Workout Tracker
Database Data Dictionary

DATABASE NAME: workout_tracker.db

DATABASE TYPE: SQLite3

PURPOSE: Store user accounts and workout logging data for fitness tracking

TABLE 1: users

Purpose: Stores user account information and authentication credentials

Column Name	Data Type	Constraints	Description
user_id	INTEGER	PRIMARY KEY AUTOINCREMENT	Unique identifier for each user
username	TEXT	NOT NULL UNIQUE	User's chosen username
email	TEXT	NOT NULL UNIQUE	User's email address (used for login)
password_hash	TEXT	NOT NULL	Hashed password (bcrypt)
full_name	TEXT	-	User's full name (optional)
streak	INTEGER	DEFAULT 0	Consecutive days with logged workouts
total_workouts	INTEGER	DEFAULT 0	Total number of workouts logged
created_at	DATETIME	DEFAULT CURRENT_TIMESTAMP	Account creation timestamp
last_login	DATETIME	-	Most recent login timestamp

Relationships:

- One user can have many workouts (ONE-TO-MANY with logged_workouts table)
- One user can have many goals (ONE-TO-MANY with goals table)

Sample Data:

user_id	username	email	streak	total_workouts
1	DemoUser	demo@workout.com	7	5

TABLE 2: logged_workouts

Purpose: Stores individual workout entries logged by users

Column Name	Data Type	Constraints	Description
workout_id	INTEGER	PRIMARY KEY AUTOINCREMENT	Unique identifier for each workout
user_id	INTEGER	NOT NULL FOREIGN KEY	References users.user_id
exercise_name	TEXT	NOT NULL	Name of exercise performed
sets	INTEGER	NOT NULL CHECK(sets > 0)	Number of sets completed
reps	INTEGER	NOT NULL CHECK(reps > 0)	Number of repetitions per set
weight	REAL	DEFAULT 0	Weight used in pounds (allows decimals)
duration	INTEGER	NOT NULL	Workout duration in minutes
difficulty	TEXT	CHECK(IN 'easy', 'moderate'...)	Difficulty level of workout
workout_date	DATE	NOT NULL	Date workout was performed
workout_time	TEXT	-	Time of day workout was performed
notes	TEXT	-	Optional user notes about workout
created_at	DATETIME	DEFAULT CURRENT_TIMESTAMP	Record creation timestamp

Relationships:

- Many workouts belong to one user (MANY-TO-ONE with users table)
- FOREIGN KEY (user_id) REFERENCES users(user_id) ON DELETE CASCADE

(If user is deleted, their workouts are automatically deleted)

Sample Data:

workout_id	user_id	exercise_name	sets	reps	weight	duration	workout_date
1	1	Push-ups	3	20	0	15	2025-11-10
2	1	Squats	4	15	135	20	2025-11-11

TABLE 3: goals

Purpose: Stores user fitness goals and tracks progress

Column Name	Data Type	Constraints	Description
goal_id	INTEGER	PRIMARY KEY AUTOINCREMENT	Unique identifier for each goal
user_id	INTEGER	NOT NULL FOREIGN KEY	References users.user_id
goal_name	TEXT	NOT NULL	Name/description of goal
target_value	INTEGER	NOT NULL CHECK(> 0)	Target number to achieve
current_progress	INTEGER	DEFAULT 0 CHECK(>= 0)	Current progress toward goal
deadline	DATE	-	Target completion date (optional)
is_completed	INTEGER	DEFAULT 0 CHECK(IN 0,1)	Completion status (0=false, 1=true)
completed_date	DATE	-	Date goal was completed
created_at	DATETIME	DEFAULT CURRENT_TIMESTAMP	Goal creation timestamp

Relationships:

- Many goals belong to one user (MANY-TO-ONE with users table)
- FOREIGN KEY (user_id) REFERENCES users(user_id) ON DELETE CASCADE

(If user is deleted, their goals are automatically deleted)

Sample Data:

goal_id	user_id	goal_name	target_value	current_progress	deadline	is_completed
1	1	1000 Push-ups	1000	1000	2025-11-15	1
2	1	500 Squats	500	350	2025-12-01	0
3	1	100 Pull-ups	100	45	2025-11-30	0

RELATIONSHIPS BETWEEN TABLES

Relationship Type: ONE-TO-MANY (Multiple relationships)

- One user (parent) can have many workouts (children)
- One user (parent) can have many goals (children)
- Each workout belongs to exactly one user
- Each goal belongs to exactly one user

Join Conditions:

- users.user_id = logged_workouts.user_id
- users.user_id = goals.user_id

Referential Integrity:

- Foreign key constraint ensures every workout has a valid user_id
- ON DELETE CASCADE: When user is deleted, all their workouts are deleted
- This maintains data integrity and prevents orphaned records

DATA VALIDATION RULES

USERS TABLE:

- username: Must be unique across all users
- email: Must be unique and valid email format (validated in application)
- password: Minimum 6 characters, hashed before storage (validated in application)
- streak: Cannot be negative (enforced by application logic)

LOGGED_WORKOUTS TABLE:

- sets: Must be greater than 0 (CHECK constraint)
- reps: Must be greater than 0 (CHECK constraint)
- weight: Must be non-negative, allows decimals for precision
- difficulty: Must be one of: 'easy', 'moderate', 'hard', 'extreme'
- user_id: Must reference existing user in users table (FOREIGN KEY)

GOALS TABLE:

- target_value: Must be greater than 0 (CHECK constraint)
- current_progress: Must be non-negative (CHECK constraint)
- is_completed: Must be 0 or 1 (CHECK constraint, acts as boolean)
- user_id: Must reference existing user in users table (FOREIGN KEY)