# Transportation Network Company



Anas Farag Ali – 13 ID: 2166120180100233

Mohamed Khaled Mohamed - 44 ID: 2166120180101280

Mariam Tarek Abdelghany – 53 ID: 2166120180100823

Mahmoud Kamal Aldeen Mahmoud - 55 ID: 2166120180101166

Mona Khaled Abdelghany – 60 ID: 2166120180100871

Nihal Khaled Mohamed – 64 ID: 2166120180100902

**System Analysis Project** 

# Transportation Network Company

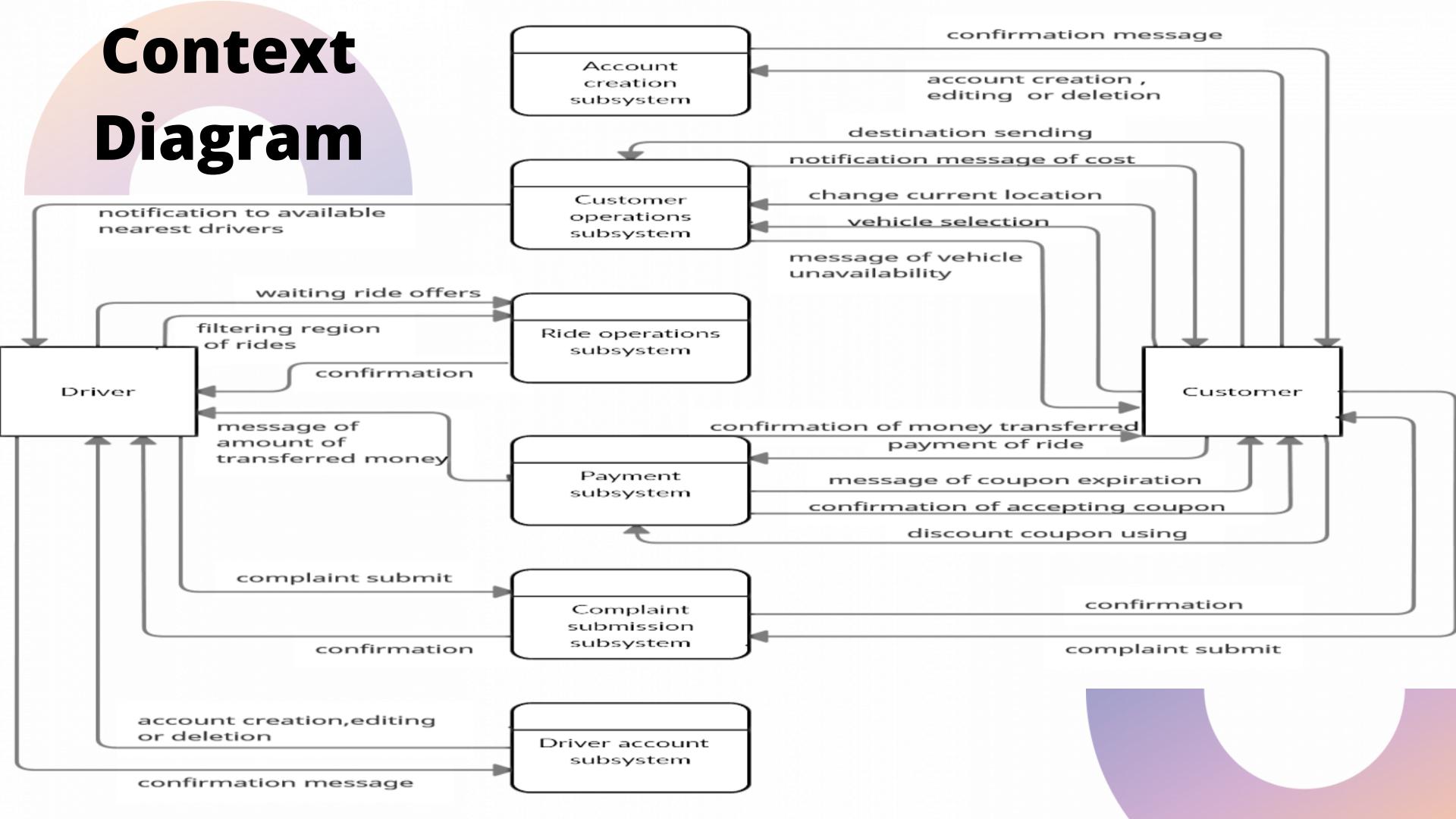
Transportation Network Companies (TNCs) provide prearranged transportation services for compensation using an online-enabled application or platform (such as smart phone apps) to connect drivers using their personal vehicles with passengers. Examples include Uber, Lyft, and Careem.







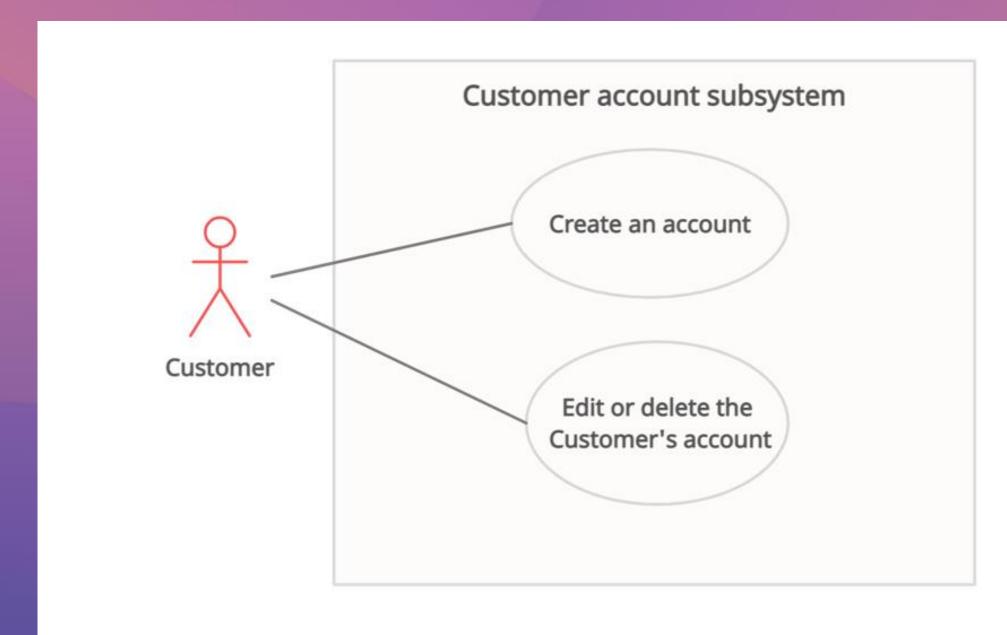




# Use Cases

#### Use Case: Create an account

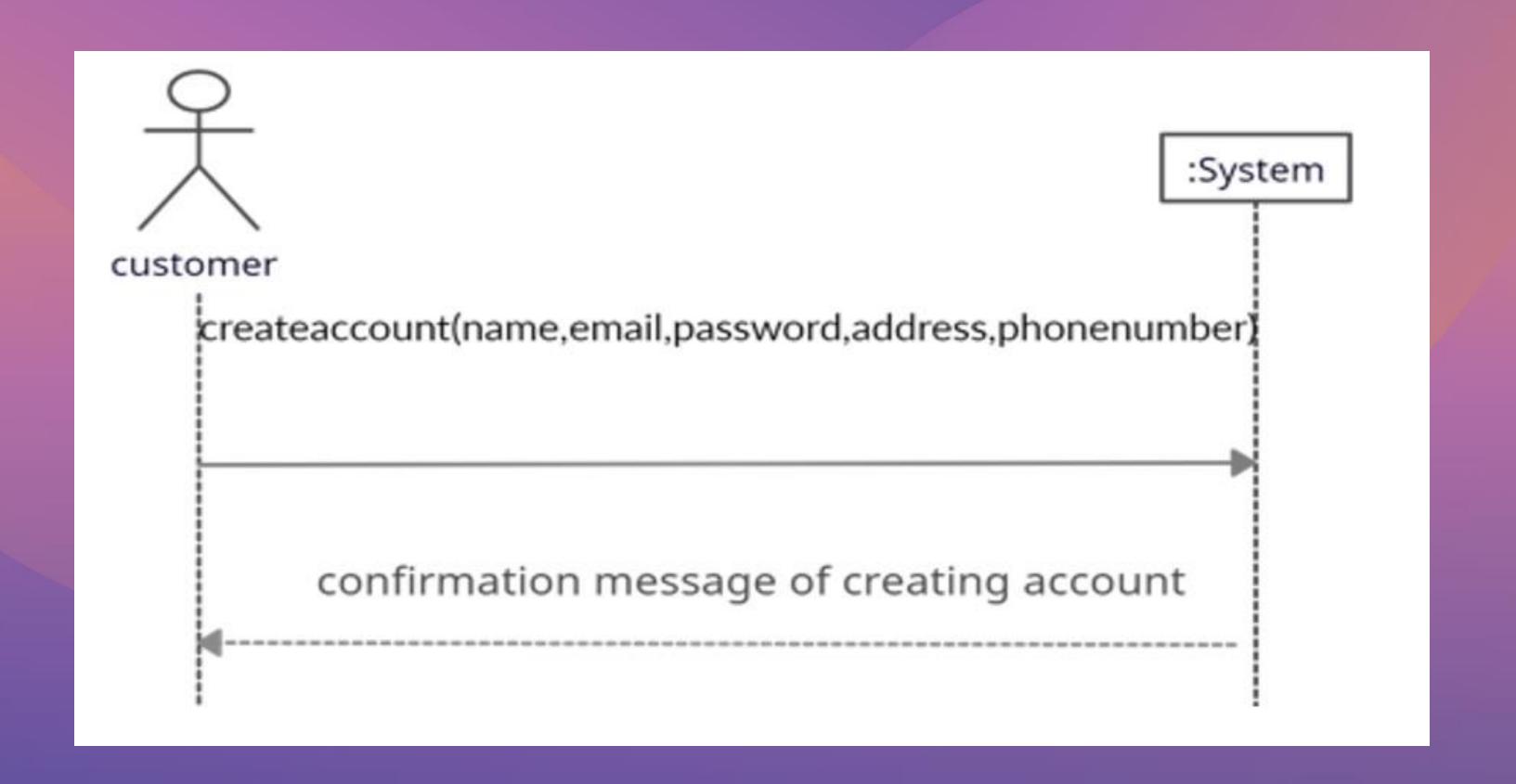
EVENT	TRIGGER	SOURCE	USE CASE	RESPONSE	DESTINATION
Customer wants to create an account	Account creation	Customer	Create an account	Confirmation	Customer



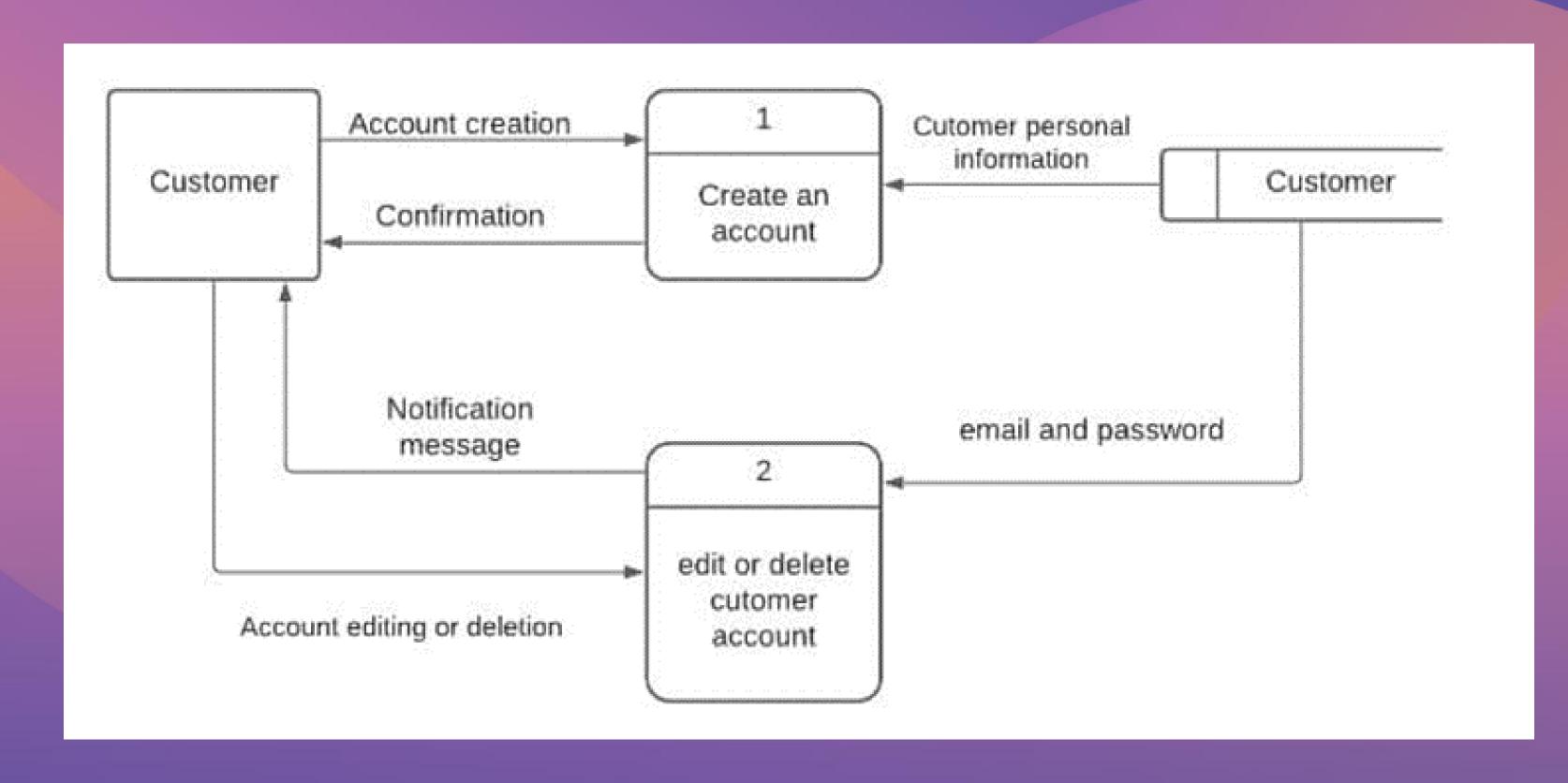
## Use Case Description

Use Case Name	Create an account										
Actors	Customer	Customer									
Preconditions	- Customer should have the	- Customer should have the application.									
Postconditions	- Customer has an account										
	Customer	System									
Flow Activities	<ol> <li>customer wants to create an account</li> <li>customer fill in registration form</li> </ol>	<ul><li>1.1 System displays a registration form.</li><li>1.2 System sends a confirmation message</li></ul>									
Exceptions	- Customer account is susper	nded									

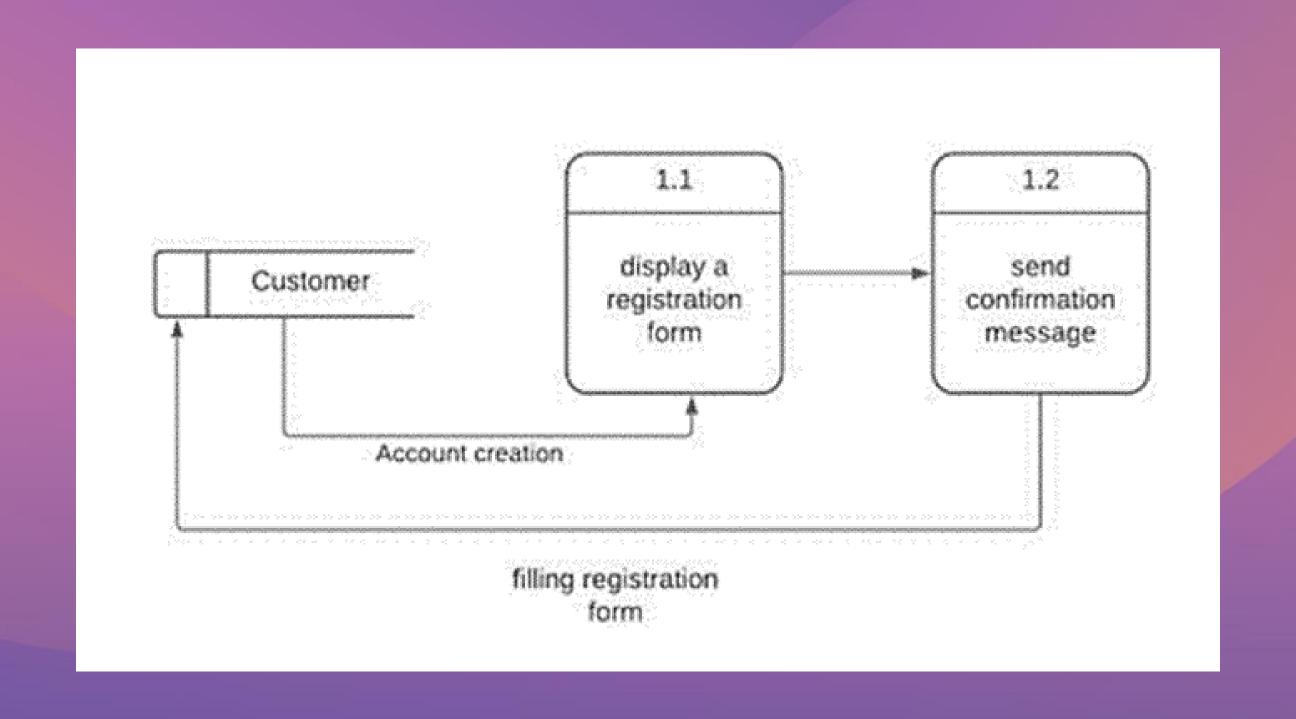
#### Sequence Diagram



#### DFD of Customer account

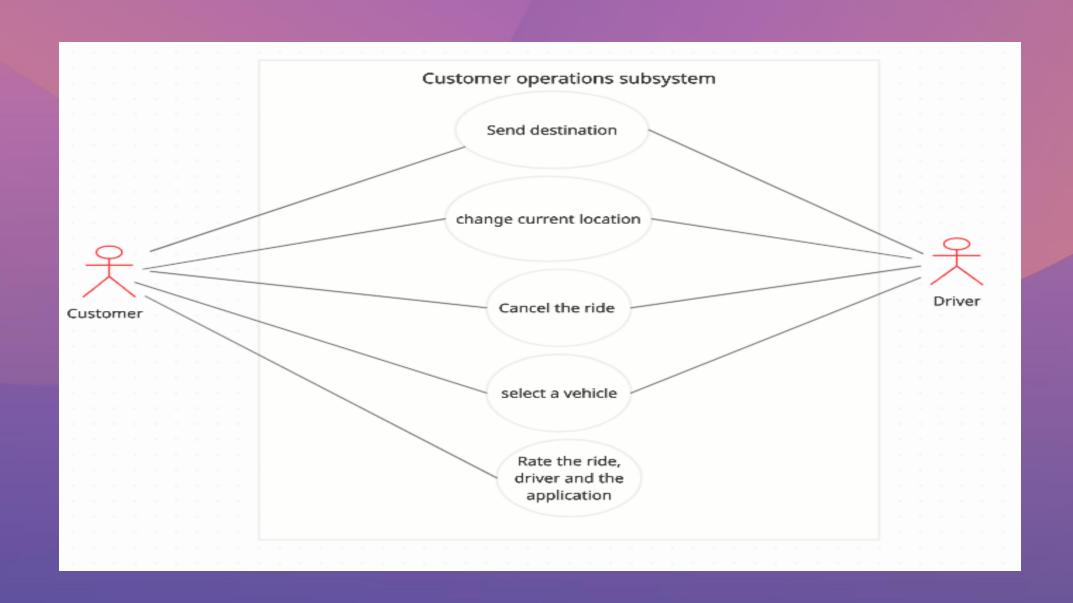


#### **Detailed DFD of Customer account**



#### Use Case: Send Destination

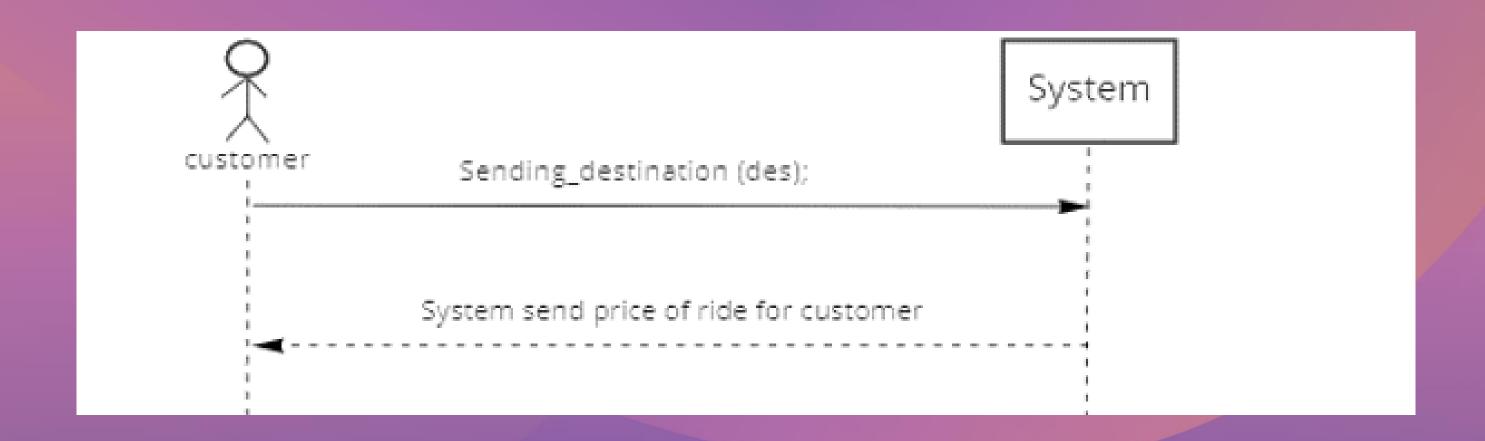
EVENT	TRIGGER	SOURCE	USE CASE	RESPONSE	DESTINATION
Customer wants to send his destination to driver	Destination sending	Customer	Send destination	<ul> <li>Notification         massage of         price of ride.</li> <li>Notification to         available         nearest         drivers.</li> </ul>	- Customer - Driver



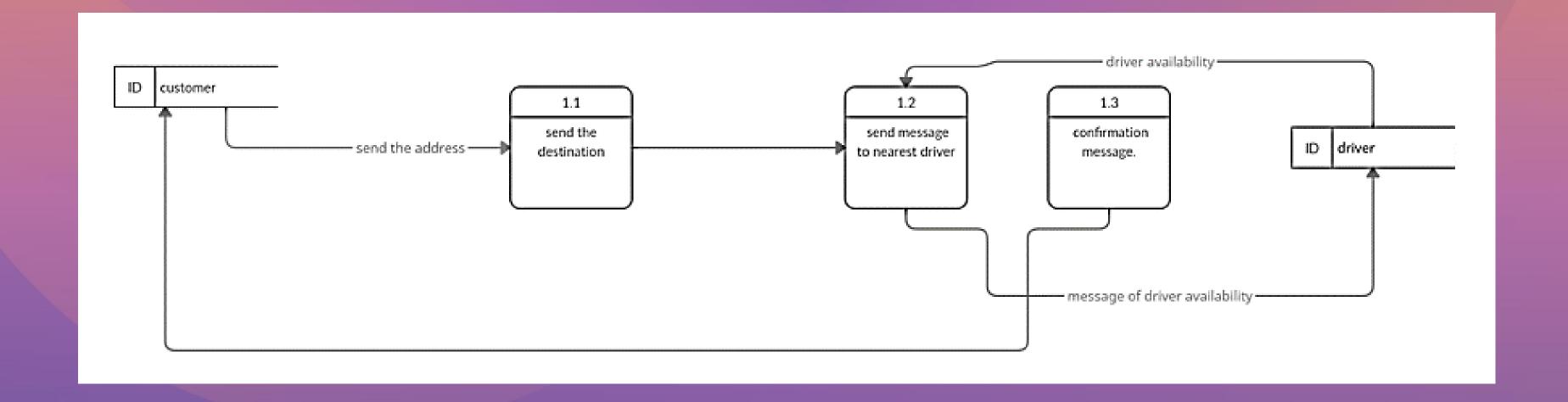
## Use Case Description

Use Case Name	Send destination										
Actors	Customer	Customer									
Preconditions	<ul> <li>The customer is ready for</li> <li>The customer has enough</li> </ul>										
Postconditions	- The driver receives the destination.										
	Actor	System									
Flow Activities	<ol> <li>The customer send his destination.</li> </ol>	<ul> <li>1.1 System send Notification massage of price of ride for customer.</li> <li>1.2 System send Notification to available nearest drivers.</li> </ul>									
Exceptions	- The customer lost his mo	ney.									

#### Sequence diagram

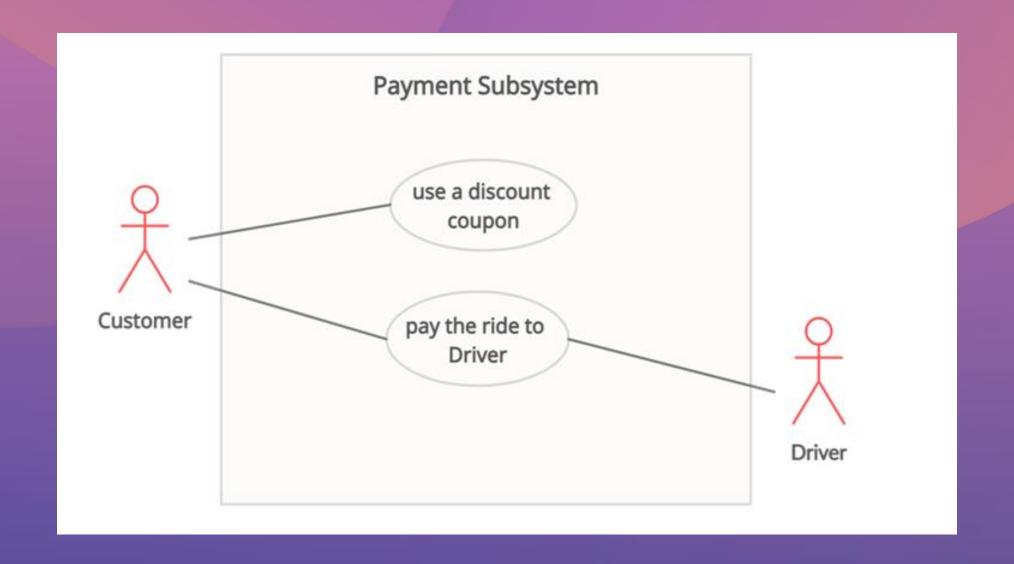


#### Detailed DFD



#### Use Case: Pay the ride

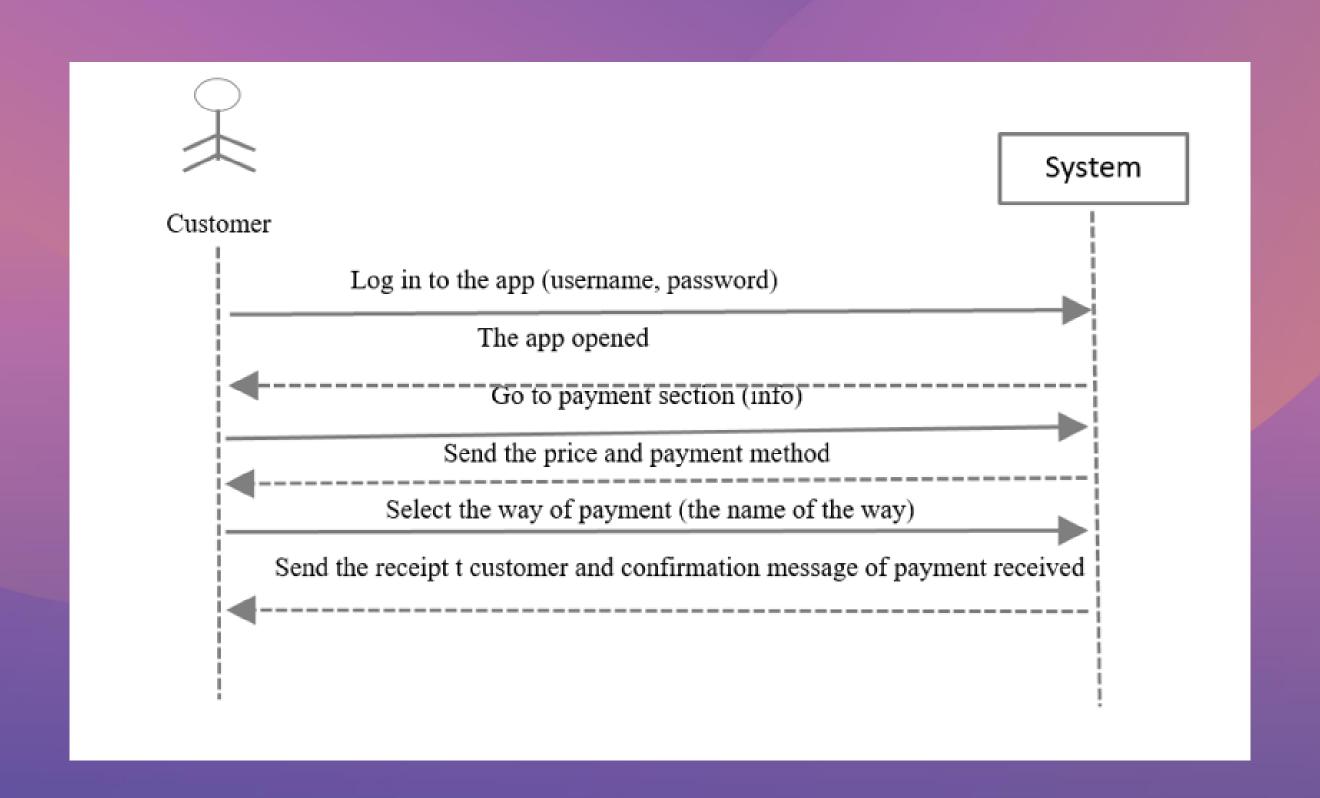
EVENT	TRIGGER	SOURCE	USE CASE	RESPONSE	DESTINATION
Customer wants to pay the ride to the driver	Payment of the ride	Customer	Pay the ride to the driver	<ul> <li>Confirmation of money transfer</li> <li>Message of amount of money transferred.</li> </ul>	• Customer • Driver



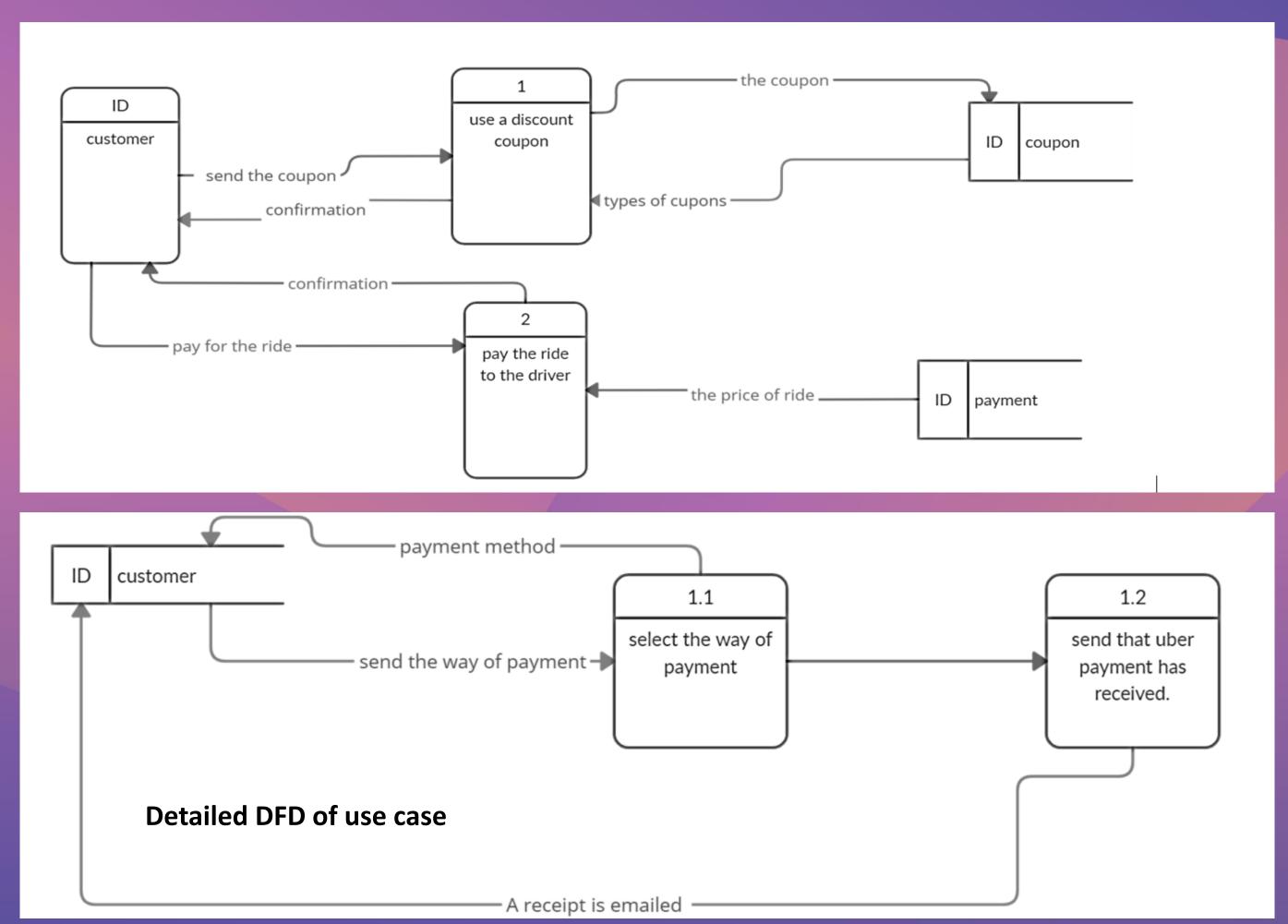
### **Use Case Description**

Use case name	Pay the ride to driver										
Actor	Customer										
Precondition	A valid account										
post condition	The payment method selected for the trip is immediately charged.  A receipt is emailed to customer.  Account's trip history is update with details about the route and fare.										
Flow of activities	Customer	System									
	<ol> <li>Log in to the app</li> <li>Go to payment section</li> <li>Select the way of payment</li> </ol>	1.1 the app is opened successfully 2.1 send the price of the trip 2.2 send the payment method 3.1 send that uber payment has received. 3.2 A receipt is emailed to customer.									
Exception conditions:	1.1 not valid account 3.1 there not enough c	harge for payment by the app.									

#### Sequence Diagram

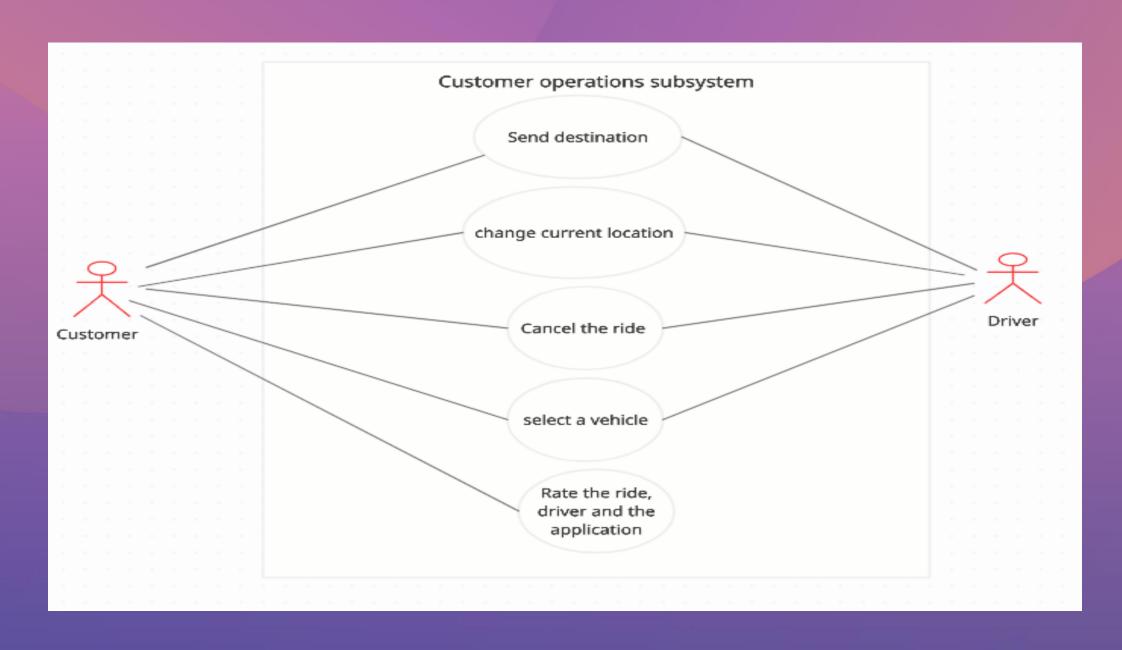


#### **DFD**



#### Use Case: Cancel the ride

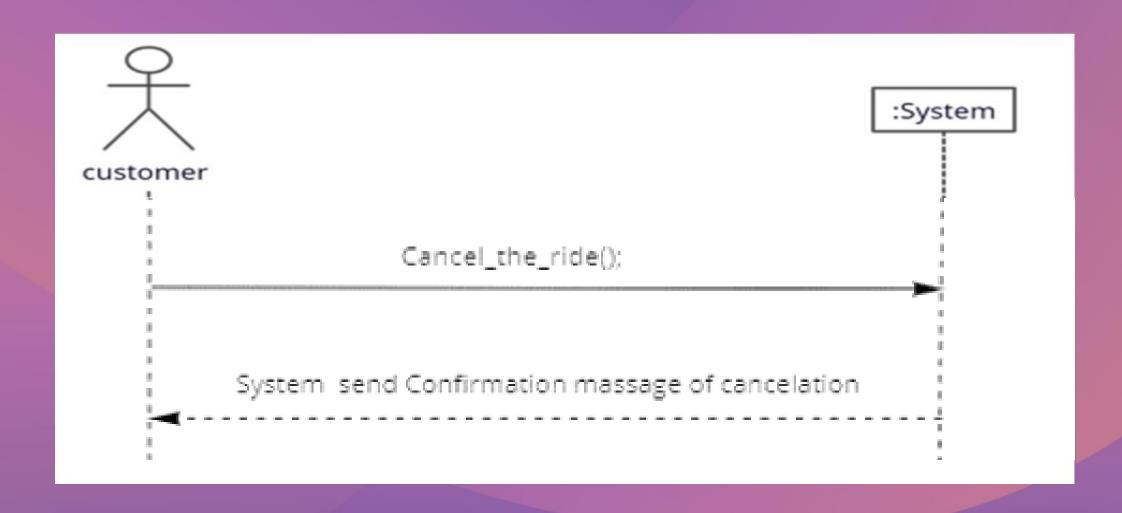
EVENT	TRIGGER	SOURCE	USE CASE	RESPONSE	DESTINATION
Customer wants to cancel the ride	Ride cancelation	Customer	Cancel the ride	- Confirmation.	Customer



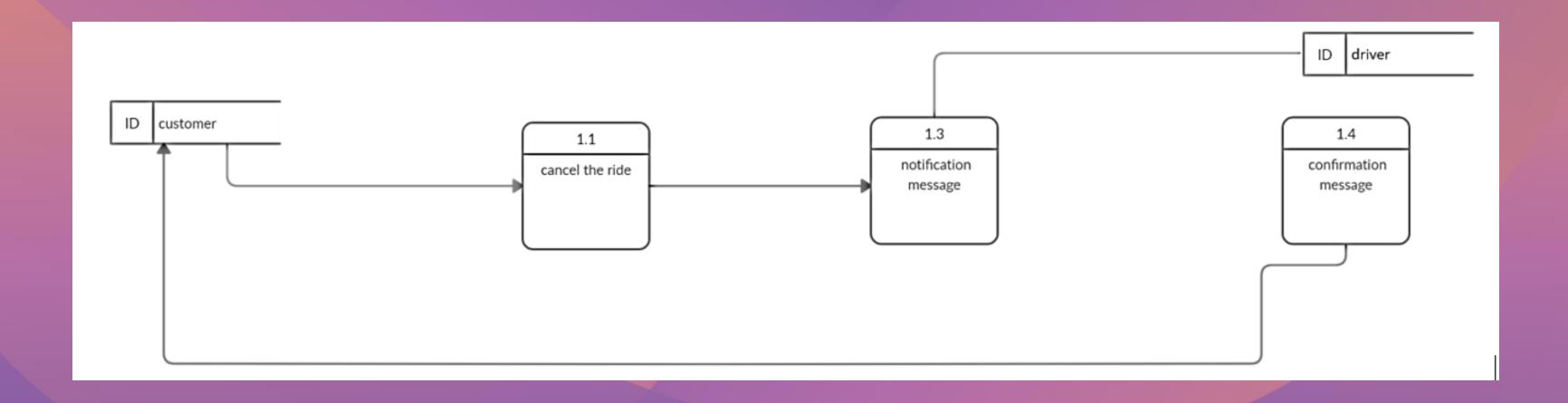
### **Use Case Description**

Use Case Name	Cancel the ride									
Actors	Customer	Customer								
Preconditions	- The customer is ready for	- The customer is ready for the cancelation.								
Postconditions	- The driver receives the cancelation message.									
	Actor	System								
Flow Activities	The customer send Ride cancelation Request.	1.1 System send Confirmation massage for customer of cancelation.  1.2 System send Notification massage for the drivers.								
Exceptions	- The customer change his									

#### Sequence Diagram



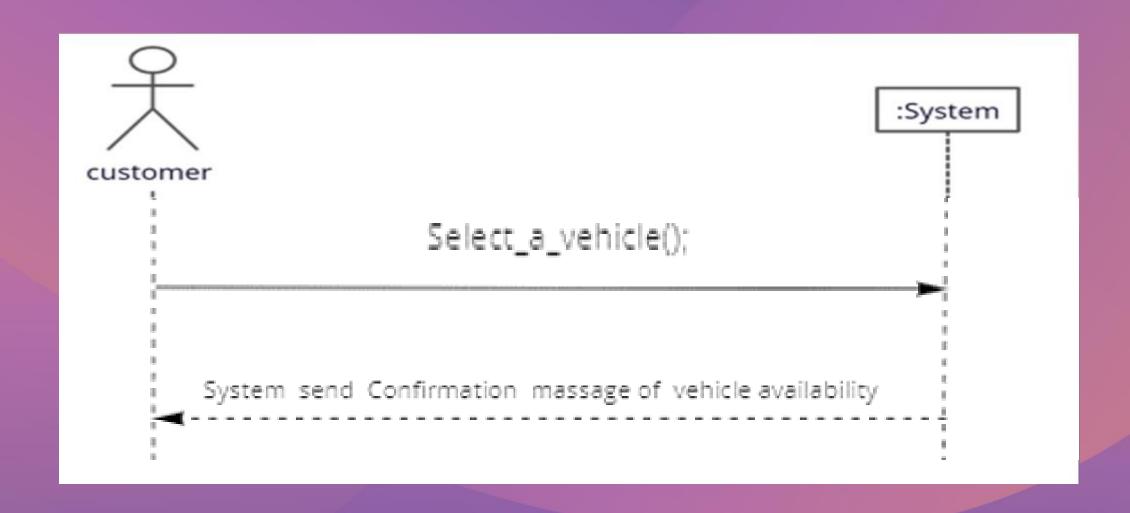
#### Detailed DFD



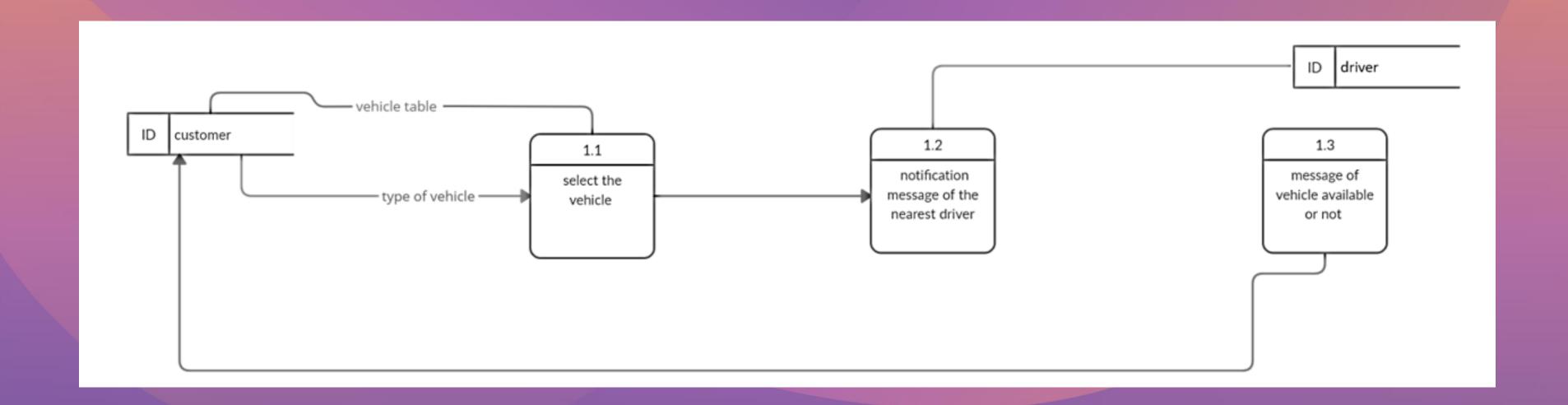
#### Use Case: Select a vehicle

Use Case Name	Select a vehicle									
Actors	Customer									
Preconditions	<ul> <li>The customer has decide</li> <li>The customer has enough</li> </ul>	A CONTACTOR OF STATE OF STATE AND A STATE OF STA								
Postconditions	- The vehicle has been sele	ected.								
	Actor	System								
Flow Activities	1. The customer select a vehicle.	1.1 <b>System</b> send Confirmation massage of vehicle (available or not )for customer.								
Exceptions	- There are no available ve	hicles.								

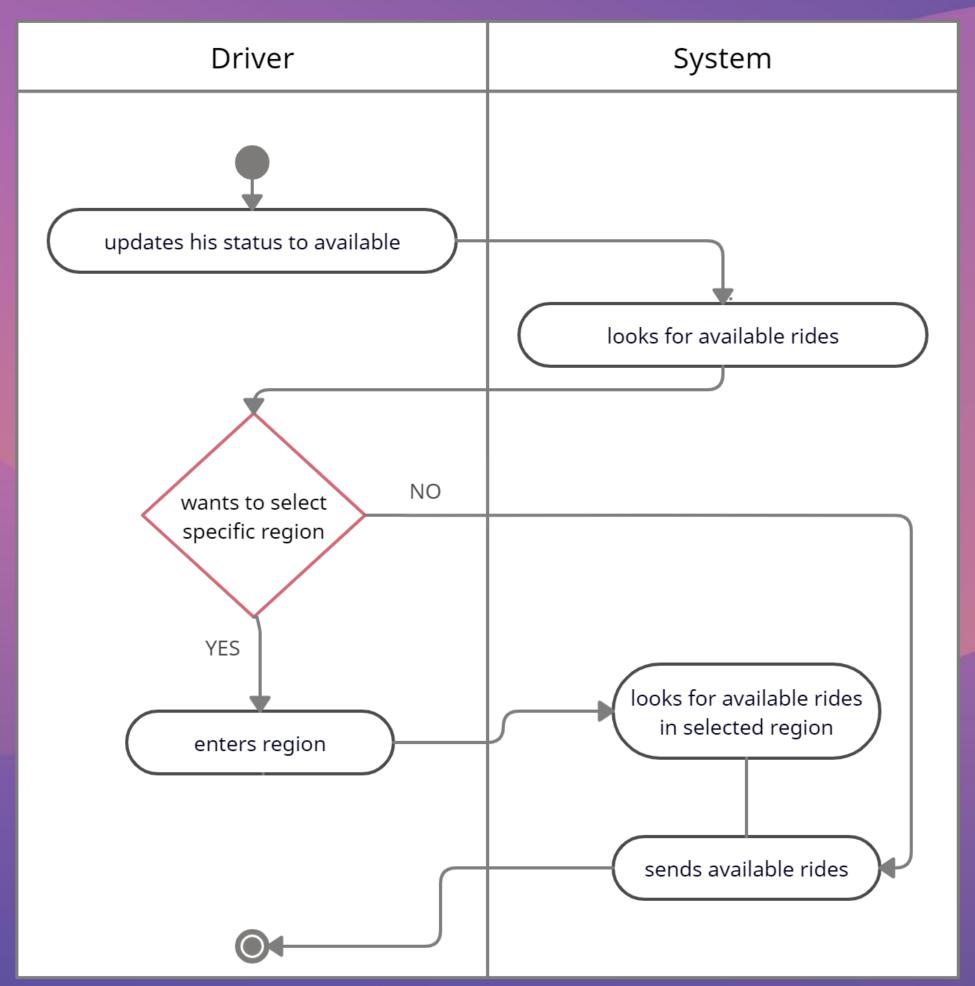
#### Sequence Diagram



#### Detailed DFD



#### **Activity Flow Diagram**



#### System vision document

#### Problem description

The transportation sector of any economy is always its backbone. This is the network that connects every part of a country together, it connects homes to religious gatherings, connects farms to markets and even connects students' accommodation to schools. Public transportation has many problems. The main problem of public transportation is its comfortability and time. Sometimes the customer wants to have a car to just pick up him from his home or wherever he is. Instead of going to the transportation parking, then waiting the car to be full. Sometimes it costs much to go to the parking if you are far and it may cost you more than your trip costs. Customer also may need to be more comfortable in his trip with little additional cost and it's mandatory to find a transportation car at any time. On the other side, there is another problem which is working as drivers can work any time they want and it's not mandatory to work all working hours continuously. This transportation network system helps the customer be more comfortable like it is his car with his own driver.

System capabilities

Transportation network system has 8 main capabilities:

- 1- Registering of customers or drivers
- 2- Booking features
- 3- The ability to identify a customer's location
- 4- Price calculator
- 5- Add multiple drop-off points
- 6- Easy payment options
- 7- Scheduled rides
- 8- Trip tracking
- 9- Reports
- 10- Coupons

#### Business benefits

Transportation network system has some business benefits which makes a good profit. One of the main benefits is that it makes money by running a ride-hailing service and takes a cut of the fares. It also gets paid by sponsors for advertising and earn money by increasing the company's reputation which can be sold posteriorly.

Cost Benefit Analysis													
	Current Year (CY)	CY +1	CY +2	CY +3	CY +4	CY +5							
Established Development Cost													
Salaries	\$800,000	\$920,000	\$1,074,460	\$1,288,800	\$1,399,455	\$1,745,785							
Training	\$355,000	\$187,000	\$169,000	\$370,000	\$183,000	\$200,990							
Equipment	\$60,000	\$33,000	\$19,000	\$55,000	\$17,000	\$19,340							
Facilities	\$390,000	\$166,000	\$123,000	\$450,000	\$177,000	\$195,876							
Utilities	\$76,000	\$97,000	\$100,000	\$119,000	\$99,00	\$116,750							
Licenses	\$22,000	\$13,000	\$12,576	\$35,098	\$25,000	\$27,878							
	Current Year (CY)	CY +1	CY +2	CY +3	CY +4	CY +5							
stablished Support Cost													
Conductivity/Hosting	\$100,176	\$133,320	\$154,266	\$230,008	\$260,086	\$290,889							
programming	\$88,000	\$98,000	\$120,050	\$167,354	\$199,878	\$243,564							
Help desk	\$88,000	\$97,100	\$120,987	\$167.43	\$196,868	\$234,686							
otal Costs (Future Value)	\$1,820,300	\$1,416,000	\$1,498,036	\$2,317,898	\$1,801,455	\$2,306,619							
otal Costs (Present Value)	\$1,820,200	\$1,409,588	\$1,387,634	\$2,254,211	\$1,604,353	\$2,165,768	\$10,641,754						
Benefits													
	¢674.000	\$00E E00	¢4 407 070	¢4 476 000	¢0.645.076	¢E 207 076							
Increase revenues	\$674,000	\$965,500	\$1,187,879		\$2,645,976	\$2,565,976							
Increase user interest	\$315,000 \$44,000	\$478,000 \$61,500	\$567,799 \$73,920	\$694,864 \$96,096	. ,	. , ,							
Improve team morale New investors	\$276,000	\$387,400	\$430,076	. ,	\$1,009,366	. ,							
Increase efficiency in trips	\$56,000	\$78,000	\$94,000	\$122,304	\$220,147	\$440,276							
otal Benefits (Future Value)	\$1,365,000	\$1,970,400	\$2,353,674	\$2,969,361	\$5,335,441	\$10,783,776							
otal Benefits (Present Value)	\$1,360,000	\$1,886,668	\$2,198,867		\$4,939,277	\$9,684,987	\$22,868,72						
Net Benefits/cost	(\$460,200)		\$612,444	\$427,613	\$2,918,112	\$7,430,354	, , , ,						
Net present value	(\$460,200)	\$351,897	\$600,195		\$2,859,750								
Cumulative NV	(\$460,200)	(\$101,122)		\$938,939	\$3,857,048								
Payback Period	1.1651												
Present Value Discout Rate	2%												

Cost Benefit Analysis	cost
Total PV Benefits	\$22,868,722
Total PV Costs	\$10,641,754
NET BENEFIT	12,226,968.00

#### Gantt chart

	Display Week:	1			D	ec 27, 2	021	Ji	an 3, 20	22	Ja	ın 10, 2022	2	Jan 17,	2022	Jan 2	24, 2022		lan 31, 2	022	Feb	7, 2022		Feb 14	, 2022	Feb	21, 2022	
			_		27 21	29 30	31 1	2 3 4	5 6	7 8 9	9 10 11	1 12 13 14	15 16 17	18 19 2	20 21 22 2	24 25 2	6 27 28	29 30 31	1 2 3	4 5 6	7 8	9 10 11 1	12 13 14	15 16	17 18 19	20 21 22	23 24 25	26 27
TASK	NAME	START	END	DAYS	5 5	мт	WT	FSS	S M T	WT	FSS	MITW	TFS	SM	TWTF	SSA	TW	T F S	S M T	WITF	SS	M T W	TFS	SM	TWT	FSS	MTW	TF
Preparation							_															+++					+	
	Brainstorming for fining ideas	12/28/21		5																								
	Make SWOT analysis for idea	1/2/22	1/3/22	1	4		Ш	_														+++						
	Organize meeting with client	1/3/22	1/6/22	3	4																	+++		Ш				
	Organize meeting with drivers	1/6/22	1/8/22	2	Щ	Ш	4				ш			Ш			Ш				Ш			ш		Ш		
	Organize meeting with users	1/8/22	1/10/22	2	Щ	Ш	Ш							Ш			Ш	$\perp \downarrow \downarrow \downarrow$			Ш	$\perp \perp \downarrow \perp$		Ш		$\perp \perp \downarrow \downarrow$		Ш
system analysis					Ц	Ш								Ш			Ш				Ш	Ш		Ш				
	Event table	1/11/22	1/13/22	2	Ц	Ш								Ш			Ш				Ш	Ш		Ш		Ш		
	Subsystems	1/13/22	1/18/22	5	Ш		Ш										Ш											
	Use Case Diagram	1/18/22	1/21/22	3																								
	use case description	1/20/22	1/22/22	2																								
	System Sequence diagram	1/22/22	1/24/22	2																								
	Activity flow Digrm	1/18/22	1/20/22	2																								
	Context digram	1/19/22	1/20/22	1	П																							
	DFD	1/20/22	1/24/22	4	П																							
	Detailed DFD	1/21/22	1/24/22	3	П												Ш											
search for suppo	rting				T									Ш			Ш											
	Write business plan	1/24/22	1/27/22	3	T									Ш										Ш				
	Prepare project expenses overview	1/27/22	1/29/22	2	T																			Ш				
	Attract Investor and make Presentation	1/29/22	2/2/22	4	T												П							Ш		+		
. 0	rganize meeting with partners, investors, and other stakeholders	2/2/22	2/5/22	3	T						$\Box$			ш			ш							Ш		+		
	Define roles and responsibilities of stakeholders	2/5/22	2/6/22	1	T						$\Box$			ш			ш				ш			Ш		+		
The application					Ħ						$\forall \forall$										1			Ш				
	Account operations functions(creation,editing&deletion)	1/24/22	1/27/22	3	Ħ						+			$\Box$										Ш		+++		
	ocation functions(sending destination&changing current location)	1/27/22	1/29/22	2	T						$\forall$			$\Box$										Ш				
	rating functions(ride rating, driver rating, app rating&complaint)	1/29/22	2/2/22	4	T						+			$\Box$			П							Ш		+++		
	Payment functions(payment&coupon	2/2/22	2/5/22	3	H						+						111										+	
	Filtering the region of rides function	2/5/22	2/6/22	1							+++			111			111				ш							
Recruiting Staff														$\Box$							$\Box$			$\parallel \parallel$		+		+
	Recruit Your Staff	1/30/22	2/2/22	3	+									$\Box$							$\Box$			$\parallel \parallel$		+		+++
	Hold Job Interviews with candidates	2/3/22	2/5/22	2	+																						+	+
	Write rejection letters to candidates	2/6/22	2/8/22	2	+															₩.						+++	+	++-
	Make employment agreement with staff	2/9/22	2/14/22	5	+																							+
	The employment approximately activities	2/3/22	2,21,22																									

#### Gantt chart

	Display Week:	1			Dec 27,	2021	Jan 3, 2	2022	Jan 10	, 2022	Jan 17,	2022	Jan 24	, 2022	Jan 3	1, 2022	Feb :	7, 2022	Feb 1	4, 2022	Feb 21, 20	22
			1		27 28 29 30	31 1 2	3 4 5	5 7 8 9	10 11 12	13 14 15 16	17 18 19 2	0 21 22 23	24 25 26	27 28 29 3	0 31 1 2	3 4 5	6 7 8 9	10 11 12	13 14 15 16	17 18 19 20	21 22 23 24	25 26 27
TASK	NAME	START	END	DAYS	S S M T	W T F	S S M	T W T F	S S M	T W T F	S S M T	W T F	s s m	T W T	F S S M	T W T	FSSM	TWT	F S S M	T W T F	S S M T	W T F
	Hold Employee Performance Reviews after period	2/15/22	2/19/22	4																		
Business Deve	lopment																					
	Create Visual Identity (logo, businesscards, etc)	2/6/22	2/11/22	5																		
	Create and implement a Marketing Budget	2/12/22	2/15/22	3																		
	Create and implement an action plan of growth	2/16/22	2/20/22	4																		
	Create and implement a Social Media Marketing plan	2/21/22	2/24/22	3																		
	Create and implement a Social Media Marketing Calendar	2/25/22	3/3/22	6																		
Testing and Re	view																					
	Distribute Customer Satsifaction questionnaires to Customers	2/9/22	2/13/22	4																		
	Review Financial Performance	2/14/22	2/16/22	2																		
	Create and review a Balanced Scorecard	2/17/22	2/18/22	1																		
	Conduct a Media Survey	2/19/22	2/21/22	2																		
	Conduct a Quarterly Progress Review	2/22/22	2/25/22	3																		
Confirmation																						
	Confirmation	2/25/22	2/27/22	2																		