# Requirements

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| --- | --- |
| R1 | A user can be registered with matching password and verified password |
| R2 | A user can log in with valid credentials |
| R3 | A recipient can view recipient deliveries |
| R4 | A recipient can view delivery progress including transactions against an individual order |
| R5 | A driver can view all deliveries |
| R6 | A driver can add a transaction against an order |
| R7 | A driver can remove a transaction from an order |
| R8 | A seller can create a parcel with a valid value for name, type, weight, and seller |
| R9 | A seller can edit a parcel with a valid value for name, type, weight, and seller |
| R10 | A seller can delete a parcel, which subsequently removes the parcel from any existing order it was on |
| R11 | A seller can create an order with a valid recipient and seller |
| R12 | A seller can edit an order with a valid recipient and seller |
| R13 | A seller can delete an order, which subsequently removes all transactions that existed against that order |
| R14 | A seller can view driver metrics to find total delivery counts and average delivery durations (in days) per driver |
| R15 | A seller can view a list of all registered users |
| R16 | A seller can view details of a specific registered user |
| R17 | An order has zero or more parcels |
| R18 | An order has zero or more transactions |
| R19 | An order has a recipient and seller |
| R20 | An order has zero or one driver |
| R21 | A user has zero or more orders |
| R22 | A user has a role recipient, driver, or seller |
| R23 | An order’s driver must be “None” when no “Picked up” transaction exists |
| R24 | When an order is “picked up”, the driver adding the transaction becomes the named driver on the order |
| R25 | When a “Picked up” transaction is removed, the named driver reverts to “None” |
| R26 | An order’s completed date must be blank when no “Dropped off” transaction exists |
| R27 | When an order is “dropped off”, the order completed date is filled out |
| R28 | When a “Dropped off” transaction is removed, the order completed date is cleared |

# Test cases

## Normal values

N1 username = “TestUser”, password1 = “pass”, password2 = “pass” (R1)  
N2 username = “recipient”, password = “123” (R2)  
N3 name = “Book”, type = “Large”, weight = 50, sellerID = 3 (R8)  
N4 name = “Pen”, type = “Small”, weight = 100, sellerID = 2 (R9)  
N5 recipientID = 1, sellerID = 3 (R11, R19)  
N6 recipientID = 2, sellerID = 1 (R12, R19)

## Invalid values

I1 username = “TestUser” password1 = “pass”, password2 = “wrong” (R1)  
I2 username = “recipient”, password = “abc” (R2)  
I3 name = “Book”, type = “Large”, weight = “heavy”, sellerID = 3 (R8)  
I4 name = “Pen”, type = “Small”, weight = 10, sellerID = -1 (R8)  
I5 name = ”Book”, type = ”Large”, weight = “light”, sellerID = 3 (R9)  
I6 name = ”Pen”, type = ”Small”, weight = 10, sellerID = -1 (R9)  
I7 recipientID = -1, sellerID = 3 (R11, R19)  
I8 recipientID = 1, sellerID = -1 (R12, R19)

## Boundary values

B1 There are 0 parcels in an order (R17)  
B2 There are 0 transactions against an order (R18)  
B3 An order has no driver (R20)  
B4 An order has 1 driver (R20)  
B5 A user has 0 orders (R21)  
B6 A user has no role (R22)  
B7 A user has 1 role (R22)

## Special cases

S1 Recipient (Recipient) views list of (Recipient’s) orders (R3)  
S2 Recipient (Recipient) views details of one of (Recipient’s) orders (R4)  
S3 Driver (Driver) views list of all orders (R5)  
S4 Driver (Driver) adds transaction “Picked up” to an order (R6)  
S5 Driver (Driver) adds transaction “Dropped off” to an order (R6)  
S6 Driver (Driver) removes transaction “Picked up” from an order (R7)  
S7 Driver (Driver) removes transaction “Dropped off” from an order (R7)  
S8 Seller (Seller) deletes a parcel (R10)  
S9 Seller (Seller) deletes an order (R13)  
S10 Seller (Seller) views driver metrics for driver totals and average delivery days (R14)  
S11 Seller (Seller) views list of all registered users (R15)  
S12 Seller (Seller) views details of a single registered user (R16)  
S13 An orders driver is updated when a “Picked up” transaction changes (R23, R24, R25)  
S14 An orders completed date is updated when a “Dropped off” transaction changes (R26, R27, R28)

# Test plan

\* Requires manual testing due to dependency injection

|  |  |  |  |
| --- | --- | --- | --- |
| Test | Instruction (Satisfies test cases) | Expected result(s) | Actual result(s) |
| T1 |  |  |  |
| T2 |  |  |  |
| T3 |  |  |  |
| T4 |  |  |  |
| T5 |  |  |  |
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|  |  |  |  |
| User Manager | | | |
| T1\* | Find user by user ID (where ID exists in db and where its absent) |  |  |
| UT2 | Find user by username (where username exists in db and where its absent) |  |  |
| UT | Find user role by username |  |  |
| UT | View all users |  |  |
| UT | Create user |  |  |
| User Gateway | | | |
| UT | Insert user |  |  |
| UT | Find user by user ID |  |  |
| UT | Find user by username |  |  |
| UT | Find user role by username |  |  |
| UT | Find all users |  |  |
| Order Manager | | | |
| UT | Create order |  |  |
| UT | Edit order |  |  |
| UT | Delete order |  |  |
| UT | Find order by order ID |  |  |
| UT | View recipient deliveries |  |  |
| UT | View driver metrics |  |  |
| UT | View order parcels |  |  |
| UT | View all deliveries |  |  |
| Order Gateway | | | |
| UT | Insert order |  |  |
| UT | Update order |  |  |
| UT | Delete order |  |  |
| UT | Find order by order ID |  |  |
| UT | Find recipient deliveries |  |  |
| UT | Find driver metrics |  |  |
| UT | Find all deliveries |  |  |
| UT | Find order parcels |  |  |
| Transaction Manager | | | |
| UT | Add transaction |  |  |
| UT | Remove transaction |  |  |
| UT | Find transaction by transaction ID |  |  |
| UT | View order transactions |  |  |
| Transaction Gateway | | | |
| UT | Insert transaction |  |  |
| UT | Delete transaction |  |  |
| UT | Find transaction by transaction ID |  |  |
| UT | Find order transactions |  |  |
| Parcel Manager | | | |
| UT | Create parcel |  |  |
| UT | Edit parcel |  |  |
| UT | Delete parcel |  |  |
| UT | Find parcel by parcel ID |  |  |
| UT | View all parcels |  |  |
| Parcel Gateway | | | |
| UT | Insert parcel |  |  |
| UT | Update parcel |  |  |
| UT | Delete parcel |  |  |
| UT | Find parcel by parcel ID |  |  |
| UT | Find all parcels |  |  |
| UT | Find order parcels |  |  |
| RegisterBean (register bean doesn’t have dependency injection) | | | |
| UT | Get next user ID returns a positive integer |  |  |
| UT | Validate inputs returns true when password1 matches password2 |  |  |
| UT | Validate inputs returns false when password1 does not match password2 |  |  |
| UT | Register will create a new user and apply the role “Recipient” by default. |  |  |
| LoginBean (login bean doesn’t have dependency injection) | | | |
| UT | Check credentials returns true when valid login details are provided for a user that exists in the database. |  |  |
| UT | Check credentials returns false when invalid login details are provided or when the user does not exist in the database. |  |  |
| UT | User page returns a UI string relative to the role of the current user using the application. |  |  |
| UT | Find user role returns the correct role for the current user using the application. |  |  |
| UT | Clear credentials will clear the visible form and values in the managed bean. |  |  |
| UT | Logout will clear user details within the managed bean, then return the string “Login\_UI”. |  |  |
| DbManager | | | |
| UT | Get connection returns a valid connection that can be used in the rest of the application. |  |  |
| Metric DTO | | | |
| UT | Can get name from a Metric DTO |  |  |
| UT | Can get delivery count from a Metric DTO |  |  |
| UT | Can get days to complete from a Metric DTO |  |  |
| Order DTO | | | |
| UT | Can get ID from an Order DTO |  |  |
| UT | Can get recipient as a User DTO from an Order DTO |  |  |
| UT | Can get driver as a User DTO from an Order DTO |  |  |
| UT | Can get seller as a User DTO from an Order DTO |  |  |
| UT | Can get the date an order was added from an Order DTO |  |  |
| UT | Can get whether an order is completed from an Order DTO |  |  |
| UT | Can get whether an order is completed and if so, the date the order was completed from an Order DTO |  |  |
| Parcel DTO | | | |
| UT | Can get ID from a Parcel DTO |  |  |
| UT | Can get name of parcel from a Parcel DTO |  |  |
| UT | Can get type of parcel from a Parcel DTO |  |  |
| UT | Can get weight of a parcel in grams from a Parcel DTO |  |  |
| UT | Can get seller as a User DTO from a Parcel DTO |  |  |
| UT | Can get the date a parcel was added to the system from a Parcel DTO |  |  |
| UT | Can get the date a parcel was last modified from a Parcel DTO |  |  |
| UT | Can get the number of times a parcel has been sold from a Parcel DTO |  |  |
| UT | Can set and get the quantity of a parcel in the order from a Parcel DTO |  |  |
| Transaction DTO | | | |
| UT | Can get ID from a transaction DTO |  |  |
| UT | Can get the OrderID of a transaction from a transaction DTO |  |  |
| UT | Can get the name of a transaction from a transaction DTO |  |  |
| UT | Can get the user who added the transaction as a User DTO from a transaction DTO |  |  |
| UT | Can get the date that a transaction was added from a Transaction DTO |  |  |
| User DTO | | | |
| UT | Can get user ID from a User DTO |  |  |
| UT | Can get first name from a User DTO |  |  |
| UT | Can get last name from a User DTO |  |  |
| UT | Can get username from a User DTO |  |  |
| UT | Can get the hashed password from a User DTO |  |  |
| UT | Can get the date a user was added to the database from a User DTO |  |  |
| UT | Can get the date a user was last modified from a User DTO |  |  |
| UT | Can get the address line one from a User DTO |  |  |
| UT | Can get the town from a User DTO |  |  |
| UT | Can get the county from a User DTO |  |  |
| UT | Can get the postcode from a User DTO |  |  |
| UT | Can get the email address from a User DTO |  |  |
| UT | Can get the phone number from a User DTO |  |  |
| UT | Can get whether a user is active in the database from a User DTO |  |  |
| UT | Can get the users role from a User DTO |  |  |
| Register\_UI | | | |
| UT | RegisterCommand |  |  |
| UT | RegisterCommandFactory |  |  |
| UT | Create user command |  |  |
| Login\_UI | | | |
| UT | LoginCommand |  |  |
| UT | LoginCommandFactory |  |  |
| UT | View user by username command |  |  |
| UT | View user role command |  |  |
| Recipient\_UI | | | |
| UT | RecipientCommand |  |  |
| UT | RecipientCommandFactory |  |  |
| UT | View recipient deliveries command |  |  |
| UT | View delivery progress command |  |  |
| Driver\_UI | | | |
| UT | DriverCommand |  |  |
| UT | DriverCommandFactory |  |  |
| UT | Add transaction command |  |  |
| UT | Remove transaction command |  |  |
| UT | View all deliveries command |  |  |
| Seller\_UI | | | |
| UT | SellerCommand |  |  |
| UT | SellerCommandFactory |  |  |
| UT | Create order command |  |  |
| UT | Create parcel command |  |  |
| UT | Delete order command |  |  |
| UT | Delete parcel command |  |  |
| UT | Edit order command |  |  |
| UT | Edit parcel command |  |  |
| UT | View all parcels command |  |  |
| UT | View all users command |  |  |
| UT | View driver metrics command |  |  |
| UT | View order parcels command |  |  |
| UT | View order transactions command |  |  |
| UT | View parcel command |  |  |
| UT | View user command |  |  |
|  |  |  |  |
|  | Create a parcel with valid values. | Creates a new parcel with the details provided. |  |
|  | Create parcel with an invalid weight of “heavy” (string when expecting an integer) and valid other values for isolation. | Parcel is not created and … (handle? Error?) |  |
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| Integration Tests | | | |
| IT11 | - Create a recipient user with username “Jimmy”.  - Create a seller user with username “Sally”.  - **Create order** where “Jimmy” is the recipient and “Sally” is the seller.  **-** Run **View recipient deliveries** when using the application as “Jimmy”. | Returns a list Jimmy’s orders containing at least the one where Sally is the seller. | (result and evidence) |
| IT12 | - Create a recipient user with username “Jimmy”.  - Create a seller user with username “Sally”.  - **Create order** where “Jimmy” is the recipient and “Sally” is the seller.  - Create a driver user with username “Bob”.  - **Add transaction** “Picked up” to the order while using the application as “Bob” (Driver).  - **Add transaction** “Dropped off” to the order while using the application as “Bob” (Driver).  - **Remove transaction** “Dropped off” from the order while using the application as “Bob” (Driver).  - Run **View delivery progress** against the order created. | Returns details of the order where “Jimmy” is the recipient, “Sally” is the seller, “Bob” is the driver and shows 1x transaction of “Picked up”, and no other transactions. |  |
| IT13 | - Create a recipient user with username “Jimmy”.  - Create a seller user with username “Sally”.  - **Create order** where “Jimmy” is the recipient and “Sally” is the seller.  - Create a driver user with username “Bob”.  - Run **View all deliveries** while using the application as “Bob” (Driver). | Returns list of all orders. |  |
| IT14 | - Create a seller user with username “Sally”.  - **Create parcel** with name=”Old item”, type=”Book”, weight=500, sellerID=(ID of Sally).  - **Edit parcel** updating to name=”New item”, type=”Box”, weight=10, sellerID=3 (Existing user “seller”’s ID).  - View details of parcel that was just created then edited. | Returns details of the parcel: name=“New item”, type=”Box”, weight=10, sellerID=3. |  |
| IT15 | - Create a seller user with username “Sally”.  - **Create parcel** with name=”Old item”, type=”Book”, weight=500, sellerID=(ID of Sally).  - **Delete parcel** that was just created. | Parcel does not exist in database and can not be seen within the application. |  |
| IT16 | - Create a recipient user with username “Jimmy”.  - Create a seller user with username “Sally”.  - **Create order** with recipientId=(ID of “Jimmy”), sellerId=(ID of Sally).  - **Edit order** updating to recipientId=1 (Existing recipient users ID), sellerId=3 (Existing seller users ID).  - View details of order that was just created then edited. | Returns details of the new order: recipientId=1, sellerId=3. |  |
| IT17 | - Create a recipient user with username “Jimmy”.  - Create a seller user with username “Sally”.  - **Create order** with recipientId=(ID of “Jimmy”), sellerId=(ID of “Sally”).  - **Delete order** that was just created. | Order no longer exists in database and can not be seen within the application. |  |
| IT18 | - Create a recipient user with username “Jimmy”.  - Create a seller user with username “Sally”.  - **Create order** where “Jimmy” is the recipient and “Sally” is the seller.  - **Create parcel** with name=”Old item”, type=”Book”, weight=500, sellerID=(ID of Sally).  - Add new parcel to new order with quantity 2.  - **Delete parcel** that was just added to the order.  - View details of order that had the parcel deleted. | Order no longer lists the now deleted parcel. When a parcel is deleted, all orders with that parcel are then updated to not include the parcel. |  |
| IT19 | - Create a driver user with username “Bob”.  - Create a driver user with username “Dave”.  - Create a recipient user with username “Jimmy”.  - Create a seller user with username “Sally”.  - **Create order** “Order1” where “Jimmy” is the recipient and “Sally” is the seller.  - **Create order** “Order2” where “Jimmy” is the recipient and “Sally” is the seller.  - **Create order** “Order3” where “Jimmy” is the recipient and “Sally” is the seller.  - **Add transaction** “Picked up” to “Order1” while using the application as “Bob”.  - **Add transaction** “Dropped off” to “Order1” while using the application as “Bob”.  - **Add transaction** “Picked up” to “Order2” while using the application as “Bob”.  - **Add transaction** “Dropped off” to “Order2” while using the application as “Bob”.  - **Add transaction** “Picked up” to “Order3” while using the application as “Dave”.  - **Add transaction** “Dropped off” to “Order3” while using the application as “Dave”.  - Run **View driver metrics** while using the application as “Sally” (Seller). | Returns list of metrics showing “Bob” with 2 total deliveries and average days to complete 0 & “Dave” with 1 total delivery and average days to complete 0. |  |