**Moving Lines Ride Share System**

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**ISDS 406**

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## **2.** **Executive Summary**

**Moving Lines is a Moving company that want to develop a website that provides ride shares services to person who need a truck for a short trip. For example, if one buy a new bed, or furniture but doesn’t have a truck to transport there new purchase would use Moving lines system/website to be able to rent a truck and truck driver for a short trip for a fee. The website will facilitate the transaction of a client requesting the ride, and the driver who owns and operates a pickup truck. The website will charge a fee for facilitating the rental transaction. Moving lines is not a technology company so it doesn’t have the technical skills to create and implement the system. Due to the lack of knowledge, there will be a large learning curve which will make the creation and implementation a risky endeavor.**

## 

## **3. System request:**

**Project Sponsor:** The CEO

Business needs: The project needs to be initiated to create a system with the capability of clients to order a truck for a short period of time. The system also needs to be capable of having people sign up to rent their trucks.

**Business requirements:**

The system needs to be able to provide an online truck rental application similar to uber. The app will match the user who is requesting to rent a truck with the user who wishes to rent out a truck that is in the same vicinity. The system should capture geographic and user information such as name, payment methods, and insurance info. The system also needs to be able to calculate the cost of the rental based on mileage and length of truck rental.

**Business value:**

The app will charge a percentage of the cost to rent the truck. The percentage charged will be 40% of the truck rental. Every time a user rents a truck Moving lines will get 40%. The average transaction will be between 35$(the average uber is 24$). The total amount of transaction is forecasted to be 500,000 rides in the first year.

* $7,000,000.00 of revenue in the first year from the fee charged for using the app.

**Special Issues or constraints**:

### **Technical Challenges**

1. **Real-time Location Tracking:**
   1. **Accuracy:** Ensuring accurate and timely location updates from both riders and drivers.
   2. **Battery Consumption:** Optimizing location tracking to minimize battery drain on user devices.
   3. **Privacy Concerns:** Balancing the need for precise location data with user privacy.
2. **Scalability:**
   1. **Handling Peak Loads:** Designing the system to handle surges in demand, especially during rush hours or special events.
   2. **Efficient Resource Allocation:** Optimizing resource utilization to avoid bottlenecks and ensure smooth operations.
3. **Security and Privacy:**
   1. **Data Protection:** Safeguarding sensitive user data, including personal information, payment details, and location history.
   2. **Fraud Prevention:** Implementing robust measures to detect and prevent fraudulent activities, such as fake accounts and fraudulent transactions.
4. **Payment Processing:**
   1. **Integration with Payment Gateways:** Seamlessly integrating with multiple payment providers to offer various payment options.
   2. **Secure Transactions:** Ensuring secure and reliable payment processing to protect user funds.
   3. **Dispute Resolution:** Handling payment disputes and chargebacks efficiently.

### **Operational Challenges**

1. **Driver Management:**
   1. **Recruitment and Onboarding:** Efficiently recruiting and onboarding drivers to maintain a sufficient supply of drivers.
   2. **Driver Ratings and Incentives:** Developing a fair and transparent rating system to incentivize quality service.
   3. **Driver Support:** Providing effective support to drivers to address issues and concerns.
2. **Rider Experience:**
   1. **User Interface:** Designing an intuitive and user-friendly app interface.
   2. **Reliable Matching:** Ensuring efficient matching of riders with available drivers.
   3. **Transparent Pricing:** Implementing clear and understandable pricing models.
3. **Regulatory Compliance:**
   1. **Local Regulations:** Adhering to local regulations, including licensing requirements, insurance, and tax laws.
   2. **Data Privacy Laws:** Complying with data privacy regulations like GDPR and CCPA.

Modeled after figure 1-5 (Wiley, 2022, pg.18)

4. Feasibility Analysis  **4.1 Technical Feasibility**   
 The new system is technically feasible and rather simple, but since the company has no experience with running and maintaining the system it will have a considerable learning curve, and will need to hire and train new staff.

**Moving lines familiarity with the new system is nonexistent.**

* Moving line has no experience with the new system so management must either train or hire staff to run.
* Moving lines is a moving service and the current system will be drastically different and automated.
* If moving lines want to roll out the system nationwide it will need to partner with a national auto repair chain to verify that trucks being rented are safe and reliable
* Moving Lines will need to hire trained technical staff to maintain the system.

**New technology compatibility**

* The new project will need significant upgrades and infostructure which will cause risk because of a lack of experience maintain such infostructure.

**The project size is moderate to low:**

* There is no new technology, so technology is proven and available and smartphone has GPS and gyroscope technology in all android and apple smartphones
* The app will need to contract with google or other map providers.
* The system only has three use cases and a moderate number of steps and few exceptions.
* The team will be between 5-7 people

**4.2 Organizational Feasibility**

From an organizational perspective, the project poses a significantly high risk

**Top Management Support:** The project has a high level of support from top management.

**The Project champion:** Moving Lines CEO

**Organizational Management:**

* The organization needs to hire new management to train and develop operating staff which might disrupt the company culture, so it is important that the current employees trust that the new project will benefit the company as a whole.
* The new project will be completely different from the current system, and change the focus and direction of the companies which may affect the organization’s culture.

**Customers**:

* There are many similar websites that use GPS, so customers will expect the new system to work seamlessly with no mapping/GPS errors. The website should be easy and simple to use with minimal steps. I see the biggest obstacle will be the gps mapping.

**Additional Comments:**

* The development and deployment of this system will open moving lines to an entirely new market but this is no small task, and there will be a significant learning curve that needs to be overcome.

Modeled after figure 2-18 (Wiley, 2022, pg.62)

## **5.Staffing Plan:**

|  |  |  |
| --- | --- | --- |
|  | Description | Assigned |
| **Project Manager** | Manages overall system implementation and set goals and objectives for overall design and implementation. The project leads will have significant experience managing and implementing new systems. | Brian Gonzales |
| **Infrastructure Analyst:** | Has technical skills and is responsible for developing the infrastructure of the system to ensure uninterrupted service and the system should be scalable Must have technical skills in the area of network and security. | Anne Stapleton |
| **Programmer** | Codes the entire system and that will enable both customers to come together and enter into an agreement, and processes transaction. Must have a technical skills such as coding java or HTML. | Sam Wiengarten |
| **System Analyst:** | Analysis and design: With a focus on the customer who wishes to rent their truck and complete the truck rental service. Strong Interpersonal skills and problem-solving skills. | Isabel Tardy |
| **System Analyst** | Analysis and design: With a focus on the retee component of the case the first use case enable the customer to request to rent a truck. | Laura Cooper |
| System Analyst | Analysis and design: With a focus on joining two into a contract and tracking the mileage and time to compute the total charge of service. Also, to create a way to rate experience and track customer satisfaction. | Dan Chamber |

Staffing Plan Modeled after figure 2-19 (Wiley, 2022, pg.64)

## **6. Risk Assessment**

**Risk 1:**

The development of the system poses a significant risk. Moving lines currently do not have any employees with system development skills, and there will be a significant learning curve.

**Likelihood of risk:**

High likelihood of risk

**Potential Impact of risk:**

System implementation will take twice as long due to a lack of experience in designing and implementing the system.

**Ways to address the risk:**

One way to address the risk is to hire a consulting company to help with design and implementation. Another solution is you could hire a team of employees with programming and system analysis and design skills with experience in similar projects. Lastly, you could outsource the project.

**Risk 2:**

Current and new employees will l have a hard time transitioning to the new system.

Likelihood of risk:

Moderate risk

**Potential Impact of risk:**

They may be a significant learning curve with many mistakes, and problems with user adoption. Also, a significant increase in time and cost for training new and current employees. The organization’s culture may change which will affect the current employees. Many new employees will have to be brought in which may change the organization’s behavior which could pose. User adoption.

**Ways to address the risk:**

Hire a change manager who has experience in technology change within an organization change. Develop an adequate digital transformation strategy. Hire a consulting firm to help moving line transition into the new system. Hold training sessions to help current employees learn to operate the new system. Covey the importance and value of the new system to the current and new employees.

Modeled after figure 2-18 (Wiley, 2022, pg.62)

## **7. Functional Requirement (Client):**

**The client creates a Moving Lines Account Ride share account**

* 1. The system gives the customer the option of creating a free account.
  2. The system enables the client to fill out a new client form and store all related client information and payment information.
  3. The system enables clients to create a unique username and password, so clients can access ride share website and request services

**The client creates a Ride Request.**

2.1. The system enables the client to request ride-share services.

2.2. The system enables customers to enter ride details such as GPS drop off an pick up locations to the ride request.

**Manage Ride Request**

3.1 The system confirms ride request

3.2. The system records ride requests.

3.3 The system generates ride request notification

3.4 The system sends ride request notification to the drivers in proximity to the ride request pick-up location.

**Function Requirements**

**The driver creates a Moving Lines Partnership Account**

4.1 Enables driver to enter into a partnership agreement and submit driver information, insurance, and truck information.

4.2 System notifies the driver of acceptance into partnership.

4.3. System enables the driver to create a unique username and password.

4.4. The system provides drivers with instructions to fulfill ride share.

**Driver Bids on Ride.**

5.1 The system notifies the drive of ride requests in proximity.

5.2The system allows the driver to enter a bid for a ride request.

5.3 The system record driver bid.

**The winning bid is selected**

6.1. System sorts and ranks bids.

6.2. System selects the winning bid based on the bid price

6.3. System creates a notification that notifies all bidding drivers whether they were selected or not

6.4. System sends ride detail to the driver.

6.5. System sends client assignment of ride drive.

**8. 7.2 Functional Requirement (driver):**

Function Requirements

1. System obtains flight requests.

2. System uses GPS of the ride request area to define the ride proximity region.

3. System develops a list of drivers in the flight proximity region.

4. System calculates the price of ride based on pricing guidelines and characteristics of the ride request

5. System prepares a ride request notification to all piolets based on a list developed by course 3 and included the following information. Pick up location and drop off location, and estimated pricing. Opening and closing bid window period

6. System transmits ride request notification to all piolet in proximity to ride request.

7 System Store flight request information in the data store

8. Truck renter dashboard is modified to present the ride request notification with a countdown window for biding.

## **8. Nonfunctional Requirements**

1. **Operational** 
   1. The system must run on any web browser
   2. Native apps will be developed to run on IOS mobile, android mobile, and tablet devices.
2. **Performance**

2.1 Download speeds of ride notifications must be at an acceptable level.

1. **Security**
   1. Customer and driver information must be secure.
   2. Payment information must be encrypted.
2. **Cultural Political** 
   1. Driver must have valid insurance and driver’s license.

Functional requirement Modeled after figure 1-5 (Wiley, 2022, pg.18)

## **9. 1.Use Case 2.A**

**Uc2A:**

**Use Case Name:** System Notifies Driver of ride request **ID:** Uc2A **Priority:** High

**Actor:** Truck Rental Ride Request System

**Use case Name:**

**Description**: This system describes how the system notifies the driver of new ride request

**Trigger:** Customer submits new ride request

**Type**: External

**Precondition**

The new customer creates an account.

The customer is authenticated.

A new ride request is submitted.

The Ride Share website is available online

**Normal Course**

New Customer Form.

Ride request

Ride request location

Driver Location

Ride details

Pricing guideline

Ride Request Notification message

New Flight request notification Record

New Driver Dashboard notice

1.0 System notifies Driver of the ride request.

1. System obtains ride requests.

2. System uses GPS of the ride request area to define the ride proximity region.

3. System develops a list of drivers in the ride proximity region.

4. System calculates the price of ride based on pricing guidelines and characteristics of the ride request

5. System prepares a ride request notification to all piolets based on a list developed by course 3 and included the following information. Pick up location and drop off location, and estimated pricing. Opening and closing bid window period

6. System transmits ride request notification to all driver in proximity to ride request.

7 System Store ride request information in the data store

8. Truck renter dashboard is modified to present the ride request notification with a countdown window for biding.

**Postcondition:**

A new ride request notification is created, recorded, and stored.

Truck drivers in proximity are notified.

Truck driver dashboard displays ride request information

|  |  |  |  |
| --- | --- | --- | --- |
| **Summary of inputs** | **Source** | **Summary Input’s** | **Destination** |
| Flight Request  Ride Location  Driver Location  Ride Details  Pricing Guideline | Create Ride Request Use Case  Ride Request  Driver data store  Ride Request  Price guideline Datastore | Flight request  Notification message  New Ride request  Notification record  Driver Dashboard update | Driver  Ride request data store  Dashboard of driver |

Use Case 2.a Modeled after figure 4-11 (Wiley, 2022, pg.131)

## 9.2 Use Case 2.b:

**Uc2B:**

**Use Case Name:** Driver Submits Bid **ID:** UC2B **Priority:** High

**Actor:** Driver

**Description**: This use case describes how the driver places a bid for an open ride request.

**Trigger:** Driver places a bid.

**Type**: External

**Precondition**

The driver is authenticated and signs into their dashboard.

Opens ride requests in the dashboard

The driver request application is available online

**Normal Course:**

Ride request

Ride request Notification,

Driver bid details

ride request details,

Driver bid confirmation

new Driver bid record.

1.0 Driver submits bid

1. Drive select the new ride request displayed on the dashboard.

2. System displays details of the ride request. Including location request/ drive features, price guidelines, and opening/ closing dates/ time of the driving bidding window.

3. Driver selects to submit a bid option.

4. System displays. Driver bid form.

5. Driver enters bid price and planned date and time of the ride.

6. System verifies that the bid meets the terms of the ride request If no errors. Continue. If errors display an error message and return to Step 5.

7. system request driver confirmation of the bid.

8. System stores new ride bid record.

**Postcondition:**

1. New ride recorded and storede

**Exceptions.**

E1: The bidding window is closed. (occurs at step 7)

1. Date time of driver confirmation is after the closing datdate-time the bidding window.

2. Modify the tatus of Flight bid to invalid/late

1. save flight bid record
2. notified the pilot of late submission of bid status.

|  |  |  |  |
| --- | --- | --- | --- |
| **Summary of inputs** | **Source** | **Summary Input’s** | **Destination** |
| Ride request record Ride request notification details,  Ride bid details  bid confirmation | Ride request Datastore  Ride request Notification Datastore.  Driver  Driver | Ride bid record  Ride bid status | Ride bid data store. Driver |

Use Case 2.b Modeled after figure 4-12 (Wiley, 2022, pg.132)

## 9.3 Use Case 2.c:

**Uc2:**

**Use Case Name:** Select wining ride bid **ID:** UC2c **Priority:** High

**Actor**: Auction Manager system

**Description**: This use case describes how the system selects the winning bid for an open ride request.

**Trigger:** Ride request bid closes

**Type**: External

**Precondition**

Ride request is submitted

The driver places a bid on a ride request.

The bidding window on a ride has closed.

**Normal Course:**

Driver dashboard

Driver bid record

Winning bid notification

Awarded ride detail

Unsuccessful Bid notification

Ride assignment notification

updated ride request

1.0

1. System post “closed to bid” message to all piolets dashboards that in proximity to location on the ride requests.

2. System sort and ranks qualified bids.

3. The system selects the winning bid based on winning bid criteria.

4. The system sends a ride assignment notification message to the

selected/winning driver.

1. System post flight details on selected pilots’ dashboard

6. The system notifies all other bidding drivers of the final selection.

7.The system notifies customers/ride requestors that the ride has been assigned to a driver, and the ride is scheduled

8.System updates ride request requests with driver assignment details.

**Postcondition:**

1.The driver of a selected bid is notified

2.The selected pilot dashboard is updated with ride details.

3.Drivers who did not win the bid are notified.

4.Bid Records, selected status of the update.

5. Ride requestor is notified of driver assignment

6.drive. Or assignment Flight request recorded update with driver assignment.

**Exceptions.**

E1: The bidding window is closed. (occurs at step 7)

1. Date time of driver confirmation is after the closing date date-time the bidding window.

2. Modify the tatus of Flight bid to invalid/late

1. save flight bid record
2. notified the pilot of late submission of bid status.

|  |  |  |  |
| --- | --- | --- | --- |
| **Summary of inputs** | **Source** | **Summary Input’s** | **Destination** |
| Driver bid record  Winning bid | Ride bid data store | Bidding window closed  winning bid notification  bid award notification  unsuccessful bid notification  Ride assignment notification  updated ride request | Pilot dashboard  Winning Driver  Driver dashboard  Unselected drivers  Client  Ride request datastore |
|  |  |  |  |

Use Case 2.C Modeled after figure 4-13 (Wiley, 2022, pg.131)

## Context Diagram

Graphical user interface, text

Description automatically generated with medium confidence

Context Diagram Modeled after figure 4-14 (Wiley, 2022, pg.139)

## Level 0 Diagram:

A picture containing diagram

Description automatically generated

Level 0 diagram Modeled after figure 4.28 (Whiley, 2022, pg.159)

## Level 1 Process 1 Diagram

Diagram

Description automatically generated

Level 1 process 1 diagram Modeled after figure 4.29 (Whiley, 2022, pg.160)

## Level 1 Process 2 Diagram

Diagram

Description automatically generated

Level 1 process 1 diagram Modeled after figure 4.30 (Whiley, 2022, pg.161)

### Level 1 Process 3 Diagram

A picture containing diagram

Description automatically generated

Level 1 process 1 diagram Modeled after figure 4.31 (Whiley, 2022, pg.162)

### Data Model ERD

A picture containing timeline

Description automatically generated

Data Model ERD Modeled after figure 5.14 (Whiley, 2022, pg.187)

## Reference Page

Alan Denis, Barbra Haley Wixom, Robert M. Roth (2022). Title of work: SYSTEMS ANALYSIS AND DESIGHN. Whiley.