**ChitLink-A Secure and Automated Platform for Collective Savings Borrowing**

• **Team Name**: ChitLink  
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• **Problem Statement :** Traditional savings schemes in certain communities, like collective savings and borrowing groups, suffer from a lack of transparency and organization. Participants often have little to no visibility into the group’s financial status, and organizers find it hard to manage multiple groups. The community is in need of a secure platform that can automate the management of participants, handle fund allocations, and ensure clear and transparent processes for all involved.

**1**. **Understanding of the Problem statement**

a. **Explanation of the Problem Context**: The problem centers around the management of **traditional savings and borrowing groups,** such as chit funds, which are commonly used in certain communities. These groups allow members to pool their money together, and then take turns to access the funds through a **bidding system.**  
b**. Key Requirements Identified** :Based on the problem context, the following primary requirements must be met by the MVP:

1. **User Registration and Roles**:
   * **Organizers** and **participants** must be able to create accounts, log in securely, and manage their profiles.
   * The application should support two distinct user roles: Organizer (who creates and manages chit funds) and Participant (who joins and contributes to chit funds).
2. **Chit Fund Creation and Management**:
   * **Organizers** should be able to easily create new chit funds, specify details such as:
     + Total number of participants
     + Contribution amount
     + Frequency of payments
     + Duration of the chit fund
     + Maximum number of bids per cycle
   * The system should allow the organizer to view, manage, and monitor multiple chit funds at once.
3. **Bidding Process**:
   * Once a chit fund is created, **participants** should be able to **place bids** to receive a portion of the pooled funds.
   * **Bidding details** (such as bid amounts and winning bids) should be clearly visible to all participants in real-time for full transparency.
   * The system should calculate **bid results** (who won, how much they will receive, etc.) and display it to all members.

**2. Solution Overview**

**a. Solution Summary**

The solution being proposed is a **ChitLink application** designed to address the challenges faced by traditional chit fund systems. It provides a digital platform that streamlines and automates the management of chit funds, making the process more transparent, efficient, and accessible for both organizers and participants.

* **Organizers** can create and manage chit funds, specify parameters like the **chit amount**, **duration**, and **number of participants**, and manage the bidding process once all participants have joined.
* **Participants** can easily join chit funds, view real-time bidding updates, track their contributions.
* The **bidding process** is automated, ensuring that the results are transparent, and participants can see how their contributions are being allocated.
* The system provides **real-time dashboards** for both organizers and participants to monitor the status of each chit fund, including bid results remaining contributions.

By moving the entire process online, **ChitLink** reduces the reliance on manual tracking and offers a more **secure, transparent, and user-friendly** experience for all users. The platform ensures that participants have visibility into the progress of the chit fund they’ve joined and can see how their funds are being managed.

**b. Objective**

The primary objectives of **ChitLink** are to:

1. **Increase Transparency**: Allow participants to see real-time updates on their contributions, bid results, and the overall status of the chit fund they’ve joined.
2. **Automate Processes**: Reduce the need for manual tracking of payments, bids, and fund allocations by automating the entire process.
3. **Ensure Fairness and Security**: Make the bidding and fund allocation process transparent, secure, and tamper-proof, so all participants can trust that the process is fair.
4. **Improve Accessibility**: Make it easier for people to participate in chit funds, especially for those in rural or remote areas, by providing an online platform .
5. **Streamline Management for Organizers**: Provide tools for chit fund organizers to manage multiple groups, track contributions, and update participants with ease.

**3. Features and Functionalities**

a. **Core Features**:

 **User Registration and Authentication**:

* Organizers and participants can create accounts with basic authentication (email or phone number).
* Users can log in securely with their credentials.

 **Chit Fund Creation (Organizer)**:

* **Organizers can create a new chit fund by specifying**:
  + Chit amount (total pooled amount).
  + Duration (number of months).
  + Contribution amount (how much each participant needs to contribute per cycle).
  + Number of participants (how many people will be in the chit fund).

 **Participant Joining**:

* Participants can **search and join** existing chit funds, provided the maximum number of participants has not been reached.
* After joining, participants will be able to view the **bidding process** for each cycle.

 **Bidding Process**:

* Once all participants join, the **bidding process starts**.
* Organizers will update the **bidding status** each month, showing the current bid and the winning bidder for each cycle.
* Participants can **view bidding results** directly from their dashboard, including their own bids and winning status.

 **Dashboard for Organizers**:

* Organizers have a **central dashboard** to manage and monitor all chit funds they’ve created.
* They can track each participant's contributions and the status of each bid.
* The system provides **automatic calculation** of bid results, with fund allocations updated in real-time.

 **Dashboard for Participants**:

* Participants can **view their current contributions**, track past payments, and check whether they’ve won any bids.
* The dashboard will display **bidding results**, next payment reminders, and any other relevant updates about their chit fund.

**c. User Flows**

Here are the major user flows that illustrate how a user interacts with the ChitLink platform:

1. **Organizer Creating a Chit Fund**:
   * The organizer logs in and clicks on “Create Chit Fund.”
   * They fill in the chit details, including chit amount, duration, contribution per participant, and the number of participants required.
   * Once the chit is created, the organizer can share the invite link with participants to join the chit fund.
   * The chit fund becomes **active for bidding** only when all participants have joined.
2. **Participant Joining a Chit Fund**:
   * A participant logs into the app and views available chit funds.
   * They select a chit fund and click "Join."
   * Once they confirm the joining, they can see their contribution and start participating in the bidding process.
   * After joining, the participant will be notified about the next bidding round and can track their own bid outcomes.
3. **Bidding Process**:
   * After all participants have joined, the organizer starts the bidding cycle.
   * Each participant can place a bid, and the organizer updates the status (who won the bid and how much they will receive).
   * The results are reflected on the participant’s dashboard in real-time.
4. **Participant Viewing Bidding Results**:
   * After the bidding is completed, the participant logs in and views the **bidding results** on their dashboard.
   * The dashboard shows whether the participant has won the bid, their contribution details, and the next steps in the process.
5. **Organizer Managing Multiple Chit Funds**:
   * The organizer logs in and accesses their dashboard, where they can see all the chit funds they’ve created.
   * The organizer can click on a chit fund to manage it, update bidding statuses, and track payments and contributions for all participants.

**4. Architecture Diagram**

A diagram of a computer

Description automatically generateda. **System Architecture:**

5. **Technical Stack**  
  
  **a**. **Frontend:** React with typescript

**b. Backend :** Node js ,Express js  
  
  
**c. Database:** Mongodb, MySql  
  
**d. Other Technologies and Tools:** (Include other tools used, such as  
  
libraries, cloud services, or CI/CD tools.)

**6. Prerequisites and Requirements**

**a. Technical Requirements**

To build and test the **ChitLink application**, the following technical requirements are needed:

1. **Development Environment**:
   * **Frontend**:
     + Framework: **React** (for building the user interface)
     + CSS/Styling: **CSS3**, **Bootstrap**, or **Material UI** (for responsive and attractive UI design)
   * **Backend**:
     + Language: **Node.js** with **Express** (for the backend API)
     + Database: **MongoDB** (NoSQL database for flexible data modeling)
     + Authentication: **JWT (JSON Web Tokens)** or **OAuth** for secure authentication
2. **Testing**:
   * **Postman** for testing API endpoints.

**b. Data Requirements**

The following data and APIs are required for building and testing the solution:

1. **Sample Data**:
   * **Chit Fund Details**: Chit fund name, total amount, duration, contribution amount per participant, number of participants.
   * **User Data**: Test accounts for organizers and participants, including basic information (name, contact details) and role (organizer or participant).
   * **Bidding Data**: Example bids with amounts, participants’ names, and winning bid results.
2. **Test Cases**:
   * A set of **predefined test cases** for:
     + Joining a chit fund.
     + Starting and updating a bidding cycle.

**c. Access Permissions**

The following access permissions are required for building, testing, and deploying the solution:

1. **Source Code Repository**:
   * Access to a **Git repository** (GitHub) for version control and collaboration.
   * Permissions for code contributions, code review, and branching.

### **7**. **Future Improvements**

#### a. ****Planned Enhancements****

1. **Payment Integration**:
   * Integrate a payment gateway like **Stripe** or **Razorpay** to facilitate secure online payments for participants’ contributions and bid payments. This will reduce manual payment tracking and improve the user experience.
   * **Wallet system**: Allow users to maintain a wallet balance, making it easier to track funds within the app.
2. **Advanced Notification Service**:
   * Implement a more sophisticated **notification system** that supports **push notifications**, **email reminders**, and **SMS alerts** to ensure participants stay informed about payment deadlines, bid results, and other updates.
3. **Real-Time Bidding Updates**:
   * Improve **real-time bidding functionality** using **WebSockets** (via **Socket.io** or similar) to update all participants immediately about changes to bid status, winner announcements, and new bids. This will enhance user experience by providing up-to-the-minute information.
4. **KYC/AML Integration**:
   * Implement **Know Your Customer (KYC)** procedures for user verification, especially for organizers, to ensure compliance with regulatory standards in certain regions.

8. **Conclusion**

**a. Summary of Achievements**

The **ChitLink** application successfully addresses the key challenges faced by traditional chit fund systems by offering a **secure, transparent, and automated** platform for managing chit funds. The solution ensures that both organizers and participants have full visibility into the bidding process, contributions, and payments. The core functionalities, such as chit fund creation, bid management, and real-time updates, were developed and tested, providing immediate value to users.

**b. Value Provided**

The **ChitLink** application provides significant value to users by:

* Ensuring **transparency** and **fairness** in the bidding and fund allocation process.
* **Automating** the management of chit funds, reducing manual work and potential errors.
* Improving **accessibility** for participants and organizers, especially those in remote areas, through a mobile-friendly platform.
* Offering a more **secure** and reliable way to track contributions, payments, and bids.

**Attachments [Optional]**  
• Any additional diagrams, screenshots, or reference materials can be attached here.has context menu