

based on all of the logic so far of all the referral tables.
give me deep diagnostic of all the logic of how table is
related to other with an example. go one by one and list
ALL of them. type in plain english

Alright — let's do a **deep diagnostic walkthrough** of your entire referral system. I'll explain **each table**, how it connects to others, and then give you an **example story** (Rahul refers BoomEbox, BoomEbox subscribes, commissions, payouts, rewards, etc.) so you can see how the system behaves end-to-end.

✓ Core Spine

1. referrals.referrals

- **What it does:** Records the relationship between a referrer (Rahul) and a referred user (BoomEbox).
- **Connections:**
 - `referrer_id` links to `profiles.id`.
 - `referred_id` links to `profiles.id`.
 - `commissions.referral_id` references this table.

Example: Rahul (1217...) refers BoomEbox (9bc7...). One row is inserted:

```
id = 1
referrer_id = 1217...
referred_id = 9bc7...
status = pending
```

2. referrals.commissions

- **What it does:** Tracks money owed to the referrer when a referral pays.
- **Connections:**
 - `referral_id` → points back to `referrals.referrals`.
 - `referrer_id` → points to `profiles`.
 - Commission amounts update `referral_stats` and `referral_tiers`.

- Each commission also becomes a row in `transactions` .

Example: BoomEbox pays \$50. Commission row:

```
id = 10
referral_id = 1
referrer_id = 1217...
amount = 20.00
status = pending
```

3. referrals.payouts

- **What it does:** Records actual payment sent to a referrer (via PayPal, Stripe, etc.).
- **Connections:**
 - `referrer_id` → profiles.
 - Each payout also becomes a row in `transactions` .

Example: Rahul's \$20 is paid out. Row inserted:

```
id = 5
referrer_id = 1217...
amount = 20.00
method = PayPal
status = paid
```

4. referrals.transactions

- **What it does:** Master ledger of all money-like events (payments, commissions, payouts).
- **Connections:**
 - `user_id` → profiles.
 - `reference_id` → can point to a commission, payout, or Stripe payment.
 - Keeps history in one place.

Example:

- BoomEbox subscription payment → row type `payment` .
- Rahul's \$20 commission → row type `commission` .
- Rahul's payout → row type `payout` .

✓ Snapshot Tables

5. referrals.referral_stats

- **What it does:** Aggregated counters per user (totals, commissions, breakdown by plan).
- **Connections:**
 - Updated by triggers on `referrals` and `commissions`.
 - Used by `referral_leaderboard` and `referral_challenges`.

Example: After Rahul's referral + commission:

```
user_id = 1217...
total_referrals = 1
active_referrals = 1
pro_referrals = 1
total_commissions = 20.00
```

6. referrals.referral_streaks

- **What it does:** Tracks rolling 7-day streaks (bonus multiplier if streak is alive).
- **Connections:**
 - Updated by trigger on `referrals`.
 - Influences commission multiplier in `commissions`.

Example: Rahul referred BoomEbox today. Row:

```
user_id = 1217...
streak_active = true
streak_expires_at = +7 days
current_streak_days = 1
bonus_multiplier = 1.4
```

✓ Gamification Boosters

7. referrals.referral_rewards

- **What it does:** Logs random rewards or milestone bonuses.

- **Connections:**
 - Trigger on `referrals` can drop a reward.
 - Rewards can also insert into `transactions`.

Example: Rahul's 3rd referral → bonus 200 credits. Row:

```
id = 20
user_id = 1217...
reward_type = credits
reward_value = 200
metadata = {reason: "milestone"}
```

8. referrals.referral_leaderboard

- **What it does:** Stores user rankings by period (weekly/monthly).
- **Connections:**
 - Built from `referral_stats` via daily job.

Example: Leaderboard for September:

```
user_id = 1217...
period_start = 2025-09-01
period_end   = 2025-09-30
rank = 1
total_commissions = 200
total_referrals = 5
```

9. referrals.referral_tiers

- **What it does:** Tracks permanent tier (Bronze → Silver → Gold).
- **Connections:**
 - Updated by trigger on `commissions`.
 - Used for long-term perks (bonus_pct, free plan upgrades).

Example: Rahul hits 20 referrals → Silver Tier. Row:

```
user_id = 1217...
current_tier = Silver
total_referrals = 20
```

```
lifetime_commissions = 500
perks = {bonus_pct:10}
```

10. referrals.referral_clicks

- **What it does:** Tracks referral link clicks before signup.
- **Connections:**
 - Links indirectly via `referral_code` .
 - When a signup occurs, `converted = true` .

Example: Rahul's link got clicked 50 times, 5 signed up:

```
id = 99
referral_code = "RAHUL50"
ip_address = 192.168.1.10
geo = {country:"India"}
converted = true
```

11. referrals.referral_challenges

- **What it does:** Tracks limited-time referral quests (e.g. "Refer 5 this month").
- **Connections:**
 - Progress updated from `referral_stats` .
 - Completion triggers `referral_rewards` .

Example: Rahul's challenge to refer 5 in September:

```
id = 300
user_id = 1217...
challenge_name = "September Challenge"
target_referrals = 5
achieved_referrals = 3
status = active
```

✓ Example Flow (Plain English)

1. Rahul refers BoomEbox → row in `referrals.referrals` .

- `referral_stats` increments totals.
 - `referral_streaks` starts a 7-day timer.
2. BoomEbox subscribes → row in `commissions` (\$20).
 - `transactions` logs a payment + commission.
 - `referral_stats.total_commissions` increments.
 - `referral_tiers` checks thresholds (maybe still Bronze).
 3. Rahul's 3rd referral triggers → row in `referral_rewards` (200 credits).
 4. Leaderboard refresh job runs → Rahul ranked #1 this week.
 5. Rahul is in a September Challenge
→ `referral_challenges.achieved_referrals` updates.
 6. At payout time → row in `payouts` (\$20 PayPal) + `transactions` payout row.
 7. If Rahul doesn't refer again in 7 days → `referral_streaks` job flips `streak_active` = `false`.
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👉 Together, these 11 tables form a **closed loop**:

- **Events:** referrals, commissions, payouts, clicks.
 - **Ledger:** transactions.
 - **Snapshots:** stats, streaks, tiers.
 - **Gamification:** rewards, leaderboard, challenges.
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Do you want me to now map this **entire flow as a single chain diagram (event → updates → results)** so you can see exactly what fires in order when one referral happens?