Requirement Document for Federalised Bike System

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3.1 Stakeholders

Core

- Customers – The system allows customers to have easy access in booking a wide range of bikes.

- Providers – The system allows providers to be known to customers based on the bike types they have (wider customer reach).

- Scottish Tourism Board – Since they are initiating the system, it will increase transportation as the system will boost tourism, allowing visitors to easily find providers who can best meet their needs. As a result, revenue will be increased.

- Delivery drivers - The system makes it easier for them to register the received deposits and update bike status when they are delivered to the customers.

Additional Stakeholders

- Customer support – These are people that deal with problems any user of the system might encounter thus they help run the system smoothly by providing assistance to users of the system.

- Bike manufacturers – They produce the bikes that the providers own.

3.2 System state

Information on Customers

Personal Information

a) First name
b) Surname
c) Post code
d) Phone number

Information on Bike

1. Type of bike (road bike, hybrid bike, mountain bike, ebike etc)
2. Number of specific bike type in shop
3. Age of bike
4. Availability of bike
5. BikeID
6. Provider of Bike
7. Deposit amount

Information on Booking

1. Mode of collection
2. Number of bikes to rent
3. Type of bikes
4. Date range (collection date, return date)
5. Location of collection
6. Place of return

Information on Providers

1. Personal Information
   a) First name
   b) Surname
   c) Phone number
2. Shop postcode
3. Opening hours
4. Number of bikes for all specific bike types
5. Deposit rate for all bike types
6. Deposit policies
7. Pricing policies
8. Daily rental price for each bike type
9. List of partners (full names, location of shop)

Additional information

Information on Drivers

1. Full name
2. Phone number
3. Plate number of delivery vehicle
4. Availability at required time

Customer support Information

1. Phone number

Statuses to be tracked by System

1. Bikes:

The system should track whether

- the bike is with partner provider.
- the bike is with the original provider or the delivery driver.
- the bike is available for collection.

2. Booking:

The system should track if

- booking is successful.
- payment has been made.
- a confirmation is sent to the customer.

Use cases

1.Get quotes
2.Book quotes
3.Record bike return to original provider
4. Register details of original bike provider
5. Register bike collection by customer from original provider
6. Register bike collection by customer from delivery driver
7. Register bike return to partner of original provider
8. Register new bikes unto the system by the original provider

1.

Use case name: Get quotes
Primary actor: Customer
Precondition: There should be at least one quote available on the system for the customer to view.
Summary: The customer uses the system to find a bike provider that meets all his/her needs.
Trigger: The customer clicks on the desired quote.
Guarantee:
Success guarantee: The customer finds at least one quotes that meets his/her needs. Failure guarantee: The system suggests any quotes that meets the specific bike type the customer wants.
Minimal guarantee: The system does not affect other applications on the device the customer is using.
Main Success Scenario:

1.The customer enters the rental needs recognisable to the system.
2.The system finds quotes that meets all the requirements of the customer.
3.The system presents the quotes to the customer.
4.The customer chooses from the quotes presented by the system.

Extensions:

2. The system could not find a bike provider that meets all the rental needs of the customer.

.1 The system suggests quotes for the same duration within three days before the start or after the end of the expected date range.

2.

Use case name: Book quotes
Primary actor: Customer
Supporting actors: Bank
Precondition: There is a quote that satisfies the customer's date range, bike type and location of hire.
Summary: A customer uses the online system to book a specific bike type for a specific amount of time.
Trigger: Click on the specific quote.
Guarantee:
Success guarantee: Successful booking with confirmation.
Failure guarantee: No money is taken when booking is unsuccessful.
Minimal guarantee: Customer receives a text telling him/her about the status of booking.
Main success scenario:
1.The customer gets a specific quote.
2.The customer enters personal information unto the system.
3. The customer enters mode of collection unto the system.
4.The customer enters place of return unto the system.
5.The customer enters correct bank details unto the system.
6.The customer makes payment for booked bike.
7.The bank checks, confirms the transaction and sends confirmation to the system.
8.The system generates confirmation.
9.The system sends the confirmation to the customers.
10.The customer receives confirmation for booked bike.
11.The system saves the booking details.
Extensions:
5a. Customer is regular customer
 .1 The system displays the bank details.
 .2 Customer may accept or override these defaults.
5b. The customer enters incorrect details
 .1 The bank sends a confirmation telling the system the transaction has failed.
 .2 The system prompts the customer.
 .3 The system gives the customer the choice to either re-enter bank details or cancel booking.

3.
Use case name: Record bike return to the original provider
Primary actor: original bike provider
Description: The provider updates the bike status on system to “bike is available” when it is returned to him/her (whether it was returned by the customer or delivery driver).

4.
Use case name: Register details of original bike provider
Primary actor: original bike provider
Description: The provider enters his/her name, shop address, shop postcode, phone number and opening hours to the system. Then the provider adds the type and number of bikes he/she has unto the system.

5.
Use case name: Register bike collection by customer from original provider
Primary actor: Provider
Supplementary actor: Customer
Description: The provider updates the status of the bike to unavailable when a customer collects the bike.
Extension: The customer changes his/her mind and wants a different bike. The customer goes unto the system and books a new bike and collects it. The provider updates the status of the new bike to unavailable when a customer collects the bike.

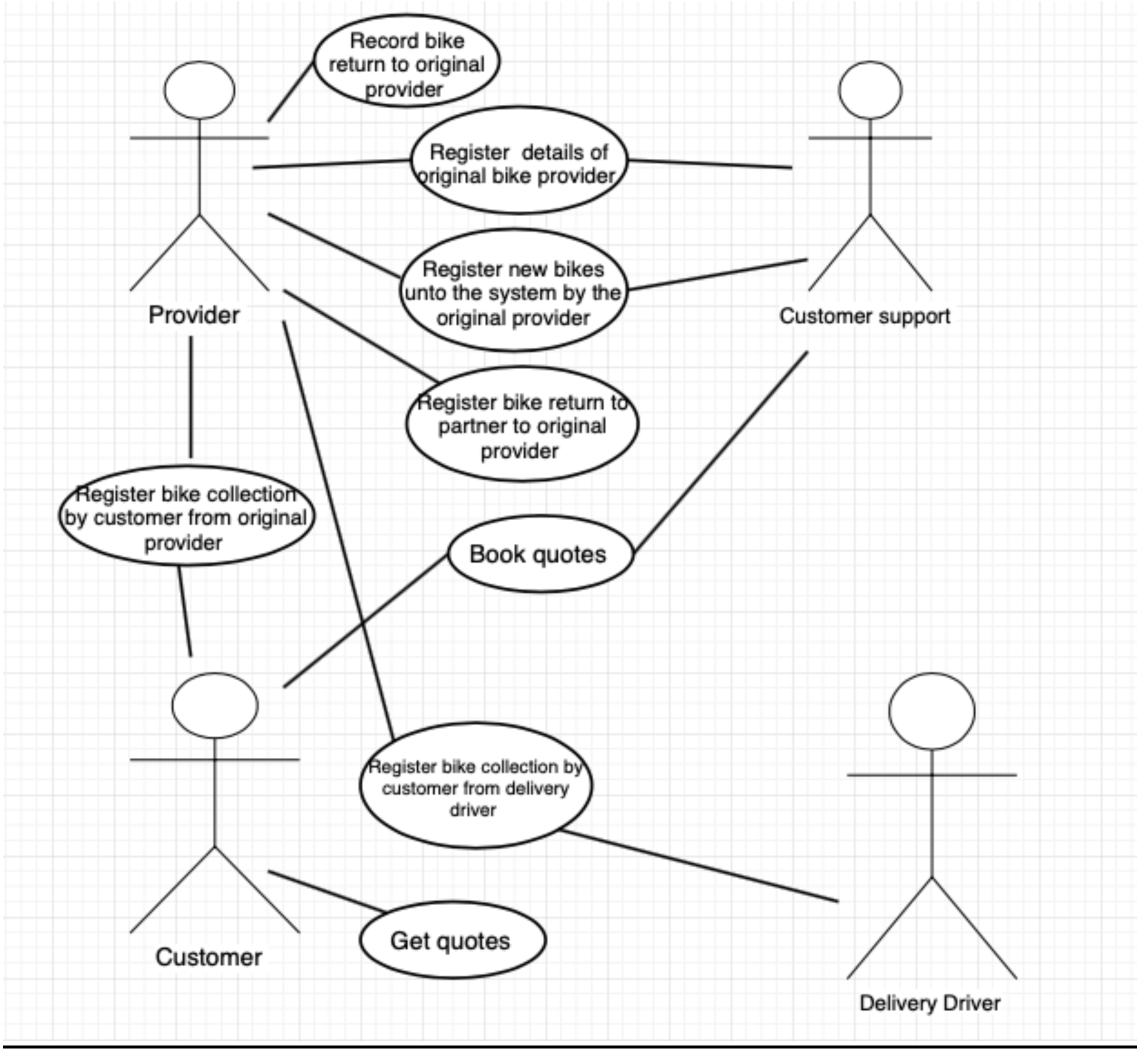
6.
Use case name: Register bike collection by customer from delivery driver
Primary actor: delivery driver
Supplementary: provider
Description: The delivery driver updates the status of the bikes to unavailable when the customer receives the bike.
Extension: For unsuccessful delivery, the provider cancels the booking and returns the money.

7.
Use case name*:* Register bike return to partner of original provider
Primary actor: Partner
Supplementing actor: Original provider
Description: The partner logs on to the system and checks if he/she is the one to receive the bike. The partner updates the bike status and notifies the original provider.
Extensions:
1.If the bike is not the exact one rented or the bike has faults upon return or it was returned by someone else, the partner should contact the original provider.

8.

Use case name: Register new bikes unto the system by the original provider
Primary actor: Provider
Supplementary actor: Customer Support
Description: The provider logs onto the system, checks the bike type he/she has, and adds all necessary information of the bike including the deposit to be made and the daily rental price.
Extensions:
The provider encounters some difficulties with the new bike registration. He/she then contacts customer support for assistance.

Use case Diagram


Record bike return to original provider
Register details of original bike provider
Register new bikes unto the system by the original provider
Register bike return to partner to original provider
Register bike collection by customer from original provider
Book quotes
Register bike collection by customer from delivery driver
Get quotes
Provider
Customer support
Customer
Delivery Driver

Non-Functional Requirement

Non-functional requirements are constraints or quality requirements that tells us how the system should be (example how fast or easy the system is to use), the standards it should conform to, how seldom it should fail etc.

Availability: The system should be available anytime for customers to get and book quote, providers, partners and delivery drivers to update bike status.

Security:
The system should in no way display bank details of a customer to any other user.

Accessibility:
The system should be accessible by users on devices that can connect to the internet.

Usability:
The system's interface should be understandable so that it makes it easier for customers and providers to use.

Performance:
The system should come up with quotes with in 3 seconds after the customer has entered their rental needs.

Privacy:
The system should automatically logout after 15 minutes of inactivity to protect costumer's privacy.

Reliability and Authenticity:
The system should check that the all bike providers are legally certified.

Ambiguities, Subtleties, Incompleteness

1.Specification of delivery drivers: Will the delivery drivers be some of the providers or they are actually people hired by the provider? Or there will be a group of drivers that will work for different providers in the system.
Possible solution: Every provider should have one or more delivery drivers.

2.Specification of how near the customer's address should be from the provider, for the customer to be able to use the delivery option.
Possible solution: If the customer is in the same state as the provider and the mode of collection is delivery then the bike can be delivered.

3.The system does not have any way of showing that the deposit money has been return to the customer.

Possible solution: There should be a section where the customer can update the status showing that they have received their deposit back.

4.There was no information about how customers will use the online system i.e. will they need to create an account to login, or they can use the system directly.
Possible solution: Customers should create an account before logging onto the system to ensure their privacy.

Self-Assessment

Q 3.1 Identify stakeholders 13%

- We were able to identify core stakeholders of the system. 5%

- We identified additional stakeholders. 2.5%

- We described how the system affects each stakeholder. 4.5%

Q 3.2 Describe system state 10%

- We gave detailed information the system should have on the stakeholders specified. 5%

- Information on additional stakeholders were provided. 5%

Q 3.3 Describe use cases 35%

- We were able to identify some use cases from the information given. 8%

- We included the templates for the expected uses and also provided short descriptions for the other use cases. We worked on the feedback given to us on our use cases.
27%

Q 3.4 Use case diagram 12%

- Our diagram included the correct notations for the use case diagram. 5%

- We included some key actors and their attributes in our diagram. 3%

- We identified the connections between the actors and the use cases. 4%

Q 3.5 Describe non-functional requirements 10%

- We identified some non-functional requirements within the context of the system. 7%
- We provided some means for assessing the non-functional requirement and made them more specific. 3%

Q 3.6 Ambiguities and subtleties 5%

- We identify some ambiguities in system description. 3%
- We provided some potential options for resolution of ambiguities. 2%

Q 3.7 Self-assessment 5%

- We attempted a reflective self-assessment linked to the assessment criteria. 5%