Vehicle Marketplace System

Introduction

The purpose of our software system is an online marketplace in which users can freely buy and sell vehicles without the need for a middleman. It is aimed at people who want to sell their vehicles and it is intended to provide an easy platform for buyers and sellers to contact each other.

General Description

The system allows all users to browse an online marketplace of vehicles uploaded by other registered users and contact them via contact information provided with the advertisement by the seller. This allows an easy way for the buyer to browse cars, pick out a suitable one that fits all their personal criteria and get in contact with the seller.

Requirements

For the system to be successful it must have the following:

The system will have two types of users, new users and registered users.

New users can browse the marketplace and register a new account.

Users can log into their registered accounts.

Registered users can place advertisements with pictures, a description, and various relevant details about the vehicle including its type, mileage and engine size.

Registered users can contact sellers and review other registered users.

When browsing the marketplace, a filter can be applied to narrow the user's search.

When registering an account users must first verify their details.

User Stories

Identifier	US-001
Name	Browse Marketplace
Description	As a buyer I want an intuitive way to browse cars for sale and filter my search results so that I can easily find cars for sale that fit my needs and budget.
Acceptance Criteria	1. Advertisements can be viewed by other users. 2. Advertisements can be searched for by other users. 3. Filters can be applied to narrow the search criteria.

| Identifier	US-002
Name	Placing an Ad
Description	As a seller I want to be able to advertise my vehicle to many prospective buyers so that I can sell quickly and easily.
Acceptance Criteria	1. Registered users can post at least three advertisements to the marketplace. 2. Advertisements contain up to ten images, all inputted vehicle details and corresponding seller details. 3. Posted advertisements are visible to all users on the marketplace.

Identifier	US-003
Name	Sign-Up
Description	As a user I want to be able create an account so that I can save my information for when I need to interact with other users, contact other users and review other users
Acceptance Criteria	1. A user can create an account with a username, name, address, password, email and phone number. 2. Registered User features become available once they have an account

Identifier	US-004
Name	Login
Description	As a user I want to be able login so that I can save my information for when I need to interact with other users, contact other users and review other users
Acceptance Criteria	1. A user can log-in using their email and password to become a registered user. 2. Registered User features become available once the user is logged in.

Identifier	US-005
Name	Contact Seller
Description	As a buyer I want to be able to contact the seller of a car I am interested in so that I can arrange a viewing or payment for the car.
Acceptance Criteria	1. Registered Users can send messages to other registered users. 2. Registered Users can receive messages from other registered users.

Identifier	US-006
Name	Review User
Description	As a buyer I want to be able to review sellers I have dealt with so that I can let other people know if they are trustworthy.
Acceptance Criteria	1. Registered Users can write reviews for other registered users who have posted advertisements in the past. 2. Registered Users can give a star rating of other registered users who have posted advertisements in the past. 3. Users can view reviews posted about other registered users.

Use Case Diagram
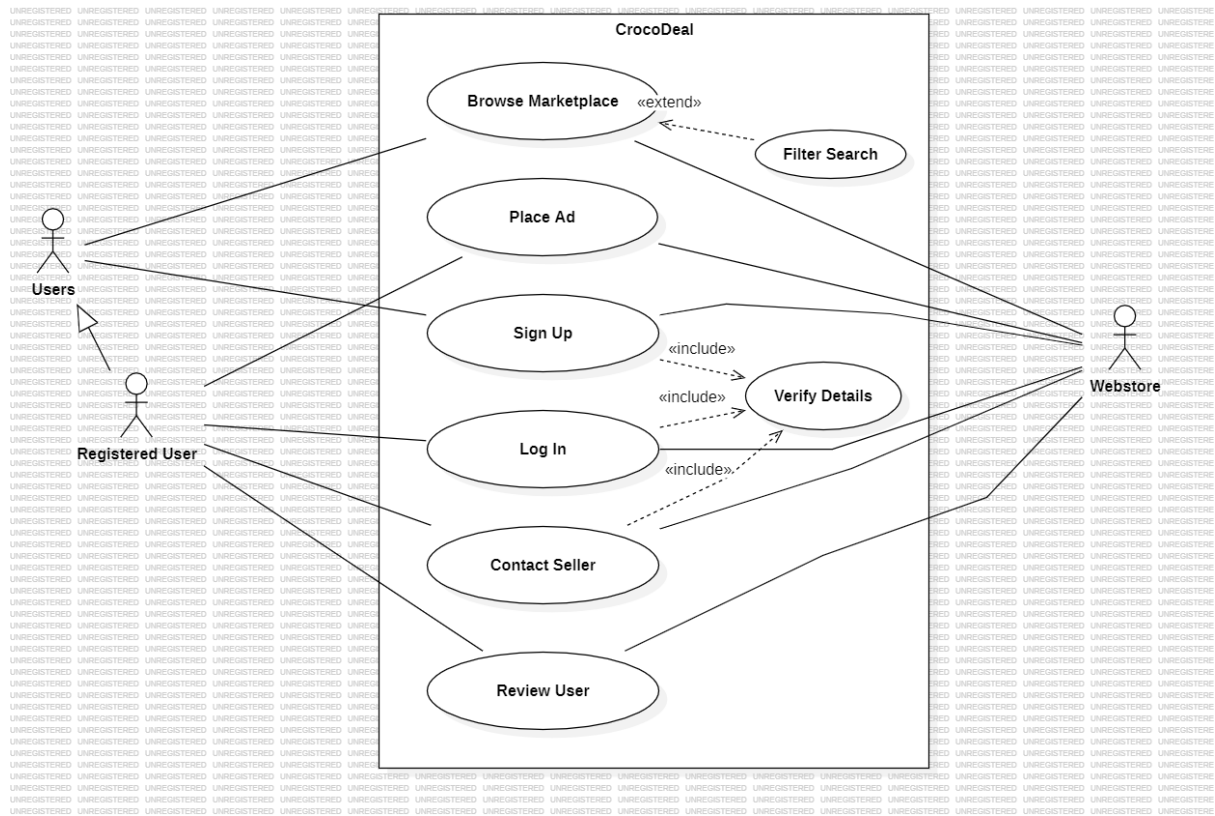
Scenario 1

Use case name: Browse Marketplace		UniqueID: UC-001
Area: Vehicle Marketplace Website		
Actor(s): Users, Webstore		
Description: Users view the various vehicles for sale in the vehicle marketplace		
Triggering Event: User searches the marketplace with or without filters for a vehicle		
Trigger type: ☒External ☐Temporal		
Steps Performed (Main Path)		Information for Steps
1. The user inputs a keyword to search for in the search bar		Search
2. The user enters extra optional filters		Search
3. The search is made for the items		Search, Marketplace
4. The searched items are displayed		Search, Marketplace
Preconditions: The User is on the website and has searched for a vehicle		
Postconditions: The marketplace has displayed its listings for the user based on search		
Assumptions: There are ads to view		
Requirements met: Users can browse the marketplace		
Outstanding issues:		
Priority: High		
Risk: High		

Scenario 2

Use case name: Place Ad	UniqueID: UC-002
Area: Vehicle Marketplace Website	
Actor(s): Registered User, Webstore	
Description: An ad is placed on the marketplace by a registered user	
Triggering Event: Registered User is on website and has clicked Place Ad	
Trigger type: ☒External ☐Temporal	
Steps Performed (Main Path)	**Information for Steps**
1. Verify user is logged in / Allow user to log in	Current Session, RegUsers, LoginSignUp
2. Allow user to enter details of ad	Advertisement, VehicleDetails, Image, SellerDetails, Seller
3. Confirm contact details	Advertisement, Seller, SellerDetails
4. Add advertisement to database and to user's current ads	Advertisement, Marketplace, Seller
Preconditions: User is a Registered User and is logged in to the website	
Postconditions: Ad Database is updated to include new ad	
Assumptions: User is logged in	
Requirements met: Registered Users can place advertisements with pictures, a description, and various relevant details about the vehicle including its type, mileage, and engine size.	
Outstanding issues:	
Priority: High	
Risk: Medium	

Scenario 3

Use case name: Sign Up	UniqueID: UC-003
Area: Vehicle Marketplace Website	
Actor(s): User	
Description: User registers an account for the website	
Triggering Event: User attempts to access a registered account only feature, or chooses to sign up	
Trigger type: ☒External ☐Temporal	
Steps Performed (Main Path)	**Information for Steps**
1. User enters email for new account	User, LoginSignUp
2. Verify email is not tied to existing account	LoginSignUp, RegUsers, RegisteredUser, Account
3. New User enters remaining details of account	User, LoginSignUp
4. Account is created and added to database	LoginSignUp, RegUsers, RegisteredUser, Account
Preconditions: User is not logged in	
Postconditions: New account has been created and current user is logged in automatically	
Assumptions: User wants to create account	
Requirements met: Users can register a new account	
Outstanding issues:	
Priority: High	
Risk: High	

Scenario 4

Use case name: Log In	UniqueID: UC-004
Area: Vehicle Marketplace Website	
Actor(s): User, Webstore	
Description: User logs in to their account	
Triggering Event: User attempts to access a Registered User Only feature while not logged in, or User chooses to log in	
Trigger type: ☒External ☐Temporal	
Steps Performed (Main Path)	**Information for Steps**
1. User enters their account details	User, LoginSignUp
2. System checks if account exists	LoginSignUp, RegUsers, RegisteredUser, Account
3. Updates User to Registered User	User, RegisteredUser, LoginSignUp
4. Returns to previous page, logged in.	
Preconditions: User is not logged in, and wishes to be logged in	
Postconditions: User is logged in, becomes Registered User	
Assumptions: User is not logged in, and wishes to	
Requirements met: Users can log into their registered accounts	
Outstanding issues:	
Priority: High	
Risk: Medium	

Scenario 5

Use case name: Contact Seller	UniqueID: UC-005
Area: Vehicle Marketplace Website	
Actor(s): Registered User, Webstore	
Description: Registered User contacts seller of ad they are interested in	
Triggering Event: Registered User finds ad they are interested in	
Trigger type: ☒External ☐Temporal	
Steps Performed (Main Path)	**Information for Steps**
1. Seller ID is acquired from the Ad	RegisteredUser, Advertisement
2. User enters message for seller	RegisteredUser , Advertisement, Message
3. Chat is created between user and seller	RegisteredUser, ChatLog
4. Message is sent to seller	ChatLog, Message, RegisteredUser
Preconditions: User has found appropriate ad	
Postconditions: User has contacted seller of ad	
Assumptions: Buyer wishes to contact seller of the ad, and buyer is logged in.	
Requirements met: Registered users can contact sellers.	
Outstanding issues:	
Priority: High	
Risk: Medium-High	

Scenario 6

Use case name: Review User	UniqueID: UC-006
Area: Vehicle Marketplace Website	
Actor(s): Registered User, Webstore	
Description: Registered User leaves review for seller/buyer	
Triggering Event: Registered User has contacted a seller/been contacted by a buyer	
Trigger type: ☒External ☐Temporal	

Steps Performed (Main Path)	Information for Steps
1. Verify user is registered and logged in	
2. Verify Buyer and Seller have been in contact	RegisteredUser, Account, ChatLog, Message
3. User chooses star rating	RegisteredUser, Review
4. User fills in information within review	RegisteredUser, Review
5. Review is added to seller's account	Review, RegisteredUser, Account, RegisteredUser

Preconditions: Registered User and seller/buyer have contacted each other	
Postconditions: Created review appears on reviewed users account and in DB	
Assumptions: Buyer has purchased item from reviewed user. Buyer is logged in.	
Requirements met: Registered Users can review other registered users.	
Outstanding issues:	
Priority: Medium	
Risk: Low	

Class Diagram
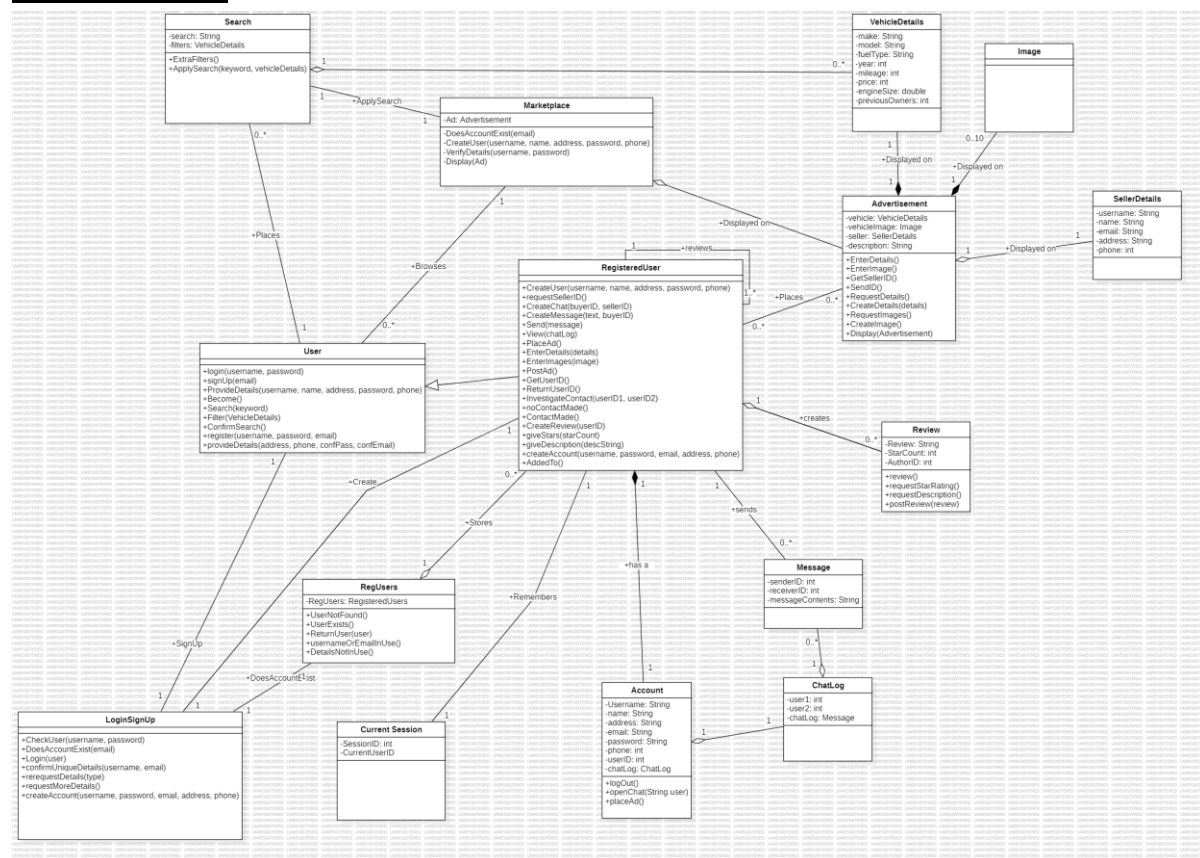
Sequence Diagram – UC-001 Browse Marketplace
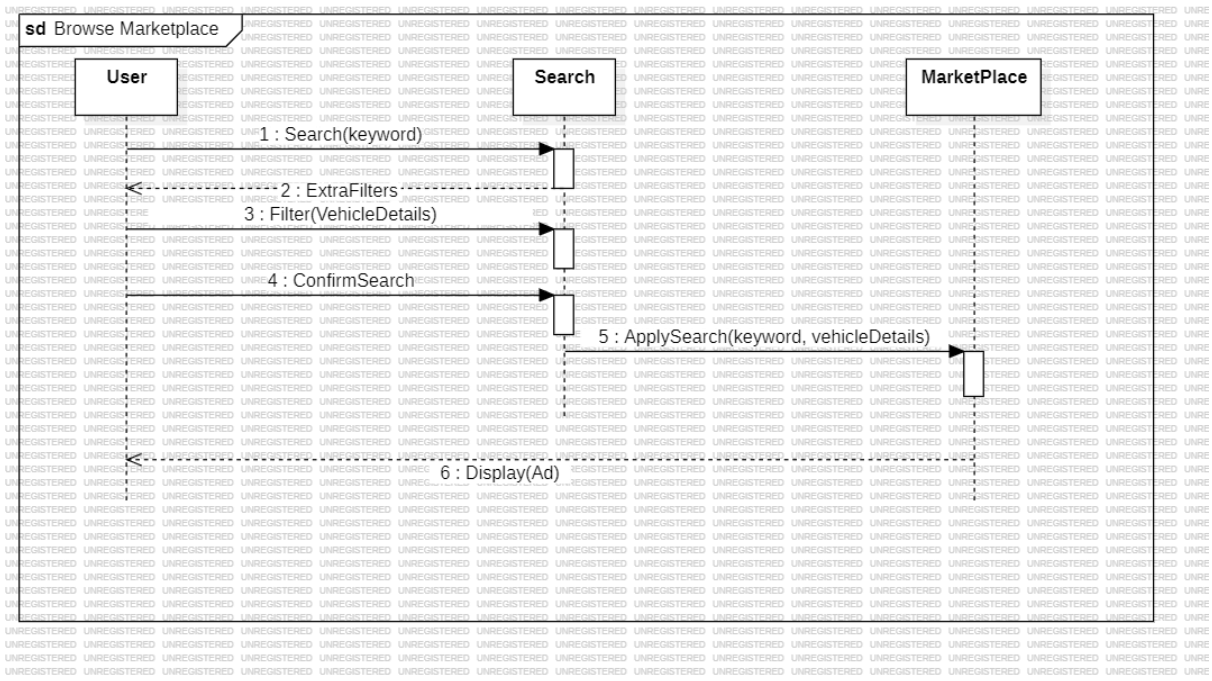
➢ Message Analysis Table

Sequence Num	Caller	Callee	Msg Name	Msg Type	Msg Param	Msg Constraints
1	User	Search	Search	Syn	Keyword	
2	Search	User	ExtraFilters	Syn	-	
3	User	Search	Filter	Syn	vehicleDetails	
4	User	Search	Confirm	Syn	-	
5	Search	Marketplace	ApplySearch	Syn	Keyword, vehicleDetails	
6	Marketplace	User	Display	Syn	Ad[]	

Sequence Diagram – UC-002 Place Ad
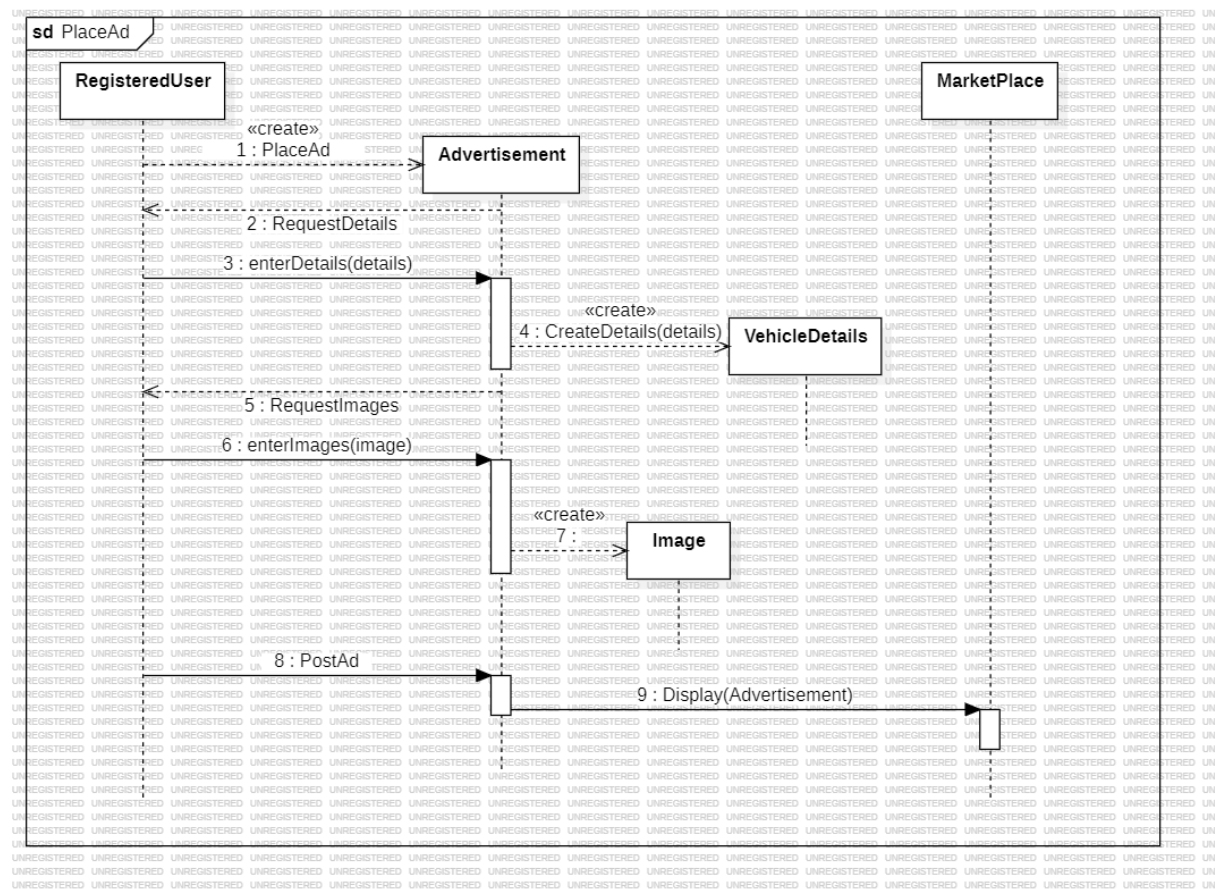
➢ Message Analysis Table

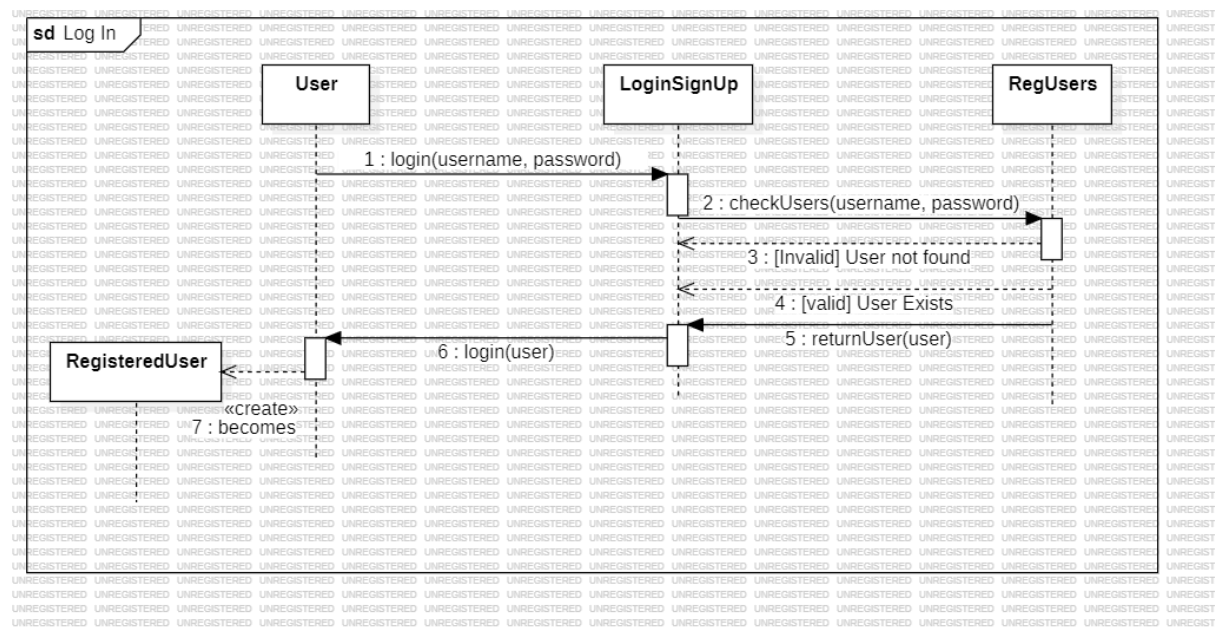| Sequence Num	Caller	Callee	Msg Name	Msg Type	Msg Param	Msg Constraints
1	RegisteredUser	Advertisement	PlaceAd	Syn	-	
2	Advertisement	RegisteredUser	Request Details	Syn	-	
3	RegisteredUser	Advertisement	Enter Details	Syn	Details	
4	Advertisement	VehicleDetails	Create Details	Syn	Details	
5	Advertisement	RegisteredUser	Request Images	Syn	-	
6	RegisteredUser	Advertisement	Enter Images	Syn	Image	
7	Advertisement	Image	create	Syn	-	
8	RegisteredUser	Advertisement	postAd	Syn	-	
9	Advertisement	Marketplace	display	Syn	advertisement	

Sequence Diagram – UC-003 Sign Up
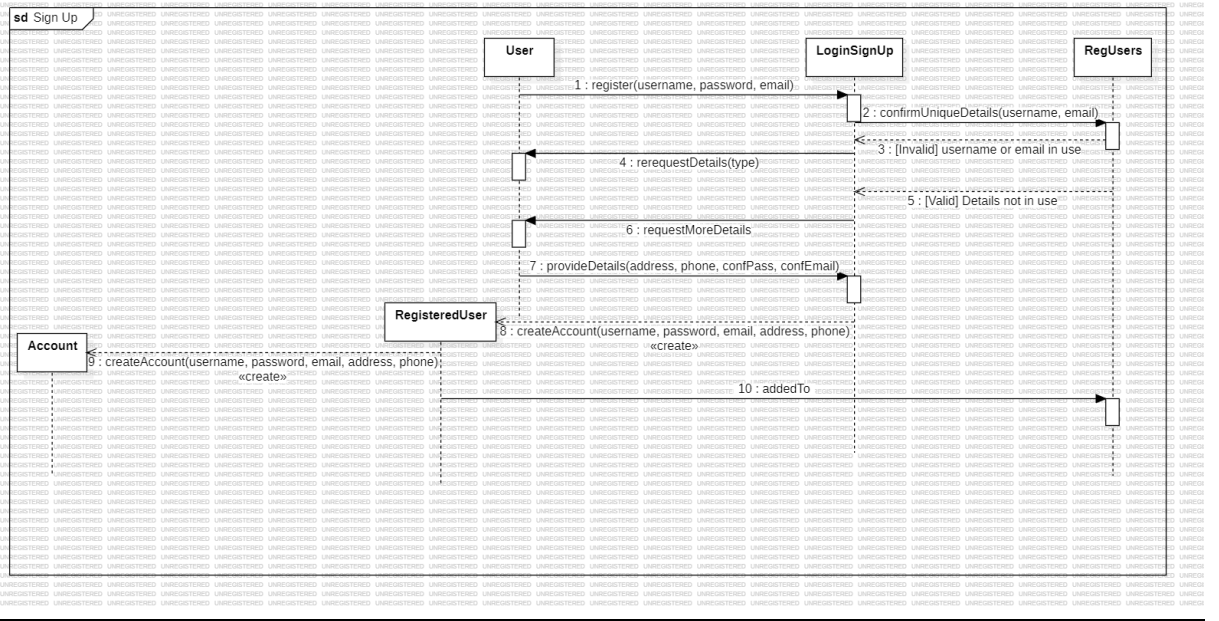
➤ Message Analysis Table

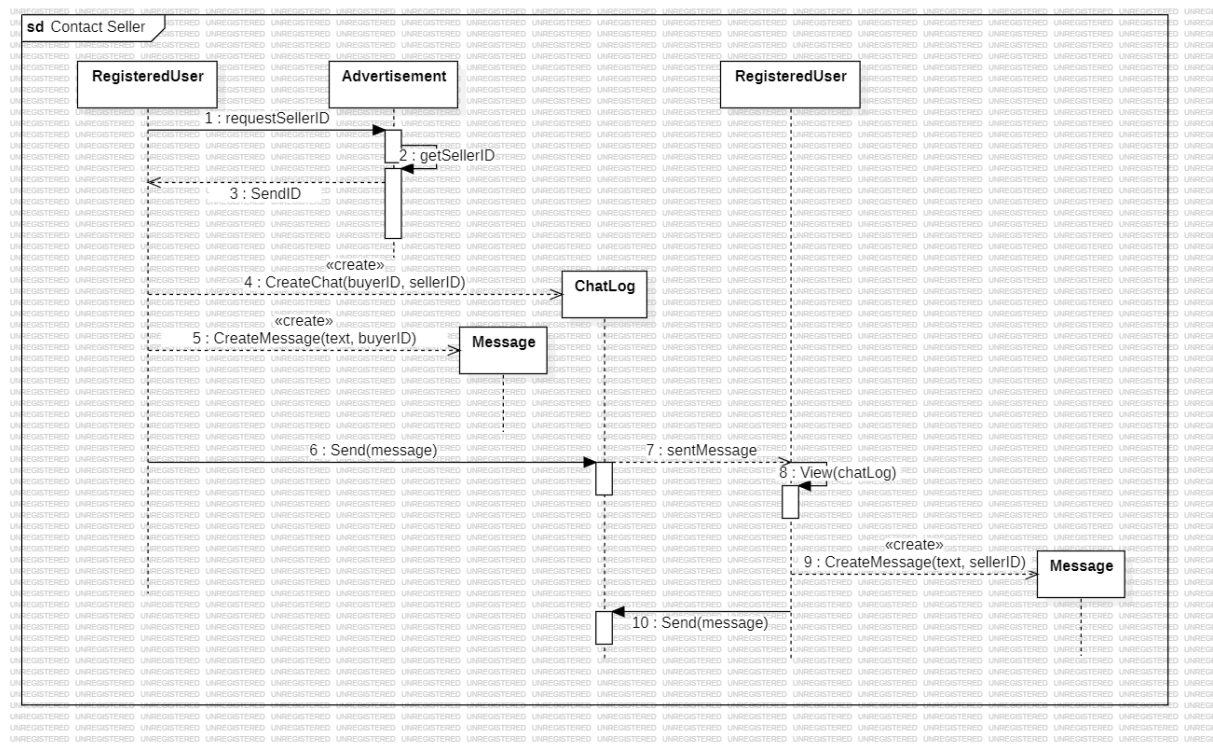| Sequence Num	Caller	Callee	Msg Name	Msg Type	Msg Param	Msg Constr aints
1	User	LoginSignUp	Register	Syn	Username, password, email	
2	LoginSignUp	RegUsers	confirm UniqueD etails	Syn	Username, email	
3	RegUsers	LoginSignUp	INVALID	Syn	-	
4	LoginSignUp	User	rereques tDetails	Syn	Type	
5	RegUsers	LoginSignUp	VALID	Syn	-	
6	LoginSignUp	User	request More Details	Syn	-	
7	User	LoginSignUp	provide Details	Syn	Address, phone, confPass, confEmail	
8	LoginSignUp	RegisteredUser	Create Account	Syn	Username, password, email, address, phone	
9	RegisteredUser	Account	Create Account	Syn	Username, password, email, address, phone	
10	RegisteredUser	RegUsers	addedTo	Syn	-	

Sequence Diagram – UC-004 Log In

> ## Message Analysis Table

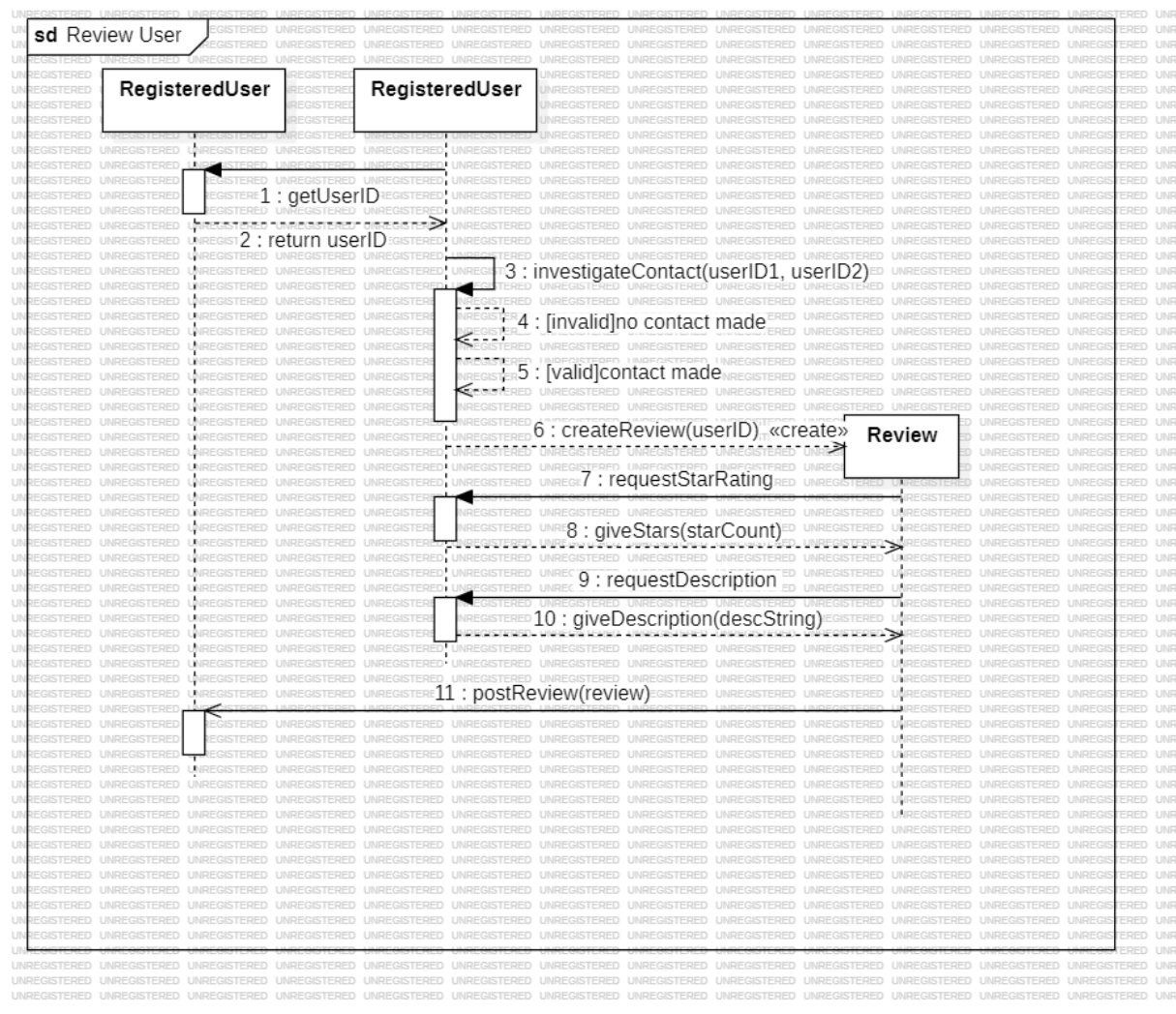| Sequence Num	Caller	Callee	Msg Name	Msg Type	Msg Param	Msg Constraints
1	User	LoginSignUp	giveDetails	Syn	Username, password	
2	LoginSignUp	RegUsers	checkUsers	Syn	Username, password	
3	RegUsers	LoginSignUp	INVALID	Syn	-	
4	RegUsers	LoginSignUp	VALID	Syn	-	
5	RegUsers	LoginSignUp	returnUser	Syn	User	
6	LoginSignUp	User	Login	Syn	User	
7	User	RegisteredUser	becomes	Syn	-	

Sequence Diagram – UC-005 Contact Seller

➢ Message Analysis Table

Sequence Num	Caller	Callee	Msg Name	Msg Type	Msg Parameters	Msg Constraints
1	RegisteredUser	Advertisement	requestSellerID	Syn		-
2	Advertisement	Advertisement	getSellerID	Syn		-
3	Advertisement	RegisteredUser	SendID	Syn	ID	-
4	RegisteredUser	ChatLog	createChat	Syn	buyerID, sellerID	-
5	RegisteredUser	Message	createMessage	Syn	text, buyerID	-
6	RegisteredUser	ChatLog	send	Syn	message	-
7	ChatLog	RegisteredUser	sent	Syn	message	-
8	RegisteredUser	RegisteredUser	view	Syn	chatlog	-
9	RegisteredUser	Message	createMessage	Syn	text, sellerID	-
10	RegisteredUser	ChatLog	send	Syn	message	-

Sequence Diagram – UC-006 Review User

The diagram shows two `RegisteredUser` lifelines and a `Review` object with the following messages:

1 : getUserID
2 : return userID
3 : investigateContact(userID1, userID2)
4 : [invalid]no contact made
5 : [valid]contact made
6 : createReview(userID) «create»
7 : requestStarRating
8 : giveStars(starCount)
9 : requestDescription
10 : giveDescription(descString)
11 : postReview(review)

➢ Message Analysis Table

Sequence Num	Caller	Callee	Msg Name	Msg Type	Msg Parameters	Msg Constraints
1	Registered User1	Registered User2	getUserID	Syn	-	-
2	Registered User2	Registered User1	return	Syn	userID	-
3	Registered User1	Registered User1	investigateContact	Syn	userID1, userID2	-
5	Registered User1	Registered User1	contactMade	Syn	-	[valid]
6	Registered User1	Review	createReview	Syn	userID2	-
7	Review	Registered User1	requestStarRating	Syn	-	-
8	Registered User1	Review	giveStars	Syn	starCount	-

9	Review	Registered User1	requestDescription	Syn	-	-
10	Registered User1	Review	giveDescription	Syn	descString	-
11	Review	Registered User2	postReview	Syn	review	-

Test Case TC-001 Browse Marketplace

Name	TC-001(verify ads can be viewed and searched for on the marketplace)
Requirements	A way to display ads to other users
Preconditions	User is logged in; testAd has been loaded into the Ad Database
Steps	1. Enter a "testAd" into the search bar. 2. Apply filters that correspond with the vehicle details contained in "testAd." 3. Click confirm
Expected Result	1. Verify that the "testAd" is displayed on the marketplace. 2. Verify that "testAd" contains the correct vehicle details. 3. Verify that "testAd" contains the correct image.

Test Case TC-002 Place Ad

Name	TC-002 (verifying that the user can create an advertisement and it is uploaded to the marketplace)
Requirements	Registered users can place advertisements on the marketplace with pictures, a description, and specific details to be viewed by other registered users
Preconditions	Test user is logged in
Steps	1. Click on place ad button. 2. Click on title field. 3. Enter "testAd". 4. Click on upload images. 5. Upload "testImage.png", "testImage2.jpg". 6. Click on each detail field. 7. Enter the appropriate details as outlined in "test_vehicle.docx" 8. Click submit ad button.
Expected Result	1. The ad is posted to the ad database. 2. Verify that the ad can be found via a search of the marketplace. 3. Verify that the images and details are present exactly as outlined in the creation of the ad.

Test Case TC-003 Sign Up

Name	TC-003 (verifying that the user can create an account and it is added to the registered users' database)
Requirements	New users can register a new account
Preconditions	No user is logged in
Steps	1. Click on the Log In button. 2. Click the "Not a member? Sign Up!" text 3. Click the detail fields. 4. Enter the details as outlined in TEST_ACCOUNT_FAIL.docx 5. Click Create Account button 6. Replace the details with those outlined in TEST_ACCOUNT_PASS.docx 7. Click the Create Account button
Expected Result	1. The Create Account button creates an error message, stating the email and password are in use 2. Verify that the account is added to the RegUsers database upon creation. 3. Verify that the account details are exactly as specified in account creation.

Test Case TC-004 Log In

Name	TC-003 (verifying that the user can log into a created account)
Requirements	Users can log into their registered accounts
Preconditions	User is not logged in
Steps	1. Click on Log In button 2. Click on Username field 3. Enter "TestUser00001" 4. Click on Password field 5. Enter "Qn8##4Bkk-sR9" 6. Click on Log In
Expected Result	1. The user is returned to the home page, logged into their account. 2. Verify that the account logged into matches the description found in ADMIN_ACCOUNT_DETAILS.docx

Test Case TC-005 Contact Seller

Name	TC-005 (Verifying that registered users can contact sellers of advertisements)
Requirements	Registered Users can contact sellers.
Preconditions	TestUser00002 is logged in, viewing TestAd001
Steps	9. Click on Contact Test 10. Click Message field 11. Type "This is a test message" 12. Click Send Message
Expected Result	4. The Message is sent to TestUser00001 5. Verify that TestUser00002 has a chatlog with TestUser00001 6. Verify that TestUser00001 received the intended message from TestUser00002

Test Case TC-006 Review User

Name	TC-006 (Verifying that a registered user can create a review for a user they have been in contact with)
Requirements	Registered users can review other registered users.
Preconditions	TestUser00001 is logged in and has been in contact with TestUser00002
Steps	13. Click on Account button 14. Click on Messages 15. Click on TestUser00002 chatlog 16. Click on TestUser00002's profile 17. Click on Leave Review 18. Click on the Fourth Star 19. Click the Description field. 20. Enter "This is a test review." 21. Click on Leave Review
Expected Result	7. Verify that the review is present on TestUser00002's profile. 8. Verify that the review's star rating and description match those on TestUser00002's profile.