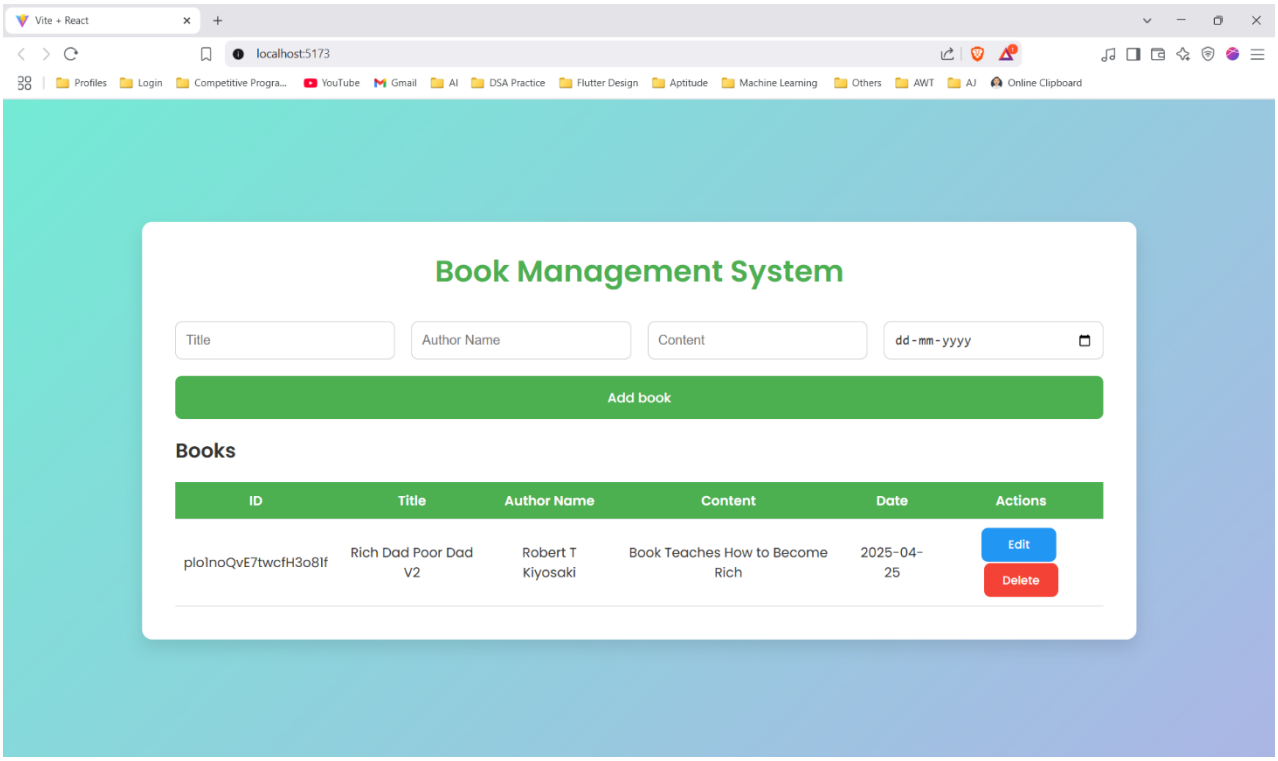

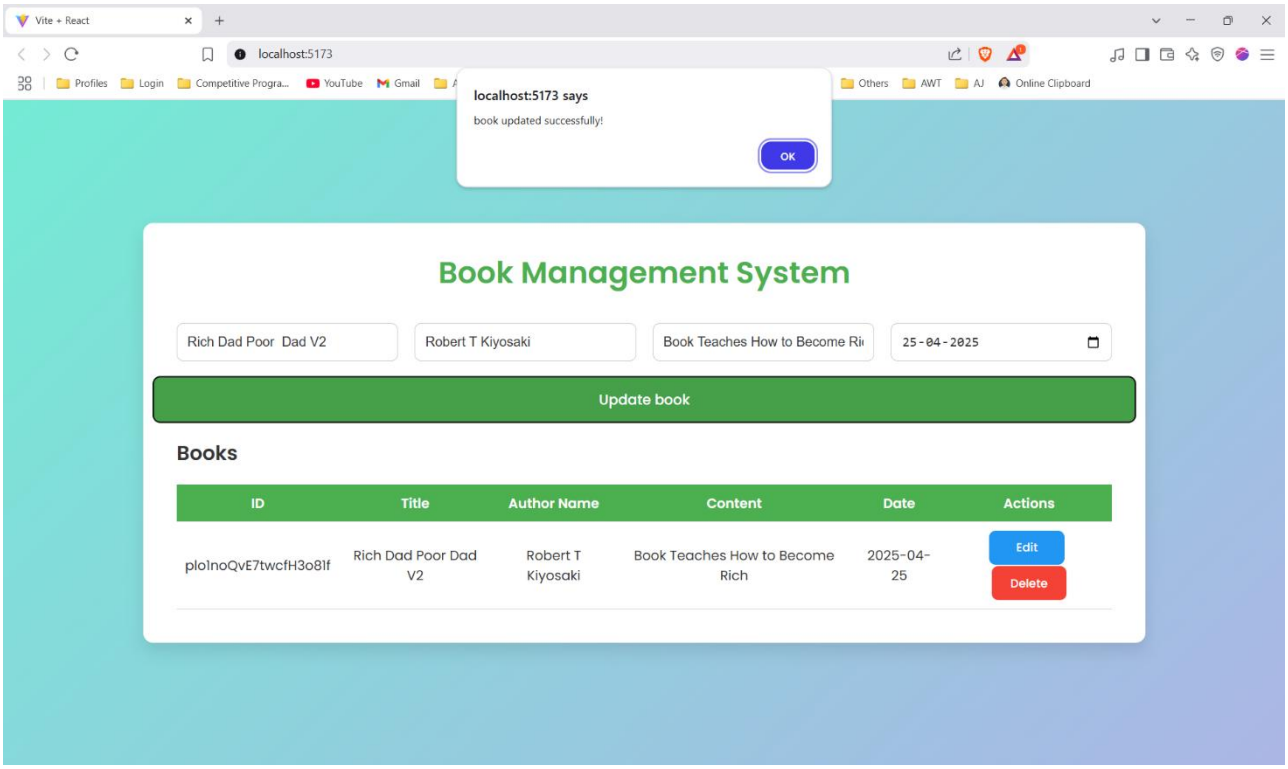

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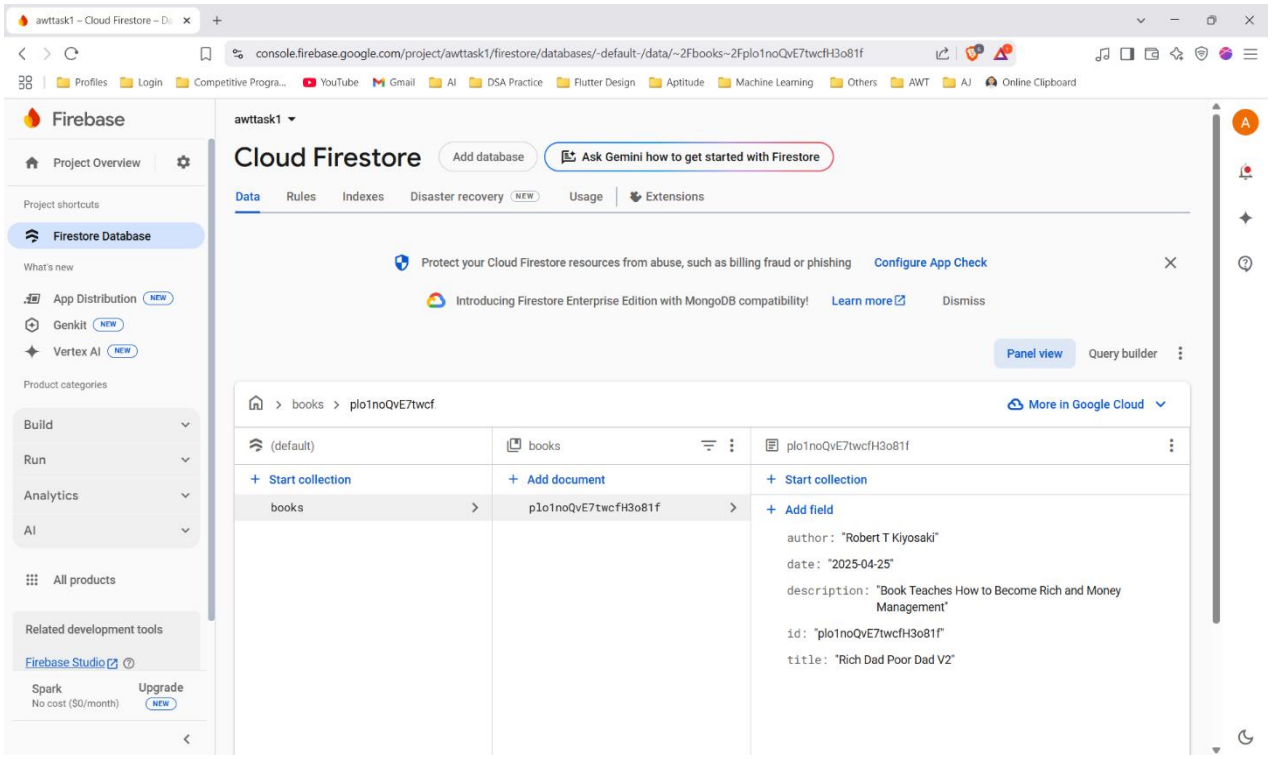

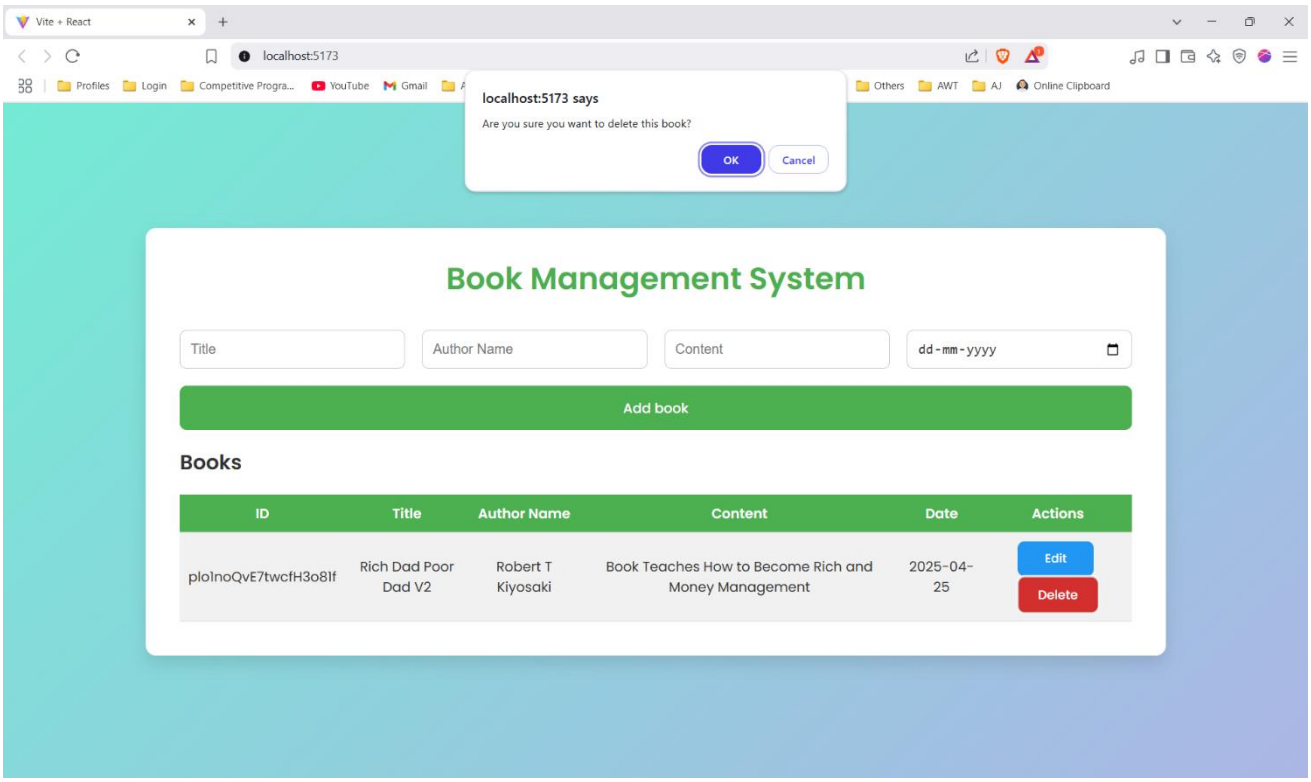
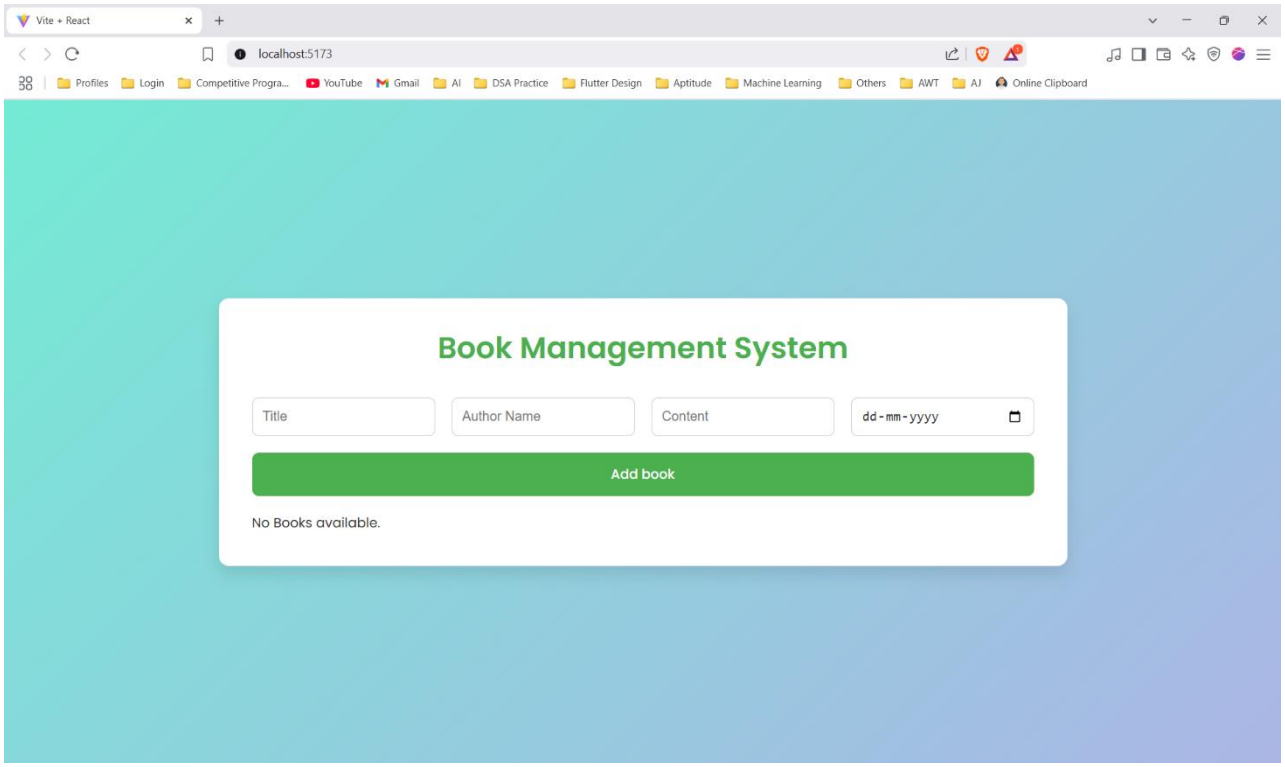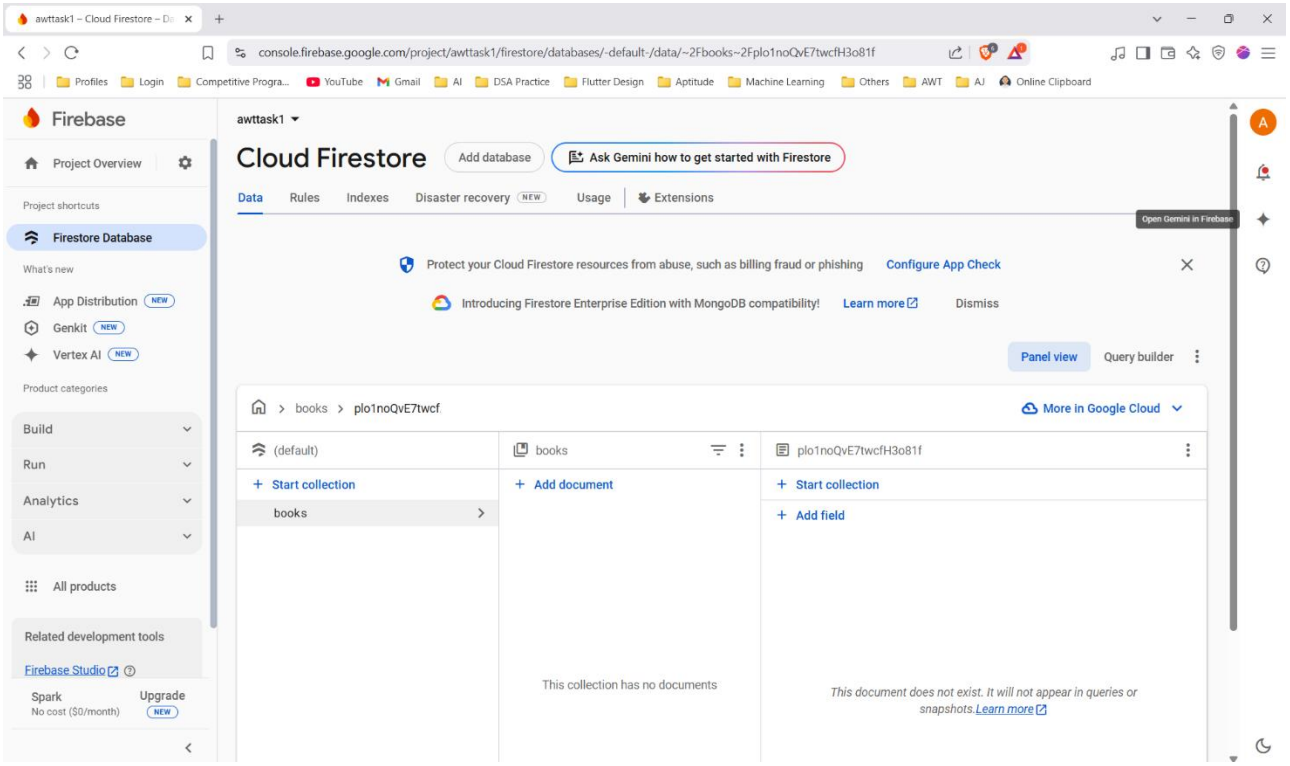
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