**USECASE SPECIFICATIONS FOR USECASE “CRUD BIKE”**

1. **Usecase Code:** **UC-101**
2. **Brief description**

This usecase describe interaction between Administrators and EcoBike application when he wants to create, read information, update or delete the bike from the system

1. **Actors**

* Administrator

1. **Preconditions**

* Administrator logs in the system successfully
* Administrator has entered the administrator page

1. **Basic flow of events**
2. ***Creating new bike***

**Step 1:** Admin chooses to create new bike

**Step 2:** EcoBike system displays form for entering new bike information

**Step 3:** Admin enters new bike information

**Step 4:** EcoBike validates newly entered information

**Step 5:** Admin approves to create new bike

**Step 6:** EcoBike creates new bike instance in the system and displays new bike detail information

1. ***Reading bike information***

**Step 1:** Admin select to list information of the bike

**Step 2:** EcoBike displays all bikes currently in the system

**Step 3:** Administrator chooses one bike to read its detail information

**Step 4:** EcoBike displays board contains detail information of the bike and options for managing the bike

1. ***Update bike information***

**Step 1:** EcoBike calls “READING BIKE INFORMATION” usecase

**Step 2:** Administrator selects to update bike information

**Step 3:** EcoBike shows form for updating bike information

**Step 4:** Admin enters new information for the bike

**Step 5:** EcoBike validates newly entered information

**Step 6:** Admin approves to update bike information

**Step 7:** EcoBike updates bike information with the entered inputs and display bike new detail information

1. ***Deleting bike***

**Step 1:** EcoBike calls “READING BIKE INFORMATION” usecase

**Step 2:** Administrator selects to delete a bike

**Step 3:** EcoBike asks for confirmation

**Step 4:** Admin approves to delete the bike

**Step 5:** EcoBike clears the bike's profile from the system

1. **Alternative flows of events**

**Table: Alternative flow of “creating new bike” usecase**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Location** | **Conditions** | **Actions** | **Resume Location** |
| 1 | Anytime before step 6 | Admin quits the creating bike process | - EcoBike asks for confirmation to quit the process |  |
| 1a |  | Admin accepts to quit the creating bike process | - EcoBike returns to the main page |  |
| 1b |  | Admin refuses to quit the creating bike process | - EcoBike re-display the form for entering new bike’s information | 2 |
| 2 | Step 4 | Admin enters input with incompatible type | - EcoBike highlights invalid fields and requires admin to provide information that must have required type | 2 |
| 3 | Step 4 | Admin enters duplicated information for unique fields | - EcoBike highlights invalid fields and requires admin to provide unique information | 2 |
| 4 | Step 4 | Admin does not enter mandatory fields | - EcoBike highlights missing fields and requires admin to provide valid information | 2 |
| 5 | Step 6 | EcoBike fails to create new instance in the system due to internal errors | - EcoBike notifies errors (with error code) and requires admin to input again | 2 |

**Table: Alternative flow of “reading bike information” usecase**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Location** | **Conditions** | **Actions** | **Resume Location** |
| 1 | Step 2 | Admin search for a specific bike | - Admin selects to search for a specific bike by name, ID or license plate  - Admin enters information to search  - EcoBike fetches matched data and display results |  |

**Table: Alternative flow of “updating bike information” usecase**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Location** | **Conditions** | **Actions** | **Resume Location** |
| 1 | Anytime before step 6 | Admin quits the update bike process | - EcoBike asks for confirmation to quit the process |  |
| 1a |  | Admin accepts to quit the update bike process | - EcoBike returns to the main page |  |
| 1b |  | Admin refuses to quit the update bike process | - EcoBike re-display the form for updating bike’s information | 2 |
| 2 | Step 5 | Admin enters input with incompatible type | - EcoBike highlights invalid fields and requires admin to provide information that must have required type | 3 |
| 3 | Step 5 | Admin enters duplicated information for unique fields | - EcoBike highlights invalid fields and requires admin to provide unique information | 3 |
| 4 | Step 5 | Admin does not enter mandatory fields | - EcoBike highlights missing fields and requires admin to provide valid information | 3 |
| 5 | Step 7 | EcoBike fails to update new instance in the system due to internal errors | - EcoBike notifies errors (with error code) and requires admin to try again | 3 |

**Table: Alternative flow of “deleting bike” usecase**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Location** | **Conditions** | **Actions** | **Resume Location** |
| 1 | Step 2 | Admin choose to delete multiple bike at once | - EcoBike display checkboxes for selecting bikes to delete  - Admin chooses bikes to delete by checking/unchecking boxes | 3 |
| 2 | Step 4 | Admin refuses to delete the bike(s) | - EcoBike re-display the page for selecting bike to delete | 1 |

1. **Activity diagrams**

Activity diagrams for “creating new bike” usecase

Activity diagrams for “reading bike information” usecase

Activity diagrams for “updating bike information” useacse

Activity diagrams for “deleting bike” usecase

1. **Input data**

***Table: Input data for “creating new bike” and “updating bike” usecase***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Data field** | **Description** | **Mandatory** | **Valid conditions** | **Example** |
| 1 | Bike name | Name of the bike | Yes | String | Thong Nhat Bike |
| 2 | Type | Type of the bike | Yes | String | Normal bike, E-bike |
| 3 | License plate code | The string of the bike’s license plate | Yes | - String  - Unique | BY-18-12345 |
| 4 | Image of the bike |  | No |  |  |
| 5 | Bike barcode | The barcode assigned to the bike to lock/unlock | Yes | - 12 digits  - Unique | 863127556142 |
| 6 | Bike rental price | The price to rent the bike | Yes | - Float  - Dot as decimal separator  - 2 digits after decimal separator | 12.00 |
| 7 | Time unit | The default time unit used to calculate rental fee | Yes | - Abbreviated to 3 letters  - Selected from list | mins, hrs |
| 8 | Currency unit | The default currency unit for calculating rental fee | Yes | Selected from list | VND, USD, EUR |

**Table: Input data for “reading bike information” usecase, “search for specific bike” alternative flow**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No.** | **Data field** | **Description** | **Mandatory** | **Valid conditions** | **Example** |
| 1 | Search type | Type for searching with the provided keywords | No | Selected from list | ID, Name, License plate code |
| 2 | Search information | Information used to search for specific bike | Yes | - String  - No more than 32 characters | Thong Nhat Bike |

1. **Output data**

**Table: Output data for displaying bike list**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Data field** | **Description** | **Display format** | **Example** |
| 1 | Bike name | Name of the bike | - String  - All caps | THONG NHAT BIKE |
| 2 | Image of the bike |  | Image |  |
| 3 | Current status | Current status of the bike, showing if it is being rented | - String | Rented  Free |
| 4 | Current dock | The dock where the bike is in | - String  - Can be empty when the bike is being rent | - My Dinh 12 Dock |
| 5 | Current battery | Current status of the battery; only for the Ebike type | - Percentage  - Integer | 60% |

**Table: Output data for displaying bike information**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Data field** | **Description** | **Display format** | **Example** |
| 1 | Bike name | Name of the bike | - String  - All caps | THONG NHAT BIKE |
| 2 | Bike type | Type of the bike | String | Normal bike |
| 3 | License plate code | The string of the bike’s license plate | - String  - All caps | BY-18-12345 |
| 4 | Bike barcode | The barcode assigned to the bike to lock/unlock | - String  - 12 digits | 863127556142 |
| 5 | Image of the bike |  | Image |  |
| 6 | Rental price | The price to rent the bike | - Float  - Dot as decimal separator  - 2 digits after decimal separator | 12.00 |
| 7 | Time unit | The default time unit used to calculate rental fee | - Abbreviated to 3 letters | mins, hrs |
| 8 | Currency unit | The default currency unit for calculating rental fee | - String  - 3 letters  - All caps | USD |
| 10 | Current status | Current status of the bike, showing if it is being rented | - String | Rented  Free |
| 11 | Current dock | The dock where the bike is in | - String  - Can be empty when the bike is being rent | - My Dinh 12 Dock |
| 12 | Current renter | Name of the renter | - String  - Can be empty when the bike is free | Nguyen Thu Thao |
| 13 | Current battery | Current status of the battery; only for the Ebike type | - Percentage  - Integer | 60% |
| 14 | Time rented | Total time being rented from creation | - Minutes  - Integer | 12 minutes |