

Project Documentation: Gamified Habit Tracker App

Project Overview

Project Name: HabitQuest

Objective: Help users build and maintain positive habits using gamification techniques such as experience points (XP), badges, levels, streaks, and social challenges.

Target Users:

- Individuals looking to improve daily routines
 - Students, professionals, and wellness seekers
 - Productivity and self-improvement communities
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Functional Features

Core Habit Features

- Create and customize habits (name, frequency, reminders)
- Daily habit check-in
- Habit calendar and streak view
- Progress tracker per habit

Gamification Features

- XP (Experience Points) for completing habits
- Level system based on total XP
- Streak rewards (bonus XP, badges)
- Achievements/badges (e.g., “10 Days Streak”)
- Daily & weekly challenges
- Avatar and theme unlocks

Social & Community (Optional for MVP)

- Compete with friends on leaderboards
- Share achievements
- Join group challenges

Gamification Logic (Example)

| Action | Reward |
|----------------------|------------------|
| Daily habit check-in | +10 XP |
| 7-day streak | +100 XP + badge |
| Completing challenge | +250 XP |
| Level up | New avatar/theme |

Architecture Overview

Frontend:

- **Mobile App:** Flutter / React Native (recommended)
- **Web App** (optional): React.js / Next.js

Backend:

- **Language:** Node.js (Express) or Python (FastAPI)
- **Database:** PostgreSQL or MongoDB
- **Notifications:** Firebase Cloud Messaging / OneSignal

Hosting:

- **Frontend:** Expo Go, Firebase Hosting, or Vercel
 - **Backend:** Render, AWS, or Railway
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Project Structure

habit-quest/

```
├── backend/  
│   ├── models/  
│   ├── routes/  
│   ├── controllers/  
│   └── app.js  
├── mobile-app/  
│   ├── screens/  
│   ├── components/  
│   ├── services/  
│   └── App.js  
├── database/  
│   └── schema.sql / migrations/  
├── assets/  
│   └── avatars/, icons/, badges/  
└── README.md
```

Database Schema (Simplified)

Tables:

- Users: id, name, email, password, level, total_xp
- Habits: id, user_id, name, description, frequency, is_active
- HabitLogs: id, habit_id, date_completed
- Badges: id, name, description, icon
- UserBadges: id, user_id, badge_id, awarded_at
- Challenges: id, name, description, start_date, end_date
- UserChallenges: id, user_id, challenge_id, progress

API Endpoints (Sample)

| Method | Endpoint | Description |
|--------|--------------------------|------------------------|
| POST | /api/auth/signup | User registration |
| POST | /api/habits | Create new habit |
| GET | /api/habits | List user habits |
| POST | /api/habits/:id/check-in | Log habit completion |
| GET | /api/user/xp | Get XP, level, streaks |
| GET | /api/user/badges | Get unlocked badges |
| POST | /api/challenges/join | Join a new challenge |

Authentication

- JWT-based auth system
- OAuth (Google or Apple) for easier login
- Secure API token validation

Development Timeline (10 Weeks MVP)

| Phase | Timeline |
|---------------------------|----------|
| Requirement Planning | Week 1 |
| UI/UX Design | Week 2–3 |
| Backend Development | Week 3–5 |
| Mobile Frontend | Week 4–7 |
| Gamification Engine | Week 6–7 |
| Notifications & Reminders | Week 7–8 |
| Testing & Bug Fixes | Week 9 |

| Phase | Timeline |
|-------|----------|
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|------------|---------|
| Deployment | Week 10 |
|------------|---------|

UI/UX Ideas

Screens:

1. **Dashboard** – Today's habits, XP, streaks
2. **Habit Tracker** – List, create/edit, calendar view
3. **Progress** – XP progress, streaks, achievements
4. **Challenges** – Join public or friends' challenges
5. **Profile** – Avatar, level, settings

Design Tools:

- Figma, Adobe XD, or FlutterFlow for quick prototyping
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Testing Strategy

- **Unit Tests:** Backend habit logic, XP, level-up
 - **Integration Tests:** Habit check-in flows
 - **UI Testing:** With Detox (React Native) or Flutter test
 - **Manual QA:** Notifications, reminders, offline mode
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Tech Stack Summary

| Layer | Tech |
|-------|------|
|-------|------|

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|------------|------------------------|
| Mobile App | Flutter / React Native |
|------------|------------------------|

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|-------------|-----------------------------|
| Backend API | Node.js (Express) / FastAPI |
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| Database | PostgreSQL / MongoDB |
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| Notifications | Firebase / OneSignal |
|---------------|----------------------|

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|------|-------------|
| Auth | JWT / OAuth |
|------|-------------|

| Layer | Tech |
|-----------|-----------------------------|
| Hosting | Render / Railway / Firebase |
| Dev Tools | GitHub, Figma, Postman |

Future Enhancements

- Daily habit scoring (difficulty levels)
- AI habit suggestions based on goals
- Pomodoro timer integration
- Wearable or smartwatch support
- Offline sync capability