SE 216 - SOFTWARE PROJECT MANAGEMENT

Software Development Plan

Truber

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CONTENT

Overview:

The trucking industry is a vital part of the global economy, but it faces several challenges that hinder its growth and efficiency. One of the most significant challenges is the shortage of drivers, which limits the industry's capacity to transport goods. Additionally, the industry is plagued by inefficiencies, including a lack of coordination between truckers and companies, which often results in empty return trips and wasted fuel. In our one-on-one meetings with the customer and truck drivers, we saw a need for such a job and application in the truck industry. So, we decided to develop this application.

Truber is a project developed to prevent such problems and to ensure good development on both sides. Increasing the budget on the part of the worker in terms of freelance job opportunities and flexible working days. On the other hand, employees of the company, can make a profit without giving the amount they receive to logistics companies and regulate the amount of workers during high demands

Thus our main objectives in this project are:

• To develop a trucking platform that connects independent truckers with companies in need of transportation services

• To provide truckers with a user-friendly and flexible platform to find and accept jobs while on the road

• To increase the efficiency of the industry and reduce transportation costs for companies

• To ensure the safety and security of both truckers and companies

Finally, truck drivers using this application can review and change their job opportunities according to their wishes and take a break from work. Likewise, companies can post jobs and find more workers for more opportunities.

High-Level Functionality:

Functional Requirements

1. The system shall allow users to message between each other.
2. The system should allow truck drivers and companies to register and create their profiles with essential information such as name, contact details, and payment details.
3. The system should allow employers to select multiple drivers for 1 job.
4. The system should calculate the estimated arrival time for the driver to pick the packages.
5. System should show all the details about the contract like distance of driver etc.
6. The system should allow employers to rate and see comments about drivers.
7. The system should accept driver's licenses to approve if the driver is capable of the job.
8. The system must provide a job board that displays available jobs and allows truckers to apply for them.
9. The system should automatically calculate and deduct a commission fee from each completed job, which will be payable to the platform owner.

Non-Functional Requirements

1. The System should support English & Spanish & Turkish languages.
2. The System should open any page in less than 15 seconds.
3. The System should be available 24/7.
4. The System should require at least 1GB of free space.
5. The System should support Edge Browser, Chrome Browser, Firefox Browser.
6. The system should use Google maps services to navigate the contract.

Stakeholders:

1. **Development Team :** Team members who develop the system.
2. **Truck owners :** Truck Drivers who are looking for a job.
3. **Company Managers :** The employers who want to hire truck drivers for their shipment.
4. **Investor :** People who are sponsored for this project.
5. **Competitors :** Other teams that are trying to implement their own truck apps.
6. **Government :** Since truck drivers will travel between cities, the government will manage permissions for roads such as highway, ring road, etc.

Project staffing:

1. **Software Developer :** To develop the web app part of the project, deploy it and make it available in the stores.
2. **Security Engineer (white-hat hackers) :** To test the security of the system and if the system is not secure enough develop new security measurements and apply them.
3. **QA Engineers :** To validate the quality of the application via automated tests, tools and methods.
4. **Cloud Engineer with Data-Science abilities :** To deal with huge amounts of data, query and manipulate them.

Software Process Model:

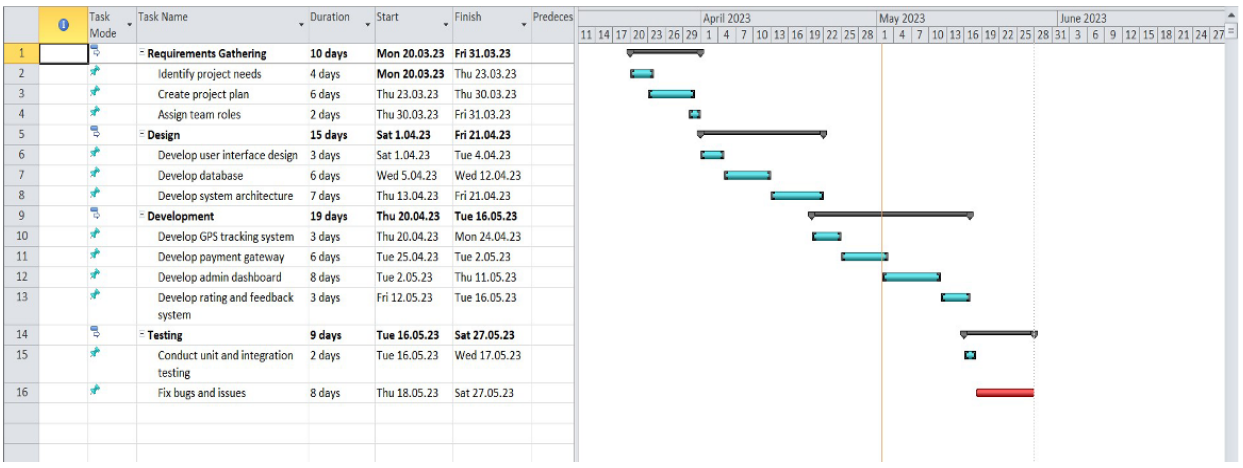
For the development of Truber, we have chosen the Agile model as our software process. Agile is an iterative approach to project management and software development that helps teams deliver value to their customers faster and with fewer headaches. It involves breaking the project into several phases and emphasizes continuous collaboration with stakeholders, allowing for constant improvement throughout the development cycle.

The Agile methodology follows a cyclic process of planning, executing, and evaluating. This iterative nature promotes a self-organizing team that learns and grows over time, continuously improving their practices. By embracing Agile, we can identify and predict risks more effectively, allowing us to plan and mitigate them proactively, ensuring a smoother project execution.

One of the key advantages of Agile is the active involvement of the client throughout the development process. This enables them to provide feedback, request changes, and align the product with market realities as needed. By maintaining this client engagement, we ensure that Truber meets their evolving expectations and remains relevant in a dynamic market environment.

Additionally, the widespread use of the Agile methodology in software development reinforces our decision to adopt it for Truber. This industry-standard approach will not only facilitate the successful development of our application but also prepare us for our post-graduation careers. By gaining experience with Agile, we equip ourselves with valuable skills and knowledge that will benefit us in future software development endeavors.

Schedule and Effort:



	Task Mode	Task Name	Duration	Start	Finish	Predeces
1		**Requirements Gathering**	**10 days**	**Mon 20.03.23**	**Fri 31.03.23**	
2		Identify project needs	4 days	**Mon 20.03.23**	Thu 23.03.23	
3		Create project plan	6 days	Thu 23.03.23	Thu 30.03.23	
4		Assign team roles	2 days	Thu 30.03.23	Fri 31.03.23	
5		**Design**	**15 days**	**Sat 1.04.23**	**Fri 21.04.23**	
6		Develop user interface design	3 days	Sat 1.04.23	Tue 4.04.23	
7		Develop database	6 days	Wed 5.04.23	Wed 12.04.23	
8		Develop system architecture	7 days	Thu 13.04.23	Fri 21.04.23	
9		**Development**	**19 days**	**Thu 20.04.23**	**Tue 16.05.23**	
10		Develop GPS tracking system	3 days	Thu 20.04.23	Mon 24.04.23	
11		Develop payment gateway	6 days	Tue 25.04.23	Tue 2.05.23	
12		Develop admin dashboard	8 days	Tue 2.05.23	Thu 11.05.23	
13		Develop rating and feedback system	3 days	Fri 12.05.23	Tue 16.05.23	
14		**Testing**	**9 days**	**Tue 16.05.23**	**Sat 27.05.23**	
15		Conduct unit and integration testing	2 days	Tue 16.05.23	Wed 17.05.23	
16		Fix bugs and issues	8 days	Thu 18.05.23	Sat 27.05.23	

Measurements:

• Questions to identify measurements:

Does the product meet its requirements?

• Identified measurements:

-The quickness of the current job status

-Number of truck drivers and companies

-Number of errors and bugs occurred if development phase

• Measurement storage and collection:

What number of truck drivers

What number of hours, errors and bugs

When show job activity simultaneously

When rating stars for a job

How planning the job between the worker and company owner

Launching time: This measurement illustrates the time spent in each launching phase after it's published

Number of Users: This measurement shows how both users ratings and how popular is the application is based on the number of users

Required Training: How long it takes the typical user to become familiar with the app

Time spent: The number of hours put into developing the app and the project's other components.

Testing: The time required to test the applications functionality

Income: Commission received from the company we act as an bridge for when a job is completed

Project Risks:

LIKELIHOOD RANK	RISK DESCRIPTION
1	Testing - The product can be difficult to test.
2	Customer Adaptation - Truck driver's adaptation may be hard for using the app
3	Accuracy of the Location - Some problems that may occur on the map may cause inaccuracies at the delivery site.
4	Design Complexity - The team has little experience with the deployment platform.
5	Aggressive Deadlines- Planned deadlines for the Project can be a problem.
6	Poor Risk Management - Risk analysis may not be a proper one
7	Training - Team members skills and experience can be low.

8	Backup Budget Problem - The amount of Money that this Project requires may not be affordable by the team members
9	Security - The system can be attacked by hackers.
10	Debugging- Effective debugging will be difficult because a defect may not be immediately obvious.
11	Tools – Development team should learn new design and adapt them accordingly

IMPACT RANK	**RISK DESCRIPTION**
1	Security - The system can be attacked by hackers.
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11	Tools - Development team should learn new design and adapt them accordingly

LIKELIHOOD RANK	**IMPACT RANK**	**COMBINED RANK**	**RISK DESCRIPTION**
1	2	3	Testing – The product can be difficult to test.
2	5	7	Customer Adaptation - Truck driver's adaptation may be hard for using the app
5	3	8	Poor Risk Management- Risk analysis may not be a proper one
8	1	9	Security - The system can be attacked by hackers.

3	7	10	Design Complexity - The team has little experience with the deployment platform.
4	6	10	Aggressive Deadlines- Planned deadlines for the Project can be a problem.
6	8	14	Training - Team members skills and experience can be low.
11	4	15	Accuracy of the Location - Some problems that may occur on the map may cause inaccuracies at the delivery site.
7	9	16	Backup Budget Problem - The amount of Money that this Project requires may not be affordable by the team members
9	10	19	Debugging- Effective debugging will be difficult because a defect may not be immediately obvious.
10	11	21	Tools - Development team should learn new design and adapt them accordingly

Software Tools:

Project Tasks Which Require Software Tool Support:

1. Database is needed to store users' names, phone numbers, car plate, drivers' license and company information.
2. An IDE can be extremely useful for developing our project, providing a centralized platform that streamlines the software development process and offers a range of features such as code editing, debugging, and version control. This can save time and increase productivity.

3. To manage the events that are happening in the development process.

Databases

Costs: The most important issue we pay attention to when choosing a database system is cost. Our options are, Oracle costs $10000, MsSQL $2500, Maria DB $0 and MySQL $800 per year. OracleDB, which is the most expensive option when looked at, has been our choice in this project thanks to its other features.

Training Days: In order to use an application effectively, we must learn to use that application well. For this reason, it is very important to know the learning times. MySQL has 10 days, MsSQL 4 days, Maria DB 3 days, and MySQL 2 days.

Functionality: When we look at the functionality of database systems, we see that the best option is MySQL.

Which tool has been selected? Why?

As a result, MySQL is the most suitable for the project as in cost and functionality since it will be covering all the user information in the database.

IDE

Costs: While in the developing process an IDE is important that the area to be coded is cheap and convenient. VS Code $100 per month, NetBeans $0, Eclipse is also $0 and PhpStorm is $250.

Training Days: In order to develop an application effectively, we must use an IDE. VS Code has 5 days, NetBeans 4 days, Eclipse 6 days, and PhpStorm 10 days.

Functionality: When we look at the functionality of the IDE, we can see that the best option is VS Code.

Which tool has been selected? Why?

We decided VS Code as the IDE because it contains all the features we need and training day is suitable for us to learn VS Code with these features.

Project management tool

Costs: It is important that we use a project management tool to track the events to be carried out during the project development phase. Jira costs $50 per month, Trello is completely free, Asana has a $10 charge and Ora is $20.

Training Days: In order to facilitate the follow-up of the activities to be done, we should give importance to the one with the least training days. Jira has 8 days, Trello is 2, Asana is 6 and Ora is 4.

Functionality: When we look at the functionality of the project management tools, we can see that the best management tool is Trello.

Which tool has been selected? Why?

Trello is more suitable for our project because it is easy to use and it is more flexible compared to other project tracking tools.

Project Needs:

Software needs description

-Web App Development: You will need to develop a web application for drivers and users that are compatible with browser platforms.

-GPS Integration: To track the real-time location of trucks and give contractors real-time tracking, we must include GPS functionality.

-Admin Dashboard: We need a management interface that enables you to control the entire system, including the drivers, users, and trips.

-Rating System A system of ratings for users and drivers, as well as comments for raising the standard of services.

-Applicable Payment: To make payments between users and drivers easier, a secure payment channel must be integrated.

Hardware needs description

-GPS Devices: GPS devices to track the location of trucks in real-time

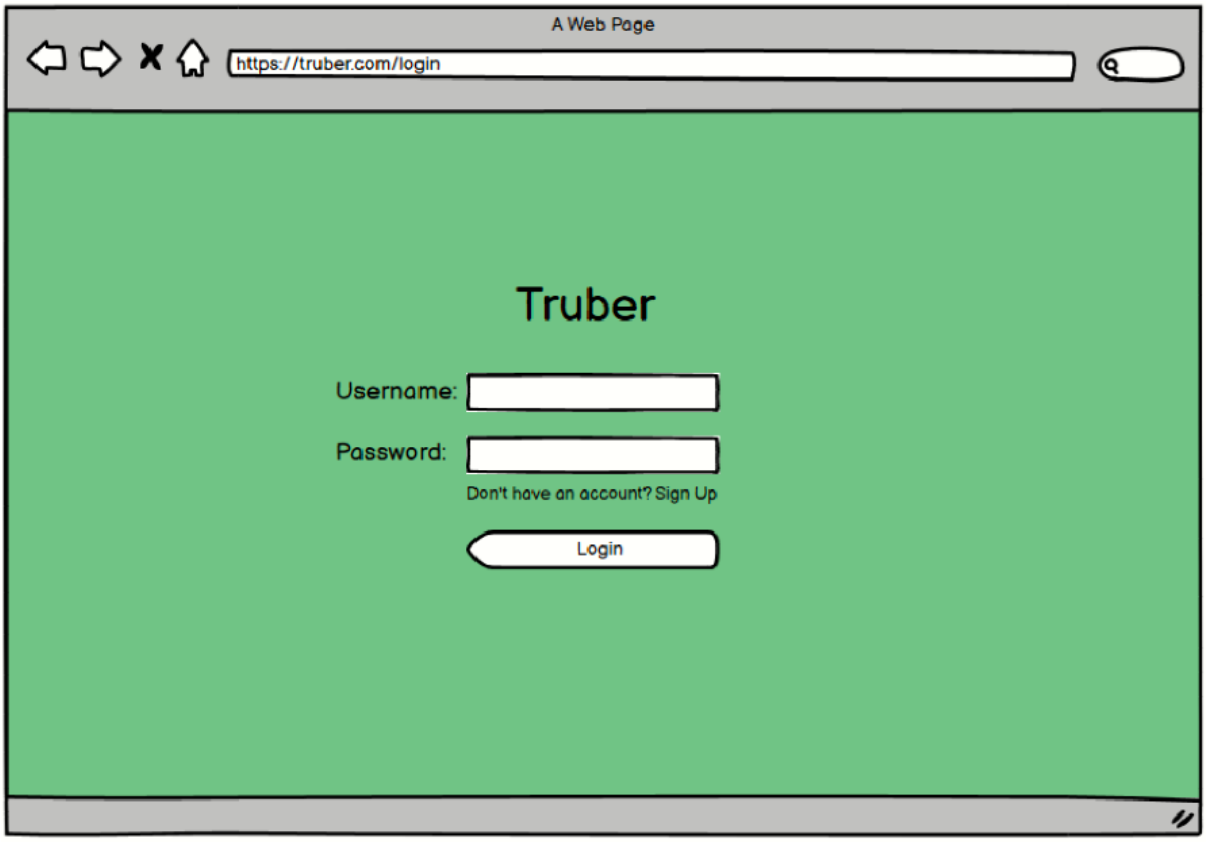
-Devices: To access the application, users and drivers will need devices, such as smartphones and computers.
-Server: We need serve to host Truber application
-Computer: Every member in our team needs computer to develop Truber application

Support needs description

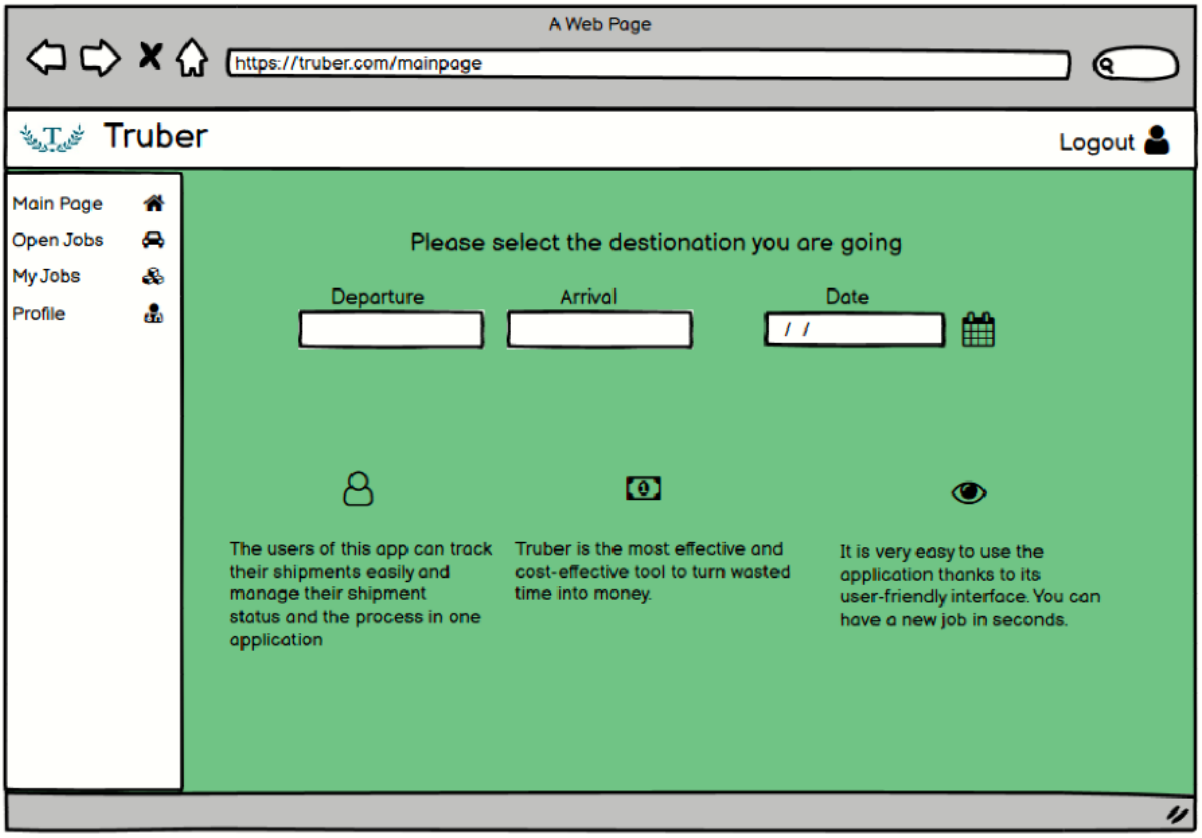
-Technical Support: Technical assistance to maintain the hardware and software systems, including bug fixes, availability guarantees, and maintenance
-Customer Support: To help users with any problems they could have, including money disputes, driver behavior, and technical issues
-Regulatory Support: We will require legal assistance to help you manage any potential legal challenges, including privacy issues, arguments between drivers and contractors, and local laws.

Gui:

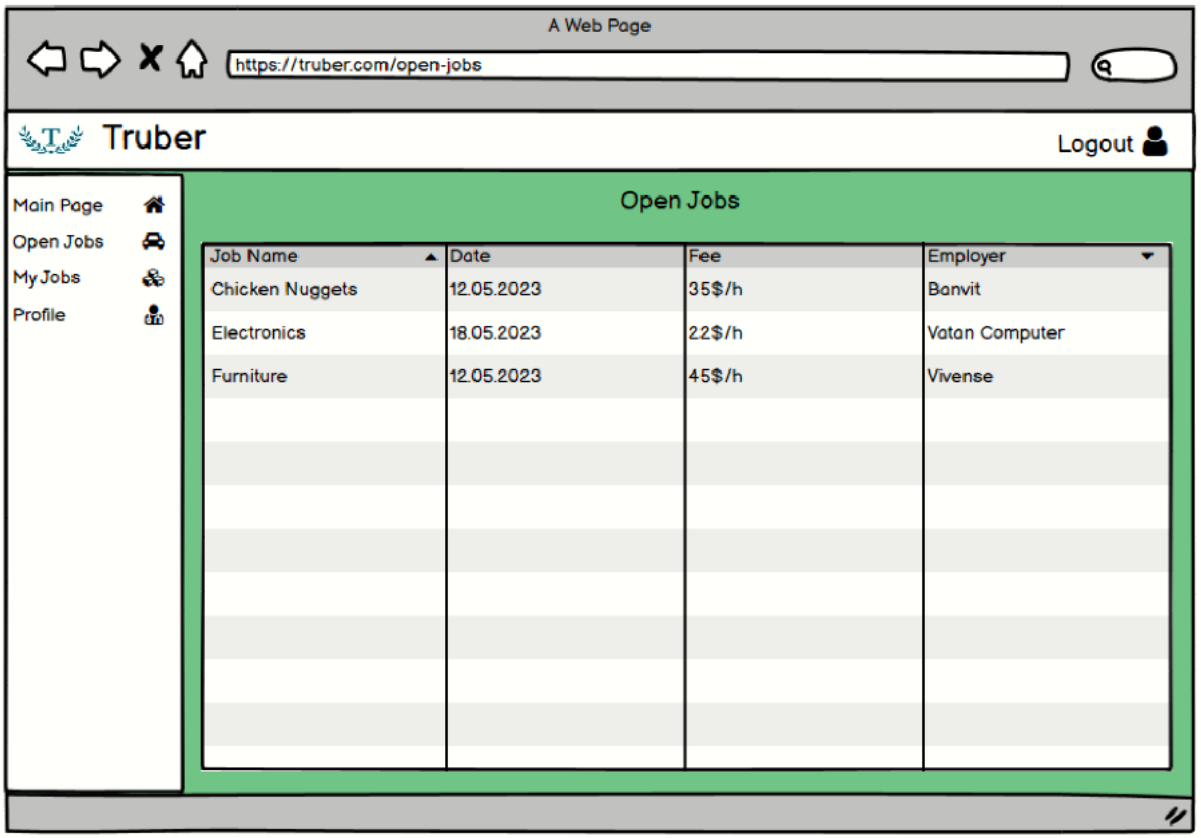
Login Page



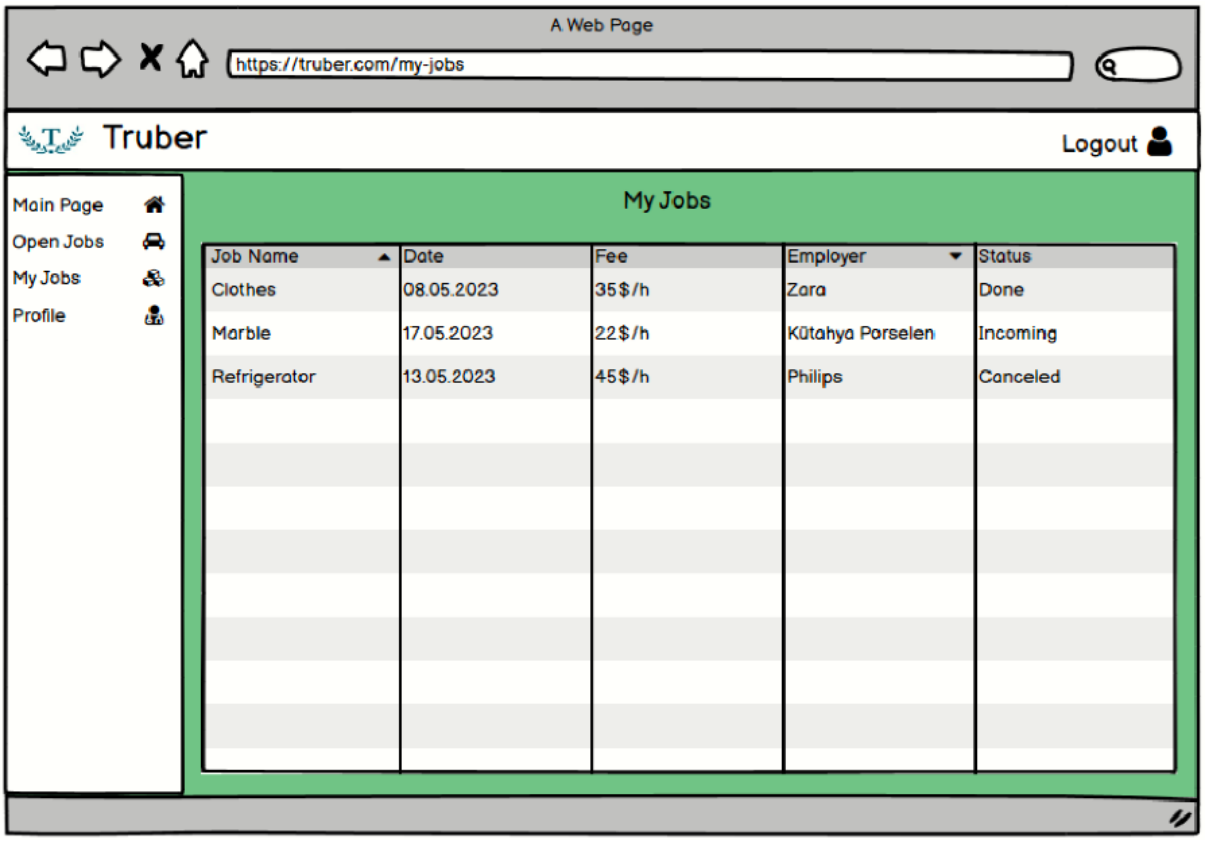
Main Page


A Web Page
https://truber.com/mainpage
Truber
Logout
Main Page
Open Jobs
My Jobs
Profile
Please select the destionation you are going
Departure
Arrival
Date
/ /
The users of this app can track their shipments easily and manage their shipment status and the process in one application
Truber is the most effective and cost-effective tool to turn wasted time into money.
It is very easy to use the application thanks to its user-friendly interface. You can have a new job in seconds.

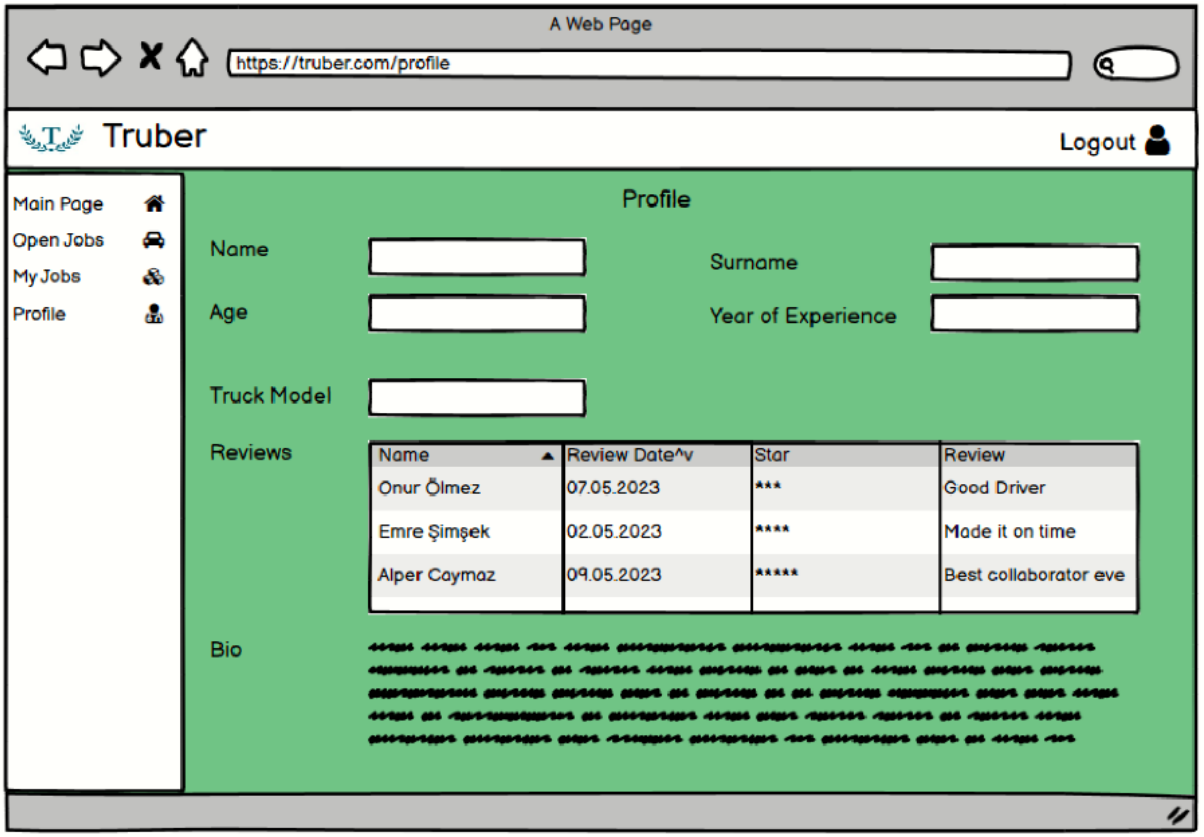
Open Jobs Page



My Jobs Page


A Web Page
https://truber.com/my-jobs
Truber
Logout
Main Page
Open Jobs
My Jobs
Profile
My Jobs
Job Name
Date
Fee
Employer
Status
Clothes
08.05.2023
35$/h
Zara
Done
Marble
17.05.2023
22$/h
Kütahya Porselen
Incoming
Refrigerator
13.05.2023
45$/h
Philips
Canceled

Profile Page



Conclusion:

In conclusion, the trucking sector is a vital part of the world economy, but it faces a number of difficulties that limit its development and effectiveness. Transportation costs, fuel consumption, and the environment are significantly impacted by the lack of drivers and industry inefficiencies. By linking truckers with businesses in need of their services, offering drivers flexible work options, and enhancing communication between all parties involved, the Truber application seeks to alleviate these difficulties. The industry can use Truber to improve productivity, save transportation costs, and lessen environmental effects. The Truber project is a step in the right direction for the transportation industry's future prosperity and sustainability.