

# MULTI LEVEL REFERRAL & EARNING SYSTEM

## OVERVIEW

The system enables users to refer up to 8 people directly and facilitates profit sharing based on a multi-level referral hierarchy. Earnings are tracked and distributed in real-time with live data updates for parent users whenever a leg user completes a purchase.

## DETAILED SETUP

Follow the steps below to run the project locally. All configuration files (including `.env`) are already included.

**Install dependencies** (at the project root):

```
npm install
```

Navigate to server directory:

```
cd server
```

**Start the server:**

```
Npm run server
```

Navigate to the React app directory:

```
cd referral-system-frontend
```

Install frontend dependencies:

```
npm install
```

Start the React development server:

```
npm start
```

## API USAGE:

### 1. User Registration

**Endpoint:** `POST /user/register`

Registers a new user with optional referral code.

#### Request Body

json

```
{
  "name": "Alice",
  "email": "alice@example.com",
  "password": "123456",
  "referrerCode": "REF123" // optional
}
```

#### Notes

- Referral code must be valid (if provided)
- Referrer can have a maximum of 8 direct referrals

#### Response (Success)

json

```
{
  "message": "user created successfully"
}
```

### 2. User Login

**Endpoint:** `POST /auth/login`

Authenticates the user and returns a JWT token.

### ✓ Request Body

json

```
{
  "email": "alice@example.com",
  "password": "123456"
}
```

### 🔄 Response (Success)

json

```
{
  "message": "Login successful",
  "token": "jwt_token_here",
  "user": {
    "_id": "user_id",
    "name": "Alice",
    "email": "alice@example.com",
    "referralCode": "REF123",
    "DirectEarnings": 100,
    "IndirectEarnings": 20
  }
}
```

## 3. Create Earnings (Simulate Purchase)

**Endpoint:** POST /earning

Triggers referral earnings distribution for purchases over ₹1000.

### ✓ Request Body

json

```
{
  "userId": "648b123abc123",
  "amount": 2000
}
```

## Notes

- Direct referrer receives 5%
- Indirect (grand) referrer receives 1%
- Earnings are updated in real-time via Socket.IO

## Response (Success)

json

```
{  
  "message": "Earnings recorded successfully and profit distributed!"  
}
```

## Example Error Response

json

```
{  
  "message": "Purchase amount must be greater than 1000 Rs"  
}
```

## System Architecture

### 1. Frontend (React)

- **Pages:**
  - **RegisterPage.js**: Registers user and generate referral code for them and link them to referrer.
  - **LoginPage.js**: Authenticates users and stores token locally.
  - **DashboardPage.js**: Displays user info, allows purchases, and shows real-time logs.

- **Socket Integration:**

- Joins a user-specific room using `socket.emit("joinRoom", userId)`
- Listens for `earningsUpdate` and updates earnings/log state in real time

## 2. Backend (Node.js + Express)

- **Routes:**

- `/api/user/register`: Registers a new user with referral logic
- `/api/auth/login`: Returns token + user details
- `/api/earning`: Handles earnings distribution and emits socket events

- **Socket Logic:**

- Each connected client joins a room using their `userId`
- Backend emits `earningsUpdate` to those rooms based on referral chains

## 3. Database (MongoDB)

- **Collections:**

- `User`: Stores user details, referrals, earnings
- `Earnings`: Tracks transaction-based earning entries per user

- **Referral Logic:**

- Direct referrer: 5% earnings
- Indirect referrer (grand-referrer): 1% earnings
- Max 8 direct referrals allowed per user

# Welcome, mehul

[Logout](#)

## User Info

Email: mehulgupta444@gmail.com

Referral Code: THXIXO

## Total Earnings

Direct Earnings: ₹0

Indirect Earnings: ₹1145

## Make a Purchase

## Earnings Log

- 7:38:22 PM - You have new earnings from level 2 referral!