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1 - Introduction

The following document is a requirement specification document for Customer and Admin facing Point of Sale order management system called “Sales Information System”. This is developed as in terms of project given by Swinsoft Consulting to our team to develop this requirement specification. This document will cover in-depth the following criteria given below.

This document covers all the essential detail required to build a Sales information system. It contains all the details in chronological order. It states the project background in terms of project objectives and its goals. All the assumptions made are thoroughly documented as it can cause errors later if not done so. All the identified constraints are thoroughly documented and given below is a workflow for the identified Sales information system. The main purpose of the document is fulfilled by the acknowledgement of the Identified requirements and representing them into Task & Support system. The document further contains a section portraying the verifiability and validation of the identified requirements. The document further contains a section for non-functional quality attributes identified which would be most affected by this new Sales information system. Lastly, this requirement specification contains a Domain entity model which clearly shows all the entities and all the actors which would interact with the Sales information system.

2 - Project Background

2.1 - Project Type

Holiday Travel Vehicles (HTV) is a medium-sized company which sells new recreational vehicles and trailers, many of its business operations facilitated through its admin facing Point of Sale system. When a customer comes in to buy a new vehicle, he/she can also trade-in their old vehicle as part of the purchase. After the customer is happy with the vehicle and decides to purchase, an invoice is generated. The customer can request dealer-installed options for their new vehicle in which, the invoice would also include those options. Only experienced staff member can serve the customers and enter the data. If a customer trades in a vehicle, it is added to sales inventory which can then be bought by another customer. The details of each vehicle such as serial number, make, model and year are stored in vehicle entity. Each vehicle sold by HTV can only have one invoice assigned to it, with a 30-day window for the customer to complete the payment.

2.2 - Project Goals & Objectives

The owners of this company desire a computer system for their business. They want to automate most of their tasks in work areas like Sales, Customer Records and Accounts with this new system. One of the major problems encountered with the current system is that only one staff member can access the system at a time and most of the paper work is duplicated as they also do hard copies. This makes it hard to manage the records. This new automated sales information system will remove the redundancies making the workflow of the company simple, easy and clear.

2.3 - Domain Vocabulary

Customer – The person who comes to buy or trade-in a vehicle.

Staff Member – The person who sells, records the customer data, vehicle data and generates an invoice.

Accounts – The workspace which processes the payment and pass the information to generate an invoice.

Options – This are the options a customer can add on vehicle while purchasing it.

Transaction- The entire process of HTV buying/selling a vehicle, includes the generation of an invoice and payment of the invoice.

Invoice - This document is issued upon a sale of a vehicle. One invoice per vehicle.

Customer Id - Unique identification number given to customer and stored in database upon a purchase of vehicle by the customer.

Vehicle - This is the new vehicle sold by HTV.

Trade-in Vehicle - This is the vehicle the customer trades in to buy a new vehicle.

3 – Requirements

3.1 - Functional Requirements

- The system must allow for the creation and management of vehicle records which include the serial number, name, make, model, year, manufacturer and base cost of vehicles for sale.
- The system must allow for additional dealer-installed options to be associated with vehicle records, these records must include an option code, description and price.
- Users must be able to login to the system using a set of credentials so that sales operations may be associated with them.
- The system must support the saving of customer data including name, address and phone number.
- Customer records must be uniquely identifiable based on a generated ID value.
- The system must be able to generate invoices for vehicle trade-ins and sales, each of which have 1-1 relationship with the vehicle.
- Generated invoices must allow for signing by the customer in-order to be considered valid.
- A customer record must have the ability to have multiple invoices associated with it.
- Invoices must allow for trade-in credit from up to 1 vehicle to be applied to the final price.
- The system must support payments via credit card, cheque or finance account.
- The system must enforce a payment window of up to 30 days after placement of an order.
- Multiple users will need to be able to use the system at once.
- Existing invoices must be printable.

3.2 - Constraints

- Invoice records must not be editable after they have been finalised so that sales history can be maintained, any refunds or modifications must be handled by creating a separate invoice which inverts any payments.
- All existing data from the previous system should migrate into the new system so that no sales or customer data is lost.
- The system must allow for manual invoice input so that previously created records can be entered.
- The system must only allow for one vehicle to be traded in for credit when another vehicle is being purchased.

3.3 - Assumptions

The following can be assumed about the *"Sales Information System"*:

- When a vehicle is traded in as part of another vehicle purchase, it is assumed that 2 invoices are generated with one invoice being for the trade in and one for the purchase.
- Staff member records are not something that will be handled by the system and instead will be manually entered into the database.
- All forms of interaction with the system are linked to a staff record.
- The system will not be customer facing, except for taking a customer signature all operations completed with the system will be completed by employees of HTV.
- The vehicle records will keep the bare minimum of data about them, as specific details about the vehicles can be sourced externally based on the serial number.
- A customer record is only created with the creation of the first invoice for the customer.
- A customer cannot “drive away” with a vehicle until they have completed payments for it.
- An invoice is generated *prior* to payment, the tax invoice/receipt is generated based off the invoice record for the transaction.

- Invoices can only be paid within 30 days of the invoice's creation, however if they are not paid after 30 days the invoice record is still kept but considered *"expired"* and not payable.
- Invoices will only list additional options that are not installed by the manufacturer of the car, but instead provided by HTV such as extended warranty, road worthy, non-cosmetic addons.

3.4 - Scope

Holiday Travel Vehicles (HTV) would like a sales information system which streamlines the process of buying and selling holiday vehicles as well as consolidates previous invoices and sales records into a single system. The system must be able to store vehicle records which can have additional dealer installed addons associated with them. When a vehicle is traded in to HTV or purchased from HTV, an invoice is generated by the system which is saved in persistent storage. The system must also be able to save the details of customers, these customer records associated with the invoices generated by the system-which are then signed by the associated customer. The payment required for the invoice must be calculated by the system, with variations to the base amount coming from the possibility of a customer trading in a vehicle as part of the purchase as well as the purchase of additional options. The system must also be able to accept payment for an invoice via credit card, cheque or finance account.

4 - Problem Domain

4.1 - Pain Points

This section lists out some plain problems (pain points) that the system and staffs are facing:

Limitation of staff accessing to records - Currently, the system allows only one staff to access the records at a time => cause bottlenecks and loss of revenue.

Duplicated records - Some staffs have reported that there is some duplication in paper and electronic records that they found hard to manage.

Ineffective system - The current system does not provide effective data to keep track on trade-ins.

4.2 - Domain Entities

- **Staff**
- **Customer**
- **Invoice –** Paper form and Electronic form
- **Trade-in vehicle**
- **Options**

4.3 - Actors

- **Staff Member (Saleperson)**
- **Customer**
- **Vehicle**

5 - Tasks and Support

5.1 - List of Tasks

1. Register a customer as part of a transaction.
2. Update a customer record's personal details.
3. Lookup an existing customer for a transaction.
4. Lookup a customer's invoice history.
5. Register a newly traded in vehicle.
6. Sell a vehicle.
7. View a specific vehicle model's sales data between a period of time.
8. Print a tax invoice from a previous transaction.
9. Take payment for a previously generated invoice.

5.2 - CRUD Check

Task/Domain Entity	Staff	Invoice	Vehicle	Option	Customer
Registration of a Customer	R				CR
Update Customer's record	R				R
Existing customer for a transaction	R				R
Customer's invoice history	R	R			R
Registration of newly traded-in vehicle	R	C	CRU		R
Sell a Vehicle	R	C	R	R	R
Vehicle Sales Data	R	R	R	R	R
Print tax invoice for previous transaction	R	R			R
Receive payment for previous sale invoice	R	RU			R

Remarks

- All interactions with the system require a staff login and so all interactions will **R**ead a staff record.

5.3 - Tasks & Support Definitions & Workflow

Task 1: Registration of a Customer as part of a Transaction.

Task:	Registration of a Customer as part of a Transaction
Purpose:	To register a customer to HTV
Trigger/Precondition:	Customer has decided to purchase a vehicle
Frequency:	It is assumed that an average of 2 customers are registered a day.
Critical:	20 customers need to be registered on a same day
Sub task:	**Example solution:**
1. Creation of Customer ID	Sale person starts the system and gets customer's name, address and phone number to create an ID and stores in the system
Variants	
1. Existing customer	System will take sale person to a new screen. This is task 3, given below

Task 2: Update customer record

Task:	Update a customer record's personal details.
Purpose:	To keep a correct information of customer's details
Trigger/Precondition:	Existing customer with wrong details
Frequency:	At least 2 customers per day
Critical:	
Sub task:	**Example solution:**
Access to customer's details	Sale person will access to the system and type in the customer ID to get to the customer's details
Update the details	Sale person updates the correct information like name, address and phone numbers
Variants	

Task 3: Lookup an existing customer for a transaction.

Task:	
Purpose:	To access an existing customer record for functional purposes like viewing purchases etc.
Trigger/Precondition:	Customer has completed a purchase and been assigned a Customer ID which is known by the salesperson.
Frequency:	Assumed that this task will be executed a minimum of 5 times a day.
Critical:	During peak sale periods various salespeople may need to access multiple customer records at once (e.g. 20 customers)
Sub task:	**Example solution:**
1. Locate transaction record and extract customer ID	The salesperson needs to contact a customer in relation to their transaction. Therefore, the transaction will need to be retrieved from the system in order to locate the customer ID to access their information
2. Use customer ID to access the customer record	Using the customer ID obtained from a transaction a salesperson will access the customers record to retrieve relevant information like phone number or email in order to contact them
Variants	
2b. Customer not found	The salesperson could not access the customer record through the transaction. The salesperson will then have to manually search the customer database using the customer ID or full name.

Task 4: Lookup a customer's invoice history.

Task:	Lookup a customer’s invoice history
Purpose:	To update customer’s information for the next purchase
Trigger/Precondition:	Customer has completed their previous purchase with HTV and has received an invoice of their last purchased vehicle
Frequency:	At least twice a day during the new transaction
Critical:	
Sub task:	**Example solution:**
1. Get customer ID	After a transaction, every customer will have their own unique customer ID on the system so it will take sale person to get to their information quicker
2. Check customer’s invoice history	Sale person accesses to the history by the customer ID and look for the information of previous transaction
Variants	
2b. Cannot access invoice history	Since only one staff member can access to the record at a time, another sale person cannot access to the system to search for customer’s invoice history

Task 5: Register a newly traded in vehicle.

Task:	
Purpose:	To a register a traded in vehicle from a customer and produce an invoice to create price reduction on the sales invoice for the new vehicle.
Trigger/Precondition:	Customer wishes to trade-in a vehicle. Vehicle is valued and trade in is approved.
Frequency:	Minimum once a day
Critical:	There's a possibility all 50 of the days customers bring in a car to be traded in.
Sub task:	**Example solution:**
1. Add trade in vehicle data to vehicle record	Salesperson adds all necessary vehicle information to the database
2. Locate customer detailed for the invoice	The salesperson must locate the customer detailed such as customer ID to fill out the trade-in invoice.
3. Negotiate trade-in value	The vehicle is valued and the trade-in price is recorded for the trade-in invoice to be produced
4. Produce a trade-in invoice	Once the vehicle record exists and the value is approved a credit invoice is produced for the trade-in vehicle.
Variants	
1b. Vehicle was previously owned by HTV	If the vehicle was previously owned by HTV the system will give an error for the registration of the same vehicle. The salesperson will need to access the existing vehicle record and update any necessary information.

Task 6: Sell a Vehicle

Task:	Sell a vehicle
Purpose:	To sell the vehicle and finish transaction.
Trigger/Precondition:	Customer has decided to purchase the vehicle and he/she is registered and have a customer ID.
Frequency:	Assumed that 2 vehicles sold per day.
Critical:	Assumed that 20 vehicles sold per day.
Sub tasks:	**Example solution:**
1. Get Customer details.	Sales person starts the system and fills-in customer details.
2. Get vehicle details	Sales person searches the vehicle database and selects the vehicle being sold, system fills-in the required details.
3. Negotiated Price	Sales person enters the negotiated value before any allowance.
4. Settle the payment.	If the customer is paying today, system will ask sales person for payment options (Cash/ Card). A signature is taken for the customer and associated with the invoice. Upon completion of payment, a Tax invoice is generated confirming the payment has been made.
Variants:	
1.Existing Customer	System will take sales person to new screen, this is task 3, given above.
2.a Dealer options	If the customer requests any dealer options, sales person will search the dealer options database and select the requested options. The system will add option details (option code, description ad price) to the sales invoice. Price is re-evaluated.
3.a Trade-in Vehicle	If the customer is trading in a vehicle as a part of purchase, sales person selects the trade-in option and system takes sales person to new screen, this is task 5. Given Above.
4.a Payment Declined	If the payment is declined for any reason. System saves the current sales invoice and customer is given 30 days to settle the payment. This is given as Task 9, Given Below.

Task 7: View a specific vehicle model's sales data between a period of time.

Task:	
Purpose:	To provide historical sales data for a specific vehicle sold by HTV.
Trigger/Precondition:	The system has been initialised, the user knows the make and model of the vehicle they want to lookup sales data for.
Frequency:	It is assumed that this task will be performed at a minimum 10 times a day.
Critical:	During peak time this task will be performed up to 50 times during the day.
Sub task:	**Example solution:**
1. Open a vehicle lookup form.	The sales person starts the system and navigates to a *"Vehicles"* page of the application.
2. Lookup specific vehicle.	The sales person enters the make and model of the vehicle they wish to see sales data for into a search box, the system will query its backing data source based on the make and model and any other additional data the user may provide.
3. Select a vehicle from the search results.	The sales person selects the vehicle they wish to view sales data for.
4. View sales data for the vehicle.	The sales person would view trends and charts showing the vehicle's sales history as well as a list of the invoices for each vehicle.
Variants	
3a. The vehicle wasn't found.	The search results do not include the vehicle the salesperson is looking for, the sales person must repeat step 2 with a *"refined"* search result or it is assumed they are looking for vehicle that HTV has never owned.

Task 8: Print a Tax Invoice from a previous transaction

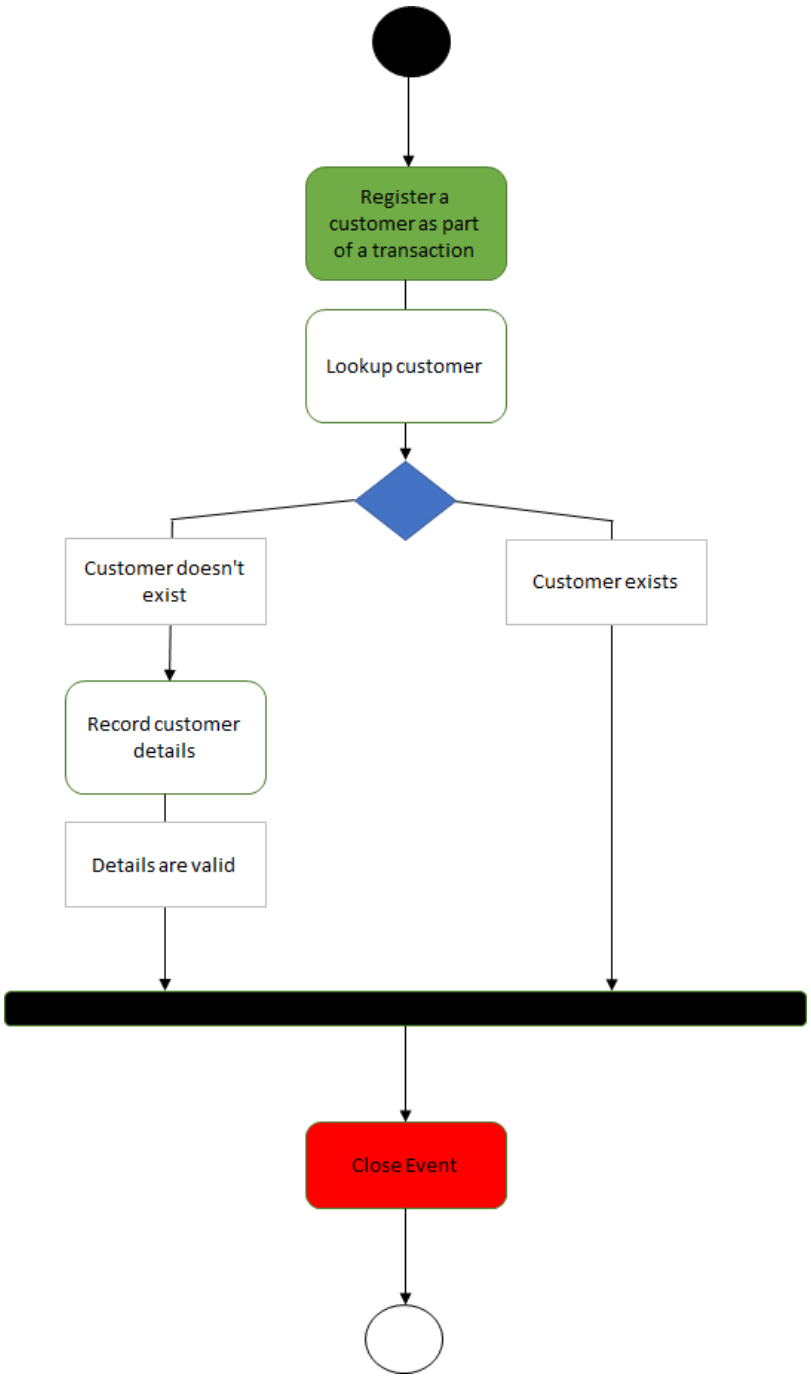
Task:	
Purpose:	To allow for the printing of a tax invoice for a previously created invoice.
Trigger/Precondition:	The system has been initialised; a request has been received for a tax invoice to be printed for a previously created invoice. The sales person has the invoice number.
Frequency:	This task would on average be executed twice a day.
Critical:	During end of financial year periods, requests for this task may spike heavily up to 50 times per day.
Sub task:	**Example solution:**
1. Open an invoice lookup form.	The salesperson would open an *Invoices* page in the application and be presented with a list of the most recent invoices created by the application as well as search box to find older invoices.
2. Select an invoice.	The salesperson would select an invoice for the recent invoices list based on the invoice ID displayed.
3. View invoice details.	The system would load the invoice from the data source and display the details in a form.
4. Print tax invoice.	The system would format the invoice data into a tax invoice and prompt the user to print using the browser print dialog.
Variants	
2a. The invoice isn't available in recent invoices.	The salesperson could manually enter in the invoice ID in the invoice search box provided at the top of the invoice page.
4a. The invoice hasn't been paid yet.	The system would deny the user the ability to print a tax invoice and prompt them to pay the invoice before proceeding.

Task 9: Take payment for a previous transaction.

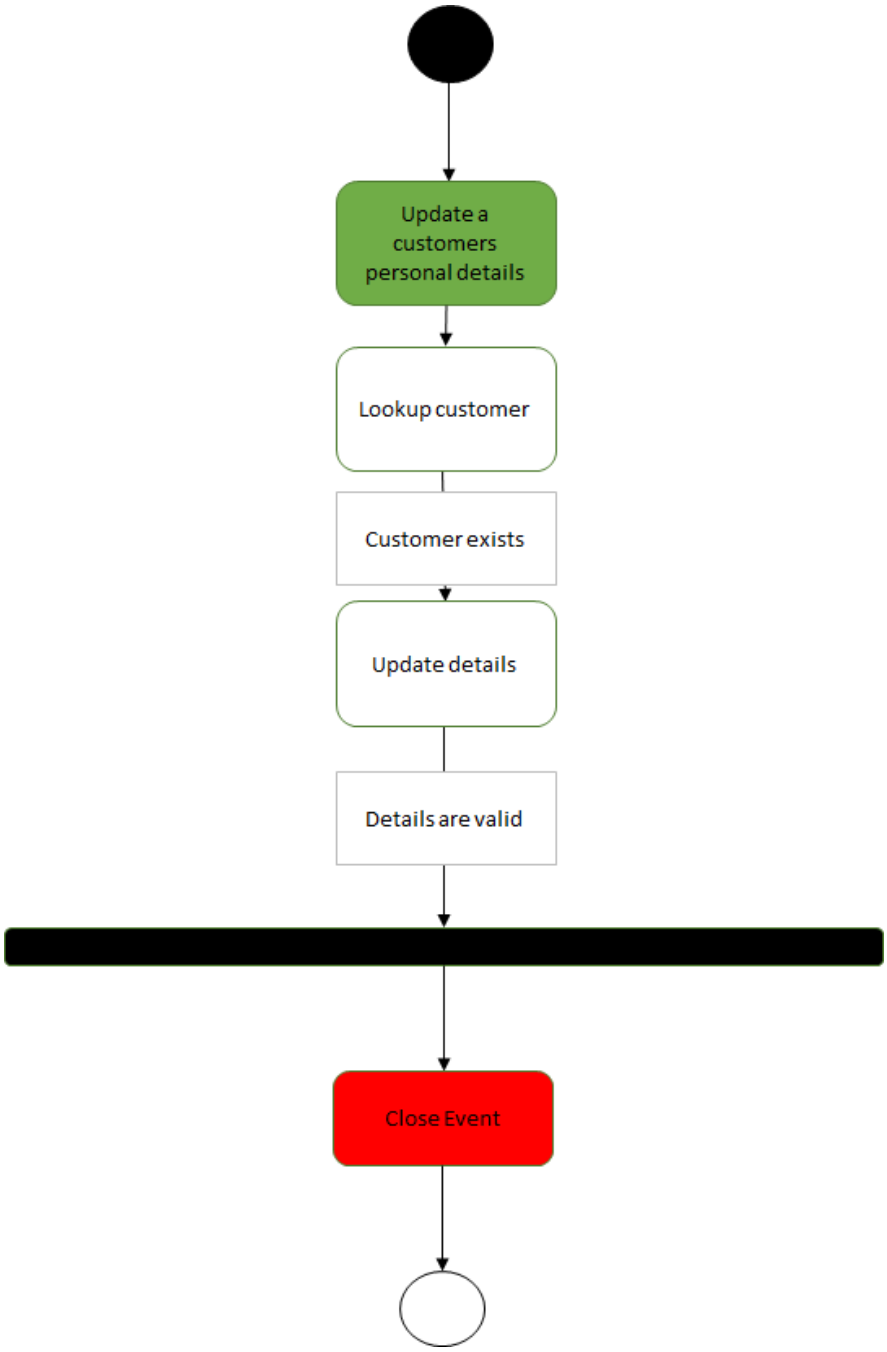
Task:	
Purpose:	To allow for deferred payment of an invoice so customers can collect their vehicle after the invoice is generated.
Trigger/Precondition:	The invoice that is being paid for must have already been created, the customer must be present with their payment method.
Frequency:	Only occurs once a day at most.
Critical:	Up to 5 times a day during peak buying season.
Sub task:	**Example solution:**
1. Open an invoice lookup form.	The salesperson would open an *Invoices* page in the application and be presented with a list of the most recent invoices created by the application as well as search box to find older invoices.
2. Select an invoice.	The salesperson would select an invoice for the recent invoices list based on the invoice ID displayed.
3. Pay the invoice.	The salesperson would proceed to the payment screen for the invoice and select one of the available payment methods. The customer would submit their payment details and the system would process the payment.
Variants	
2a. The invoice isn't available in recent invoices.	The salesperson could manually enter in the invoice ID in the invoice search box provided at the top of the invoice page.
3a. The invoice is older than 30 days.	The system would show the invoice as *Expired* and deny the salesperson from proceeding with the payment.
3b. Payment is declined.	The system would redirect back to the invoice page and the salesperson would need to continue from sub task 3 again or exit out of the system if the customer was unable to pay.

5.4 – Workflows

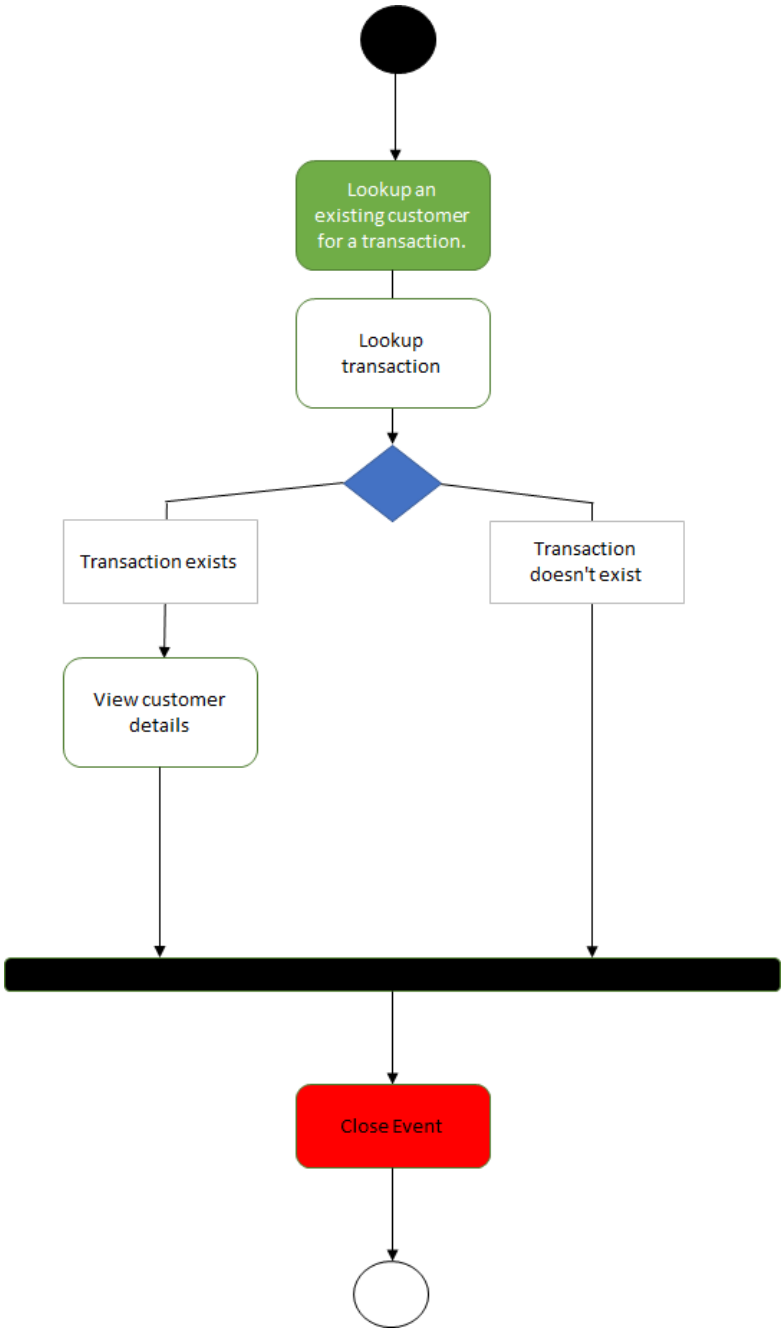
Task 1



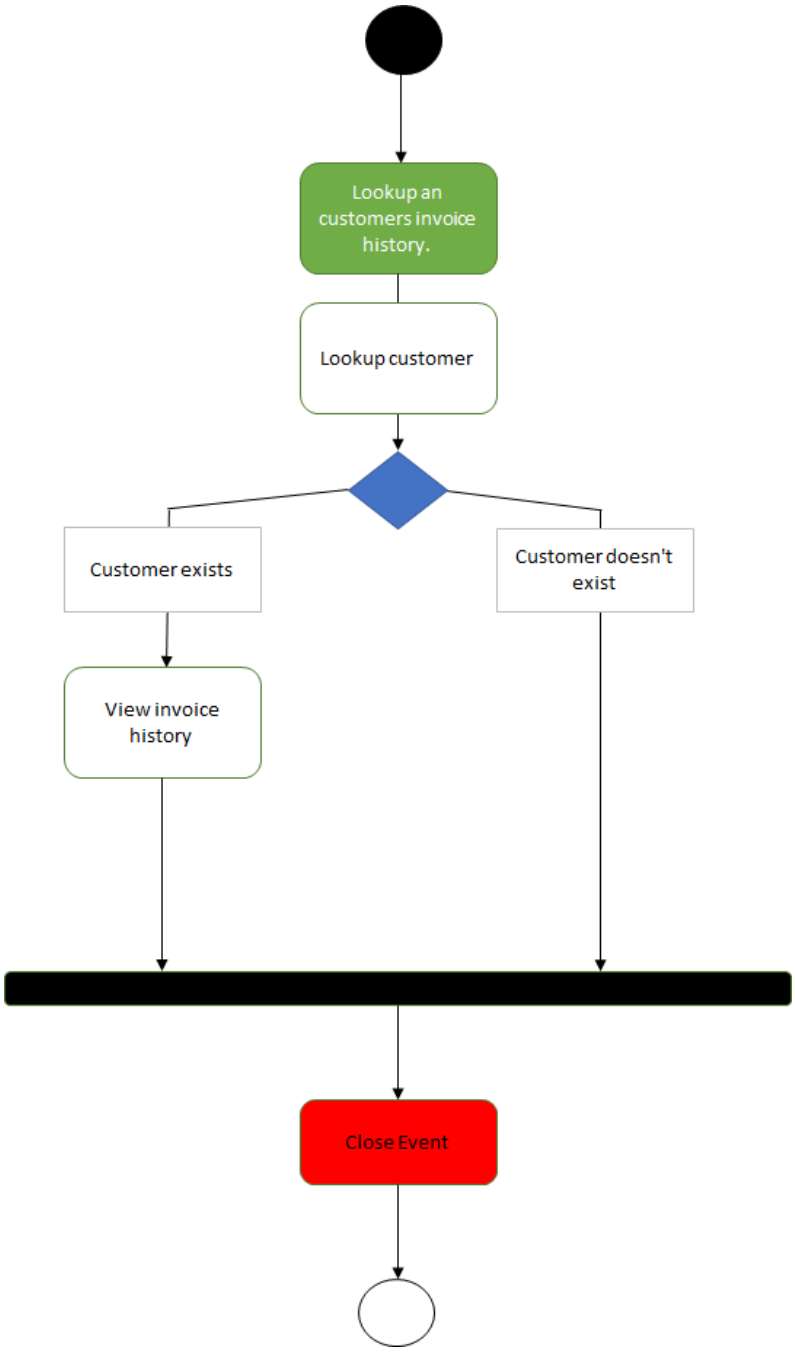
Task 2


Update a customers personal details
Lookup customer
Customer exists
Update details
Details are valid
Close Event

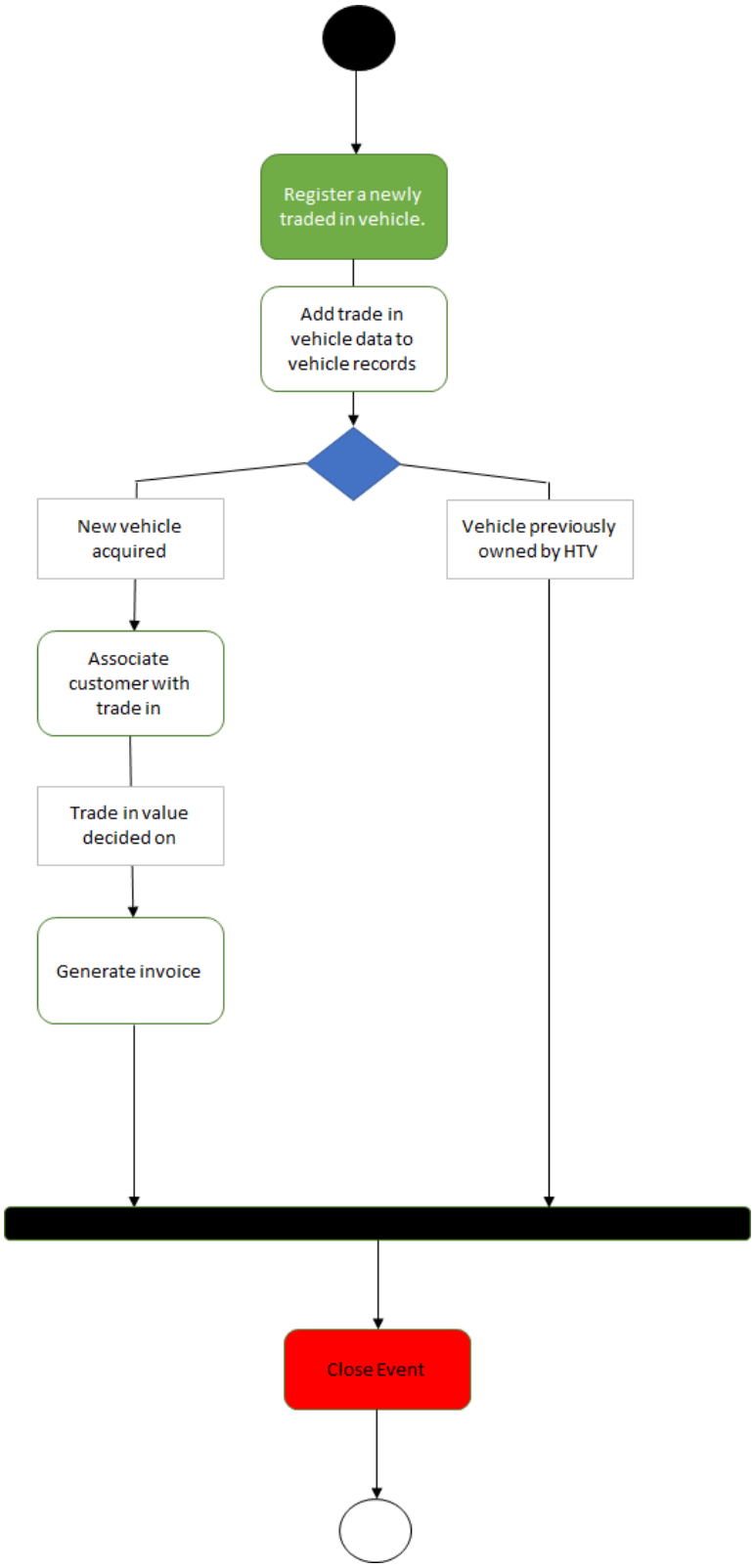
Task 3


Lookup an existing customer for a transaction.
Lookup transaction
Transaction exists
Transaction doesn't exist
View customer details
Close Event

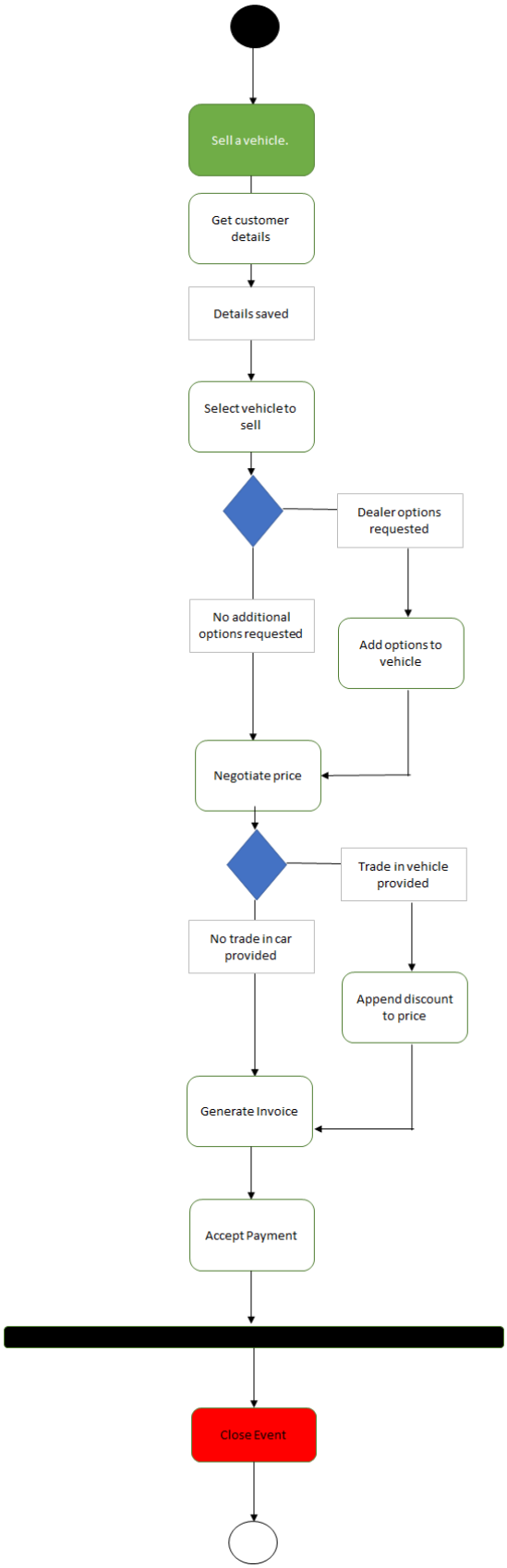
Task 4


Lookup an customers invoice history.
Lookup customer
Customer exists
Customer doesn't exist
View invoice history
Close Event

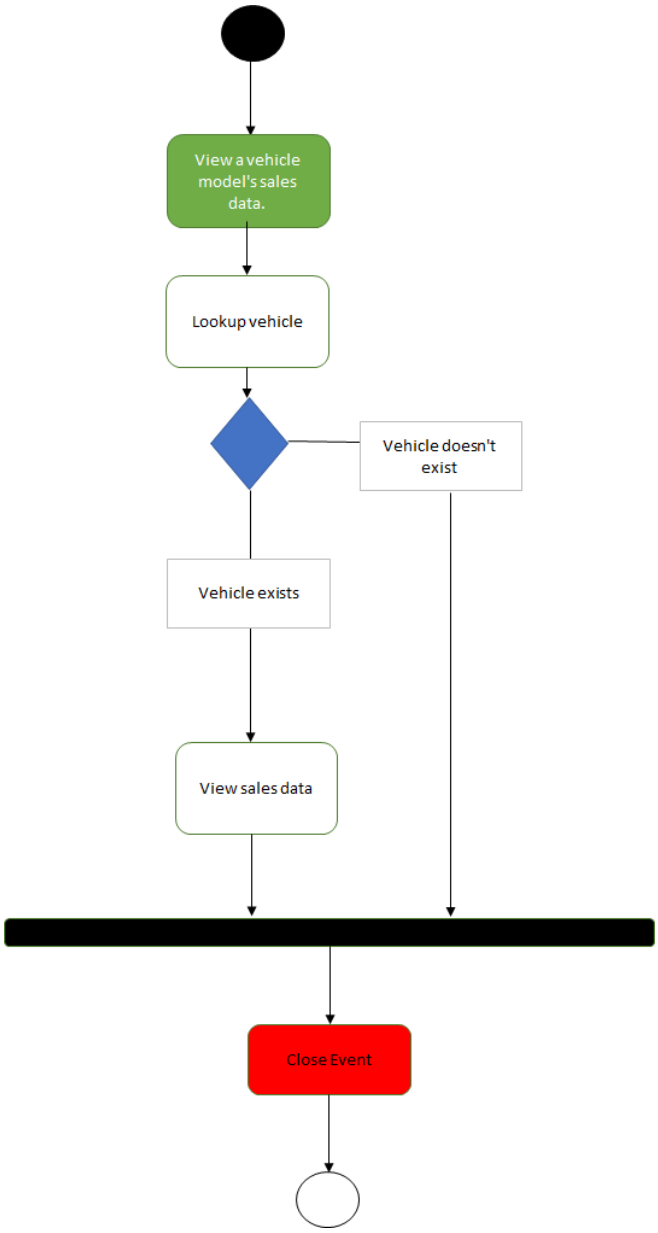
Task 5


Register a newly traded in vehicle.
Add trade in vehicle data to vehicle records
New vehicle acquired
Vehicle previously owned by HTV
Associate customer with trade in
Trade in value decided on
Generate invoice
Close Event

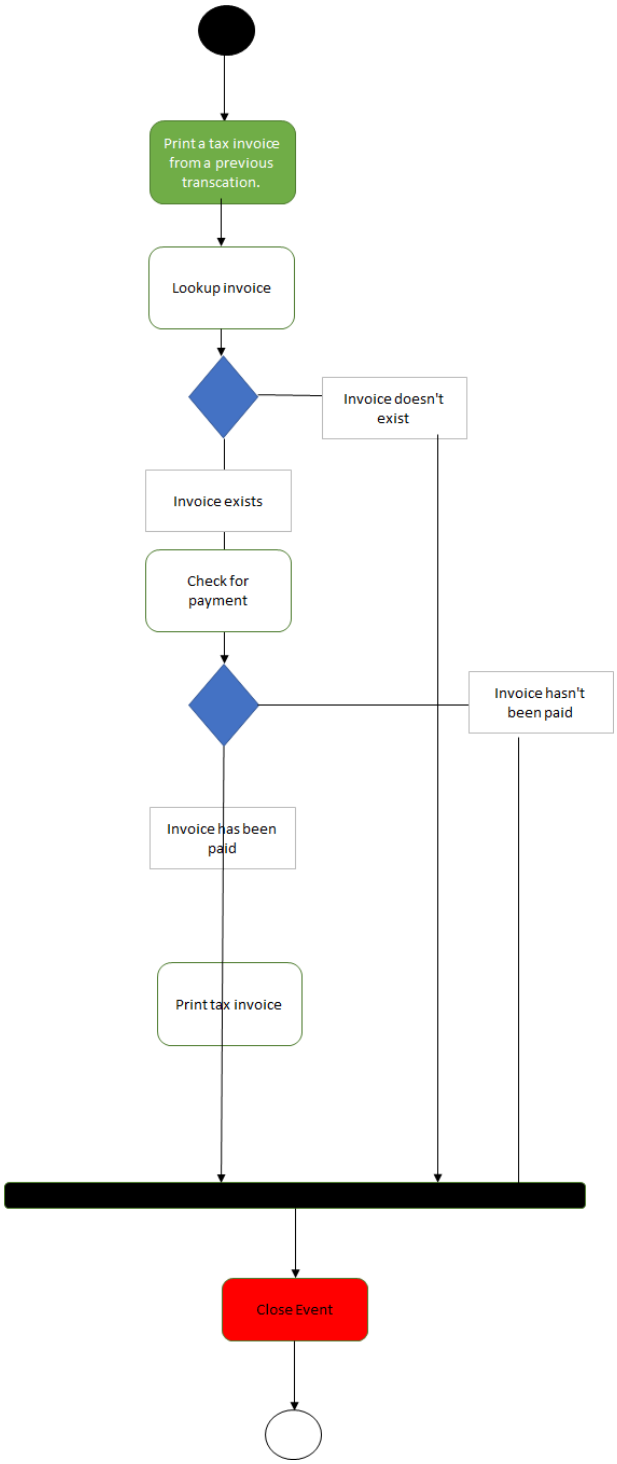
Task 6


Sell a vehicle.
Get customer details
Details saved
Select vehicle to sell
Dealer options requested
No additional options requested
Add options to vehicle
Negotiate price
Trade in vehicle provided
No trade in car provided
Append discount to price
Generate Invoice
Accept Payment
Close Event

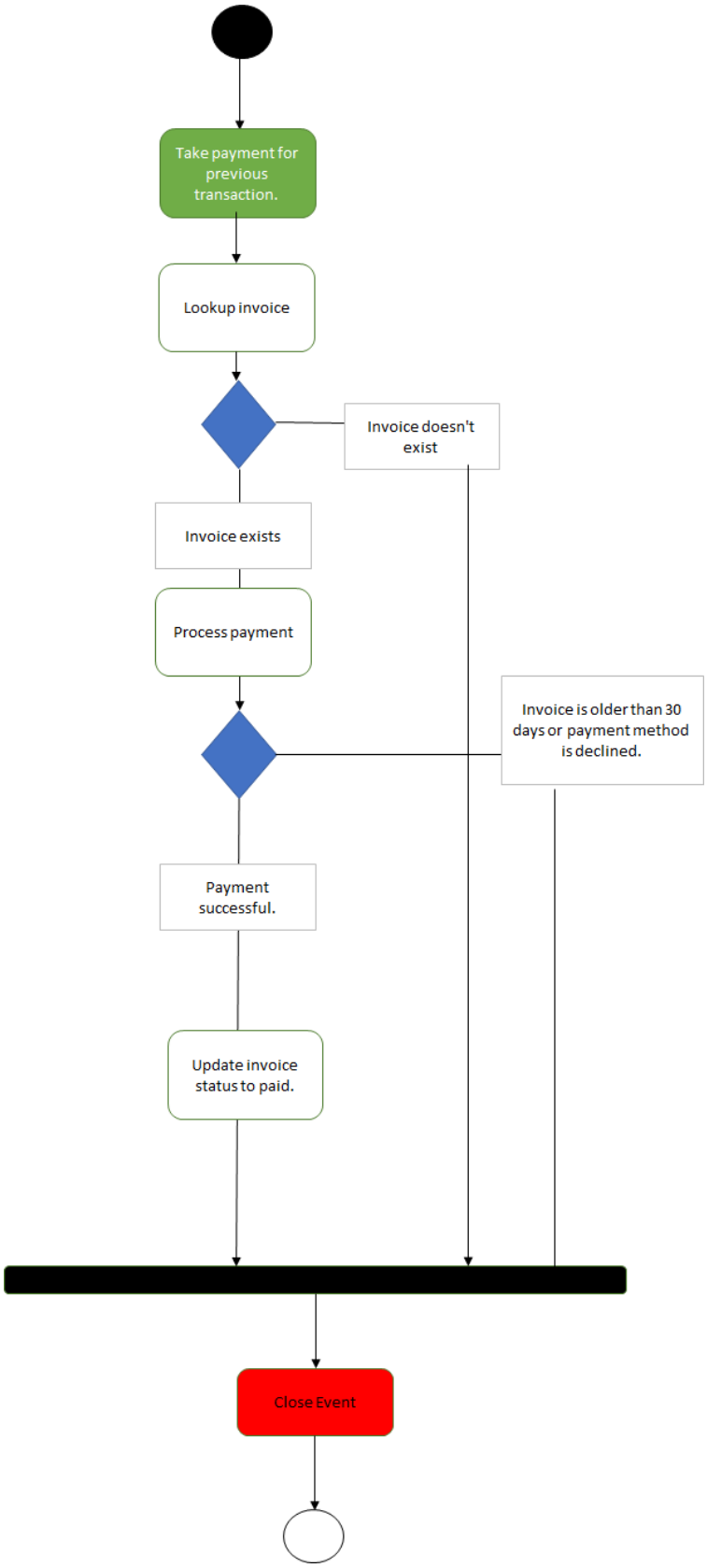
Task 7


View a vehicle model's sales data.
Lookup vehicle
Vehicle doesn't exist
Vehicle exists
View sales data
Close Event

Task 8


Print a tax invoice from a previous transcation.
Lookup invoice
Invoice doesn't exist
Invoice exists
Check for payment
Invoice hasn't been paid
Invoice has been paid
Print tax invoice
Close Event

Task 9


Take payment for previous transaction.
Lookup invoice
Invoice doesn't exist
Invoice exists
Process payment
Invoice is older than 30 days or payment method is declined.
Payment successful.
Update invoice status to paid.
Close Event

6 - Quality Attributes

Usability

Usability will be one of the important aspects of this application as there will be more than 1 staff members using the system, each having different levels of experience. Therefore, the system developed will provide certain features to make the system easy to use for the end user with little to no experience. The main aspects of this system connected to usability are as follows:

Aspect	Solution
System Features for employees with no experience.	Each of the task required to be done by the user are separated in different screens with the heading displayed at top of the screen, and the required data to be entered displayed in the corresponding textboxes.
System Efficiency/ Error minimisation	To make the system easy to use and error free, System will ask user to only enter the customer information, if he is a new customer. Everything else is done by searching the database for customer ID, Vehicle model number, etc. This will make system easy to use as well as error free. If error is occurred, system will allow user to undo the details and enter again.

Security

Securing customer information is very important. Certain level of protection will be applied to the system to ensure that only appropriate staff can access and make changes in the system. This system must prevent missing customer's details and their invoices.

The following requirements must be applied to the system:

- The system must only allow access to authorised staff
    - Every staff member must have their Staff ID to access to the system.
    - Only one staff member can fill out one invoice at a time. But other staff members can access to the system and make changes for the invoice if needed.
    - Multiple members of HTV can access to the records at the time but need to type in their Staff ID to access.
    - Only the computers at HTV can be able to access to the application
- Anyone without authority must not have access to the system.

Correctness

Due to some duplications with paper and electronic records, the system must be able to keep the paper and electronic records in separate files. The system must ensure correctness throughout the workflow.

The system must apply the following requirements for correctness:

- Any updated information on the system must be noted by the staff members who updated it with his/her names and Staff IDs in the records.
- Purchased vehicles and Trade-in vehicles must be provided with correct information of names, serial numbers, models, and years of manufacturing on the system.

Reliability (Availability)

As HTV is a retail-based business, the new system must be available 100% percent during extended office hours timing, that is from 8am to 8pm. The system must not be down or unavailable for no longer than 5 minutes in the given operating time. If at any given time, in a worst-case scenario, a system failure occurs, more than one staff members should be trained for basic rebooting of the system, which should not take more than 5 minutes to be back for operation, and any task that was being performed at the time should be saved automatically so that it is recoverable if needed.

7 - Other Requirements

7.1 - Product Level Requirements

From the information we have about HTV, we can infer the following product level requirements for the Sales Information System:

- The product shall accept and store the input of customer records.
- The product shall accept and store the input of vehicle records.
- The product shall accept and store the input of vehicle options records.
- The product shall allow for the retrieval of customer records stored in the system.
- The product shall allow for the retrieval of vehicle records stored in the system.
- The product shall allow for the retrieval of vehicle options records stored in the system.
- The product shall allow for the retrieval of invoice records stored in the system.
- The product shall allow for the modification of existing customer records stored in the system.
- The product shall allow for the modification of existing invoice records stored in the system.
- The product shall allow for the modification of existing vehicle records stored in the system.
- The product shall allow for the modification of existing vehicle options stored in the system.
- The product shall generate invoice records based on the input of a vehicle, vehicle options, customer and staff records which are stored in the system.
- The product shall accept payment details which in turn will modify existing invoice records stored in the system.

7.2 - Design Level Requirements

From the information we have about HTV, we can infer the following design level requirements for the Sales Information System:

- The product shall provide screens for inputting staff login data.
- The product shall provide screens for creating a customer record.
- The product shall provide screens for creating a vehicle record.
- The product shall provide screens for creating a vehicle option record.
- The product shall provide screens for modifying a customer record.
- The product shall provide screens for modifying a vehicle record.
- The product shall provide screens for modifying a vehicle option record.
- The product shall provide screens for modifying an invoice record.
- The product shall provide screens for viewing a specific customer record.
- The product shall provide screens for viewing a specific vehicle record.
- The product shall provide screens for viewing a specific vehicle option record.
- The product shall provide screens for viewing a specific invoice record.
- The product shall provide screens for viewing customer records.
- The product shall provide screens for viewing vehicle records.
- The product shall provide screens for viewing vehicle option records.
- The product shall provide screens for viewing invoice records.
- The product shall provide screens for filtering vehicles based on attributes of the vehicle record.
- The product shall provide screens for filtering vehicle options based on attributes of the vehicle options record.

- The product shall provide screens for filtering customers based on attributes of the vehicle customers record.
- The product shall provide screens for accepting payment for invoices.

7.3 - Problem Coverage

We believe the problems Holiday Travel Vehicles have been facing with their current system have been sufficiently rectified by the Sales Information System outlined in this document. The requirements of the system, functional and non-functional, are entirely sourced from the problems identified in the current solution. This has allowed us to design a system that has a clear purpose and use; not spanning outside the scope of what is requested by HTV.

Any requests from HTV that are not in response to a problem they are having with the current system have also been defined in a matter that is consistent with the rest of the system requirements-this is to say that our system has been designed to not cause any regressions in the core functionality of the software.

8 - Verifiability

The requirements of the system have been laid out with the intention of having measurable acceptance criteria to maintain verifiability.

For functional requirements it has been ensured that high level descriptions of the technical process for fulfilling the requirements is included in the requirement. This means that when comparing the design and implementation of the system to the requirements there is a component of the software that can be matched against it. For requirements relating to data entry, providing a list of the kinds of data the system must store has also helped in ensuring the requirements are verifiable as if there is a certain type of data lacking from the system it will become apparent we missed part of the requirement during the design process. The last key piece of ensuring our functional requirements were verifiable was providing measurable/numeric values and units in the requirements themselves. By specifying that something must be completed within *"30 days"* and that some entities have a *"1-1"* relationship with each other we layout high level technical requirements that can easily be expressed in code and software architecture.

For non-functional requirements there's the same emphasis on the measurements and data that is backing the requirement so that we can verify the legitimacy of the requirements. By deciding which quality attributes provide the most value to the system, we are able to define non-functional requirements which are best suited to measuring the success of the system's design.

9 – Validation

When asking the question of *"are we building the right product?",* we believe that the design proposed in this document meets the requirements of Holiday Travel Vehicles. Whilst in their current situation they are unable to manage the various actions and processes required of the business; breaking down the problem into a series of entities and core pieces of functionality reveals that what they desire is very much stock standard for an information technology solution.

All operations that are performed within HTV, no matter the throughput or frequency of the work, involves customers, vehicles, vehicle options and/or invoices. The tasks that may be performed with these entities may vary in complexity and length but the product domain for the *Sales Information* does not extend past the requirement to support the input and output of these entities. In the example of trading in a vehicle, the salesperson creates a *customer* if it does not exist. This customer then trades in a *vehicle* which result in an *invoice* being generated by the system. The requirements for the proposed system work within the boundaries of the product domain and by doing this not only does it make it easier to deliver a product which satisfies the needs of the client but it also ensures that there is a well defined scope of work before beginning the development of the system.

Whilst many requirements can be inferred from analysis of the existing system HTV use, the CEO of the company stated their major priority is to *"create a system that ties together all the key elements of sales, options and trade-ins and removes redundancies related from the system related to electronic and paper copies".* The desires are clear from this statement that the *Sales Information System* must be the central means of managing all sales related data and actions in the company, our requirements reflecting this need. All the major entities listed previously have functional, non-functional, product and design requirements which relate to the management of these entities. The reasoning for this is that if we provide HTV a completely transparent, easy to use and complete system then there will be no reason to use any other tool during the sales process. This in turn will ensure that data is kept within the storage of the system and so reduces possible chances for redundancies to be created (especially with physical invoices and records).

The system must have minimal to no limitations with how it facilitates the general workflows of its users. If a step within one of HTV's standard sales workflows has not been factored in by the system, then it is a failure on the design's behalf. We have designed a fit for purpose product for HTV, we believe that the requirements that have been laid out are valid for this purpose. There are no "nice-to-haves" included in this proposal as a means of avoiding the creation of a product that does not perform the few requirements of HTV as correctly as possible. Each requirement can be traced back to a core part of the HTV's daily operations and we believe there is no requirement within this document that will not be used daily by the sales people of the company.

The only major entity listed that does not relate to the business of HTV is the staff entity, but we believe their inclusion in this document is valid as it augments the value of the other requirements in this document. The development of a user login system will ensure that all operations performed in the system are associated with a member of the company. With a company that is supposedly suffering from concurrent usage problems as well as an environment where *"sales have not been handled well and customer complaints are increasing"*; this minor addition will help in ensuring that staff are held accountable for their actions and there is a clear lineage of actions during the sales process.

10 – Proposed Solution

The proposed solution is a computer-supported Sales Information System which will be implemented to fulfil the needs of Holiday Travel Vehicles (HTV).

The system will streamline operations and support a central database of invoices and sales records. The relational database will store all salesperson information, customer information, vehicle information and invoice (transaction) information.

The vehicle records will be able to store all relevant vehicle information including any pre-installed dealer addons (named “options”).

When a new customer arrives in store the system will be able to register them and store all necessary information to contact them or complete a purchase.

To complete a purchase the system will produce an invoice which will link the customer and the vehicle and provide all vital information like added options and pricing to be reviewed digitally in the future or used by an accountant. All existing invoices are stored in persistent storage and can be used to perform queries to gain statistical insight into sales.

The system will also be able to support capabilities to perform customer trade-ins and store trade-in invoice and trad-in vehicle data in a logical way to be reviewed by salespeople. A trade-in can be executed by a salesperson and a credit invoice will be generated to be applied to the new vehicle invoice.

The proposed system all also be able to calculate the required purchase amount taking into consideration credit invoices and additional dealer options. Once a price is determined the system will include that in the sales invoice and support payment from various options (e.g. credit card, cheque or finance account).

All above information is stored in persistent storage and linked to the Sales information System so that it can be reviewed, updated and manipulated in such a way that it meets the requirements of HTV.