# Real-Time Interaction Module

## 📌 Project Overview

This project simulates a **real-time interaction session** between an Admin (Host) and multiple Users (Audience). The Admin can create and launch live polls, users can join with a session code and respond, and real-time poll results are shown using interactive charts.

This is built as a full-stack web application using **React.js**, **Node.js**, and **MongoDB**.

## 🚀 Features

### ✅ Core Features:

* **Admin Panel:** Create and launch polls in real-time.
* **User Interface:** Join poll sessions using session codes.
* **Live Polling:** Users submit answers; results are shown live.
* **Results Visualization:** View live results in bar or pie chart format.

### ✨ Bonus Features:

* **Session Timer:** Countdown timer for polls.
* **Session History:** Admin can view past polls and responses.
* **Authentication:** Simple token-based session management.
* **Responsive Design:** Works across desktop and mobile devices.

## 🛠️ Tech Stack

### Frontend:

* **React.js** (with Hooks)
* **Chart.js** (for displaying live results)
* **Axios** (API integration)

### Backend:

* **Node.js + Express** (API server)
* **MongoDB** (session, poll, and result storage)
* **Socket.IO** (real-time communication)

## 🧱 Project Structure

real-time-polling/  
├── client/ # React frontend  
│ ├── src/  
│ │ ├── components/ # Reusable UI components  
│ │ ├── pages/ # Admin and User views  
│ │ └── App.js # Main app file  
│ └── package.json  
├── server/ # Node.js backend  
│ ├── models/ # MongoDB schemas  
│ ├── routes/ # API endpoints  
│ ├── socket.js # Socket.IO setup  
│ └── server.js # Express app entry point  
└── README.md

## 🧪 Setup Instructions

### 1. Clone Repository

git clone https://github.com/your-username/real-time-polling.git  
cd real-time-polling

### 2. Install Dependencies

#### Backend:

cd server  
npm install

#### Frontend:

cd ../client  
npm install

### 3. Start Development Servers

#### Backend:

npm run dev

#### Frontend:

npm start

### 4. Open in Browser

Visit: http://localhost:3000

## 🧠 Future Improvements

* User authentication via Firebase Auth
* Admin analytics dashboard
* Export results to CSV or PDF
* Multi-question polls and Q&A module