# Use Case Diagram



# Use Case Narratives and Sequence Diagrams

## Create Work Order

### Narrative

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| **Use Case Name:** | *Create Work Order* | |
| **Description:** | *A customer brings their vehicle in for repair. Service Manager [SM] determines if the customer is returning client. If new customer, SM adds customer to the Customer Database, then adds vehicle information into the Vehicle database and the work order. If an existing customer, the SM looks up the customer history and updates the customer information. The SM the looks up the vehicle history. If not found, it is assumed the customer is driving a different vehicle. The SM deletes the old vehicle and adds the vehicle the customer is currently driving. If the vehicle is found, the SM updates any pertinent information. The SM completes the work order with the customer, obtains information such as the description of the problem before the customer signs the work order. The SM enters the work order information into the system. The default status for the work order at this time is ‘unassigned’.* | |
| **Actor(s):** | *Customer, Service Manager* | |
| **Preconditions:** | *Vehicle is in need of repair* | |
| **Trigger:** | *Customer must bring in vehicle* | |
| **Normal flow of events:** | **Actor action** | **System Response** |
| ***1.*** *SM invokes system to determine if existing customer.*  ***3.*** *If new customer, SM adds customer, vehicle information and creates work order work order.*  ***7.*** *If an existing customer, the SM checks customer history and updates the details.*  ***10.*** *SM looks up Vehicle history*  ***12.*** *If not found, SM deletes old vehicle and adds the new vehicle*  ***14.*** *If found, SM updates pertinent details*  ***16.*** *SM adds problem description, customer signature and ‘unassigned’ status to Work Order* | ***2.*** *System looks up customer and returns result.*  ***4.*** *System creates Customer*  ***5.*** *System creates Vehicle*  ***6.*** *System creates Work Order*  ***8.*** *System looks up customer history and returns result*  ***9.*** *System updates customer details*  ***11.*** *System looks up vehicle history and returns result.*  ***13.*** *System updates vehicle details*  ***15.****System updates vehicle details*  ***17.*** *System updates Work Order and returns result* |
| **Post-conditions:** | *Customer and vehicle details are up to date.*  *Work Order is created* | |
| **Outstanding Issues:** | *It is assumed that returning customer with new vehicle details means the customer has a different vehicle* | |

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### Sequence Diagram



## Assign Mechanic

### Narrative

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| **Use Case Name:** | *Assign Mechanic* | |
| **Description:** | *SM invokes the system to provide a list of mechanics with the specialties needed to complete the work order. SM choses which mechanics are to be assigned the work order. SM invokes the system to update the work order with the employee number of each mechanic, change the status of the work order to ‘assigned’, and send an electronic copy to the assigned mechanics.* | |
| **Actor(s):** | *Service Manager* | |
| **Preconditions:** | *Work Order Must exist* | |
| **Trigger:** | *New work order was created* | |
| **Normal flow of events:** | **Actor action** | **System Response** |
| ***1.*** *SM invokes the system to provide a list of mechanics with the specialties needed*  ***3.*** *SM invokes the system to update the work order.* | ***2.*** *System looks up mechanic information and returns result.*  ***4.*** *System adds mechanic details to Work Order*  ***5.*** *System changes Work Order Status to ‘Assigned’*  ***6.*** *System sends Work Order to mechanic* |
| **Post-conditions:** | *Work Order is assigned to a mechanic* | |
| **Outstanding Issues:** | *N/A* | |

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### Sequence Diagram

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## Verify Work Order

### Narrative

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| **Use Case Name:** | *Verify Work Order* | |
| **Description:** | *The assigned mechanic verifies the problem diagnosed by the Service Manager. If there are additional issues, the mechanic adds cost and time estimates to the work order, contacts the SM, who calls the customer with revised estimate and verbal approval to perform the additional work. If the customer refuses , the SM informs the mechanic who notes the customer refusal on the work order. If the customer approves, the SM informs the mechanic who notes the customer approval on the work order.* | |
| **Actor(s):** | *Mechanic* | |
| **Preconditions:** | *Work Order has been assigned to a mechanic* | |
| **Trigger:** | *Mechanic receives a copy of the work order* | |
| **Normal flow of events:** | **Actor action** | **System Response** |
| ***1.*** *Mechanic invokes system for work order.*  ***3.*** *If no issues, Mechanic notes work Order is verified.*  ***5.*** *If any new issues from review, Mechanic adds cost and time estimates to work order.*  ***7.*** *If Customer approves, mechanic notes approved, and changes status to ‘work in progress’ on work order.*  ***9.*** *If Customer doesn’t approve, mechanic notes refusal, and changes status to ‘work in progress’ on work order.* | ***2.*** *System looks up Work Order and returns result.*  ***4.*** *System adds verified note to Work Order.*  ***6.*** *System adds Cost and time estimates to order.*  ***8.***  *System confirms approved estimates and status change on Work Order.*  ***10.*** *System confirms refused estimates and status change on Work Order.* |
| **Post-conditions:** | *Work Order is verified and has status of ‘work in progress’* | |
| **Outstanding Issues:** | *N/A* | |

Sequence Diagram



## Repair Vehicle

### Narrative

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| **Use Case Name:** | *Repair Vehicle* | |
| **Description:** | *Mechanic enters the part numbers, the respective quantities needed, and the work order number to against which to charge the adjustment in the Parts inventory into the system. The system updates the work order after the parts inventory has been adjusted. Each mechanic assigned to the work order records the time spent and parts used to complete their portion of the task. Once the repairs are completed by all the assigned mechanics, the last mechanic to work on the vehicle ‘closes’ the work order.* | |
| **Actor(s):** | *Mechanic* | |
| **Preconditions:** | *Work Order has been verified*  *Parts are in stock.* | |
| **Trigger:** | *Work Order has status of ‘work in progress’* | |
| **Normal flow of events:** | **Actor action** | **System Response** |
| ***1.*** *Mechanic invokes the system to requisition the right number of parts from Purchasing Department for the work order*  ***4.****Mechanic submits time and parts used to system*  ***6.*** *Mechanic invokes the system to close the work order.* | ***2.*** *System requests and adjusts Parts inventory and returns result.*  ***3.*** *System attaches parts charges to Work Order.*  ***5.*** *System adds mechanic time and parts details to work order*  ***7.*** *System updates Work Order Status and returns result.* |
| **Post-conditions:** | *Work Order Is closed*  *Labor and part costs have been attached to the Work order* | |
| **Outstanding Issues:** | *Repairs require multiple specialist mechanics. Mechanic passes the work order for repair continuation until repair is complete. All steps in the use case are repeated for each mechanic* | |

Sequence Diagram



## Close Work Order

### Narrative

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| **Use Case Name:** | *Close Work Order* | |
| **Description:** | *SM reviews the repairs, adds comments and completes all cost information. SM updates the status of the work order to ‘approved’ and reviews the repairs and total with the customer. The customer pays for the repairs, is provided a receipt along with a copy of the work order.* | |
| **Actor(s):** | *Customer, Service Manager* | |
| **Preconditions:** | *Vehicle repair is complete* | |
| **Trigger:** | *Mechanic submits closed status to work order* | |
| **Normal flow of events:** | **Actor action** | **System Response** |
| ***1.*** *SM invokes the system to pull up the closed work order*  ***4.*** *SM updates work order status and submits comments and totals for the work order*  ***6.*** *SM accepts payment and finalizes work order* | ***2.*** *System looks up work order and returns result*  ***5.*** *System approves work order.*  ***7.*** *System post payment and returns a receipt and copy of the work order.* |
| **Post-conditions:** | *Work order is complete*  *Customer is satisfied* | |
| **Outstanding Issues:** | *N/A* | |

Sequence Diagram



# Class Diagram

