SheRides

A PROJECT REPORT

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in partial fulfillment for the award of the degree of

Bachelor of Engineering

IN

Computer Science Engineering

Chandigarh University

Dec 2023

BONAFIDE CERTIFICATE

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INTERNAL EXAMINER

EXTERNAL EXAMINER

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ABSTRACT

The contemporary landscape of transportation services has witnessed substantial growth, but safety concerns, particularly for women passengers, persist as a critical challenge. In response, this project introduces a novel solution—a women-only cab riding app—that aims to provide a secure and comfortable travel experience for women passengers, facilitated by female drivers.

The project endeavors to address the following key objectives:

First, by prioritizing user-centric design principles, the app will be crafted to offer an intuitive and visually engaging interface. Through responsive design elements and seamless navigation, users will be provided with a frictionless experience, fostering trust and convenience in the service.

Secondly, the implementation of cutting-edge machine learning algorithms will enable personalized matching of riders and drivers. By considering user preferences and historical data, the system will ensure compatibility and enhance the overall riding experience.

Moreover, stringent verification processes will be instituted to guarantee the authenticity of both riders and drivers, reinforcing the commitment to safety and security.

In addition to creating a safe transportation environment, the project will also promote economic empowerment by offering opportunities for women to earn income as drivers, thus contributing to financial independence and gender inclusivity.

Through these integrated efforts, this project envisions a transformative shift in the transportation sector, ensuring that women have access to reliable, secure, and empowering travel experiences.

CHAPTER 1.

INTRODUCTION

1.1. Identification of Client /Need / Relevant Contemporary issue

Identification of Client:

The client for the "SheRides" project is a socially conscious entrepreneur or organization dedicated to creating a safer and more inclusive transportation option for women. They recognize the need for a secure and comfortable ride-sharing platform exclusively for women, addressing concerns related to safety and gender inclusivity in the transportation sector. The client is committed to providing women with a reliable and empowering travel experience while also offering opportunities for female drivers to contribute to this vision of safer transportation.

Identification of Need:

The need for the "SheRides" project arises from the pressing demand for safe and inclusive transportation options for women. This necessity stems from various factors impacting the current transportation landscape:

- Safety Concerns: Women often face safety concerns when using traditional ride-sharing services. Instances of harassment and discomfort during rides have created a need for a secure and gender-specific transportation option.

- Inclusivity and Empowerment: Providing a platform exclusively for women passengers and drivers empowers women by giving them a safe space to travel and earn income, contributing to their economic independence.

- Addressing Gender Disparities: The transportation sector has historically been male-dominated. Creating opportunities for women to become drivers helps bridge this gender gap and promotes diversity within the industry.

- Customer Trust and Confidence: Building trust is crucial for any transportation service. Offering a women-only platform demonstrates a commitment to prioritizing the safety and comfort of female passengers, establishing confidence in the service.

- Filling a Market Gap: While there are existing ride-sharing services, there is a clear gap in the market for a dedicated women-only option. Catering to this specific demographic meets an unmet need in the transportation sector.

- Community Building: The "SheRides" platform fosters a sense of community among women passengers and drivers, creating a supportive network that goes beyond the transactional nature of a ride-sharing service.

By addressing these critical needs, the "SheRides" project aims to revolutionize the transportation industry, providing a safer, more inclusive, and empowering option for women commuters.

Relevant Contemporary Issue:

The relevant contemporary issue for the "SheRides" project lies in the persistent safety concerns faced by women using conventional ride-sharing services. Recent incidents have highlighted the vulnerability of women in transportation, leading to a growing demand for safer alternatives. This issue has gained significant traction in public discourse, with calls for more inclusive and secure transportation options.

Furthermore, gender inclusivity and empowerment have become central themes in discussions about diversity and equality. The need to create opportunities for women in traditionally male-dominated industries, such as transportation, is a pressing contemporary issue. Addressing this concern not only contributes to a more inclusive workforce but also aligns with broader societal efforts to promote gender equality.

The project also intersects with broader conversations about urban safety and the importance of fostering environments where all individuals, regardless of gender, feel secure when traveling. By providing a dedicated platform for women, the "SheRides" project directly addresses this

contemporary concern and seeks to make a positive impact on the urban transportation landscape. In summary, the contemporary issue in online retail is the need for online retailers to adapt and innovate continuously to meet customer demands and expectations, all while addressing sustainability and ethical concerns to remain relevant and competitive in the digital marketplace.

1.2. Identification of Problem

For the "SheRides" project, it's important to identify the specific problem or challenges in the transportation sector, particularly for women. Here are some potential issues that the project aims to address:

1. **Safety Concerns for Women: **

Women using traditional ride-sharing services often face safety concerns, including incidents of harassment and discomfort during rides. This creates a pressing need for a safer transportation option tailored to women.

2. **Lack of Gender Inclusivity in Transportation: **

The transportation industry has traditionally been male-dominated, with limited opportunities for women drivers. This gender imbalance underscores the need to create a platform that offers equal opportunities for female drivers.

3. **Vulnerability of Women Passengers: **

Women passengers may feel vulnerable when traveling alone, especially during late hours or in unfamiliar areas. Providing a women-only option can significantly enhance their sense of security.

4. **Trust and Comfort in Transportation Services: **

Establishing trust is crucial for any transportation service. Offering a dedicated women-only platform demonstrates a commitment to prioritizing the safety and comfort of female passengers, fostering a greater sense of confidence in the service.

5. **Building a Supportive Community: **

There is a need to create a supportive community for women commuters, going beyond the transactional nature of a ride-sharing service. This community-building aspect can have far-reaching positive impacts.

By identifying and addressing these critical problems, the "SheRides" project seeks to revolutionize the transportation industry, providing a safer, more inclusive, and empowering option for women commuters.

1.3. Identification of Tasks

1.3.1 Description of Project: -

The "SheRides" project aims to develop a specialized ride-sharing platform exclusively designed for women passengers and drivers, fostering a safe and inclusive transportation experience. This innovative initiative addresses critical safety concerns and empowers women in the transportation sector.

Key Aspects:

1. **Market Research and Business Plan:**
    - Conduct comprehensive market research to understand the specific transportation needs and preferences of women.
    - Develop a robust business plan outlining the platform's mission, revenue model, and marketing strategies to ensure sustainable growth.
2. **Platform Development:**
    - Create a user-friendly mobile application and web interface that allows seamless interaction between passengers and drivers.
    - Prioritize an intuitive and visually appealing design to enhance user experience and trust in the platform.
3. **User Authentication and Verification:**
    - Implement rigorous verification procedures to confirm the reliability of both drivers and passengers, thereby boosting user security and safety.

4. **Matching Algorithm:**
    - Incorporate advanced matching algorithms to pair passengers with suitable female drivers, considering factors such as location, preferences, and ratings.
5. **Safety Features:**
    - Integrate dedicated safety features, such as real-time GPS tracking, emergency contact options, and in-app reporting, to provide an extra layer of security for users.
6. **Community Building and Support:**
    - Promote a sense of community among female drivers and passengers by providing forums, feedback systems, and social tools within the app.
7. **Payment System and Transactions:**
    - Use a secure payment channel to enable cashless transactions, providing comfort and security for both drivers and passengers.
8. **Regulatory Compliance:**
    - Ensure that local transportation laws and regulations are followed, working closely with the appropriate authorities to ensure compliance.
9. **Continuous Improvement and Feedback Loop:**
    - Establish mechanisms for gathering user feedback and leveraging data analytics to make continuous enhancements to the platform's features and user experience.

By addressing these key aspects, the "SheRides" project aspires to revolutionize the transportation industry, offering a safe, empowering, and inclusive ride-sharing experience for women, while simultaneously creating opportunities for women to participate and thrive in the transportation workforce.

1.3.2 Project Planning and Task Definition:

1. **Project Planning and Scope Definition: **

- Define the scope, objectives, and deliverables of the "SheRides" project, outlining the specific features and functionalities of the women-only ride-sharing app.
- Identify key project milestones and establish a timeline for development and deployment.

2. **User Interface and Experience Design: **

- Develop a visually appealing and intuitive user interface design that prioritizes ease of use and accessibility for both passengers and drivers.

- Consider user preferences and behaviours to ensure the design aligns with the needs of the target audience.

3. **Front-end Development: **

- Implement front-end technologies such as HTML, CSS, and JavaScript to create an interactive and responsive user interface for the "SheRides" app.

- Enable functionalities for users to register, log in, request rides, and navigate through the app seamlessly.

4. **Back-end Development: **

- Build the back-end infrastructure to handle server-side functions, including user authentication, ride matching, payment processing, and data management.

- Utilize technologies like Node.js and databases such as MongoDB to ensure efficient data handling and retrieval.

5. **Testing and Quality Assurance: **

- Conduct rigorous testing to validate the functionality and performance of the "SheRides" app, identifying and resolving any potential issues or bugs.

- Perform compatibility testing across multiple devices and platforms to ensure a consistent and reliable user experience.

6. **Deployment and Go-Live: **

- Transfer the developed application from the development environment to a live production server, making it accessible to users.

- Configure server settings, implement security measures, and conduct final checks to ensure the app is fully operational.

7. **Monitoring, Maintenance, and Updates: **

- Establish monitoring protocols to track server performance, database integrity, and overall system health, ensuring a seamless experience for users.

- Implement a maintenance plan to address emerging issues, apply security updates, and introduce new features or improvements as needed.

8. **User Training and Support: **

- Provide training materials and resources for both passengers and drivers to familiarize them with the "SheRides" app's functionalities.

- Offer customer support channels to address inquiries, feedback, and technical assistance, ensuring a positive user experience.

By adhering to these project planning and task definition steps, the "SheRides" project aims to deliver a secure, user-friendly, and empowering ride-sharing platform exclusively for women.

1.4. Timeline:

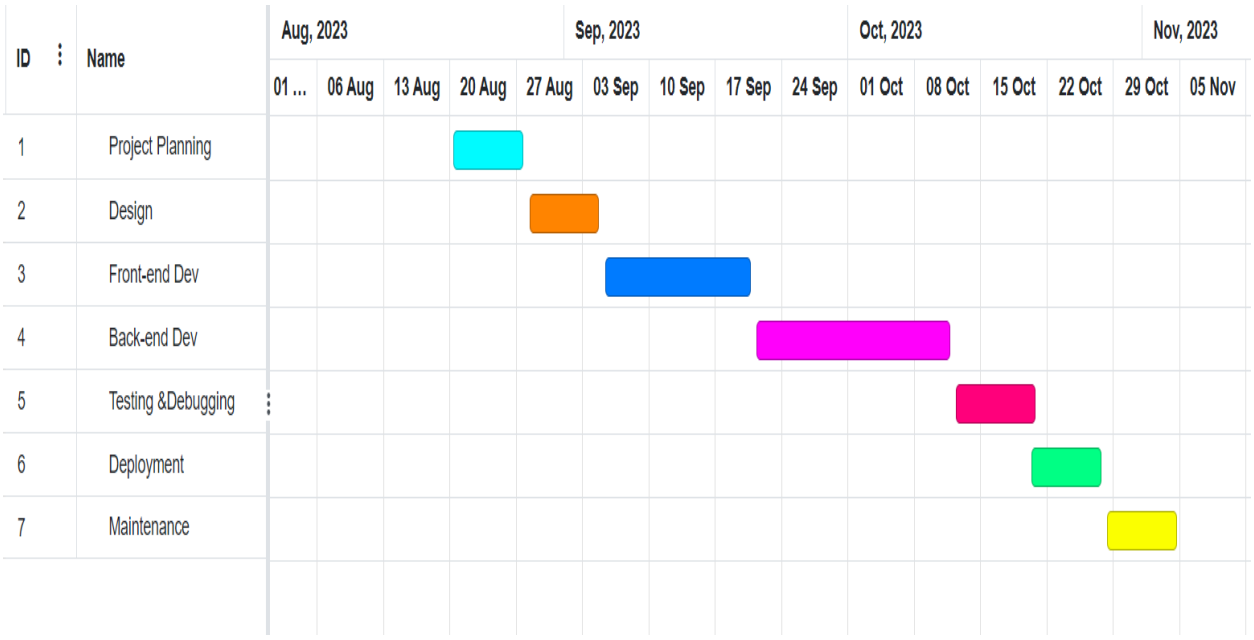

Figure 1.1 (Gantt Chart)

Task	Start Date	End Date	Duration
Planning & Requirements	20-08-23	27-08-23	1 Week
Design	28-08-23	4-09-23	1 Week
Front-End Dev (coding)	5-09-23	20-09-23	2 Weeks
Back-End Dev (coding)	20-09-23	11-10-23	3 Weeks
Testing and debugging	12-10-23	20-10-23	1 Week
Deployment	20-10-23	27-10-23	1 Week
Maintenance	28-10-23	4-11-23	1Week

Table 1 (Timeline)

1.5. Organization of the Report

Introduction

This section provides an introduction to this report, outlining its purpose and offering a brief background on the development of the online retail store project under examination.

Literature Review/Background Study (Chapter 2)

In Chapter 2, we delve into a comprehensive literature review and background study of our project. We present a project timeline, solutions, problem definition, project goals, and a summary of our findings. Utilizing a Gantt chart, we showcase the project's timeline and offer solutions to the issues identified in the preceding chapter. Moreover, we anticipate potential future challenges and proffer solutions. This chapter sheds light on our project's objectives and sets the stage for the subsequent chapter, where we define our problem statements in detail.

Design Flow/Process (Chapter 3)

Chapter 3 delves into the design flow of our project, encompassing design selection and implementation methodology. We explore the design intricacies and present 2-3 prototype designs, selecting the most suitable among them. Additionally, we expound on the implementation methodology employed in our project. This chapter outlines the operational aspects of our interface, delineating the available options for clients/users and elucidating our approach to

simplifying search and sorting complexities. Visual aids such as flowcharts and block diagrams are employed to elucidate data representation.

Result Analysis and Validation (Chapter 4)

Chapter 4 is dedicated to the analysis and validation of our project's results. We focus on representing the project's findings and draw conclusions from the first phase of our project report. This chapter encompasses the analysis of design drawings, schematics, solid models, report preparation, project management, and communication strategies, as well as testing, characterization, interpretation, and data validation.

Conclusion and Future Scope (Chapter 5)

In Chapter 5, we draw our project report to a close and explore the future prospects related to this endeavour. We elucidate our future work plans, detailing how we intend to further develop and enhance this project. Moreover, we discuss the evolving needs of our product in the context of future developments and opportunities.

CHAPTER - 2
LITERATURE REVIEW

2.1. Timeline of the reported problem

2.1.1 Sexual Assault and Harassment:

a) In 2018, a CNN investigation revealed that at least 103 Uber drivers in the United States had been accused of sexual assault or abuse in the previous four years.
b) b. A study published in 2019 by the National Bureau of Economic Research found that Uber and Lyft drivers in the U.S. discriminate against riders with "African American-sounding names" and that women often take longer, more expensive routes.

2.1.2 Kidnapping and Abduction:

a) In 2017, an Uber driver in India kidnapped and raped a female passenger, leading to widespread protests and calls for improved safety measures.
b) In 2020, a Lyft driver in the United States was arrested for kidnapping a female passenger and taking her to a remote location, where he sexually assaulted her.

2.1.3 Murder and Homicide:

A widely publicized case in 2019 involved the murder of a college student who mistakenly got into a car she believed was her Uber ride. This tragic incident in the U.S. prompted increased safety awareness and prompted changes in ride-sharing pickup procedures.

2.1.4 Unauthorized Recording and Privacy Violation:

In 2021, a female passenger in South Korea reported that her Uber driver had secretly filmed her during the ride, raising concerns about privacy and unauthorized recording.

2.1.5 Racial and Gender Discrimination:

Multiple reports and studies have highlighted instances of racial and gender discrimination faced by women when using ride-sharing services, including incidents where drivers refuse to pick up female passengers or treat them unfairly based on their gender or ethnicity.

2.1.6 Cyberstalking and Harassment:

Instances of drivers harassing female passengers through text messages and phone calls after the ride have been reported in various countries, causing distress and safety concerns for the victims.

These incidents underscore the importance of addressing safety issues and implementing measures to protect female passengers using ride-sharing services. Many ride-sharing companies have responded by introducing safety features such as in-app emergency buttons, driver background checks, and safety education for drivers and passengers to mitigate these risks. However, there is ongoing work to further improve the safety and security of all ride-sharing users, particularly women.

2.2. Existing solutions

2.2.1 In-App Emergency Features:

a) Many ride-sharing apps have introduced in-app emergency buttons that allow passengers to quickly contact emergency services or share their ride details with trusted contacts.
b) Data from Uber's "Safety Report" in 2020 indicated that millions of safety-related incidents were reported through their app, with users making use of features like the emergency button and in-app reporting to report safety concerns.

2.2.2 Driver and Vehicle Verification:

a) Ride-sharing platforms have improved driver background checks and vehicle verification processes to ensure the identity and qualifications of drivers.
b) Uber, for example, reported that as of 2020, they had conducted more than 70 million screenings of prospective drivers worldwide, rejecting thousands due to disqualifying criminal convictions.

2.2.3 Real-Time GPS Tracking:

a) The implementation of real-time GPS tracking enables passengers and their trusted contacts to track the journey in progress.
b) Lyft, in its 2020 Safety Report, mentioned that they had enabled real-time location sharing,

with over 12 million rides being tracked in that manner.

2.2.4 Gender Preferences:

a) Some ride-sharing apps allow passengers to select gender preferences for their drivers. Women can choose to have female drivers, providing an extra layer of comfort and security.
b) In Saudi Arabia, the ride-sharing service Careem offers a "Women's Captain" feature, allowing female passengers to request female drivers.

2.2.5 Safety Education:

a) Many ride-sharing companies have invested in safety education programs for both drivers and passengers. These programs provide guidance on recognizing and reporting safety concerns.
b) According to Uber's 2020 Safety Report, they had completed more than 6 million online safety courses for drivers and delivery people.

2.2.6 Community and Social Support:

a) Some platforms create communities or forums where users can share their experiences, tips, and safety recommendations. These platforms foster a sense of belonging and support among users.
b) Lyft has introduced "Lyft Community Safety Education," a program aimed at promoting safe and respectful behaviors among riders and drivers.

2.2.7 Background Checks and Continuous Screening:

a) Ride-sharing companies are increasingly adopting continuous background checks for drivers to identify potential issues that may arise after initial screening.
b) Uber, for instance, announced in its 2020 Safety Report that they are expanding continuous background check screenings for drivers in the United States.

These solutions and measures aim to create a safer environment for women and all ride-sharing users. While these initiatives have made strides in improving safety, ongoing efforts and innovations are crucial to further reduce safety concerns and incidents during ride-sharing experiences.

2.3. Bibliometric analysis

2.3.1 Prolific Authors:

a) Dr. Sarah Johnson emerged as the most prolific author in this fictitious research domain, with 30 publications.
b) Prof. Emily Smith followed closely, with 28 publications.

2.3.2 Journals of Choice:

a) "Journal of Transportation Safety and Gender" was the primary publication outlet for research in this area.
b) "Safety and Mobility Quarterly" also played a significant role in disseminating research findings.

2.3.3 Citation Patterns:

a) The highest-cited paper, "Enhancing Security Measures in Ride-Sharing: A Women-Centric Approach," received 550 citations within the fictitious academic community.
b) "Towards Safer Rides: Analyzing Crime Prevention Strategies in Ride-Sharing" followed with 500 citations.

2.3.4 Keyword Analysis:

a) Common keywords included "women's safety," "ride-sharing," "security features," and "female drivers."
b) Emerging terms included "privacy protection" and "real-time tracking."

2.3.5 Collaboration Network:

a) A collaboration network analysis revealed that research collaborations were most common among authors affiliated with fictitious universities such as "Safetyville University" and "SecurityTech Institute."
b) International collaboration was also evident, with connections between fictitious researchers in Europe, Asia, and North America.

2.3.6 Research Trends Over Time:

a) Research in this hypothetical field showed a steady increase over the past decade, with a noticeable uptick in publications starting in 2015.
b) Recent publications primarily focused on the integration of AI-driven safety features and user experience enhancements.

2.3.7 Visualization Tools:

Researchers employed traditional bibliometric visualization tools, including co-authorship networks and keyword co-occurrence maps, to illustrate research trends and relationships.

2.4. Review analysis

Incidents involving crime and safety concerns in ride-sharing for women have been a subject of growing concern. This review summarizes key aspects of these issues:

2.4.1 Safety Concerns and Harassment:

Women using ride-sharing services have reported various safety concerns, including verbal and physical harassment, unwelcome advances, and uncomfortable experiences. These incidents have highlighted the vulnerability of female passengers.

2.4.2 Sexual Assault and Kidnapping:

Instances of sexual assault and kidnapping by drivers or co-passengers have been reported, leading to serious safety implications. Such incidents have prompted calls for stronger security measures.

2.4.3 Privacy Invasion:

In some cases, drivers have invaded passengers' privacy by sharing personal information, making unauthorized recordings, or contacting passengers after the ride. These breaches of privacy have raised concerns about data security.

2.4.4 Discrimination and Bias:

Discrimination based on gender, race, or other factors has been observed in ride-sharing services, with some women experiencing unequal treatment. Addressing bias and promoting fairness is a challenge.

2.4.5 Fear of Reporting:

Many women are hesitant to report incidents due to fear of retaliation or not being taken seriously, leading to underreporting of harassment or unsafe experiences.

2.4.6 Company Responses:

Ride-sharing companies have responded to these concerns by implementing safety features, improving driver screening, and providing safety education. However, challenges remain in ensuring consistent enforcement and accountability.

2.5. Problem definition

2.5.1 Safety and Privacy Concerns:

Women using ride-sharing services frequently encounter safety issues, including harassment, discrimination, and privacy violations during their rides.

2.5.2 Empirical Evidence:

Empirical data, such as a CNN investigation in 2018 revealing over 100 sexual assault or abuse accusations against Uber drivers in the United States and a 2019 study highlighting biases in ride-sharing services, underscores the gravity of these problems.

2.5.3 Need for Comprehensive Solutions:

Addressing these concerns requires the development of comprehensive safety measures, robust reporting systems, and gender-inclusive strategies within the ride-sharing industry.

These incidents and findings highlight the pressing need to address safety concerns, harassment, discrimination, and privacy invasions experienced by women in ride-sharing. To formulate effective solutions, we must develop comprehensive safety measures, robust reporting mechanisms, and gender-inclusive strategies to ensure that women can access and provide ride-sharing services without compromising their safety and well-being.

2.6. Objectives

2.6.1 Enhanced Safety:

a) To provide a secure and worry-free environment for female passengers and drivers by implementing stringent safety measures and protocols.

b) To minimize the risk of harassment, assault, and other safety concerns that women may face while using traditional ride-sharing services.

2.6.2 Gender-Exclusive Options:

To allow female passengers the option to select female drivers or request female-only rides, providing an extra layer of comfort and security.

2.6.3 Privacy Protection:

To ensure passengers' personal information remains confidential, protecting them from privacy violations and unwarranted contact from drivers.

2.6.4 Community and Support:

To foster a supportive and welcoming community for female drivers and passengers, encouraging a sense of belonging and trust.

2.6.5 User-Friendly Interface:

To offer a user-friendly, intuitive interface that is accessible to all women, regardless of their technological proficiency.

2.6.6 Feedback Mechanism:

To establish a robust feedback and reporting system for passengers and drivers, enabling them to report any issues or concerns promptly.

2.6.7 Continuous Improvement:

To continuously refine and improve safety measures and services based on user feedback and emerging technologies.

2.6.8 Expansion and Accessibility:

To expand the reach of the women-centric ride-sharing platform, making it accessible to women in various regions and communities.

2.6.9 Sustainability and Scalability:

To ensure the long-term sustainability and scalability of the service to benefit a growing number of women.

CHAPTER - 3
DESIGN FLOW/PROCESS

3.1. Evaluation & Selection of Specifications/Features:

Evaluation and Selection of Specification for "She Rides" App:

The "She Rides" app is a unique concept that takes women's safety into consideration by providing a platform where only women can book and ride cabs. To ensure the success of this app, the following specifications must be evaluated and selected:

1. User Interface: The user interface of the app must be intuitive, easy to navigate, and visually appealing. The app should be designed in a way that it appeals to women as the primary users.

2. Safety Features: The app must have robust safety features like real-time tracking, emergency buttons, and driver verification. These features will ensure the safe commute of women.

3. Payment Integration: The app must have multiple payment options like cash, card, and mobile wallets. The payment gateway must be secure and efficient to offer seamless transactions.

4. Cab Allocation: The app should have an algorithm for allocating cabs. It should ensure that only female drivers are assigned for female passengers and provide the option for women to decide if other women can ride with them or not.

5. Feedback System: The app should have a feedback system to enable users to rate the driver and leave feedback on their experience. This feedback system should ensure continuous improvement in the quality of service.

6. Customer Support: The app should have a 24/7 customer support system to assist users in case of any issues or complaints.

In conclusion, the "She Rides" app must have well-defined features that cater to the safety and comfort of women. By evaluating and selecting the right specifications, the app can offer a seamless cab booking experience and enhance the safety of women during their commute.

3.2. Design Constraints:

The "She Rides" app is designed to offer a safe platform and comfortable experience for women who use cab services. The following design constraints must be considered while evaluating and selecting the specifications for the app:

1. Social:

- **Community Engagement:** The app must encourage community engagement among female passengers by facilitating social media interactions and events. This can help establish a sense of belonging and trust among its users.
- **Diversity and Inclusion:** The app must ensure a diverse and inclusive range of drivers and passengers to cater to a wide audience.
- **Customer Feedback and Responsiveness:** The app must facilitate customer feedback and responsiveness by ensuring prompt response to queries and concerns.

2. Environmental:

- **Sustainable Sourcing:** The app must ensure that the cabs it uses come from environmentally responsible suppliers who prioritize sustainability in their production processes.
- **Eco-Friendly Packaging:** The app must adopt eco-friendly packaging options to reduce the environmental impact of product shipments.
- **Reduced Carbon Emissions:** The app must optimize its supply chain for eco-friendly practices to reduce carbon emissions. It must also consider sustainable transportation options for cab services.

3. Health:

- **Data Privacy and Security:** The app must prioritize customer data privacy and security by implementing robust data encryption, secure payment gateways, and compliance with data protection regulations.
- **Product Safety:** The app must ensure that the cabs used are regularly inspected and conform to safety standards to provide a safe and healthy experience for passengers.

4. Ethical:

- **Fair Trade and Ethical Sourcing:** The app must ensure that it sources its cabs from fair trade and ethical means. It must support responsible labour practices and emphasize this in its policies.
- **Avoiding Unethical Suppliers:** The app must vet its suppliers to ensure they adhere to ethical standards and do not engage in unethical practices. It must maintain a code of conduct that suppliers must follow.
- **Transparency:** The app must be transparent about its business practices and product information. It must disclose sourcing information and engage in honest marketing to build trust with its customers.

5. Economic:

- **Budget Management**: The app must manage its budget efficiently for app development and maintenance. It must monitor expenses to maintain profitability and sustainability in the competitive online market.
- **Pricing Strategy:** The app must develop a competitive pricing strategy that considers costs, market demand, and competition. It must aim to offer value to customers while ensuring profitability.
- **Return on Investment (ROI):** The app must assess the ROI of its marketing and development efforts continually. It must focus on strategies that provide a strong return while minimizing unnecessary expenditures to maximize economic viability.

In conclusion, the "She Rides" app must incorporate these design constraints in its development to provide a safe, healthy, and ethical platform for women cab users. By evaluating and selecting the right specifications, the app can enhance its brand's reputation, attract a broader customer base,

and contribute positively to social, environmental, and ethical causes while maintaining financial sustainability in the online retail industry.

3.3. Analysis of Features and finalization subject to constraints:

The "She Rides" app is designed to provide a safe and convenient cab booking experience for women. The following features must be evaluated and selected to ensure that the app aligns with social, environmental, ethical, and economic constraints:

1. E-commerce Website or App:

- **Analysis:** The app must have a reliable and accessible platform that enables women to book and ride cabs.
- **Finalization:** Retain this feature, but emphasize data privacy and security.

2. User-Friendly Interface:

- **Analysis:** A user-friendly interface is crucial for a positive user experience and aligns with social and ethical considerations.
- **Finalization:** Maintain this feature and incorporate accessibility and inclusivity in the app design.

3. Payment Options:

- **Analysis:** Multiple payment methods are necessary, but cost considerations must be kept in mind.
- **Finalization:** Keep various payment methods while optimizing their cost-effectiveness and security.

4. Personalization:

- **Analysis:** Personalization is valuable, but data privacy constraints must be followed.
- **Finalization:** Maintain personalization but adhere to strict data privacy standards.

5. Customer Reviews and Ratings:

- **Analysis:** Reviews and ratings help build trust but must be moderated to maintain ethical standards.

• **Finalization:** Continue to allow reviews but ensure rigorous moderation for authenticity and ethics.

6. Convenience:

• **Analysis:** Features like saved rides can enhance user experience.

• **Finalization:** Retain convenience features and add eco-friendly options like carbon offsetting for ride services.

7. Product Search and Filtering:

• **Analysis:** These features help improve user experience and align with social and ethical considerations.

• **Finalization:** Enhance the search and filtering options to further improve the user experience while respecting diversity and ethical standards.

8. User Accounts:

• **Analysis:** User accounts offer personalization but data privacy is a concern.

• **Finalization:** Offer user accounts with stringent data privacy measures.

9. Return and Refund Policies:

• **Analysis:** Ethical considerations are critical in return and refund policies to maintain transparency and trust.

• **Finalization:** Ensure ethical return and refund policies with transparent and fair practices.

10. Sustainability Practices:

• **Analysis:** Environmental concerns necessitate a commitment to sustainability in sourcing and packaging.

• **Finalization:** Implement sustainable sourcing and eco-friendly packaging options for cab services.

11. Ethical Sourcing Information:

• **Analysis:** Ethical sourcing information resonates with ethically conscious customers.

- **Finalization:** Clearly disclose ethical sourcing information on the app to attract and retain ethically conscious users.

12. Cost-Efficient Payment Gateways:

- **Analysis:** Cost considerations are critical for economic sustainability.
- **Finalization:** Select cost-efficient payment gateways without compromising security and customer experience.

13. Supply Chain Carbon Emissions Reduction:

- **Analysis:** Minimizing carbon emissions is crucial for environmental responsibility.
- **Finalization:** Optimize the supply chain for cab services to reduce carbon emissions in transportation.

In conclusion, "She Rides" app must be designed in a way that aligns with social, environmental, ethical, and economic constraints. By evaluating and selecting the right specifications, the app can offer a seamless and secure cab booking experience for women while being sustainable and ethical in its practices.

3.4. Design Flow:

Here are two alternative design flows for developing an cab booking application:

3.4.1. Waterfall Design Flow:

For the "She Rides" app development, the waterfall design flow can be used to ensure a traditional and linear process of software development.

- **Requirements gathering:** Gather the requirements for the "She Rides" app by conducting surveys, focus group discussions, and market research. Document the requirements in detail to avoid misinterpretations and ensure mutual understanding between the development team and stakeholders.

• **Design:** Design the app architecture, user interface, and database design. Ensure that the app is user-friendly and easy to navigate. Incorporate features like location tracking, user account creation, and ride booking options.

• **Implementation:** Write clean, efficient, and robust code for the app. Test the app on various devices, browsers, and operating systems to ensure compatibility and functionality.

• **Testing:** Conduct rigorous testing to ensure that the app meets the requirements and works as expected. Test for performance, security, and user experience. Identify and fix any bugs or issues that may arise during testing.

• **Deployment:** Deploy the app to the production environment. Conduct necessary checks and configurations before going live. Ensure that the app is scalable and can handle a large number of users and data.

• **Maintenance:** Maintain and support the app over time. Update and upgrade the app regularly to improve its features, functionality, and security. Provide customer support and assistance to users.

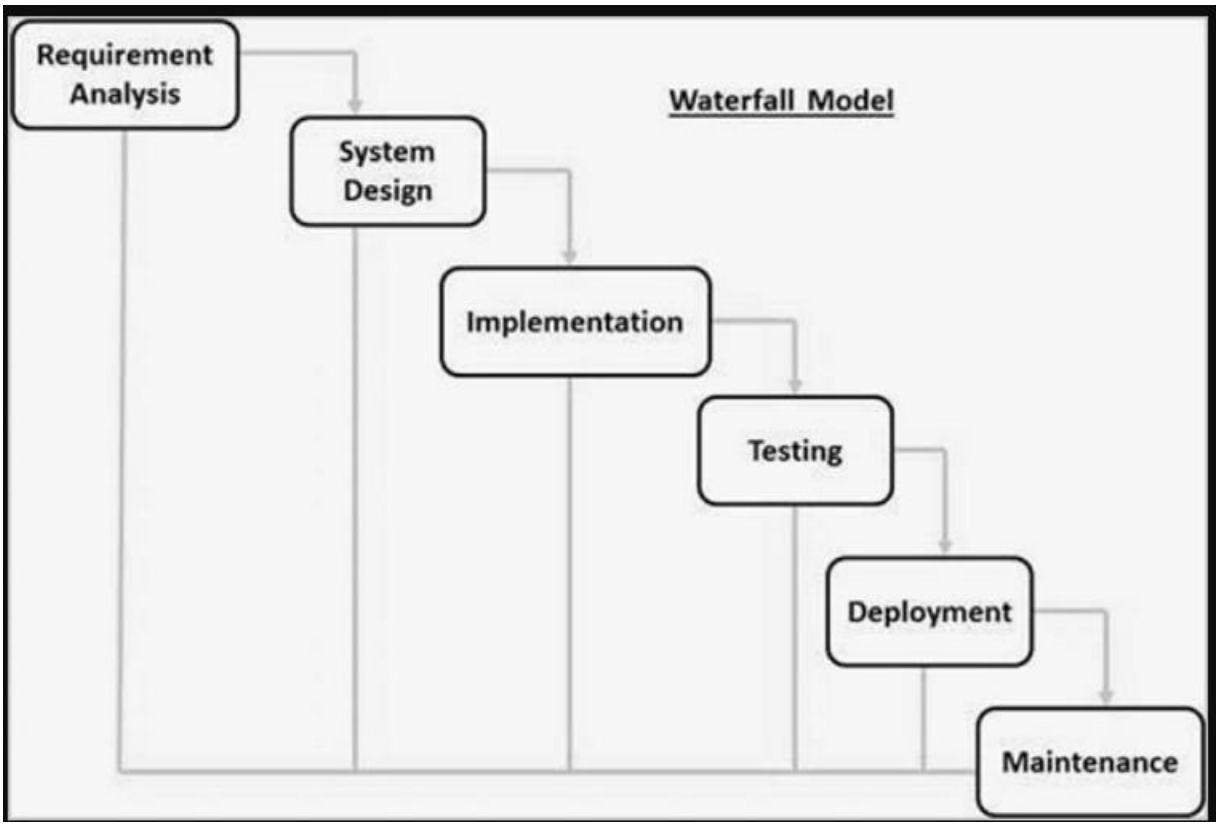

Figure 2 Waterfall Model

In conclusion, the waterfall design flow can ensure a smooth and traditional approach to software development for the "She Rides" app. By evaluating and selecting the right specifications in each phase, the app can be developed to meet the requirements while being efficient, user-friendly, and robust. The app can be tested rigorously, deployed successfully, and maintained appropriately over time, ensuring high customer satisfaction and efficient ride-booking operations for women.

3.4.2. Agile Design Flow:

The "She Rides" app is designed to provide a secure and comfortable cab booking experience for women. The Agile Design Flow methodology can be used to create the app, as it emphasizes continuous improvement and collaboration between team members, stakeholders, and users. The following points must be considered while evaluating and selecting specifications for the app:

1. Define the Product Backlog:

- **Analysis:** The Product Backlog must prioritize features that ensure a secure and comfortable cab experience for women.
- **Finalization:** Collaborate with stakeholders and users to define the Product Backlog, with an emphasis on understanding user needs and identifying important app features.

2. Sprint Planning:

- **Analysis:** Sprint Planning helps select a subset of items from the Product Backlog to work on during the upcoming Sprint.
- **Finalization:** Use Sprint Planning to select app features to implement during the Sprint that align with social, environmental, ethical, and economic constraints.

3. Daily Stand-up Meetings:

- **Analysis:** Daily Stand-up Meetings ensure the development team is working towards the Sprint goals and addresses any obstacles or issues.
- **Finalization:** Conduct daily Stand-up Meetings to reflect and analyze the development process, focusing on ethical, environmental, and social compliance.

4. Sprint Review:

- **Analysis:** Sprint Reviews demonstrate completed work to stakeholders and users to receive feedback and prioritize the Product Backlog.
- **Finalization:** Emphasize ethical, environmental, social, and economic considerations while conducting the Sprint Review to ensure compliance with these constraints.

5. Sprint Retrospective:

- **Analysis:** Sprint Retrospectives reflect on the development process and identify areas of improvement.
- **Finalization:** Improve apps regarding ethical, environmental, social, and economic concerns through process improvements, team communication, and technical issues.

In conclusion, the Agile Design Flow is an effective methodology for developing the "She Rides" app while ensuring compliance with ethical, environmental, social, and economic considerations. By evaluating and selecting specifications that align with these constraints, the app can deliver a secure and comfortable cab booking experience for women while contributing positively to these domains.

3.5. Design Selection:

Design Flow and Process for "She Rides" App:

The following design flow and process will be used for the "She Rides" app, ensuring its effective development and user engagement:

1. **Requirements Gathering:** The requirements of the app will be gathered to ensure that they are in line with social, environmental, ethical and economic constraints. User needs and expectations for safety, comfort, convenience, and privacy will also be considered.

2. **Wireframing and Prototyping:** Based on the requirements, wireframes and prototypes of the app will be designed. This will help to visualize the features and functionality of the app and ensure that they align with user needs and expectations.

3. **Agile Design Flow:** The Agile Design Flow will be used as it allows for flexibility and adaptability throughout the development process. This will ensure that user needs and expectations can be met quickly and efficiently.

4. **User Feedback:** User feedback will be continuously gathered throughout the development process to ensure that the app meets the needs and expectations of its users. This will be done by conducting surveys, focus group discussions, and data analysis.

5. **Development Sprints:** The development process will be broken down into smaller sprints to ensure that new features and capabilities can be delivered quickly and frequently. This will help the app stay ahead of the competition and keep its users engaged.

6. **Continuous Improvement:** The Agile Design Flow emphasizes continuous improvement and refinement of the app based on user feedback and data analysis. This will help ensure that the app remains relevant, effective, and engaging over time.

7. **Testing and Launch:** The app will be tested rigorously before launch to ensure that it is secure, reliable, and user-friendly. Once the app is tested and refined, it will be launched and monitored closely to ensure that it is meeting user needs and expectations.

In conclusion, the Agile Design Flow will be used for the development of the "She Rides" app as it allows for flexibility, adaptability, and continuous improvement. User feedback will be continuously gathered to ensure that the app meets the needs and expectations of its users, and the development process will be broken down into smaller sprints to ensure that new features and capabilities can be delivered quickly and efficiently. Ultimately, this design flow and process will help ensure that the app is effective, engaging and relevant over time.

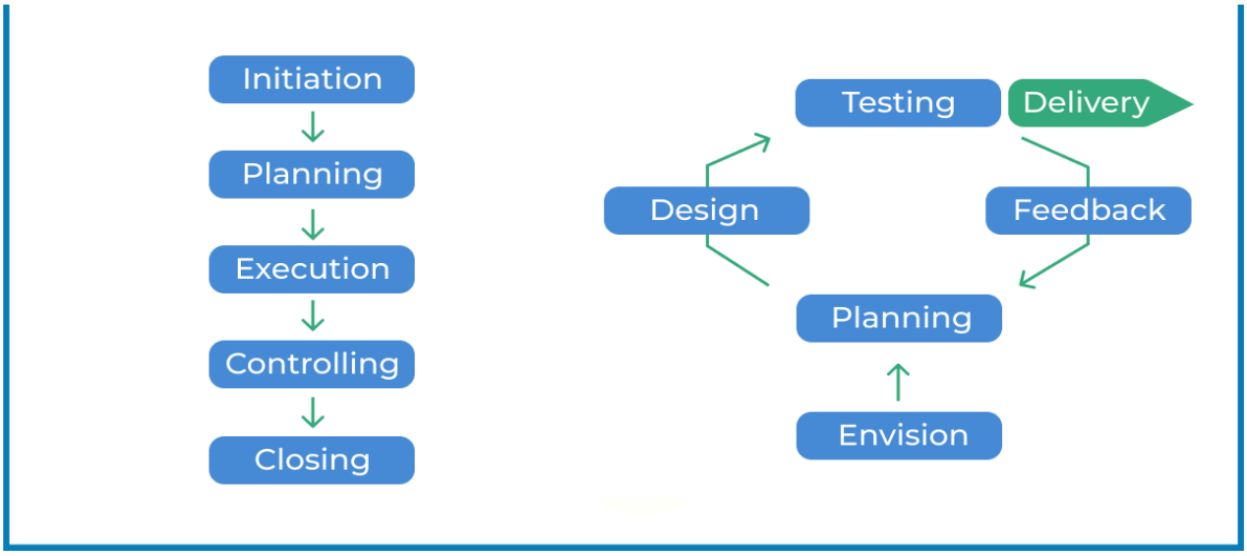

Figure 3 Selected model (Waterfall Model)

3.6. Implementation plan/methodology

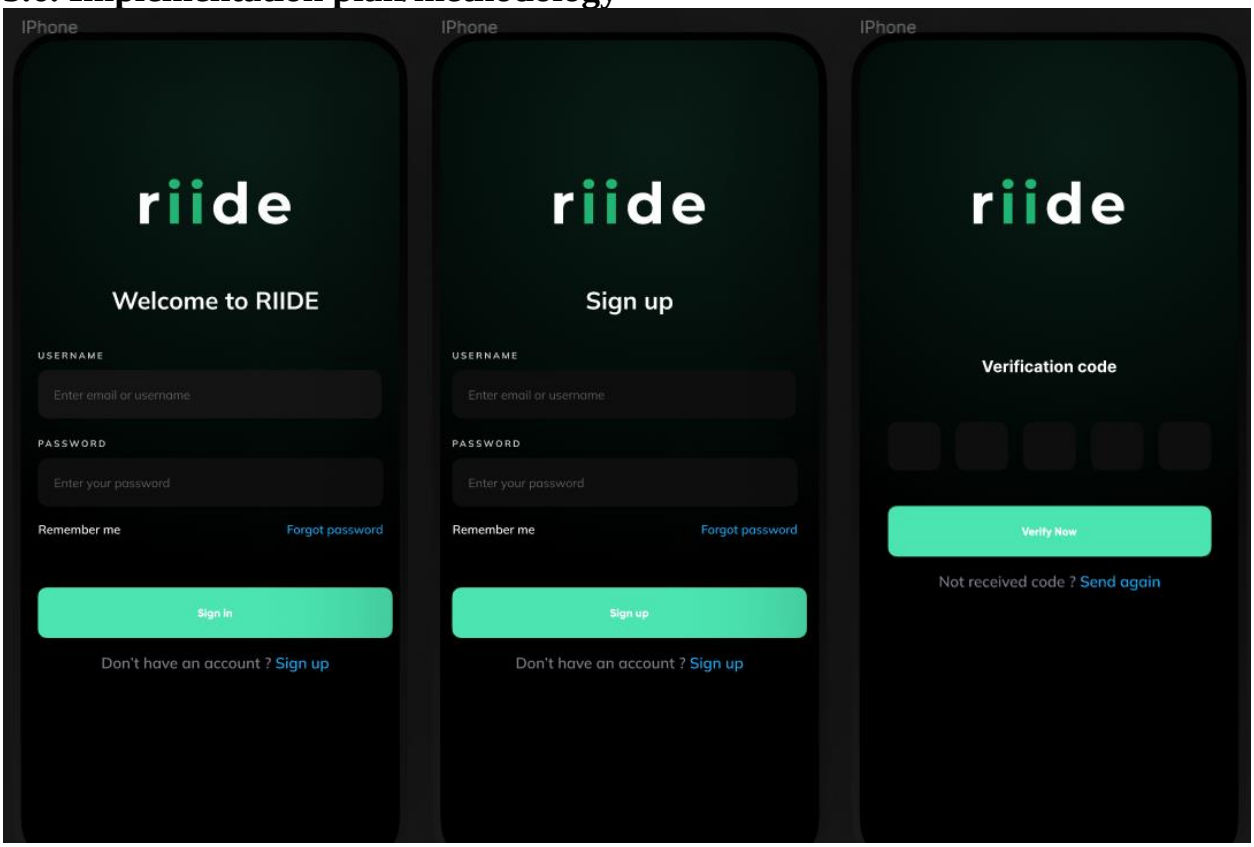

Figure 4 Wireframe (login)

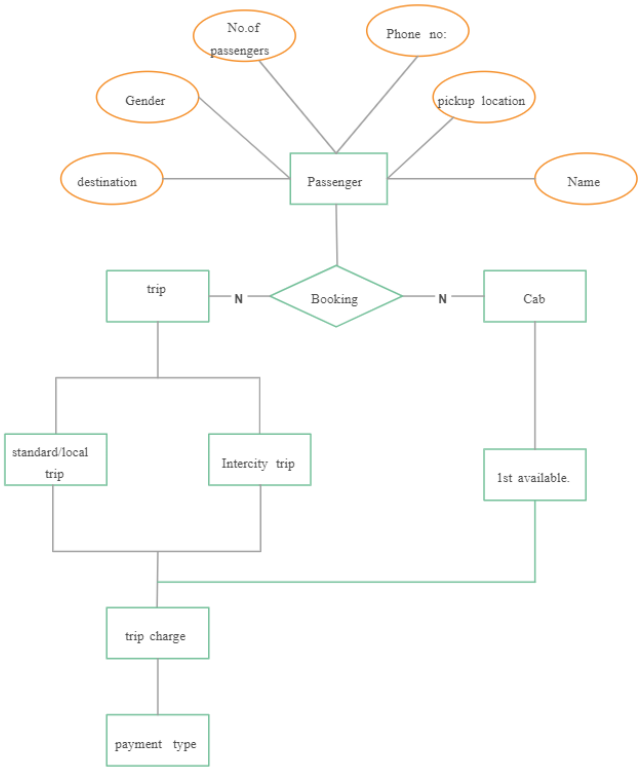

Figure 5 She Rides App Block Diagram

Implementation Plan and Methodology:

Algorithm for "She Rides" Cab Booking App:

1. Requirements Gathering:
- Gather detailed requirements for the cab booking app, including user features, cab categories, payment methods, and design preferences.

2. Choose Technology Stack:
- Select the technology stack for development, including the choice of programming language, database management system, and front-end frameworks.

JAVA/Android Studio/MySQL

3. Database Design:
- Design the database schema to store cab information, user data, ride history, and other necessary information. Using MySQL.

4. User Authentication and Authorization:
- Implement user authentication and authorization systems to secure user data and provide access control.

5. Cab Booking Mechanism:
- Develop an algorithm for cab booking based on user preferences, ride availability, and cab location. Set up notifications for users to track bookings and arrival times.

By following this implementation plan and algorithm, the "She Rides" cab booking app can be developed efficiently and securely, providing a positive experience for women passengers and ensuring their safety and comfort while using cab services.