

BirthdayGen Functional Requirements Document (FRD)

1. Introduction

Project Overview. BirthdayGen is a celebration-automation platform that helps individuals and businesses remember and celebrate special moments. It blends AI personalization, fun design experiences and automation to ensure no birthday is forgotten. The mission is to **empower users to automate joy** so they can focus on celebrating rather than organizing. The target audience includes tech-savvy Gen-Z and Millennials, parents and remote workers, along with B2B customers such as HR and culture teams who need to streamline employee celebrations.

Scope. This FRD describes the functional requirements for the Minimum Viable Product (MVP) and outlines the foundations for future-state enhancements. It specifies what the system must do but not how it will be implemented.

2. Functional Requirements

2.1 User Management

- **Registration & Login.** Support email/password sign-up and login via Supabase Authentication. Store users with UUID primary keys and provide secure session management.
- **Password Reset.** Allow users to request a password reset link.
- **Profile Management.** Provide UI and API for users to update name, email, password and preferences (e.g., aura type).
- **Account Deletion & Data Export.** Users can delete their account and download their data.

2.2 Contact & Celebration Management

- **Contact CRUD.** Users can add, edit and delete contacts, storing name, birthday, relationship, email, phone, notes and aura type.
- **Contact Import.** Provide CSV upload and a Google People API import (OAuth configuration to be completed).
- **Event & Holiday Data.** Track birthdays, major public holidays and user-defined events.
- **Calendar Sync (Future).** Offer optional synchronization with external calendars like Google/Apple.

2.3 Card Studio & Personalization

- **Template Selection.** Present a library of pre-built templates (cosmic, elegant, minimal, playful etc.) with a search/filter UI.
- **Customization.** Allow users to edit the message, change background color, choose fonts, add emojis or stickers and sign the card.

- **AI Image Generation.** Integrate AI (DALL-E or local automatic111) to produce unique card artwork and digital stickers with fallbacks to placeholder images.
- **Real-Time Preview.** Provide a WYSIWYG preview that updates live as users edit.
- **Remix Feature.** Offer one-click generation of alternative art or message suggestions.
- **Card Management.** Let users save drafts, schedule cards, and view sent and scheduled cards.

2.4 Aura Quiz & Gift Recommendations

- **Aura Quiz.** A 3–5-step whimsical quiz assigns the user’s or a contact’s aura (fire, water, earth, air, cosmic) and stores the result for personalization.
- **Aura Assignment.** Users can manually assign aura types to contacts for personalization.
- **Gift Recommendations.** Suggest static gift ideas based on aura type; in the future integrate dynamic AI recommendations and partner shops.

2.5 Automation & Delivery

- **Automation Engine.** Users define celebration tiers (message only, card or card + gift) and associate them with contacts/groups for auto-sending.
- **Scheduled Delivery.** Users can schedule a card/message/gift to be sent on a specific date/time.
- **Notifications.** Provide email reminders and in-app notifications for upcoming birthdays and for scheduled/sent cards.
- **Multi-Channel Support.** Initially send via email; future channels include SMS, social media, Slack/Teams and physical mail.

2.6 Gamification & Engagement

- **Mini-Game Arcade.** Offer simple games (Emoji Match, Memory, Dad Trivia, Catch Ball) to entertain users and recipients.
- **Streaks & Rewards.** Introduce a streak system and rewards to encourage regular engagement.
- **Daily Feed.** Provide daily content such as astrology readings, gift suggestions and holiday awareness.

2.7 UI/UX & Branding

- **Aesthetics.** Employ a vibrant, magical palette with gradients, confetti and playful animations.
- **Mobile-First Design.** Ensure all components are responsive and accessible on mobile, tablet and desktop.
- **Micro-Interactions.** Incorporate interactive animations, loading states and toasts for feedback.
- **Accessibility.** Adhere to WCAG-AA contrast standards and support keyboard navigation and screen readers.

2.8 Business & Monetization

- **Freemium/Premium Tiers.** Offer core features for free and unlock exclusive templates, advanced AI options and concierge services for premium subscribers.
- **E-Commerce.** Enable physical and digital product sales (e.g., birthday kits, printable cards).
- **Affiliate Revenue.** Integrate with partners (Amazon, Etsy) to earn commissions on suggested gifts.
- **Licensing & White-Label API.** Provide API/SDK for businesses or influencers to integrate birthday automation.

- **Subscription Gate.** Implement subscription gating for premium features and a one-time purchase for full arcade access.

2.9 B2B & Enterprise Features (Future)

- **Enterprise Card Studio.** Provide professional-grade card creation with real-time collaboration, advanced canvas engine, AI design assistant and brand consistency tools.
- **Relationship Management CRM.** Offer an AI-powered CRM with contact enrichment, relationship mapping, event calendar and sentiment analysis.
- **Omni-Channel Delivery Platform.** Expand delivery to email, SMS, social media, physical mail and digital displays.
- **AI Agent Orchestration Platform.** Deploy multiple AI agents (Creative Director, Content Writer, Image Artist, Relationship Analyst, Delivery Coordinator, Quality Controller) to produce personalized content at scale.
- **Autonomous Birthday Intelligence.** Long-term goal to fully automate celebrations based on relationship intelligence, preference learning and timing optimization.

3. Non-Functional Requirements

- **Performance.** Card design should update in under 200 ms; AI image generation should complete within 30 s; template cards should be generated in less than 2 s.
- **Reliability.** Achieve $\geq 99\%$ uptime for core features with automated monitoring and fallbacks for AI services; daily scheduled jobs must run reliably.
- **Scalability.** Support growth to millions of users by leveraging Supabase's serverless infrastructure and horizontal scaling.
- **Security.** Enforce row-level security (RLS) for all user data; encrypt sensitive data; restrict API keys and tokens. Only the resource owner can access their contacts and cards.
- **Compliance.** Provide GDPR/CCPA compliance with data export and deletion, maintain audit logs, and support privacy-first AI options.

4. Use-Case Scenarios

4.1 Individual User Journey

1. **Sign up and Onboard.** The user registers with email/password, completes the aura quiz and imports contacts (CSV or Google). They select card templates for sample cards and toggle automation.
2. **Create & Send Card.** The user chooses a contact, enters a personalized message, optionally generates AI artwork, previews the card in real time and saves/sends it via email.
3. **Schedule & Automate.** The user schedules future cards or enables auto-send; the automation engine sends cards on the event date and notifies the user.
4. **Engage & Play.** The user visits the arcade to play mini-games, earning streaks and unlocking rewards.

4.2 B2B Customer Journey (Future)

1. **Organization Setup.** An HR manager signs up, creates an organization, invites team members and configures branding and templates for employee cards.

2. **Employee Import.** The manager imports employees via CSV or HRIS integration and sets default celebration tiers and channels.
3. **Automated Celebrations.** The multi-agent system generates personalized cards and messages for each employee and delivers them via email, Slack or physical mail with analytics on engagement.
4. **Relationship Insights.** Managers view dashboards showing relationship health metrics, pending events and suggestions for employee appreciation.

5. Future Enhancements

- **Multi-Agent Creative AI.** Implement autonomous agents to handle personalization tasks, ensuring 90 %+ approval rate without manual edits.
- **Predictive Relationship Intelligence.** Use ML models to predict relationship milestones and recommend actions.
- **Marketplace & Template Ecosystem.** Introduce a community marketplace for card templates and gift recommendations.
- **Privacy-First AI.** Offer local processing and federated learning options to maintain privacy.

6. Assumptions & Constraints

- Supabase is used for authentication, database, storage and edge functions; there is no traditional server backend.
 - AI services (OpenAI, DALL-E, local SDXL) require API keys and may incur costs; fallback images must be provided if AI fails.
 - Google Contacts import depends on GCP OAuth configuration by the user; the system provides UI but the user must supply credentials.
 - Advanced CRM, agent orchestration and omnichannel delivery are planned but not part of the MVP.
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