Lab 1: BabyBites

Dan Ledwith

CS 411

Professor Thomas J. Kennedy

6 October 2025

Version 1

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1 Introduction

The transition from liquids to solid foods is a crucial developmental milestone and if often accompanied by tremendous joy and achievement – and nearly just as much stress. Parents need a simple and easy way to keep track of their child's progress, monitor nutritional goals, and receive expert guidance. BabyBites offers a mobile-friendly interface that empowers parents to make decisions, track progress, and focus on the joy rather than the stress.

1.1 Societal Problem

Transitioning an infant from milk to solid foods – and later to more complex toddler meals – is an important yet challenging stage for parents and caregivers. Most children begin this process around six months, starting with purées and gradually progressing to more textured solids. During this time, it can be difficult to determine which foods are appropriate at each stage, how to prepare them safely, and when to introduce utensils. A healthy and successful transition not only ensures balanced, age-appropriate nutrition but also supports the development of essential eating skills and fosters independence.

1.2 Solution

BabyBites is a mobile-first web application designed to simplify and safeguard the feeding journey for parent and child. From the first sip to mastering utensils, BabyBites minimizes stress while promoting balanced, age-appropriate nutrition and healthy eating habits. Key features include a personalized profile for each child, a food tracker, a comprehensive food database, daily reports, and alert notifications.

Complete with expert-backed resources, BabyBites also offers meal-preparation tips, developmental milestone achievements, and safety notifications – empowering parents and caregivers to nurture their child's healthy development with confidence and peace of mind.

2 Product Description

BabyBites is a mobile-first web application designed to aid parents and caregivers through their child's feeding journey. Offering a lightweight, mobile-first, and ad-free interface supported by a robust nutritional database complete with daily reports, BabyBites puts peace of mind in your pocket. Perfect for every parent, BabyBites is designed to grow with your family, whether you have multiple young children, or you are ready to move on to utensil use.

2.1 Key Product Features and Capabilities

Features	BabyBites	Baby Tracker	Huckleberry	Solid Starts	Glow Baby	Baby Connect
Create Baby Profile	✓	✓	✓	✓	✓	✓
Track Food Intake	✓	✓	✓	✓	✓	✓
Food Database	✓	✗	✓	✓	✓	✗
Food Nutrition Information	✓	✗	✗	✓	✗	✗
Utensil Usage Guide	✓	✗	✗	✓	✗	✗
Meal Preparation Guide	✓	✗	✗	✓	✗	✗
Expert Resources	✓	✗	✓	✓	✓	✗
No Ads	✓	✗	✓	✓	✗	✓
Mobile Website	✓	✗	✗	✗	✗	✓
No paywall	✓	✗	✗	✗	✗	✗
Choking Hazards	✓	✗	✗	✓	✗	✗
Allergen Information	✓	✗	✗	✓	✗	✗
Daily Reports	✓	✗	✗	✗	✗	✗
Alert Notifications	✓	✓	✓	✓	✓	✓

Figure 1: Competition Matrix

2.2 Major Components (Hardware/Software)

BabyBites is a mobile-first web application powered by a Django backend, fed by a PostgreSQL database, enriched by the USDA's FoodCentral API, with a front end supported by HMTL, CSS, and JavaScript. This architecture follows industry standards for security, compatibility, performance, and overall user experience.

2.2.1.1 Hardware

BabyBites is a cloud-hosted application, designed to run on a server. The front end user interface is accessible via a URL in a modern web browser, desktop and mobile alike. BabyBites is therefore designed to be accessible by any modern smart phone, tablet, or PC.

2.2.1.2 Software

BabyBites delivers a modern, mobile web app designed with industry standard architecture.

- Front End: HTML, CSS, JavaScript
- Back End: Django (Python) framework.
- Database: PostgreSQL
- External API: USDA FoodCentral API

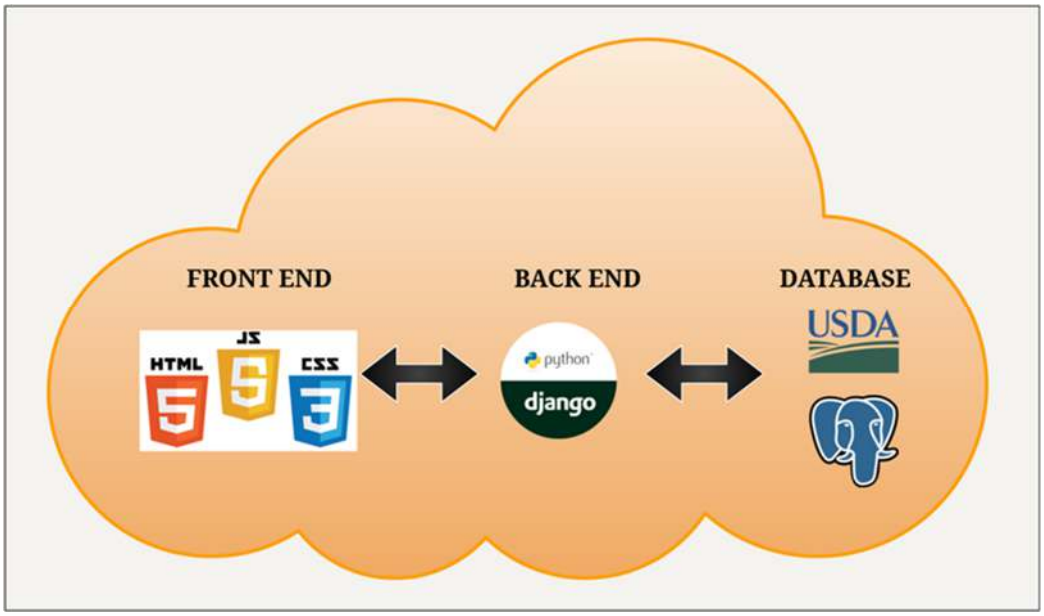

Figure 2: Functional Components Diagram

3 Identification of Case Study

BabyBites is designed for a very specific set of users who face a unique set of challenges at a particularly important — and often stressful — stage of a child's life. By focusing on a clearly defined audience, BabyBites ensures that its features directly address its user's daily challenges rather than merely offering generic solutions. The following case study highlights how BabyBites is designed with those specific needs in mind.

3.1 Case Study Group

The primary case study group for BabyBites is parents and caregivers of young children who are beginning the transition from milk to solid foods. This group often experiences a significant degree of stress and uncertainty because their decisions may carry lifelong implications for their child's nutrition, developmental progress, and overall happiness. This group has to make decisions about which foods are safe for their child to try, when it is time to introduce a new food, and when to encourage independent eating habits, among other concerns. For many parents, they must spend much of their limited time gathering resources online to inform these critical decisions and keep track of their progress somewhere else.

3.2 What It Will Be Used For

BabyBites will serve these parents and caregivers every day as they track their child's daily nutritional intake, monitor progress toward milestones, introduce new foods, document reactions and allergies, and seek expert-backed guidance. Because BabyBites is enriched with the USDA's FoodCentral database, parents will have access to log complete nutritional intake from anywhere with an internet connection. This information is stored and summarized into a daily report, so there's never a question about what their child ate or how much. For parents seeking inspiration, they will have access to expert-backed resources that can provide food preparation tips, or suggestions for new foods to try. BabyBites is designed to be a reliable and indispensable tool from nearly anywhere.

3.3 Future Use

While BabyBites is currently intended for parents and caregivers navigating the transition from milk to solid foods, its core feature set allows for expansion beyond that initial scope. For example, it would be feasible to allow parents to share reports or even direct access to their child's BabyBites profile with medical professionals or daycare facilities and preschools. This would be especially useful for parents of children with food allergies or specific nutritional needs. Built with a modern web application development stack, BabyBites can be continuously

updated and supported to adapt to the changing needs of its users. BabyBites is poised to solve the needs of parents and caregivers both now and into the future.

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4 Glossary

Baby Profile - A user-created profile to categorize their children within the application.

Daily Report - A summary of user milestones and pertinent information regarding their child (i.e. food consumption, milestones, allergies).

Dashboard - The home page of the user. It features shortcuts to relevant pages and displays daily reports.

Filter - A sorting function that will allow specific items to be displayed based on input.

Food Database - A comprehensive database that allows users to look up various food, view nutritional information and access preparation tips.

Food Tracker - A log the user can modify to maintain a history of foods given to the child.

FoodData Central API - USDA's database for food that will be used as a source of information for the BabyBite's food datatable.

IDE (Integrated Development Environment) - A software application, such as VSCode, that provides tools for writing, testing, and debugging code.

Notification - An alert that will notify the user of important information (i.e. allergies, choking hazards).

Search - BabyBites' food searching feature .

User - Any person who has created an account and utilizes the application.

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