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EDUCATION
SOCIETY'S INSTITUTE
OF TECHNOLOGY

FLUTTER

News APP

Advisor

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Student

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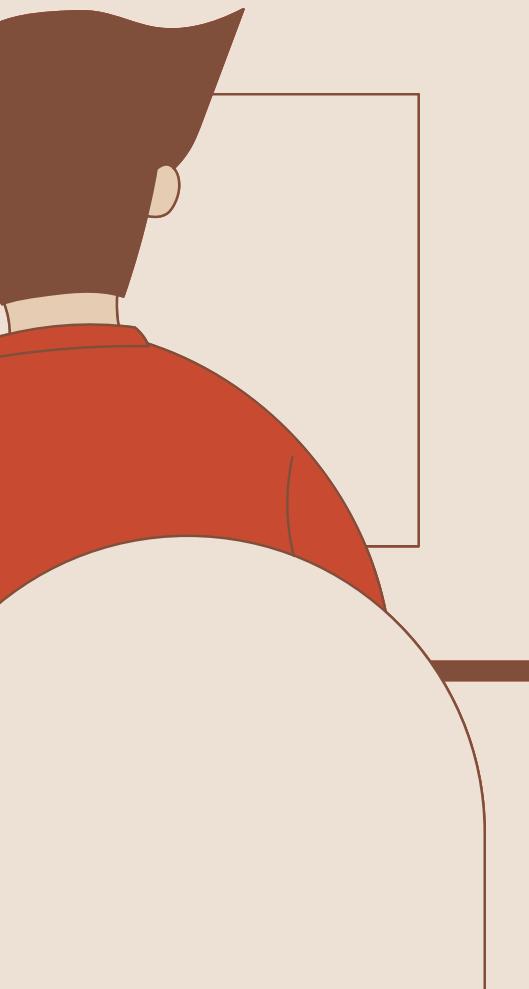
2024 April 5



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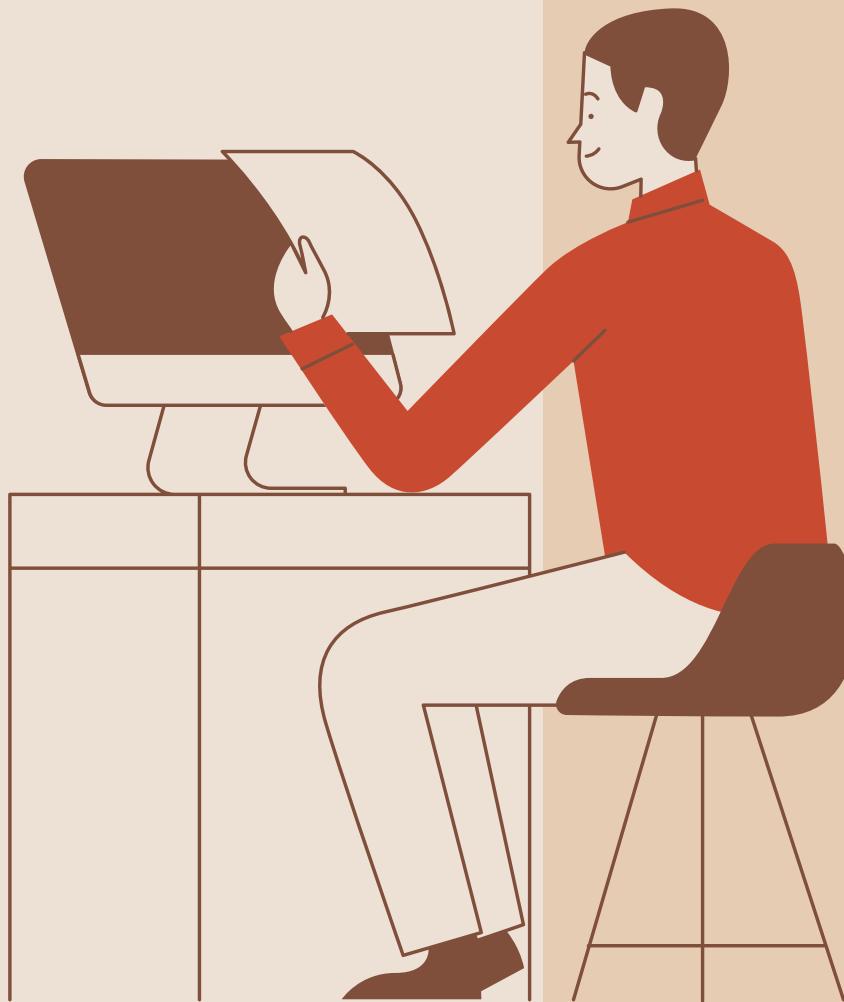
INTRODUCTION AND MOTIVATION



- In today's fast-paced world, staying updated with the latest news and trends is more crucial than ever.
- With information constantly flooding in from various sources, the need for a reliable and efficient news aggregator becomes apparent. This is where our revolutionary Trending News App steps in.
- Our app is designed to keep users up-to-date with the latest news across diverse categories, ensuring timely access to relevant information.
- Through personalized news feeds, users can tailor their experience to match their specific interests, enhancing engagement and satisfaction.

II OBJECTIVES

1. Provide Timely and Relevant News Updates: The app aims to deliver the latest news from various categories promptly, ensuring users stay informed about current events and trends.
2. Facilitate Efficient Information Retrieval and Management: The app seeks to offer efficient browsing, search, and article-saving functionalities, enabling users to easily find, access, and organize news articles according to their preferences.



III IMPLEMENTATION

a. LOGIN/REGISTRATION PAGE



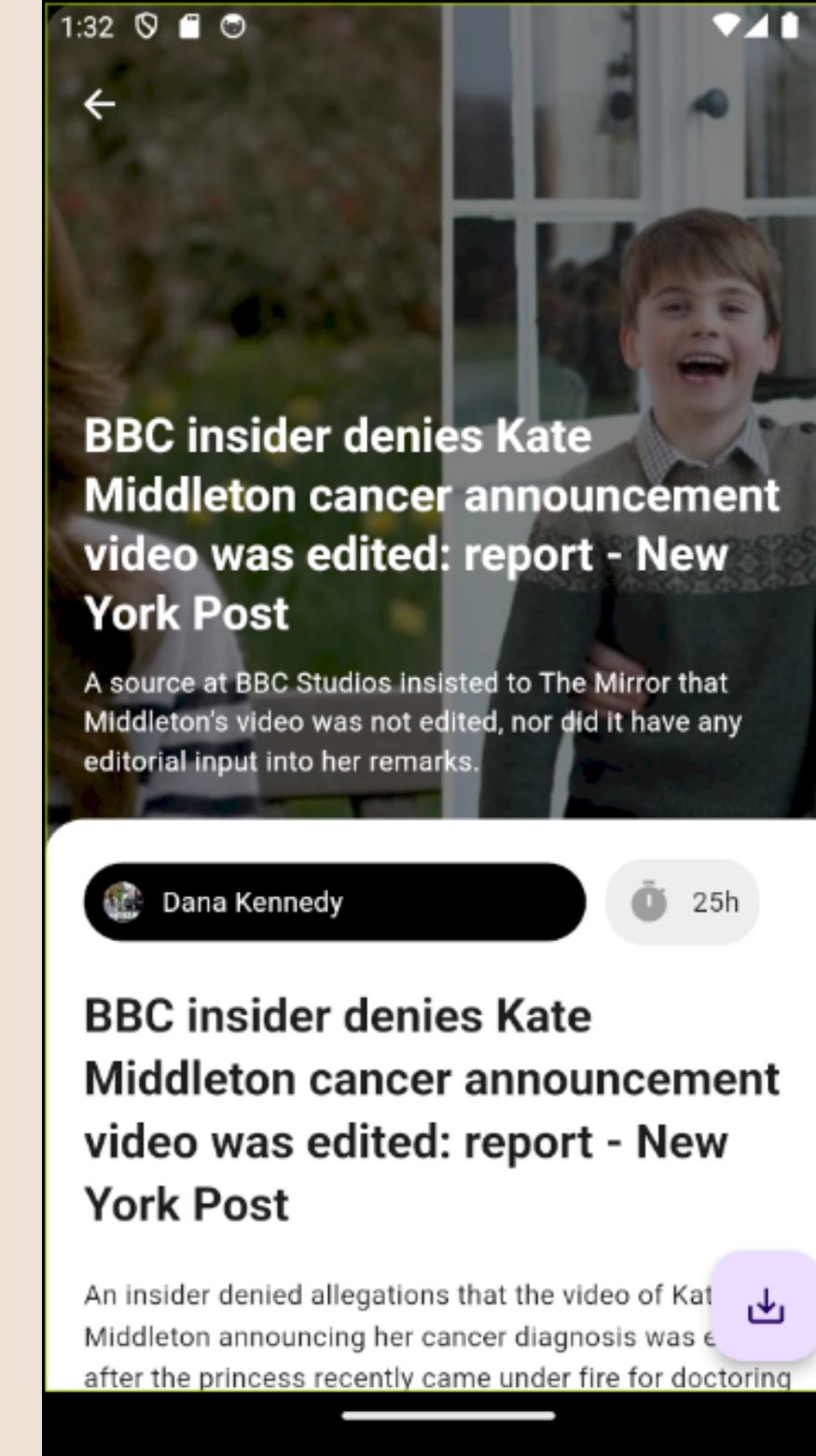
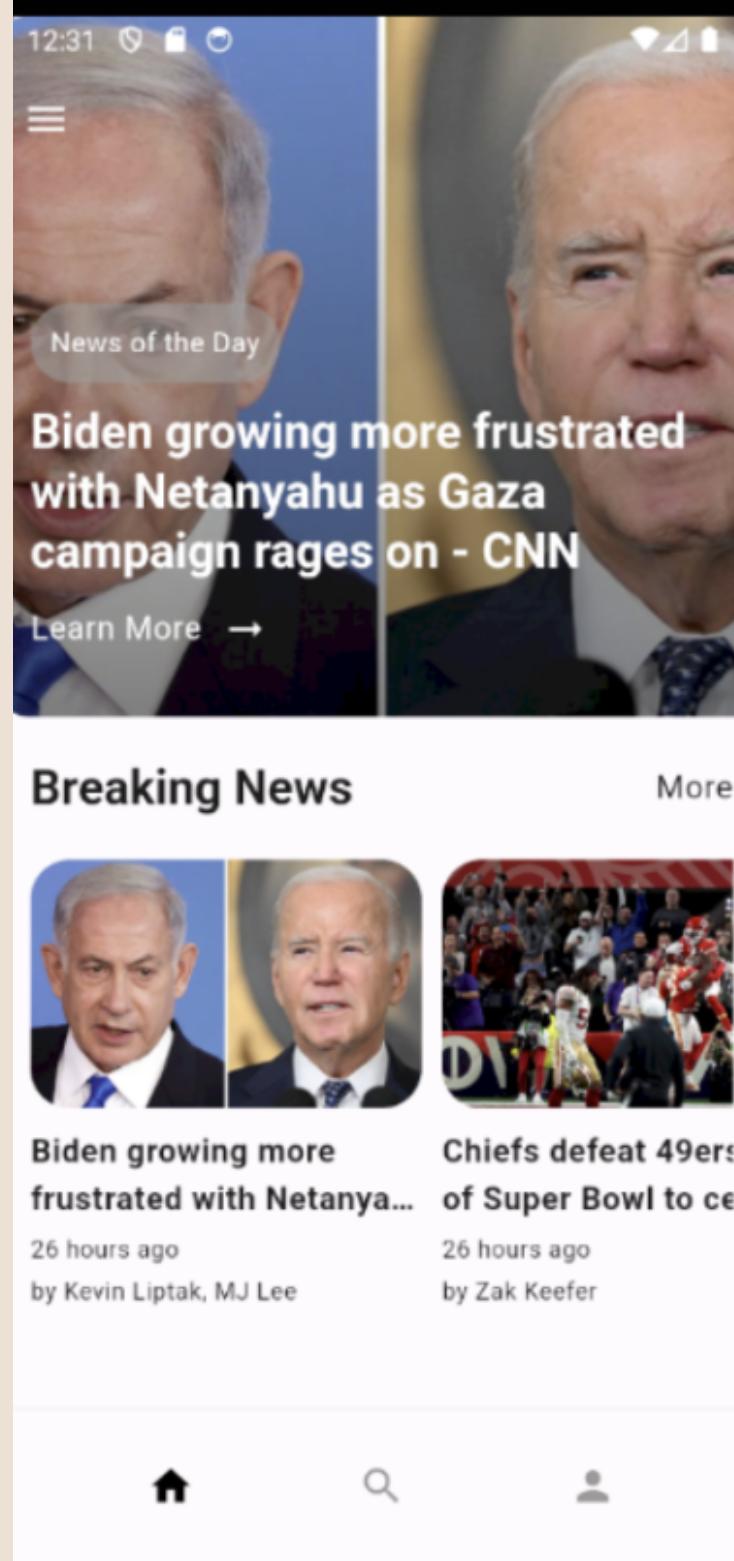
The image displays two screenshots of a mobile application's login/registration screen. Both screenshots feature a top header with a signal strength icon and a battery level indicator.

Left Screenshot: The title is "Welcome to News App". It includes a "Sign in to continue" message, a "Your Email" input field with a mail icon, a "Password" input field with a lock icon, and a large black "Sign In" button. Below these are "OR" and "Continue with Google" options, each with its respective icon. At the bottom are "Forgot Password?" and "Don't have a account? Register" links.

Right Screenshot: The title is "Let's Get Started". It includes a "Create a new account" message, a "Your Email" input field with a mail icon, a "Password" input field with a lock icon, and a large black "Sign Up" button. Below these are "OR" and "Continue with Google" options, each with its respective icon. At the bottom are "Forgot Password?", "Already have a account? Sign In", and a long black footer bar.

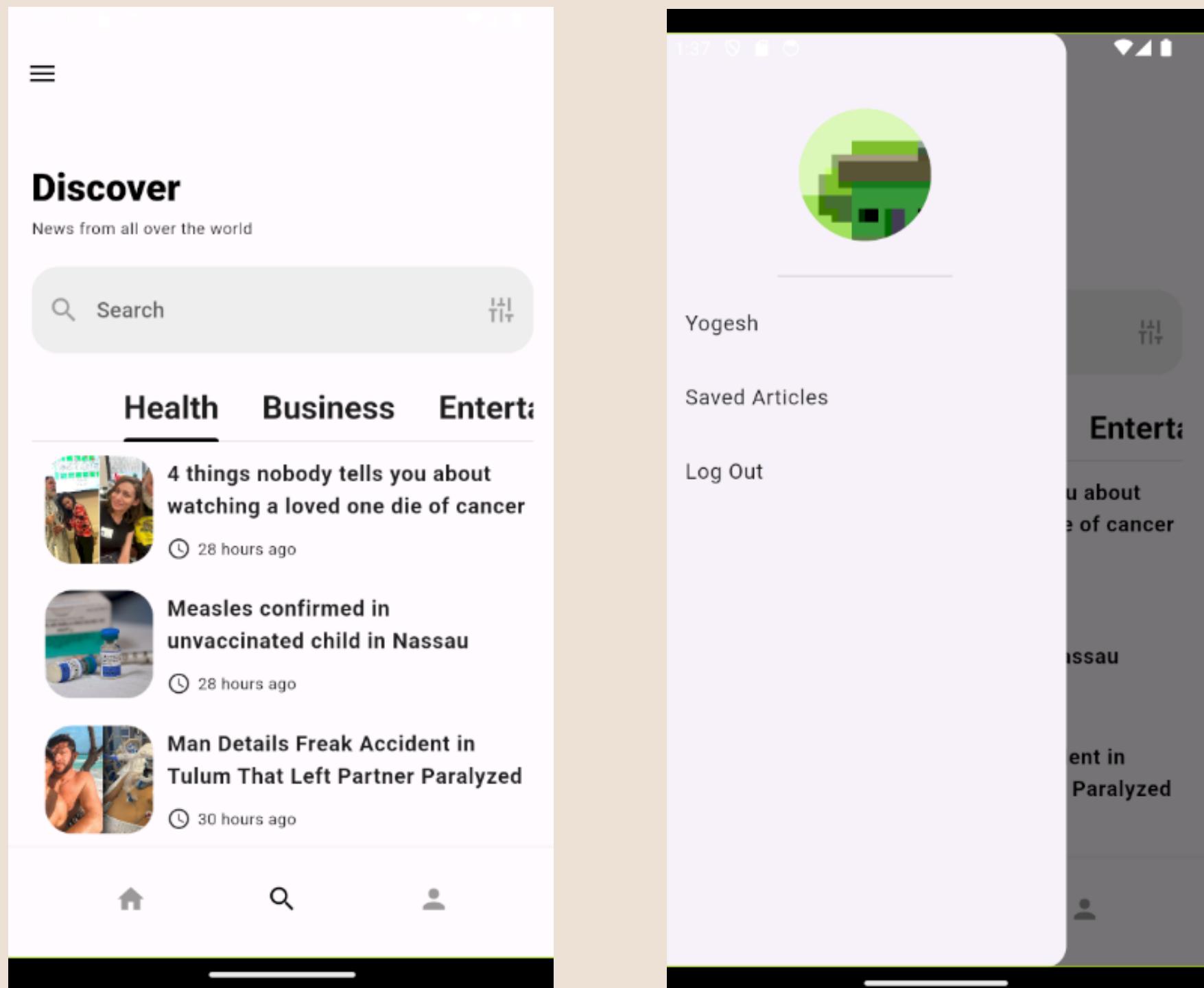
III IMPLEMENTATION

b. Dashboard



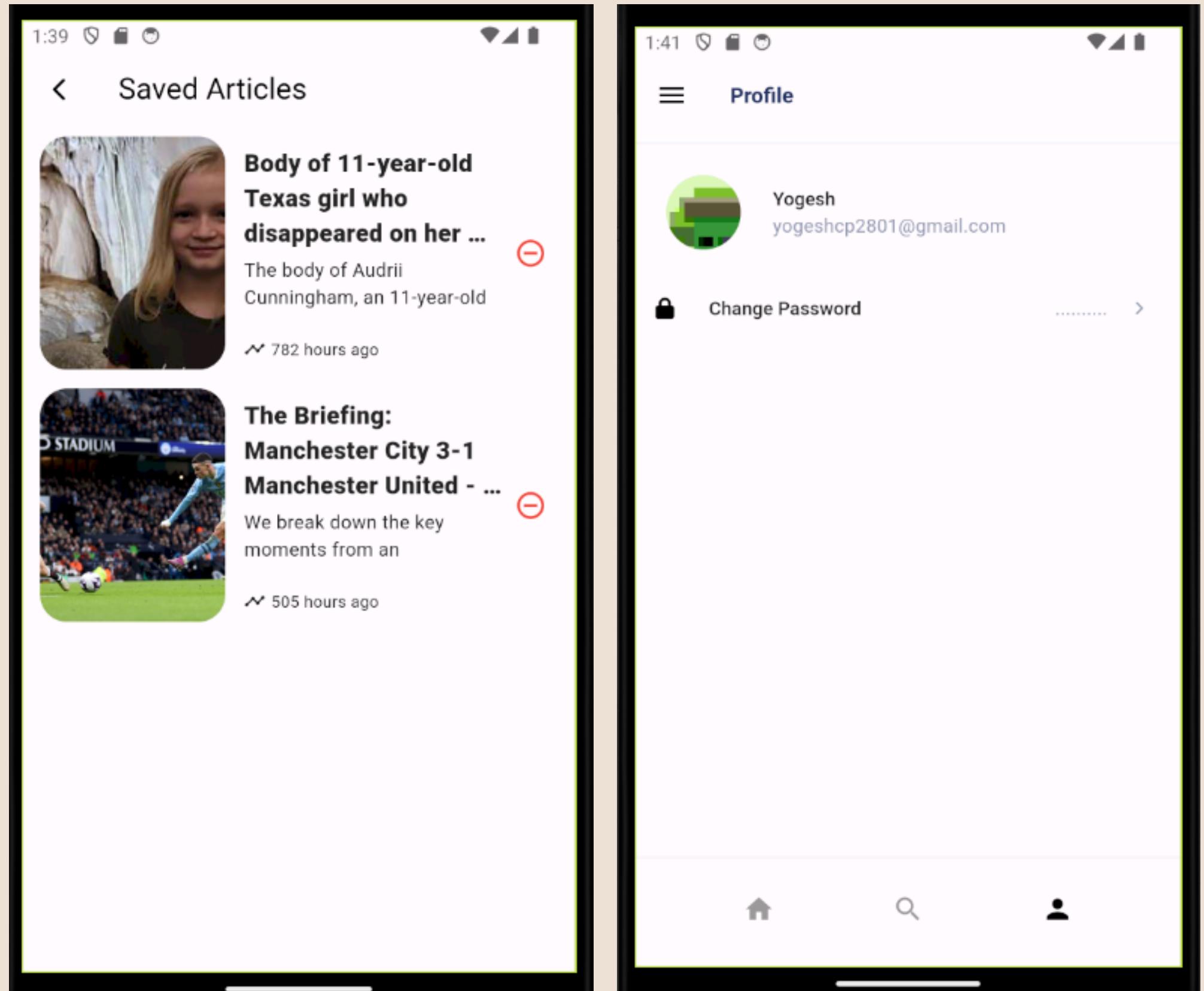
III IMPLEMENTATION

c. Categorisation and Dashboard



III IMPLEMENTATION

d. Profile and Saved Articles



IV FEASIBILITY ANALYSIS



- Market Demand: Assess user preferences, behaviors, and competitors to gauge demand. Identify niche markets to tailor the app for specific needs.
- Technical Feasibility: Evaluate scalability, third-party integrations, and device compatibility. Ensure the app can handle large user volumes without performance issues.
- Monetization Strategy: Explore advertising, subscriptions, or in-app purchases. Analyze market trends and user willingness to pay for premium features.

V RISK ANALYSIS



Data Privacy and Security: Protecting user data from breaches and ensuring compliance with privacy regulations to maintain user trust and prevent legal liabilities.

Content Accuracy and Credibility: Mitigating the risk of disseminating fake news or misinformation by vetting sources and implementing rigorous fact-checking processes.

Technical Stability and Reliability: Ensuring smooth operation and minimizing downtime through thorough testing, quality assurance, and robust backup measures.

VI LITERATURE SURVEY

TOPIC	Summary	AUTHOR
Flutter in Action	Learned how to design responsive UIs and manage state effectively, crucial for displaying news content dynamically in a Flutter news app.	Eric Windmill
The Pragmatic Programmer	invaluable techniques for managing complexity in code organization, debugging, and fostering effective teamwork, all of which are crucial for developing and maintaining a successful news app.	Andrew Hunt and David Thomas
Programming Flutter: Native, Cross-Platform Apps the Easy Way	Acquired insights into leveraging Flutter's native performance and cross-platform capabilities to build a sleek and efficient news app interface.	Carmine Zaccagnino
RESTful API Design: Best Practices in API Design with REST	learned essential principles for designing efficient and scalable APIs, enabling seamless integration of news data into our Flutter app while ensuring optimal performance and usability.	Matthias Biehl

VII CONCLUSION & DISCUSSIONS

- In conclusion, our News App offers a streamlined, personalized, and reliable solution for users to stay informed amidst information overload. With a focus on quality news, we aim to empower users to access timely and relevant news while fostering a sense of trust and engagement.

VIII REFERENCES



- Journals like ACM Digital Library, IEEE Xplore, and Google Scholar provide peer-reviewed journals in areas related to mobile app development, news aggregation, user experience, and information technology.
- Websites like Coursera, Udemy, and LinkedIn Learning offer courses and tutorials on app development, user experience design, cybersecurity, and digital marketing provided valuable practical knowledge and skills relevant to our project.



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E-Commerce PWA

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PWA



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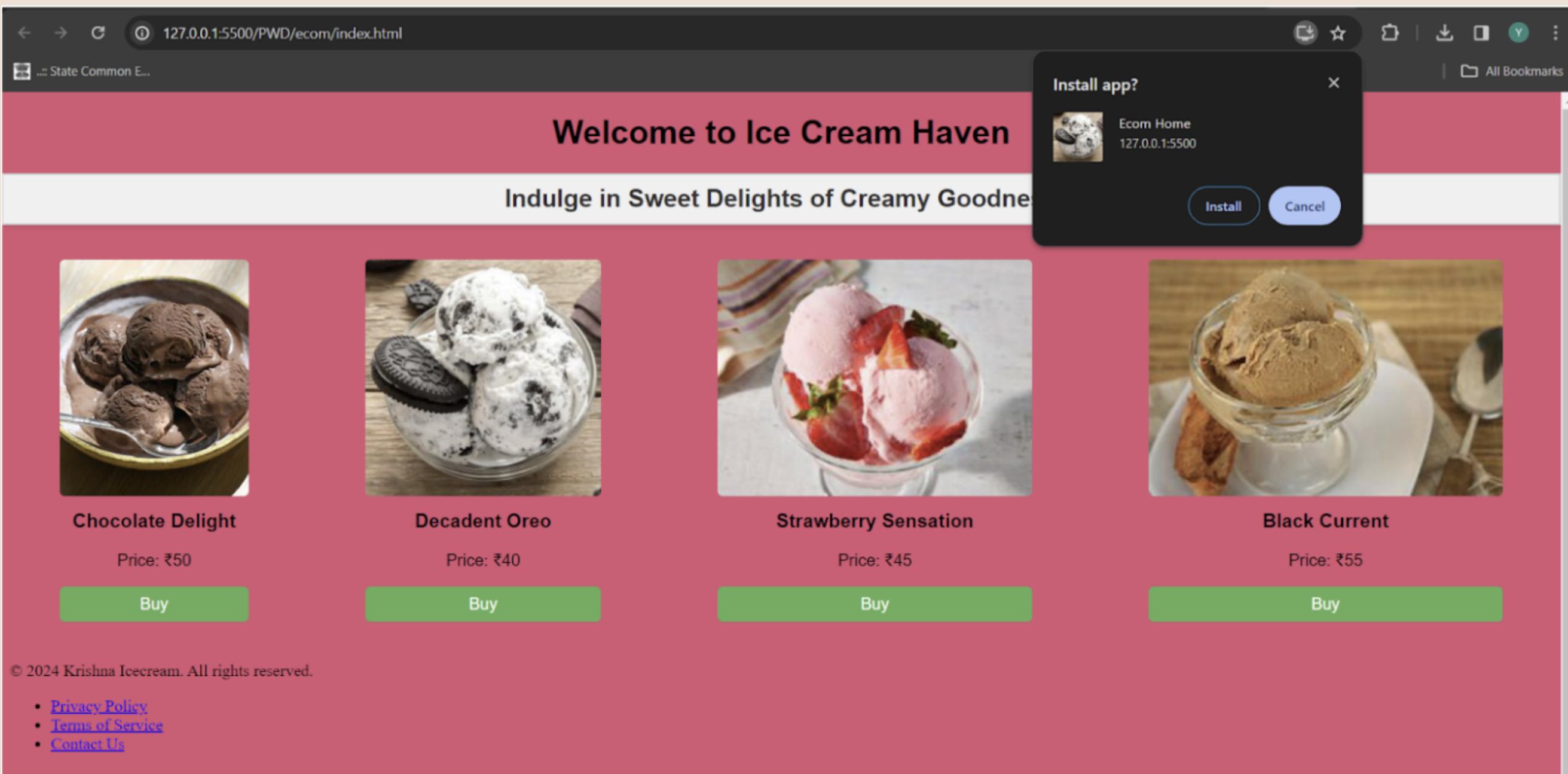


What is PWA?

PWA stands for Progressive Web App. It's a type of application software delivered through the web, built using common web technologies like HTML, CSS, and JavaScript. PWAs are designed to work on any platform that uses a standards-compliant browser, including both desktop and mobile devices.

Installation of PWA

- PWAs ensure website availability despite network connectivity, enabling instant access anytime, anywhere.
- Installation integrates PWAs seamlessly into devices, fostering higher engagement and retention rates, with optimized performance and simplified distribution, enhancing user satisfaction and developer reach.



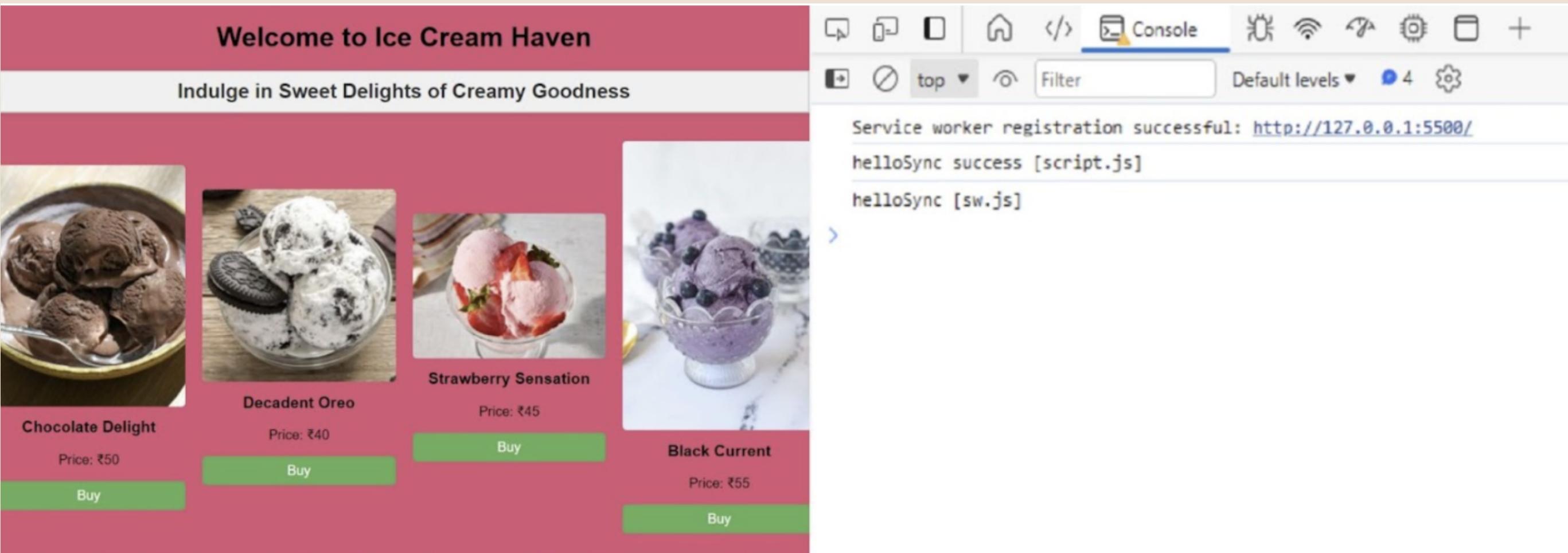
SERVICE WORKERS IN PWA

- Service Worker is a script that works on browser background without user interaction independently.
- Also, It resembles a proxy that works on the user side. With this script, you can track network traffic of the page, manage push notifications and develop “offline first” web applications with Cache API.

The image shows a screenshot of a Progressive Web Application (PWA) titled "Welcome to Ice Cream Haven". The app displays four ice cream flavors: "Chocolate Delight" (Price: ₹50), "Decadent Oreo" (Price: ₹40), "Strawberry Sensation" (Price: ₹45), and "Black Current" (Price: ₹55). Each flavor has a "Buy" button below it. To the right of the app, a developer tools interface is visible, specifically the "Application" tab. It shows the origin as "http://127.0.0.1:5500" and the bucket name as "default". The "Storage" section lists various types of storage: Local storage, Session storage, IndexedDB, Web SQL, Cookies, Private state t, Interest group, Shared storage, and Cache storage. Under Cache storage, there are entries for "/" and "/index.html", both with basic responses, text/html content type, and a timestamp of 2,984. The "Background services" section includes options for Back/forward, Background fi, Background s, Bounce tracki, and Notifications.

SYNC EVENT

- Sync events enable background synchronization of data, ensuring that the app remains up-to-date with the latest information, regardless of network availability.



PUSH EVENT

Push events empower PWAs to send notifications to users even when the app is not actively running, facilitating real-time updates and engagement..

The screenshot shows the "Ice Cream Haven" PWA on the left and the Chrome DevTools Application panel on the right.

Ice Cream Haven PWA:

- Welcome to Ice Cream Haven**
- Indulge in Sweet Delights of Creamy Goodness**
- Four ice cream options displayed:
 - Chocolate Delight** (Price: ₹50)
 - Decadent Oreo** (Price: ₹40)
 - Strawberry Sensation** (Price: ₹45)
 - Black C...** (Price: ₹40)
- Each item has a green **Buy** button below its image.
- Page footer: © 2024 Krishna Icecream. All rights reserved. Links to Privacy Policy, Terms of Service, and Contact Us.

Chrome DevTools Application Panel:

- Application** tab selected.
- Service workers** section shows a service worker is active and running.
- Storage** section lists Local storage, Session storage, IndexedDB, Web SQL, Cookies, Private state tokens, Interest groups, Shared storage, and Cache storage.
- Background services** section lists Back/forward cache, Background fetch, Background sync, Bounce tracking mitigation, and Notifications.
- Notifications** section shows a log entry: `od": "pushMessage", "message": "Hello"`. It includes a **Push** button.
- Timeline** shows the following events:
 - #1215 Install
 - #1215 Wait
 - #1215 Activate (highlighted in yellow)
- Console** tab shows an "Easter egg" message from Google Chrome: "There's an Easter egg somewhere colorful 🌈 emoji. Can you find it?" and "Yogesh Hello 127.0.0.1:5500".

FETCH EVENT

The fetch event allows PWAs to intercept network requests, enabling them to cache resources for offline use, reduce load times, and improve performance.

```
onServiceWorker.js:100
Push notification sent                                     service-worker.js:50
⑨ Fetch successful!                                       service-worker.js:36
Push notification sent                                     service-worker.js:50
⑧ Fetch successful!                                       service-worker.js:36
Notification permission granted                           index.html:96
Fetch successful!                                         service-worker.js:36
Push notification sent                                     service-worker.js:50
> |
```

Performance Analysis with Google Lighthouse

- Google Lighthouse is an open-source tool developed by Google that helps developers improve the quality and performance of web pages and web applications.
- It is commonly used to audit and analyze various aspects of a website, including performance, accessibility, best practices, SEO (Search Engine Optimization), and Progressive Web App (PWA) functionality.

The image shows a split-screen view. On the left is the homepage of 'Ice Cream Haven' with four ice cream flavor cards: 'Chocolate Delight' (Price: ₹50), 'Decadent Oreo' (Price: ₹40), 'Strawberry Sensation' (Price: ₹45), and 'Black C...'. Each card has a 'Buy' button. At the bottom are copyright and footer links. On the right is the 'Lighthouse' tab in the Chrome DevTools. It displays a summary score of 95 for Performance, 78 for Accessibility, 93 for Best Practices, and 92 for SEO. A 'PWA' icon is also shown. Below this summary, there's a large '95' in a green circle under the heading 'Performance'. The DevTools interface includes tabs for 'Console' and 'What's new', and a section for 'Highlights from the Chrome 123 update' featuring an 'Easter egg' (a colorful emoji) and instructions to 'Emulate a focused page in Elements > Styles'.

Conclusion

Our journey in developing the E-commerce PWA showcased notable achievements, including successful installation, service worker registration, and efficient implementation of fetch, push, and sync events. Deployment and thorough performance analysis emphasized PWAs' significance in enhancing user experience.



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