

Homework #3

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Use Cases

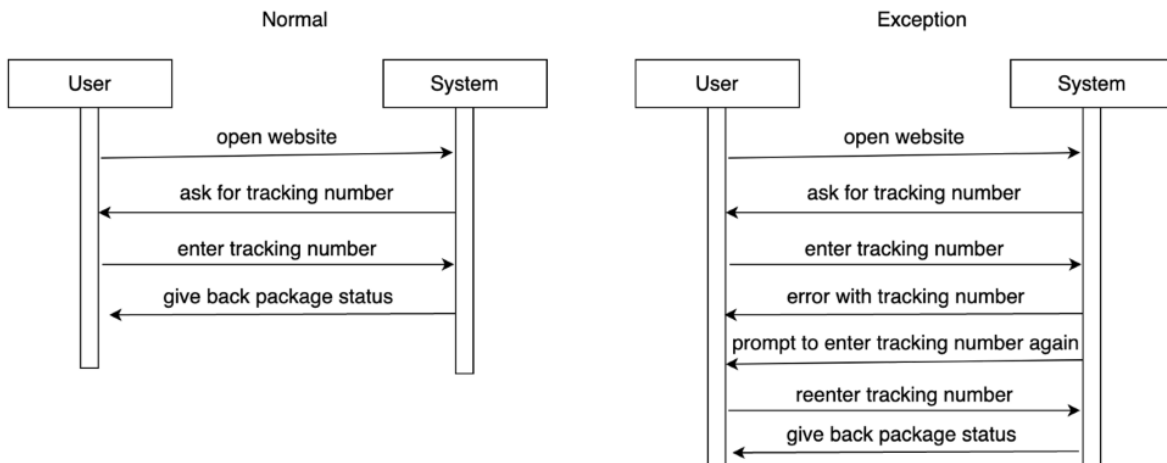
The two use cases we've selected are tracking a package online and requesting a package intercept.

When tracking a package online, a user should be able to enter in the tracking number of a piece of mail. The system will then display a sequential view of all previous status updates with the current status being the most prominent.

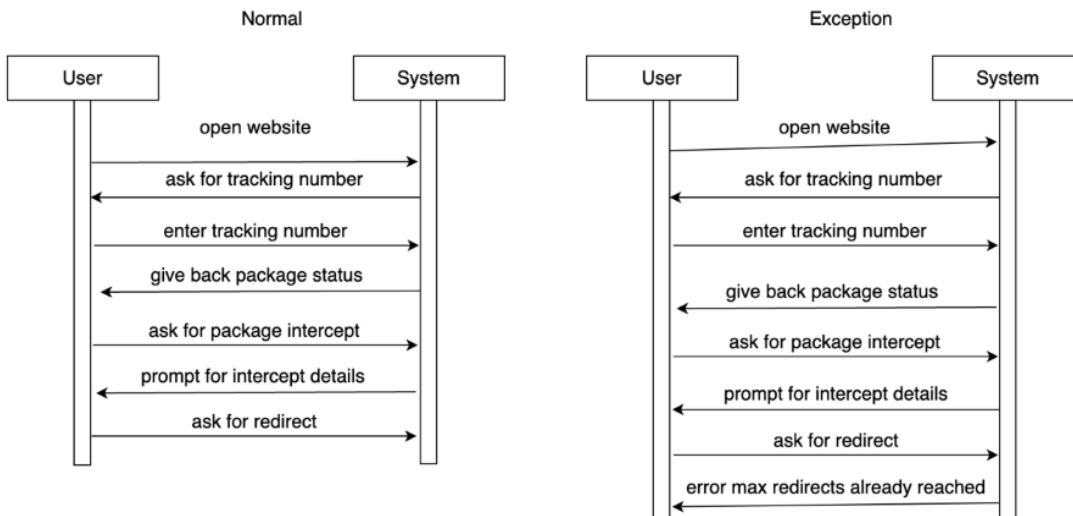
They can also request a package intercept after entering their tracking number. This includes a verification process where the system verifies if a package can be intercepted. The package can't be intercepted if the package status is "Out for Delivery" and/or if the package dimensions exceed 108 inches in any dimension. Once verified, the user can decide which type of intercept they want. They can choose to have the package held at a post office or redirected to a different address. The package will be appropriately flagged. If the user opts to have their package redirected, they will be prompted to enter a new destination address. Once they confirm the new address, the address will be changed in the system. They will not, however, be able to redirect the package if the maximum number of redirects has already been reached.

Sequence Diagrams

Scenario #1



Scenario #5



System Operations

- **Tracking a Package:**

- checkTrackingNumber(string trackingNum): When a user enters a tracking number into the website UI, the system will need to verify that a package with a tracking number is in the database. If it is not found in the database, this operation will return some sort of indicator like a negative integer value or a false Boolean so that the UI can display an error message.
- getStatuses(string trackingNum): If a package with the specified tracking number is found in the database, the system will get all the past and current statuses of the package in order from most recent to less recent and display them in a stack-like display (most recent status on top, least recent on the bottom).

- **Intercepting a Package:**

- verifyInterception(string trackingNum, int interceptType): If the user requests that a package be intercepted, the system must first verify that a package is viable for interception. It must check that the tracking number is in the database and that it is not already out for delivery.
- flagIntercept(string trackingNum, int interceptType): Once a package has been approved for interception, it will need to be flagged as such in the database. If it has been approved for being held for pickup at the post office, the “Hold” flag will be updated. Alternatively, if it has been approved for redirection, the “Redirect” flag will be updated as well as the new destination address that was entered by the user in the UI.

Operation Contracts

- **Use Case: Tracking a Package:**
 - **Operation: checkTrackingNumber(string trackingNum)**
 - Pre-condition(s):
 - A package with the specified tracking number must be in the database.
 - Post-condition(s): Nothing changes within the system after a tracking number is checked; however, this operation should return a Boolean value indicating whether the tracking number was found in the database or not.
 - **Operation: getStatuses(string trackingNum)**
 - Pre-condition(s):
 - A package with the specified tracking number must be in the database.
 - Post-condition(s): Nothing with the system changes after this operation is performed, but the website UI will display the past and current statuses of the package.
- **Use Case: Intercepting a Package:**
 - **Operation: verifyInterception(string trackingNum, int interceptType)**
 - Pre-condition(s):
 - A package with the specified tracking number must be in the database.
 - The current state of a package cannot be “Out for Delivery.”
 - The dimensions of a package cannot be longer than 108 inches.
 - Post-condition(s):
 - If approved for interception, this operation should return true or integer 1 to indicate it has been verified.
 - If rejected, this operation should return false or integer -1 to indicate it has not been verified.
 - **Operation: flagIntercept(string trackingNum, int interceptType)**
 - Pre-condition(s):
 - A package must be approved for interception
 - Post-condition(s):
 - This operation should flag the specified package as intercepted in the database (either “Hold for pickup” or “Redirect”).