End-Term Project Report

Faculty name: Ms. Aarti Sangwan

Student name: Vrinda (21csu510)

Kavish Gandhi (21csu550)

Srijan Gupta (21csu566)

Prashant Yadav (21csu572)

Priya Garg (21csu584)

Semester: 6th

Group: FS-B

Department of Computer Science and Engineering

The NorthCap University, Gurugram- 122001, India

Session 2023-24

Table of Contents

PROJECT DESCRIPTION

Greenify is a mobile application designed to empower users to adopt sustainable living practices in their daily lives. With a focus on environmental consciousness, the app provides a one-stop platform for accessing eco-friendly tips, local recycling information, carbon footprint calculators, and sustainable product recommendations. By integrating location services and personalized challenges, Greenify aims to educate, inspire, and reward users for making environmentally responsible choices.

Key Features:

- **Eco-friendly Tips:** Browse a curated collection of eco-friendly tips covering various aspects of daily living, including home, transportation, food, and more.
- **Local Recycling Information:** Discover nearby recycling centers and sustainable stores based on the user's current location, facilitating responsible waste management and shopping decisions.
- **Carbon Footprint Calculator:** Calculate your carbon footprint by inputting data related to transportation habits, energy consumption, and dietary preferences, with actionable insights on reducing environmental impact.
- **Sustainable Product Recommendations:** Access a selection of sustainable products from eco-conscious brands, accompanied by detailed information, user reviews, and direct purchase links.
- **Location Services and Partnerships:** Leverage location services to suggest nearby sustainability resources, including recycling centers and partner organizations.
- **State Management and Challenges**: Engage in personalized eco-friendly challenges tailored to individual interests and behaviors, with rewards for achieving sustainability milestones.

Target Audience:

Greenify caters to environmentally conscious individuals, sustainability enthusiasts, and anyone seeking practical guidance and resources for leading an eco-friendlier lifestyle. The app is suitable for users of all ages and backgrounds who share a common commitment to environmental stewardship.

PROBLEM STATEMENT

- Develop a sustainable living app in Flutter. Provide users with eco-friendly tips, local recycling information, carbon footprint calculators, and sustainable product recommendations.
- Integrate location services to suggest nearby recycling centers or partner with sustainability organizations (if applicable).
- Utilize state management to offer personalized eco-friendly challenges and reward users for their efforts.

ANALYSIS

HARDWARE REQUIREMENTS

- **Processor**: Modern multi-core processors (e.g., Snapdragon, Exynos, Apple A-series).
- **RAM:** At least 2GB of RAM for smooth performance.
- **Storage:** Minimum of 50MB free space for app installation; additional space for cached data.
- **Display:** Screen resolution of at least 720p for clear visibility of app content.
- **GPS Module**: Required for location services to suggest nearby recycling centers and sustainable stores.
- **Internet Connectivity**: Necessary for accessing real-time data, fetching tips, product recommendations, and using location-based services.

Additional Hardware Considerations:

- **Camera:** Optional, but could be utilized in future updates for features like scanning barcodes to get recycling information.
- **Sensors:** Access to device sensors (accelerometer, gyroscope) for potential future features related to tracking activities for carbon footprint calculation.

SOFTWARE REQUIREMENTS

Development Framework:

- Flutter: Chosen for its cross-platform capabilities, allowing simultaneous development for both Android and iOS with a single codebase.
- Dart: Programming language used in Flutter for building the application logic and UI components.

Key Software Components:

- **Frontend: Flutter Widgets:** Utilized for creating a responsive and visually appealing user interface.
- **Backend: Firebase:** Potential use for real-time database, user authentication, and cloud storage.
- **State Management: Provider:** Used for managing app-wide state, handling user preferences, settings, and progress in eco-friendly challenges.
- **Location Services:**
  - **Geolocator Package:** For retrieving the user's current location.
  - **Google Maps:** Integrated for displaying nearby recycling centers and sustainable stores on a map.

- **Carbon Footprint Calculator: Custom Algorithms**: Implemented to calculate carbon footprint based on user input data (e.g., transportation habits, energy usage).

DESIGN DESCRIPTION

Data Sources:

- **Eco-friendly Tips Database**: Contains various tips categorized by themes such as home, transportation, food, etc.
- **Recycling Centers Database**: Includes information on local recycling centers, such as addresses, contact details, and accepted materials.
- **Sustainable Products Database**: Lists sustainable products with details such as product descriptions, reviews, and purchase links.

Input Description:

User Inputs:

- **Carbon Footprint Calculator:** User inputs data such as daily commute distance, type of vehicle, household energy usage, and dietary habits.
- **Challenges:** User selects and participates in eco-friendly challenges, providing data on challenge completion.

Output Description:

User Interface Outputs:

- **Eco-friendly Tips:** Displayed as a scrollable list with descriptions.
- **Recycling Center Information:** Presented on a map with markers for each center, including detailed information accessible upon selection.
- **Carbon Footprint Results**: Show user's carbon footprint with visual aids like charts, along with suggestions for reduction.

- **Sustainable Product Recommendations**: Displayed as a list with product details, images, reviews, and purchase links.
- **Challenges and Rewards:** Progress on challenges and earned rewards are displayed.

ALGORITHM APPROACH:

The algorithm approach for Greenify involves breaking down the functionalities into manageable processes that efficiently handle user interactions, data processing, and outputs. The key components include:

- **Carbon Footprint Calculation:** Processing user inputs to calculate carbon footprint.
- **Personalized Challenges:** Suggesting and tracking eco-friendly challenges.
- **Location Services:** Utilizing Geolocator data to provide location-specific information.

ALGORITHMS:

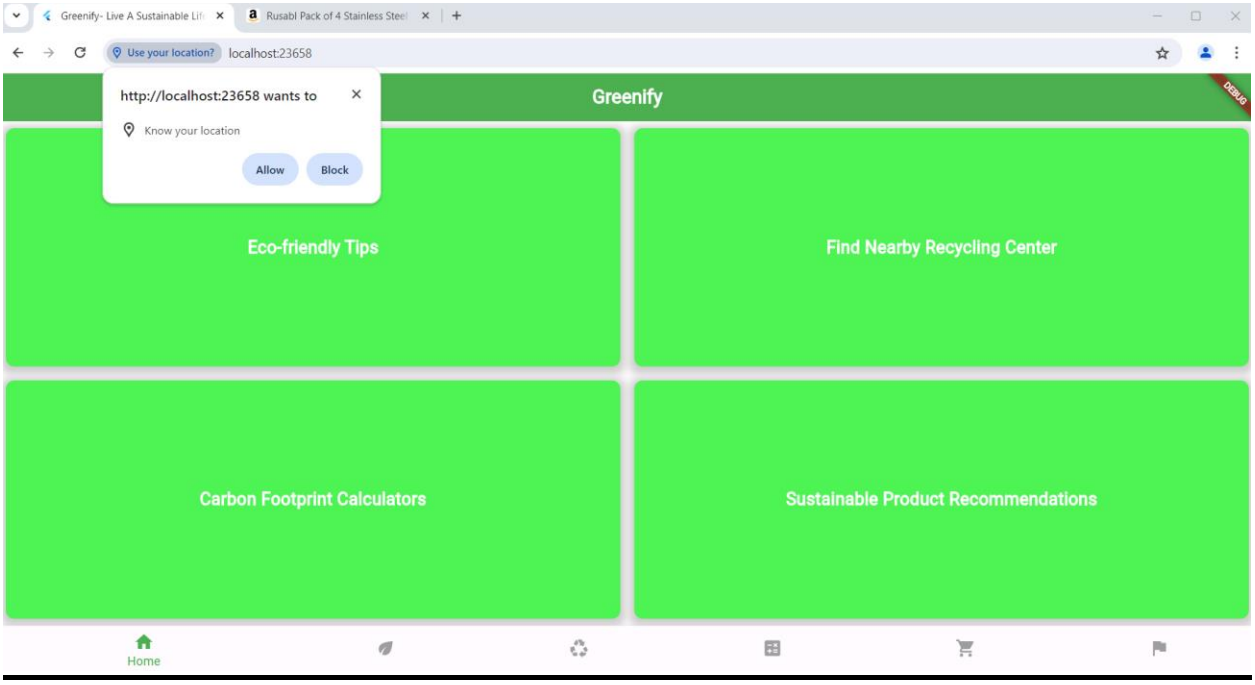
Calculating Carbon Footprint:

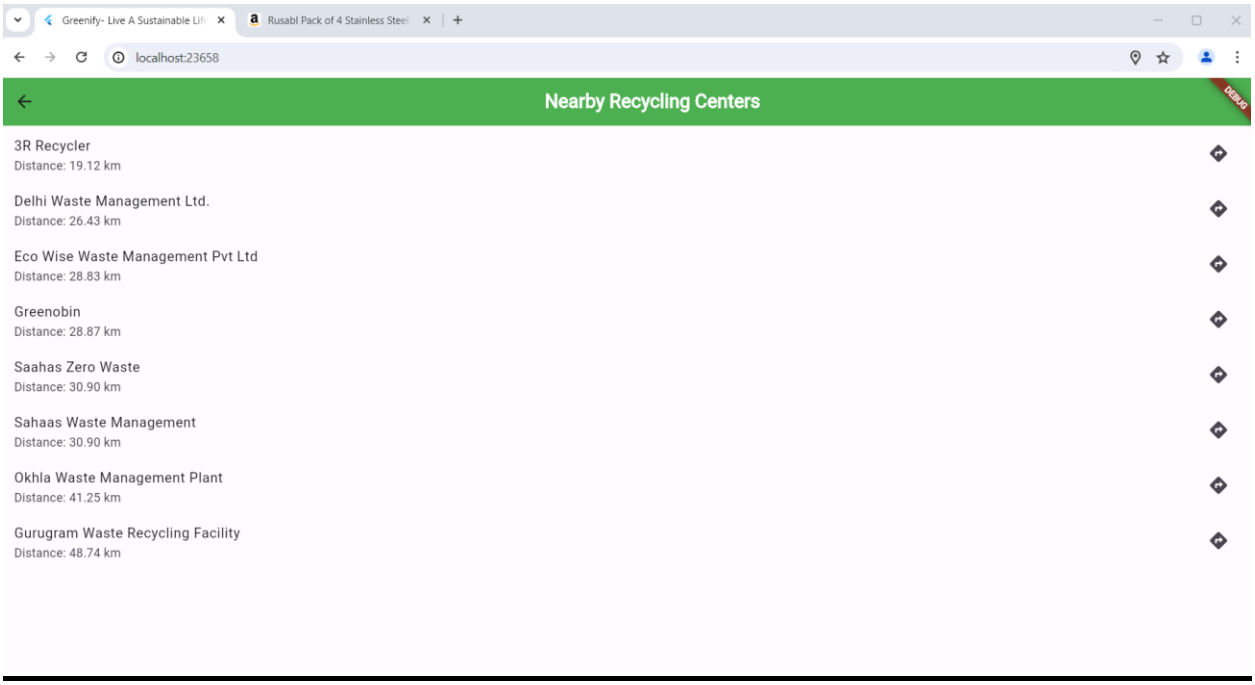
- Input: User data (commute distance, vehicle type, energy usage, dietary habits).
- Apply formulas to calculate emissions from each category.
- Sum up the emissions to get the total carbon footprint.
- Output: User's carbon footprint and reduction suggestions.

Location-based Recycling Centers:

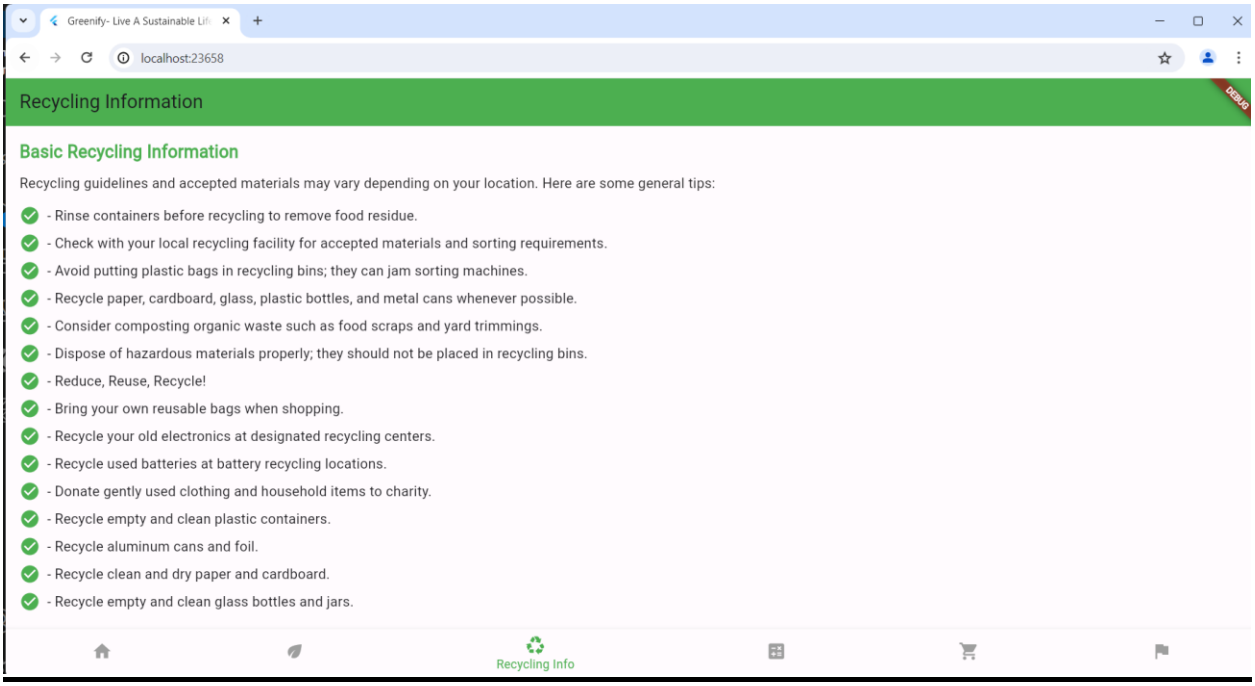
- Input: User's current GPS location.
- Fetch nearby recycling centers from the database.
- Calculate the distance to each center.
- Output: List of nearby recycling centers with distances.

OUTPUTS(SCREENSHOTS)

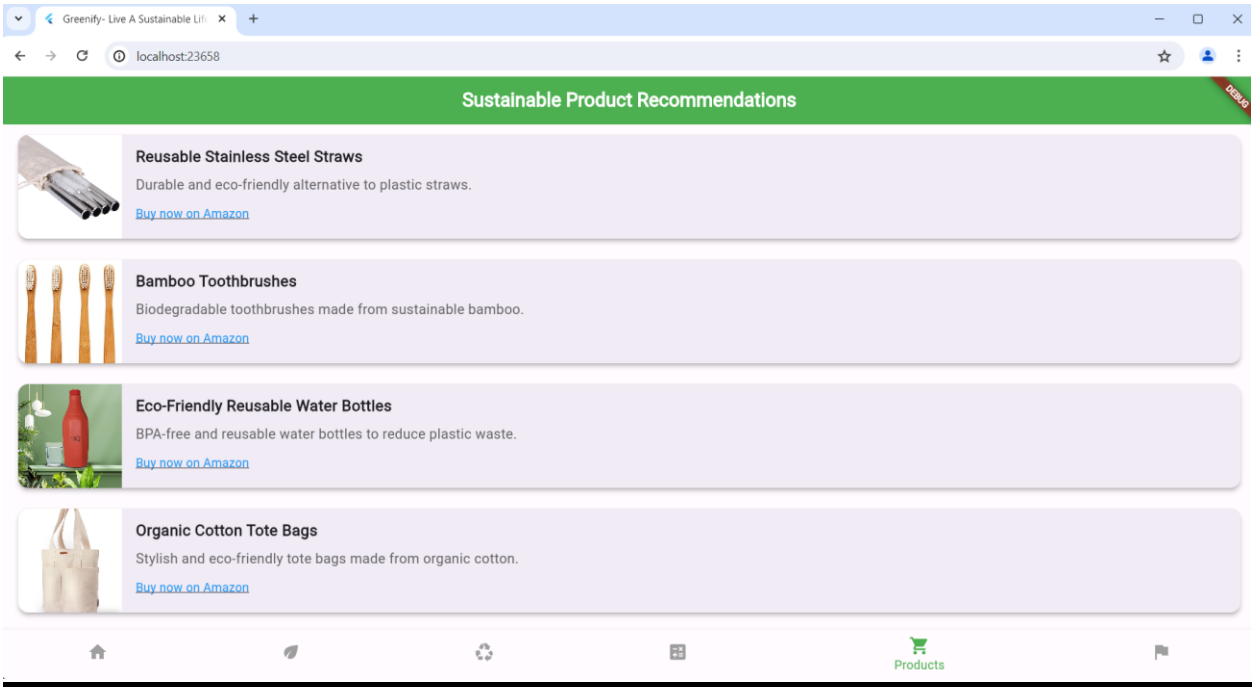


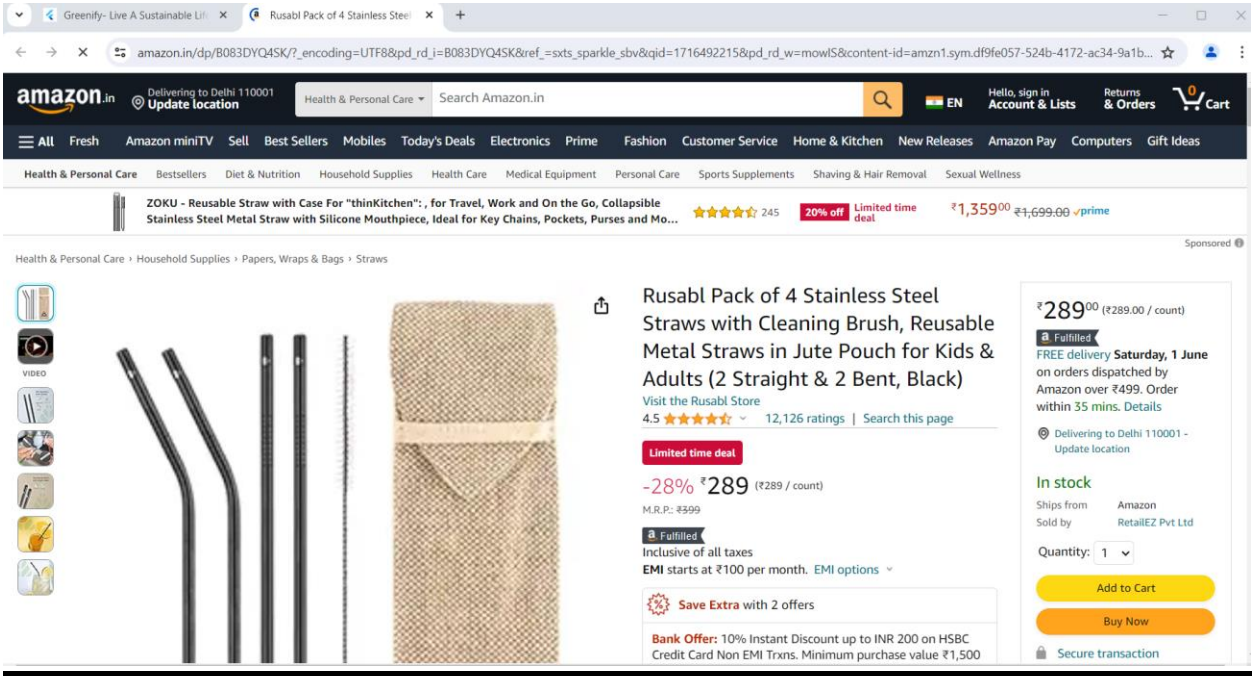

Greenify- Live A Sustainable Lif
Rusabl Pack of 4 Stainless Steel
localhost:23658
Nearby Recycling Centers
DEBUG
3R Recycler
Distance: 19.12 km
Delhi Waste Management Ltd.
Distance: 26.43 km
Eco Wise Waste Management Pvt Ltd
Distance: 28.83 km
Greenobin
Distance: 28.87 km
Saahas Zero Waste
Distance: 30.90 km
Sahaas Waste Management
Distance: 30.90 km
Okhla Waste Management Plant
Distance: 41.25 km
Gurugram Waste Recycling Facility
Distance: 48.74 km

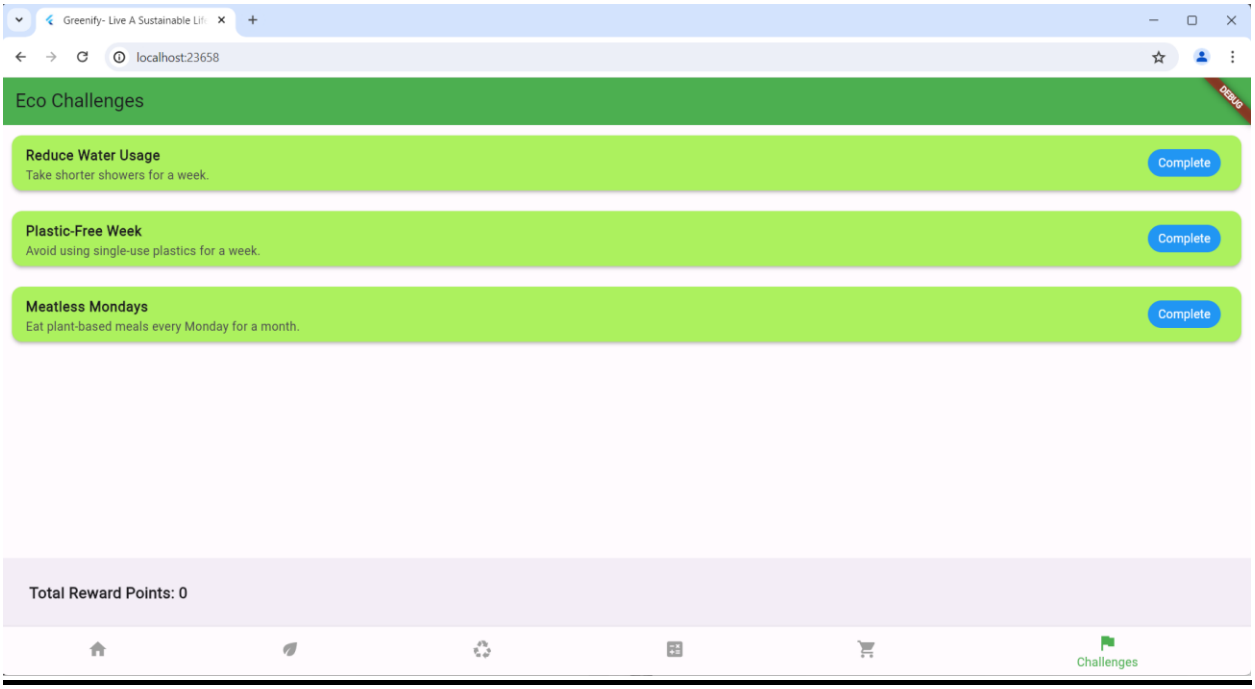

Greenify- Live A Sustainable Lif
localhost:23658
Eco Tips
DEBUG
Reduce water usage by taking shorter showers.
Use reusable bags instead of single-use plastic bags when shopping.
Switch off lights and unplug electronic devices when not in use to save energy.
Eat more plant-based meals to reduce your carbon footprint.
Invest in energy-efficient appliances to save electricity.
Choose products with minimal packaging to reduce waste.
Support sustainable and ethical fashion brands.
Reduce meat consumption to lower methane emissions from livestock farming.
Eco Tips


Greenify- Live A Sustainable Lif
localhost:23658
Recycling Information
DEBUG
Basic Recycling Information
Recycling guidelines and accepted materials may vary depending on your location. Here are some general tips:
- Rinse containers before recycling to remove food residue.
- Check with your local recycling facility for accepted materials and sorting requirements.
- Avoid putting plastic bags in recycling bins; they can jam sorting machines.
- Recycle paper, cardboard, glass, plastic bottles, and metal cans whenever possible.
- Consider composting organic waste such as food scraps and yard trimmings.
- Dispose of hazardous materials properly; they should not be placed in recycling bins.
- Reduce, Reuse, Recycle!
- Bring your own reusable bags when shopping.
- Recycle your old electronics at designated recycling centers.
- Recycle used batteries at battery recycling locations.
- Donate gently used clothing and household items to charity.
- Recycle empty and clean plastic containers.
- Recycle aluminum cans and foil.
- Recycle clean and dry paper and cardboard.
- Recycle empty and clean glass bottles and jars.
Recycling Info


Greenify- Live A Sustainable Lif
localhost:23658
Carbon Footprint Calculator
DEBUG
Enter Your Usage Data:
Electricity (kWh)
Gas (Therms)
Fuel (Gallons)
Calculate Carbon Footprint
Your Carbon Footprint:
0.00 metric tons of CO2
Carbon Calculator


Greenify- Live A Sustainable Lif
localhost:23658
Sustainable Product Recommendations
DEMO
Reusable Stainless Steel Straws
Durable and eco-friendly alternative to plastic straws.
Buy now on Amazon
Bamboo Toothbrushes
Biodegradable toothbrushes made from sustainable bamboo.
Buy now on Amazon
Eco-Friendly Reusable Water Bottles
BPA-free and reusable water bottles to reduce plastic waste.
Buy now on Amazon
Organic Cotton Tote Bags
Stylish and eco-friendly tote bags made from organic cotton.
Buy now on Amazon
Products


Greenify- Live A Sustainable Lif
Rusabl Pack of 4 Stainless Steel
amazon.in/dp/B083DYQ4SK/?_encoding=UTF8&pd_rd_i=B083DYQ4SK&ref_=sxts_sparkle_sbv&qid=1716492215&pd_rd_w=mowlS&content-id=amzn1.sym.df9fe057-524b-4172-ac34-9a1b...
amazon.in
Delivering to Delhi 110001
Update location
Health & Personal Care
Search Amazon.in
EN
Hello, sign in
Account & Lists
Returns
& Orders
Cart
All
Fresh
Amazon miniTV
Sell
Best Sellers
Mobiles
Today's Deals
Electronics
Prime
Fashion
Customer Service
Home & Kitchen
New Releases
Amazon Pay
Computers
Gift Ideas
Health & Personal Care
Bestsellers
Diet & Nutrition
Household Supplies
Health Care
Medical Equipment
Personal Care
Sports Supplements
Shaving & Hair Removal
Sexual Wellness
ZOKU - Reusable Straw with Case For "thinKitchen": , for Travel, Work and On the Go, Collapsible Stainless Steel Metal Straw with Silicone Mouthpiece, Ideal for Key Chains, Pockets, Purses and Mo...
245
20% off
Limited time deal
₹1,359.00
₹1,699.00
prime
Sponsored
Health & Personal Care › Household Supplies › Papers, Wraps & Bags › Straws
VIDEO
Rusabl Pack of 4 Stainless Steel Straws with Cleaning Brush, Reusable Metal Straws in Jute Pouch for Kids & Adults (2 Straight & 2 Bent, Black)
Visit the Rusabl Store
4.5
12,126 ratings | Search this page
Limited time deal
-28% ₹289 (₹289 / count)
M.R.P.: ₹399
Fulfilled
Inclusive of all taxes
EMI starts at ₹100 per month. EMI options
Save Extra with 2 offers
Bank Offer: 10% Instant Discount up to INR 200 on HSBC Credit Card Non EMI Trxns. Minimum purchase value ₹1,500
₹289.00 (₹289.00 / count)
Fulfilled
FREE delivery Saturday, 1 June on orders dispatched by Amazon over ₹499. Order within 35 mins. Details
Delivering to Delhi 110001 - Update location
In stock
Ships from Amazon
Sold by RetailEZ Pvt Ltd
Quantity: 1
Add to Cart
Buy Now
Secure transaction



FUTURE SCOPE

Future Scope

The Greenify app has significant potential for growth and enhancement. Here are several key areas for future development:

1. **Community Engagement:**

- Social Features: Introduce social networking features that allow users to connect with friends, share achievements, and participate in community challenges.
- User Forums: Create forums or discussion boards where users can share tips, experiences, and advice on sustainable living practices.

2. **Advanced Personalization:**

- AI-driven Recommendations: Implement machine learning algorithms to provide more personalized eco-friendly tips, product recommendations, and challenges based on user behavior and preferences.
- Enhanced User Profiles: Allow users to set more detailed preferences and interests, enabling the app to tailor content and suggestions more effectively.

3. **Expanded Data and Resources:**

- Educational Content: Include more in-depth educational resources such as articles, videos, and tutorials on various sustainability topics.
- Interactive Guides: Develop interactive guides and how-to's for eco-friendly practices like composting, upcycling, and energy-saving home improvements.

4**. Enhanced Location Services:**

- Global Coverage: Expand the database of recycling centers and sustainable stores to cover more geographic locations, ensuring global users have access to relevant information.
- Real-time Updates: Integrate real-time data updates for recycling center operating hours, accepted materials, and events like recycling drives or sustainability workshops.

5. **Multilingual Support:**

- Language Options: Add support for multiple languages to make the app accessible to a broader audience worldwide.
- Localized Content: Provide localized content and tips that cater to the specific environmental challenges and practices of different regions.

6. **Advanced Analytics:**

- User Analytics Dashboard: Create a user dashboard that provides detailed analytics and insights on their sustainability practices and progress over time.
- Environmental Impact Reports: Generate periodic reports that show the collective environmental impact of the app's user base, highlighting the positive changes and areas for improvement.

CONCLUSION

The Greenify app represents a significant step forward in promoting sustainable living and environmental awareness. By leveraging modern technology, it provides users with practical, actionable insights and resources to make eco-friendly choices in their daily lives. The app's comprehensive features, such as eco-friendly tips, local recycling information, carbon footprint calculators, and sustainable product recommendations, offer a holistic approach to environmental sustainability.

Throughout the development process, careful attention was given to user experience, state management, and data handling to ensure a seamless and engaging interface. The integration of location services to suggest nearby recycling centers and personalized eco-friendly challenges encourages users to take concrete actions towards reducing their environmental impact.

Looking ahead, the future scope of Greenify includes exciting possibilities such as enhanced personalization through AI, community engagement features, gamification, expanded data coverage, and strategic partnerships.

These enhancements will further enrich the user experience and broaden the app's reach and effectiveness.

In conclusion, Greenify is more than just an app; it is a movement towards a more sustainable future. By empowering users with the knowledge and tools to make better environmental choices, Greenify contributes to a collective effort to protect our planet. As the app continues to evolve, it will undoubtedly play a crucial role in fostering a more sustainable and environmentally conscious society.

GITHUB LINK

https://github.com/coderHackerr/Greenify1.git