



# BabyBites

Introducing Solids, One Bite at a Time



# Table of Contents

<u>Meet the Team</u> .....	3
<u>Elevator Pitch</u> .....	4
<u>The Problem</u> .....	5
<u>Problem Characteristics</u> .....	6
<u>Current Process Flow</u> .....	7
<u>The Solution</u> .....	8
<u>Solution Process Flow</u> .....	9
<u>What BabyBites Will Do</u> .....	10
<u>BabyBites Daily Report</u> .....	11
<u>What BabyBites Will Not Do</u> .....	12
<u>Competition Matrix</u> .....	13
<u>Development Tools</u> .....	14
<u>Major Functional Components</u> .....	15
<u>Major Functional Components Diagram</u> .....	16
<u>Risks</u> .....	17-18
<u>Conclusion</u> .....	19
<u>References</u> .....	20-21
<u>Appendix</u> .....	22

# Meet the Team

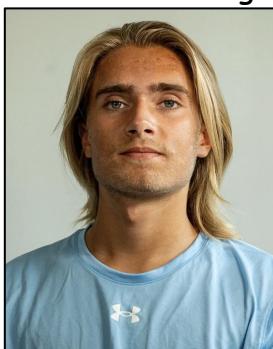


## Martin Salisbury



A second degree student pursuing his Masters in Computer Science. His previous degree is Electrical Engineering. He is a Navy Veteran and former Defense Contractor. His hobbies include traveling, hiking, cooking, and gaming.

## Diogo Silva



A third year student pursuing a bachelor's degree in Computer Science. He is a collegiate athlete, a member of Old Dominion University's sailing team. His hobbies include traveling, hiking, and sports.

## Cameron Williams



A senior undergraduate student pursuing a Bachelor's degree in Computer Science. He is a member of Old Dominion University, his hobbies include playing instruments and going to the gym.

## Dominique Willis



A senior undergraduate student pursuing a Bachelor's in Computer Science with a minor in Cybersecurity. She currently works as an Aviation Maintenance Administrationman. In her free time, she enjoys spending time with her family and dogs.

## Dan Ledwith



A second degree student pursuing a bachelor's degree in computer science. His previous degree is in economics, and he currently works as a financial analyst for a registered investment advisor. His hobbies include cooking and playing the guitar.

## Asia Acosta



A third year student pursuing her BA in Computer Science. She is a collegiate athlete; a member of Old Dominion University's sailing team. Her hobbies consist of traveling, photography, and sports.

# Elevator Pitch

Shouldn't feeding your child be simpler and less stressful? BabyBites is designed to help you navigate the transition from milk to solids and beyond. It removes the uncertainty from feeding with expert resources and alert notifications, ensuring your child's meals are safe and nutritious.



# The Problem

The process of transitioning a baby from milk to solid foods and eventually, to more complex meals appropriate for toddlers is a crucial, yet challenging, phase for many parents and caregivers.



Typically, babies begin this transition around six months, starting with pureed foods before gradually moving to more textured solids<sup>1</sup>. This can be overwhelming for parents and caregivers, as it can be difficult to know which foods are safe at various stages, how to prepare them, and when to introduce certain utensils.



This transition goes beyond simply feeding, it is about fostering safe, balanced nutrition while supporting babies and toddlers in developing essential eating skills and independence.

<sup>1</sup>(Kuo et al., 2010; *Infant Food and Feeding*, n.d.)

# Problem Characteristics



25-35% of new parents struggle in the feeding transition from milk to solids (Norlyk et al., 2019).

Babies/toddlers vary in response to different textures, appearance, smell, and taste of foods.

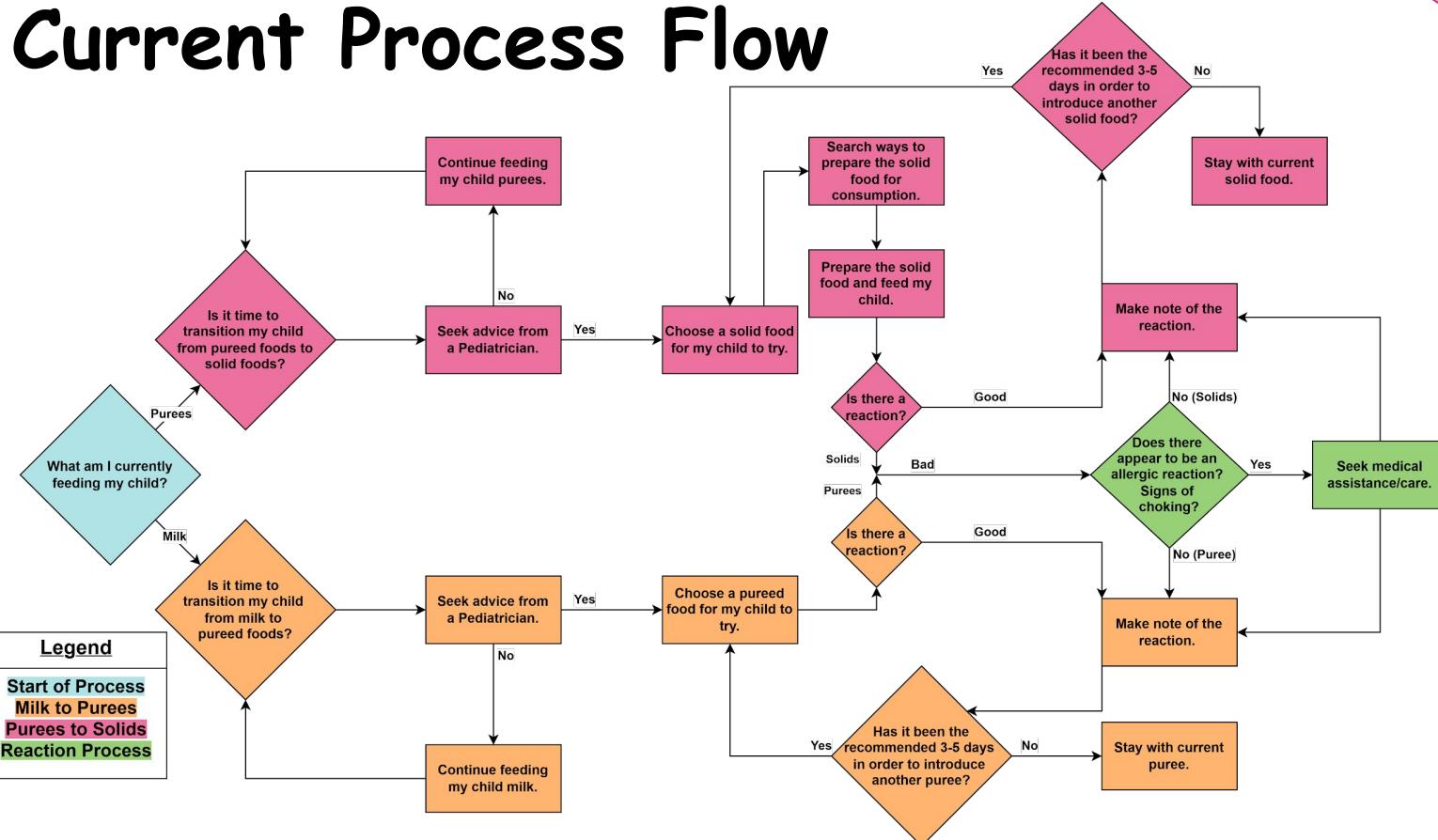
The balance of required nutrition and the babies/toddlers' acceptance of different foods pose many challenges.

It can be difficult to adapt a child's diet to accommodate food allergies.

According to the Centers for Disease Control and Prevention (CDC) (2024), food preparation can increase choking risks, especially when foods are served uncooked, whole, or in certain shapes or sizes.

According to the World Health Organization (WHO) (2023), undernutrition is estimated to be associated with 2.7 million child deaths annually or 45% of all child deaths.

# Current Process Flow



# The Solution



Introducing BabyBites, the ultimate mobile-first web application to simplify and safeguard your babies' and toddlers' feeding journey. From the first spoonful of purees to mastering utensils, BabyBites takes the stress out of transitioning from milk to solids and beyond. Designed to reduce overwhelm, the app ensures balanced nutrition and helps babies and toddlers develop healthy eating habits.

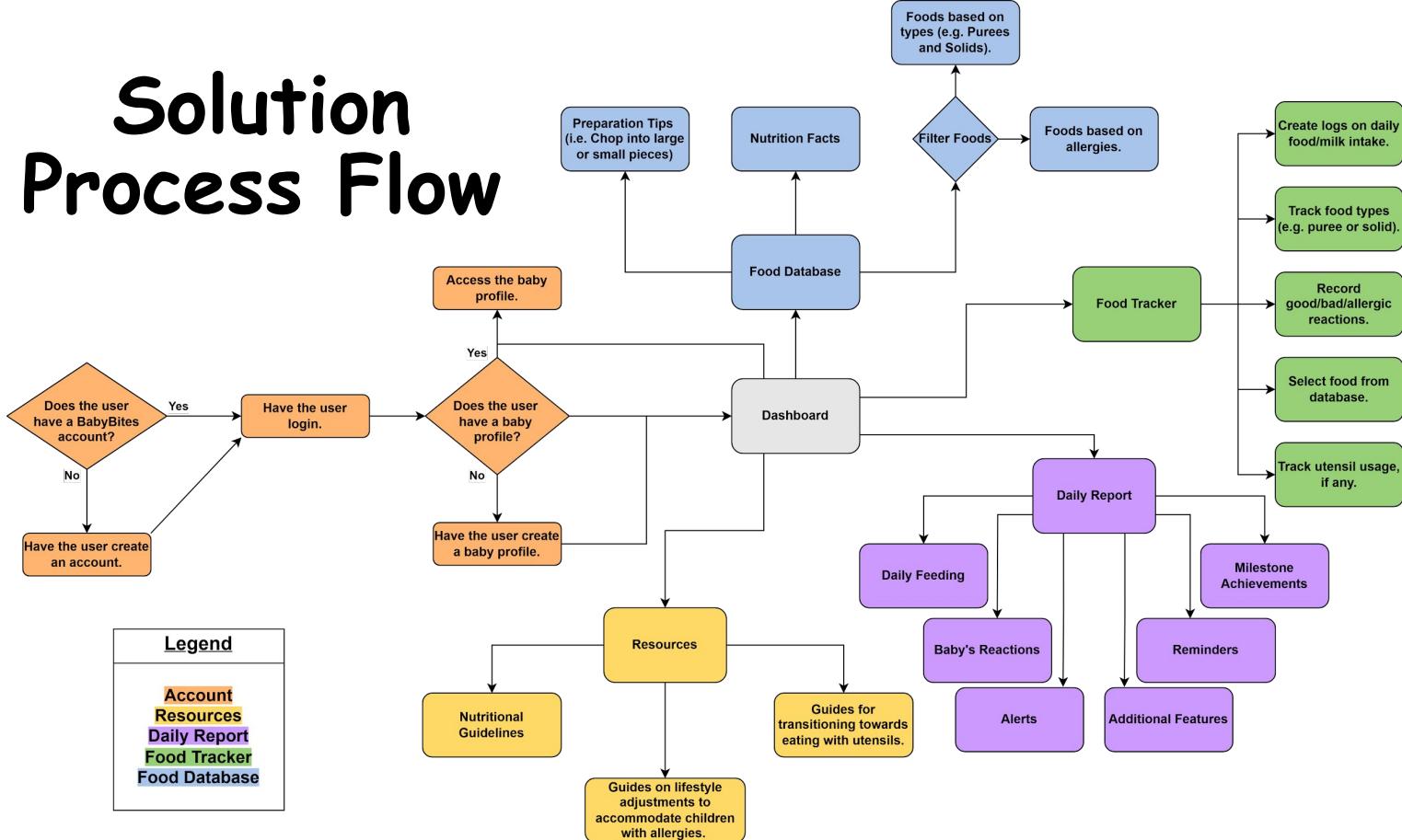
This challenging transition is made easier with BabyBites, complete with features such as: a personalized baby profile, a food tracker, a food database, daily reports, and alert notifications.

BabyBites provides parents and caregivers with expert-backed resources, meal preparation tips, alerts about allergies, choking hazards, and developmental milestones that will give parents and caregivers the peace of mind and the confidence to nurture their child's growth.





# Solution Process Flow



# What BabyBites Will Do



Guide Parents/Caregivers through Food Transitions



Provide Access to Expert Resources



Offer Food Database & Nutrition Information through FoodData Central API



Send Alert Notifications



Track Food/Milk Intake



Generate Daily Reports



Provide Food Preparation Guidance



# BabyBites Daily Report

## Daily Feeding

- Food intake:
  - Solids
  - Purees
- Liquid intake (oz):
  - Milk
  - Water
- Utensil usage
- Parent/Caregiver notes

## Baby's Reaction

- 😊 Liked
- 😞 Disliked
- ❤️ Loved
- 🚫 Allergic reactions
- 💡 Choking hazards

## Milestone Achievements

- 🍎 Tried a new food
- 🏆 Self-fed successfully
- ⌁ First time using a utensil

## Alerts

- Choking risk foods given today
- Allergy risk foods given today
- Nutrient Deficiency warning

## Reminders

- Offer water regularly
- Try a new puree/solid tomorrow
- Try introducing utensils tomorrow

## Additional Features

- Download report
- Share report
- Compare report to previous reports
- Optional photo upload

# What BabyBites Will Not Do



Prepare or Deliver Meals



Create Personalized Meal Plans



Provide Real-Time Emergency Support



Identify or Diagnose Medical Conditions



Track Non-Feeding Related Milestones



Provide Communication with Healthcare Providers

# Competition Matrix



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	✓	✗	✗	✗	✗	✓
Mobile App	✗	✓	✓	✓	✓	✓
No paywall	✓	✗	✗	✗	✗	✗
Choking Hazards	✓	✗	✗	✓	✗	✗
Allergen Information	✓	✗	✗	✓	✗	✗
Daily Reports	✓	✗	✗	✗	✗	✗
Alert Notifications	✓	✓	✓	✓	✓	✓

# Development Tools

- Integrated Development Environment (IDE): VSCode
- Version Control: Git through GitHub
- Continuous Integration (CI) and Continuous Deployment (CD): GitHub Actions & Workflows
- Selected Language (Backend): Python, Django
- Selected Language (Frontend): HTML, CSS, and JavaScript
- Testing Framework: PyTest for Python
- Documentation Tool: PyDoc for Python



# Major Functional Components

Frontend:

React.js

Backend:

Django

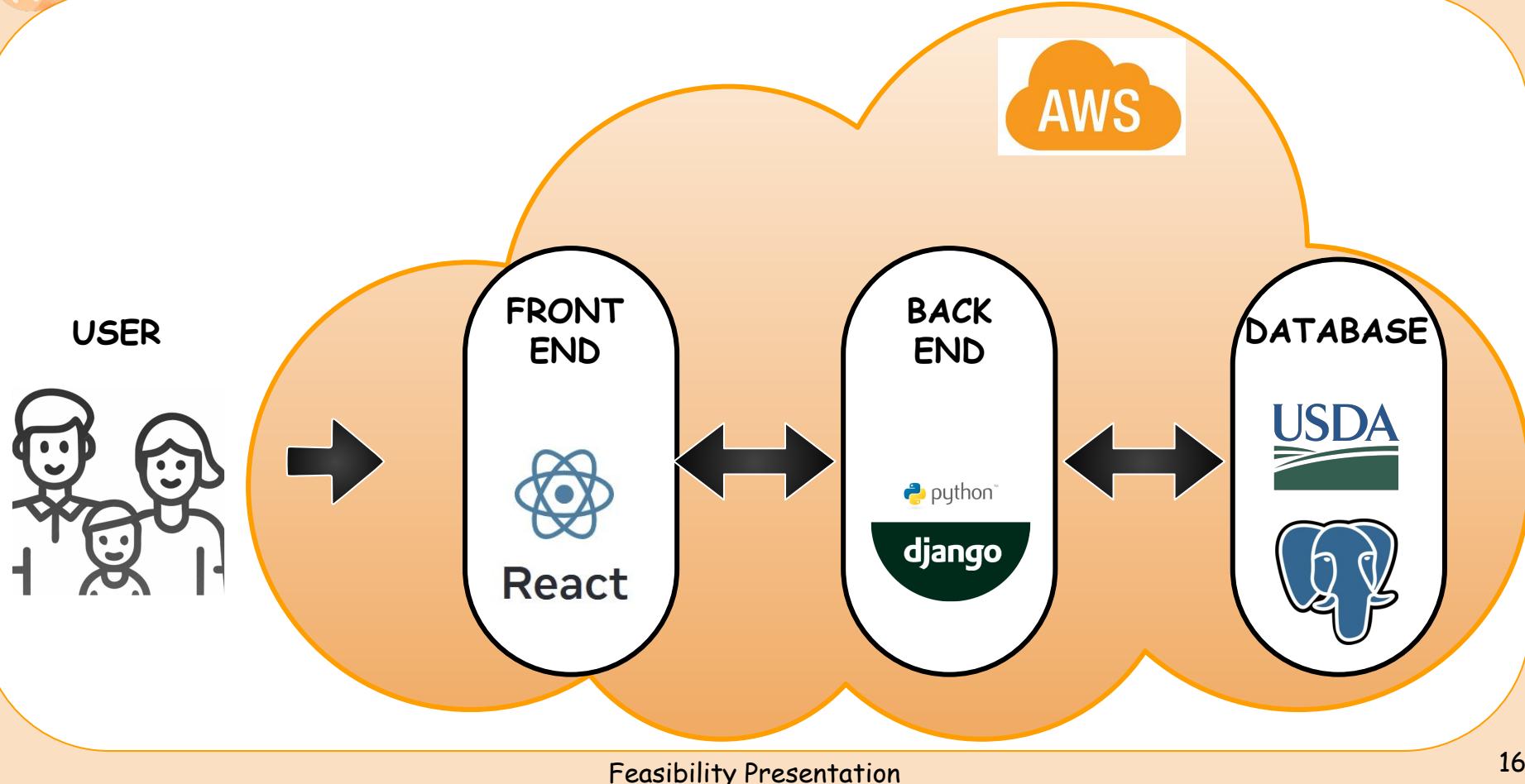
Database:

PostgreSQL

Hosting:

Amazon Web  
Services  
(AWS)

# Major Functional Components Diagram



# Risks



		Severity of Impact				
		Very Low 1	Low 2	Medium 3	High 4	Very High 5
Likelihood of Occurrence	Very High 5					
	High 4		S1			U1
	Medium 3	S1-M			U1-M	
	Low 2					U2
	Very Low 1			U2-M		

(Risk Management in Software Engineering 2022)

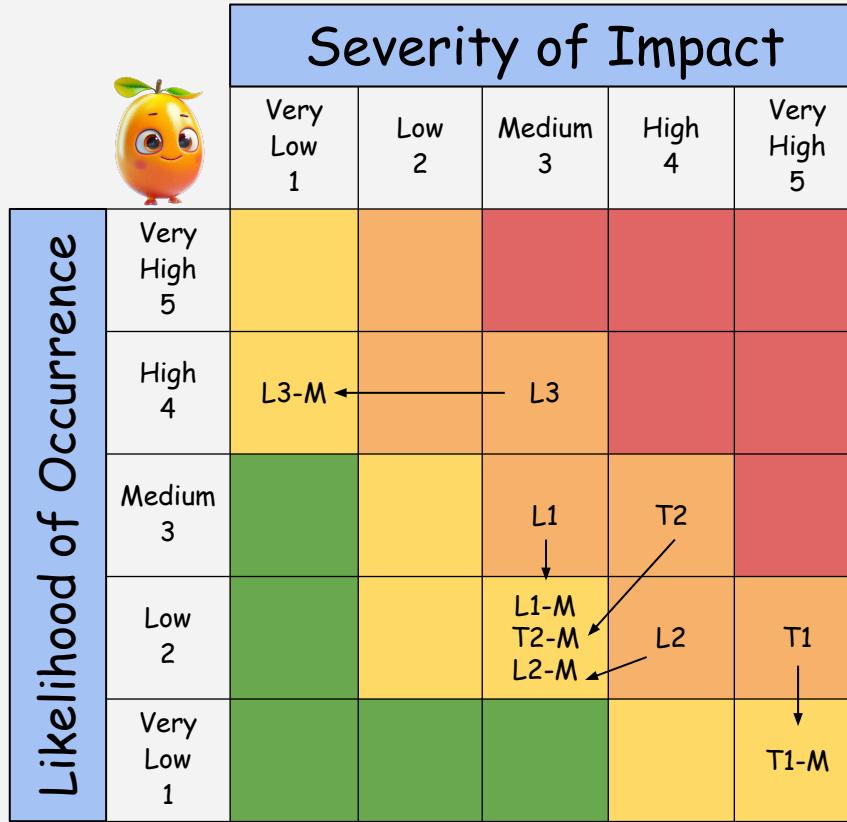
## User Risks:

- U1: User engagement may decline if UI is frustrating or difficult to navigate.
  - U1-M: Mitigate by gathering feedback from users during the testing phase. Incorporate feedback to improve design.
- U2: Long loading times can lead to a frustrating user experience.
  - U2-M: Mitigate with thorough system testing and continuous monitoring.

## Security Risks:

- S1: User Data consists of personally identifiable information ("PII") [which could be exposed through a breach].
  - S1-M: Mitigate by minimizing the amount of PII stored, and by implementing industry best practices for storing sensitive information. Implement strong user-authentication.

# Risks



(Risk Management in Software Engineering 2022)

## Technical Risks:

- **T1:** In the event the user base grows rapidly, the increase in traffic may cause server issues. Scalability may be an issue.
  - **T1-M:** Mitigate by using a scalable, cloud-based backend system.
- **T2:** Insufficient testing can produce bugs or unintended user experience.
  - **T2-M:** Mitigate with a test-driven development process, ensuring full test coverage, and user feedback.

## Legal Risks:

- **L1:** Failure to protect children's data may violate Children's Online Privacy Protection Act (COPPA).
  - **L1-M:** Mitigate by staying up to date with privacy regulations: COPPA, General Data Protection Regulation (GDPR), and California Consumer Protection Act (CCPA).
- **L2:** Non-compliance with data protection laws could result in legal penalties.
  - **L2-M:** Mitigate by only taking/using data that is necessary. Comply with GDPR and CCPA.
- **L3:** Being misidentified as a source of medical or health advice or provider of care.
  - **L3-M:** Mitigate by clearly stating the contrary in a notice separate of any other information.

# Conclusion

The process of transitioning a baby from milk to solid foods and eventually, to more complex meals appropriate for toddlers is a crucial, yet challenging, phase for many parents and caregivers.

This challenging transition is made easier with BabyBites, complete with features such as: a personalized baby profile, a food tracker, a food database, daily reports, and alert notifications.

BabyBites provides parents and caregivers with expert-backed resources, meal preparation tips, alerts about allergies, choking hazards, and developmental milestones that will give parents and caregivers the peace of mind and the confidence to nurture their child's growth.

Shouldn't feeding your child be simpler and less stressful?

# References

American Academy of Pediatrics. (n.d.). Infant Food and Feeding.

[https://www.aap.org/en/patient-care/healthy-active-living-for-families/infant-food-and-feeding/?srsltid=AfmBOooogF2B8Yv9QLX0-zkfUPiVyOd7sYSXx\\_IwdNwDXoQY8jWRW96I](https://www.aap.org/en/patient-care/healthy-active-living-for-families/infant-food-and-feeding/?srsltid=AfmBOooogF2B8Yv9QLX0-zkfUPiVyOd7sYSXx_IwdNwDXoQY8jWRW96I)

Centers for Disease Control and Prevention. (2024, October 10). Choking hazards. Infant and Toddler Nutrition.

<https://www.cdc.gov/infant-toddler-nutrition/foods-and-drinks/choking-hazards.html>

CleanPNG. (n.d.). Amazon Web Services (AWS) logo [Digital image]. Retrieved March 17, 2025, from

<https://www.cleanpng.com/png-amazon-com-logo-amazon-web-services-amazon-elastic-6077407/>

EPAM SolutionsHub. (2022, June 10). Risk Management in Software Engineering. <https://solutionshub.epam.com/blog/post/risk-management>

EvelynsPearls. (2025). Fruit Clipart Cute Fruit. [Digital art]. Etsy.

[https://www.etsy.com/listing/1690787694/fruit-clipart-cute-fruit-png-cute-food?ref=yr\\_purchases](https://www.etsy.com/listing/1690787694/fruit-clipart-cute-fruit-png-cute-food?ref=yr_purchases)

Federal Trade Commission. (2013, January 17). Children's Online Privacy Protection Rule (COPPA). <https://www.ftc.gov/system/files/2012-31341.pdf>

Freepik. (n.d.). Make family icon outline gradient [Digital image]. Retrieved March 17, 2025, from

[https://www.freepik.com/premium-vector/make-family-icon-outline-gradient\\_122127985.htm#from\\_element=detail\\_alsolike](https://www.freepik.com/premium-vector/make-family-icon-outline-gradient_122127985.htm#from_element=detail_alsolike)

Kuo, A. A., Inkelaar, M., Slusser, W. M., Maidenberg, M., & Halfon, N. (2010). Introduction of Solid Food to Young Infants.

*Maternal and Child Health Journal*, 15(8), 1185-1194. <https://doi.org/10.1007/s10995-010-0669-5>

LovelyLovelyScribble. (2025). Kawaii Cute Fruit. [Digital art]. Etsy.

[https://www.etsy.com/listing/1489955189/kawaii-cute-fruit-png-bundle?ref=yr\\_purchases](https://www.etsy.com/listing/1489955189/kawaii-cute-fruit-png-bundle?ref=yr_purchases)

Meta. (n.d.). React logo [Digital image]. Retrieved March 17, 2025, from <https://react.dev/>

National Institute of Standards and Technology (NIST). (n.d.). USDA logo [Digital image]. Retrieved March 17, 2025, from

<https://www.nist.gov/image/usda-logo>

# References

- Norlyk, A., Larsen, J. S., & Kronborg, H. (2019). Infants' transition from milk to solid foods - the lived experiences of first-time parents. *International Journal of Qualitative Studies on Health and Well-Being*, 14(1). <https://doi.org/10.1080/17482631.2019.1693483>
- OpenGIS. (n.d.). Django Python logo [Digital image]. Retrieved March 17, 2025, from <https://www.opengis.ch/django-python-logo-2/>
- PostgreSQL Global Development Group. (n.d.). PostgreSQL logo [Digital image]. Retrieved March 17, 2025, from <https://www.postgresql.org/>
- Refineddigitalbites. (2025). Baby fruits and vegetables. [Digital art]. Etsy. [https://www.etsy.com/listing/1704009895/baby-fruits-and-vegetables-22-jpg-images?ref=yr\\_purchases](https://www.etsy.com/listing/1704009895/baby-fruits-and-vegetables-22-jpg-images?ref=yr_purchases)
- World Health Organization. (2023, December 20). Infant and young child feeding. <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding>



# Appendix





# Thank You!