CS 40800: Product Backlog

Project Title: Boileride

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Problem Statement

Ride sharing is becoming ever so popular as it allows for mutual help in transportation and better use of resources. Connecting peers who needs a ride and who can offer a ride can be complicated when it involves various travelling needs. We will create a platform that allows listing, searching and reserving available rides.

Background Information

Boileride came about from the problem we as students tend to face; finding affordable transportation for long distance rides. If we look at Purdue as an example, there is an abundant need for rideshares to airports and also other states. Currently, rideshares are shared within a Facebook group and there is currently no platform to allow drivers to host their rideshares and interested students to find rideshares to their destination. There are also various bus, taxi and train options but prices and times can be rigid. Boileride aims to be the platform to tackle this issue.

Environment

Boileride will follow a client-server model involving a frontend for the client as well as a backend consisting of a server and database to handle requests from the client. For the frontend, we would be building a website using HTML, CSS and Javascript. The website would be using additional external resources such as the Google Maps Platform to obtain real world data for Boileride. For the backend, we would be building a Java server to handle requests from the client and also sending queries to our MySQL database. The server would also be using additional external libraries such as the Apache Commons Email API for email validation. JavaMail API and Java Activation Framework (JAF) would also be used to handling sending emails to users from our server. jBCrypt would also be used for password encryption in our database.

Functional Requirements

Backlog Id	Functional Requirement	Hours	Status
1	As a user, I would like to create an account by providing these details: 1. nickname (length < 50) 2. password (length > 6, require at least one number, one symbol and one capital letter) 3. confirm password 4. email (valid email, no duplicate) 5. phone number (10 digits)	**10**	Planned for Sprint 1
2	As a user, I would like to reset my password if I forgot my password.	**5**	Planned for Sprint 1
3	As a user, I would like to update account information.	**5**	Planned for Sprint 1
4	As a user, I would like to login to my account.	**5**	Planned for Sprint 1
5	As a user, I would like to logout from my account.	**5**	Planned for Sprint 1
6	As a user, I would like to post a ride request as a passenger by providing these details: 1. pickup location and destination 2. date and time 3. number of passengers 4. number of luggage 5. preferences (smoking allowed, food and drinks allowed, pets allowed and air conditioning available)	**10**	Planned for Sprint 1
7	As a user, I would like to post a ride offer as a driver by providing these details: 1. pickup location and destination 2. date and time 3. number of seats available 4. room for luggage 5. available amenities (smoking allowed, food and drinks allowed, pets allowed and air conditioning available)	**10**	Planned for Sprint 1

8	As a user, I would like to cancel my posted ride request or offer.	**5**	Planned for Sprint 1
9	As a user, I would like to update my posted ride request or offer.	**10**	Planned for Sprint 1
10	As a user, I would like to view my ride requests and offers.	**5**	Planned for Sprint 1
11	As a user, I would like to search for a ride request as a driver by providing these details: 1. a pickup location and destination, with the option of adding proximity of pickup location and destination 2. date and time with the option of providing range of date and time 3. number of passengers 4. number of luggage 5. preferences (smoking allowed, food and drinks allowed, pets allowed and air conditioning available).	**20**	Planned for Sprint 1
12	As a user, I would like to search for a ride offer as a passenger by providing these details: 1. a pickup location and destination, with the option of adding proximity of pickup location and destination 2. date and time with the option of providing range of date and time 3. number of seats available 4. number of luggage 5. preferences (number of rides) 6. amenities available (smoking allowed, food and drinks allowed, pets allowed and air conditioning available).	**20**	Planned for Sprint 1
13	As a user, I would like to sort the search results based on distance between requested pickup location and actual pickup location (default), traveling time, pickup date and time.	**10**	Planned for Sprint 1

14	As a user, I would like to join a single ride offer as a passenger with the specification of number of passengers and luggage.	10	Planned for Sprint 2
15	As a user, I would like to join multiple rides as a single trip.	20	Planned for Sprint 2
16	As a user, I would like to be able to change the rides manually in a recommended single trip.	20	Planned for Sprint 2
17	As a user, I would like to view my joined ride offers.	5	Planned for Sprint 2
18	As a user, I would like to accept a ride request as a driver.	10	Planned for Sprint 2
19	As a user, I would like to view my accepted ride requests.	5	Planned for Sprint 2
20	As a user, I would like to cancel my joined ride offers or accepted ride requests.	10	Planned for Sprint 2
21	As a user, I would like to update the number of passengers and luggage of my joined ride offer.	5	Planned for Sprint 2
22	As a user, I would like to pay points as a passenger for a joined ride offer or an accepted ride request.	10	Planned for Sprint 2
23	As a user, I would like to receive points as a driver for a joined ride offer or an accepted ride request.	10	Planned for Sprint 2
24	As a user, I would be penalized for 50%, 75% and 100% of the price of the ride if I canceled the ride 2 days before, 1 day before and on the day of the departure time respectively.	10	Planned for Sprint 2
25	As a user, I would have a portion of my points (price of my ride) reserved to ensure that I would be able to pay for my rides or pay for penalties.	10	Planned for Sprint 2
26	As a user, I would like to view my point balance.	5	Planned for Sprint 2
27	As a user, I would like to view my point transaction history.	5	Planned for Sprint 2
28	As a user, I would like the application to automatically set the price of my ride offer based on the distance between pickup location and destination.	10	Planned for Sprint 2

29	As a user, I would like to confirm that I have been picked up or delivered by the driver. (passenger generate a code, driver send it)	**10**	Planned for Sprint 2
	Total:	**255**	

Non-Functional Requirements

1. Performance
   a. As a user, I would like the web application to be launched in 5 seconds so that I would not have to wait long.
   b. As a user, I would like the web application to run smoothly even when simultaneously accessed.
2. Usability
   a. As a user, I would like to have user friendly interface and intuitive.
   b. As a user, I would like the web application to work on most browsers.
3. Security
   a. As a user, I would like the web application to have an implementation of HTTPS.
   b. As a user, I would like to have my password encrypted in the database to avoid any data leakage.
4. Scalability
   a. As a user, I would like the web application to be able to scaled to include other states and countries in the future.
   b. As a user, I would like the web application to be able to scaled to handle more users in the future.
5. Reliability
   a. As a user, I would like the web application to be online at least 90% of the time.
   b. As a user, I would like the web application to run smoothly without crashing so that I can use it without any interruption.

Use Cases

Case 1: Create an account

Action	**System Response**
1. Choose 'Sign up' command.	2. Create account dialog appears.
3. Enter a nickname, a password, confirm password, an email address and a phone number.	
4. Choose 'Submit' command.	5a. If nickname, password, confirm password email address and phone number are all valid, create account dialog disappears. Valid nickname should have length less than 50. Valid password should have length greater than 6 with at least one number, one symbol and one capital letter. Valid confirm password should be the same as password. Valid email address should exist and have no duplicate in the system. Valid phone number should have 10 digits.
	5b. If either nickname, password or email address is invalid, display error message and prompt for re-entering valid items on create account dialog.
	6. If all entries are valid, send verification code to the provided email address.
	7. Verification code dialog appears.
8. Check email for verification code.	
9. Enter verification code.	
10a. Choose 'Cancel' command	11a. Verification code dialog disappears
10b. Choose 'Submit' command.	11bi. If verification code does not match the one in system, display error message and prompt to re-enter.
	11bii. If verification code matches the one in system,verification code dialog disappears and display 'My Rides' page.
	12. New account comes with 200 points.

Case 2: Reset password

Action	System Response
1. Choose 'Forgot password' command.	2. Send email with token to user.
	3. Reset password dialog appears.
3. Check email for token.	
4. Enter new password, confirm password, and token.	
5a. Choose 'Cancel' command	6a. Reset password dialog disappears
5b. Choose 'Submit' command.	6bi. If new password and confirm password are valid and token matches in system, reset password dialog disappears.
	6bii. If new password or confirm password is invalid or token does not match in system, display error message and prompt for re-entering correct information.
	7. If all entries are valid, old password is replaced by new password.
	8. If all entries are valid, Display 'My Rides' page.

Case 3: Update account information

Action	System Response
1. Choose 'Update Account' command.	2. Display update account box.
3. Change any account information as needed.	
4a. Choose 'Cancel' command.	5a. Update account box disappears.
4b. Choose 'Submit' command.	5bi. If any updated entry is invalid, display error message and prompt for re-entering correct information.
	5bii. If all updated entries are valid and email address is not updated, update account box disappears.
	5biii. If all updated entries are valid and email address is updated, verification code dialog appears.
(Following steps happen only if email address is updated)	

6. Check email for verification code.
7. Enter verification code.

Action	System Response
8a. Choose 'Cancel' command	9a. Verification code dialog disappears
8b. Choose 'Submit' command.	9bi. If verification code does not match the one in system, display error message and prompt to re-enter.
	9bii. If verification code matches the one in system,verification code dialog disappears.
	10. Update account box disappears.

Case 4: Login to my account

Action	System Response
1. Choose 'Login' command.	2. Login dialog appears.
3. Enter email address and password.	
4. Choose 'Submit' command.	5a. If email address and password matches in system, login dialog disappears.
	5b. If email address and password does not match in system, display error message and prompt for re-entering correct nickname and password.
	6. If email address and password matches, display 'My Rides' page.

Case 5: Logout my account

Action	System Response
1. Choose 'Logout' command.	2. Display 'Login' page.

Case 6: Request a ride

Action	System Response
1. Choose 'Post' command.	2. Display 'Post a Ride' page ('Request' tab as default).
3. Enter ride request information. Required: pickup location, destination, date, time, number of passengers, number of luggage Optional: preferences (smoking allowed, food and drinks allowed, pets allowed and air conditioning available)	

Action	System Response
4. Choose 'Submit' command.	5a. If any required information is missing, display error message and prompt for re-entering all information.
	5b. If all information is successfully collected, confirmation dialog with suggested price appears.
6a. Choose 'Cancel' command.	7a. Confirmation dialog disappears.
6b. Choose 'Confirm' command.	7b. Confirmation dialog disappears and display 'My Rides' page with the new ride request.

Case 7: Offer a ride

Action	System Response
1. Choose 'Post' command.	2. Display 'Post a Ride' page.
3. Choose 'Offer' tab.	4. Display post ride offer tab content.
5. Enter ride offer information. Required: pickup location, destination, date, time, number of seats available, room for luggage. Optional: available amenities (smoking allowed, food and drinks allowed, pets allowed and air conditioning available)	
4. Choose 'Submit' command.	5a. If any required information is missing, display error message and prompt for re-entering all information.
	5b. If all information is successfully collected, confirmation dialog with suggested price appears.
6a. Choose 'Cancel' command.	7a. Confirmation dialog disappears.
6b. Choose 'Confirm' command.	7b. Confirmation dialog disappears and display 'My Rides' page with the new ride offer.

Case 8: Cancel my ride request/offer

Action	System Response
1. Choose 'Cancel' command for a ride request or offer on 'My Rides' page.	2. Confirm cancel dialog ("Are you sure?") appears
3a. Choose 'Cancel' command	
3b. Choose 'Confirm' command	4a. Confirm cancel dialog disappears
	4b. Confirm cancel dialog disappears
	5b. If confirm cancel, display cancelled ride with a cancel label on 'My Rides' page
	6. If confirm cancel, send notification email to the user who accepted the ride request/joined the ride offer
1. Choose 'Update' command for a ride request or offer on 'My Rides' page.	2. Display 'Update My Ride' page
3. Change any ride request/offer information as needed	
4. Confirm ride update	5. Display 'My Rides' page with the corresponding ride updated
	6. Send notification email to the user who accepted the ride request/joined the ride offer

Case 9: Update my ride request/offer

Action	System Response
1. Choose 'Update' command for a ride request or offer on 'My Rides' page.	2. Display 'Update My Ride' page with ride information
3a. Change any ride request/offer information as needed	
4a. Choose 'Cancel' command to discard changes	5a. Display 'My Rides' page with no changes
4b. Choose 'Update' command to confirm the update	5b. Display 'My Rides' page with the corresponding ride updated
	6. If update confirmed, send notification email to the user who accepted the ride request/ joined the ride offer

Case 10: View my ride request/offer

Action	System Response
1. Choose 'My Rides' command	2. Display 'My Rides' page ('My Request' tab as default)
3. Choose 'My Offer' tab	4. Display 'My Offer' tab content

Case 11: Search for a ride request

Action	System Response
1. Enter pickup location, destination, date and time in search box	
2. Choose 'Search' command or Choose 'Advanced Search' command	3a. Display a list of suggested rides based on the search
	3b. Display a box with advanced search option including:
	- range of dates/times (default: 0)
	- proximation of location/destination (default: 0)
	- number of seats/luggage (default: any) (results will be any match >= stated number)
	- preferences (smoking allowed, food and drinks allowed, pets allowed and air conditioning available) (default: any)
4. Enter 'Advanced Search' details	5. Display a list of suggested rides based on advanced search.

Case 12: Search for a ride offer

Action	System Response
1. Enter pickup location, destination, date and time in search box	
2. Choose 'Search' command or Choose 'Advanced Search' command	3a. Display a list of suggested rides based on the search For multiple rides in a trip, transit time has to be at least traveling time of the former ride plus 10 minutes and at most 24 hours 3b. Display a box with advanced search option, including: - range of dates/times (default: 0) - proximation of location/destination (default: 0) - number of seats/luggage (default: any) (results will be any match >= stated number) - preferences (number of rides) (default: any) (results will be any match = stated number) - amenities available (smoking allowed, food and drinks allowed, pets allowed and air conditioning available) (default: any)
4. Enter 'Advanced Search' details	5. Display a list of suggested rides based on advanced search.

Case 13: Sort search results

Action	System Response
1. Choose 'Distance between requested pickup location and actual pickup location' (default) or 'Travelling time' or 'Pick up date and time'	2. List of suggested rides would be sorted based on chosen attribute in ascending order. (No specific order if results have the same value of the chosen attribute)

Case 14: Join a single ride offer as passenger

Action	System Response
1. Choose 'Join' command	2. Join ride details dialog appears
3. Enter number of passengers and luggage	
4a. Choose 'Cancel' command	5a. Join ride details dialog disappears
4b. Choose 'Submit' command	5bi. If number of passengers or luggage are invalid (greater than room offered), prompt to re-enter.
	5bii. If number of passengers (default: 1) or luggage (default: 0) are valid, join ride details dialog disappears.
	6bii. Display join ride offer confirmation box.
	7. Update the number of seats available and room for luggage of the ride offer accordingly.
	8. Send notification email to the driver who offer the ride

Case 15: Join multiple rides in a single trip

Action	System Response
1. Choose 'Join' command on a trip with multiple rides.	2. Display the list of multiple rides.
3. Choose 'Confirm rides' command.	4. Joined ride details dialog appears
5. Enter number of passengers and luggage	
6a. Choose 'Cancel' command	7a. Joined ride details dialog disappears
6b. Choose 'Submit' command	7bi. If number of passengers or luggage are invalid (greater than room offered), prompt to re-enter.
	6bii. If number of passengers or luggage are valid, joined ride details dialog disappears.
	6bii. Display joined ride offer confirmation box.
	7. Update the number of seats available and room for luggage of the ride offer accordingly.
	8. Send notification email to the all the drivers who offer the rides

Case 16: Change rides in a recommended single trip

Action	System Response
1. Choose 'Change' command on a ride among the multiple rides in a trip.	2. Display list of rides in the trip with checkboxes below each location.
4. Tick the desired checkbox.	
5a. Choose 'Cancel' command	6a. Return to previous page
5b. Choose 'Confirm' command	6b. Display list of rides for between the two locations with ticked checkboxes.

Case 17: View my joined ride offer

Action	System Response
1. Choose 'My Rides' command.	2. Display 'My Rides' page.
3. Choose 'My Joined Ride Offers' tab.	4. Display 'My Joined Rides Offer' tab content.

Case 18: Accept a ride request as a driver

Action	System Response
1. Choose 'Accept' command.	2. Confirm dialog appears.
3a. Choose 'Cancel' command.	4a. Confirm dialog disappears.
3b. Choose 'Confirm' command.	4b. Confirm dialog disappears.
	5b. Display accept ride request confirmation box.
	6. Send ride offer confirmation email to the user

Case 19: View my accepted requests

Action	System Response
1. Choose 'My Rides' command	2. Display 'My Rides' page
3. Choose 'My Accepted Ride Requests' tab	4. Display 'My Accepted Ride Requests' tab content.

Case 20: Cancel my joined ride offers or accepted requests

Action	System Response
1. Choose 'Cancel' command for a joined ride offer or accepted request on 'My Rides' page. 3a. Choose 'Cancel' command. 3b. Choose 'Confirm' command.	2. Confirm cancel dialog ("Are you sure?") appears. 4a. Confirm cancel dialog disappears. 4b. Confirm cancel dialog disappears. 5b. If confirm cancel, display 'My Rides' page with the corresponding joined ride offers or accepted requests removed. 6b. If confirm cancel, send notification email to the user who posted the ride offer/request

Case 21: Update my joined ride offer

Action	System Response
1. Choose 'Update' command for a joined ride offer on 'My Rides' page. 3. Enter number of passengers and luggage 4a. Choose 'Cancel' command 4b. Choose 'Submit' command	2. Join ride details dialog appears. 5a. Join ride details dialog disappears 5bi. If number of passengers or luggage are invalid (greater than room offered), prompt to re-enter. 5bii. If number of passengers or luggage are valid, join ride details dialog disappears. 6bii. Display 'My Rides' page with the joined ride offer details updated. 7bii. Send notification email to the user who posted the ride offer

Case 22: Paying points as a passenger

Action	System Response
1. Join a ride offer or another user accepts my ride request 2. Confirm that I have been picked up during the time of the ride (see case 29 for details).	 3. Points get deducted from my account by the amount of price of the corresponding ride

Case 23: Receive points as a driver

Action	System Response
1. Accept a ride request or another user joins my ride offer	
2. Confirm that I have picked up the passenger during the time of the ride (see case 29 for details).	3. Points get added to my account by the amount of price of the corresponding ride

Case 24: Penalty for late cancellation

Action	System Response
1a. Cancel an accepted ride request or a joined ride offer 2 days before, 1 day before and on the day of the departure time	2a. 50%, 75% and 100% of the ride price is deducted from passenger's point balance respectively.
1b. Cancel a ride offer or an accepted ride request 2 days before, 1 day before and on the day of the departure time	2b. 50%, 75% and 100% points are deducted from driver's account respectively.

Case 25: Reserved points

Action	System Response
1. Post a ride offer, post a ride request, join a ride offer or accept a ride request	2. Points (price of the ride) are placed to reserve until the ride is over.

Case 26: View point balance

Action	System Response
1. Choose "My Points" command	2. Display "My Points" page (Balance tab as default)

Case 27: View point transaction history

Action	System Response
1. Choose "My Points" command	2. Display "My Points" page
3. Choose "Transaction History" tab	4. Display "Transaction History" tab content

Case 28: Setting price of ride offer

Action	System Response
1. After submitting a ride offer	2. Display price of the ride offer (1 point per mile of distance between pickup location and destination)

Case 29: Pickup confirmation

Action	System Response
1. Driver and Passenger chooses "Get Pickup Code"	2. Display a pickup code to passenger
3. Driver and Passenger chooses "Enter Pickup Code"	4. Display enter pickup code dialog
5. Driver and Passenger enters pickup code obtained by each other	6. If code matches code for both driver and passenger of that ride in the system, display pickup confirmed message