

Application Execution Guide

For this practical I used Google Chrome to access and test my shop.

Accessing shop locally

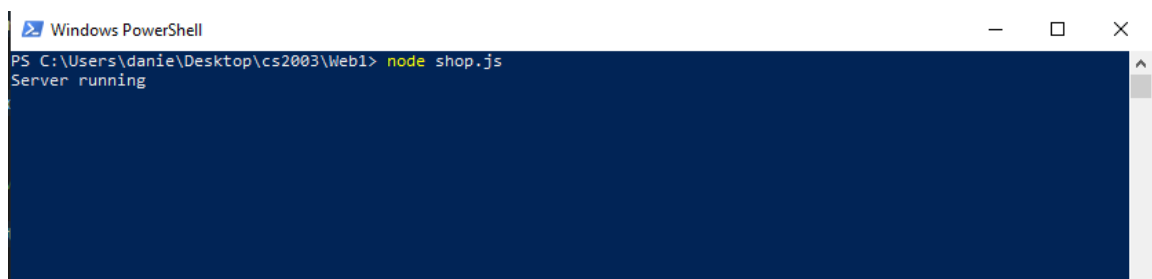
1. In a terminal, navigate to the folder where shop.js is stored



```
Windows PowerShell
PS C:\Users\danie> cd Desktop/cs2003/Web1
PS C:\Users\danie\Desktop\cs2003\Web1>
```

2. Using node, run the shop.js file in a terminal

node shop.js



```
Windows PowerShell
PS C:\Users\danie\Desktop\cs2003\Web1> node shop.js
Server running
```

3. Using a browser, preferably Google Chrome, access the shop at

localhost:21929

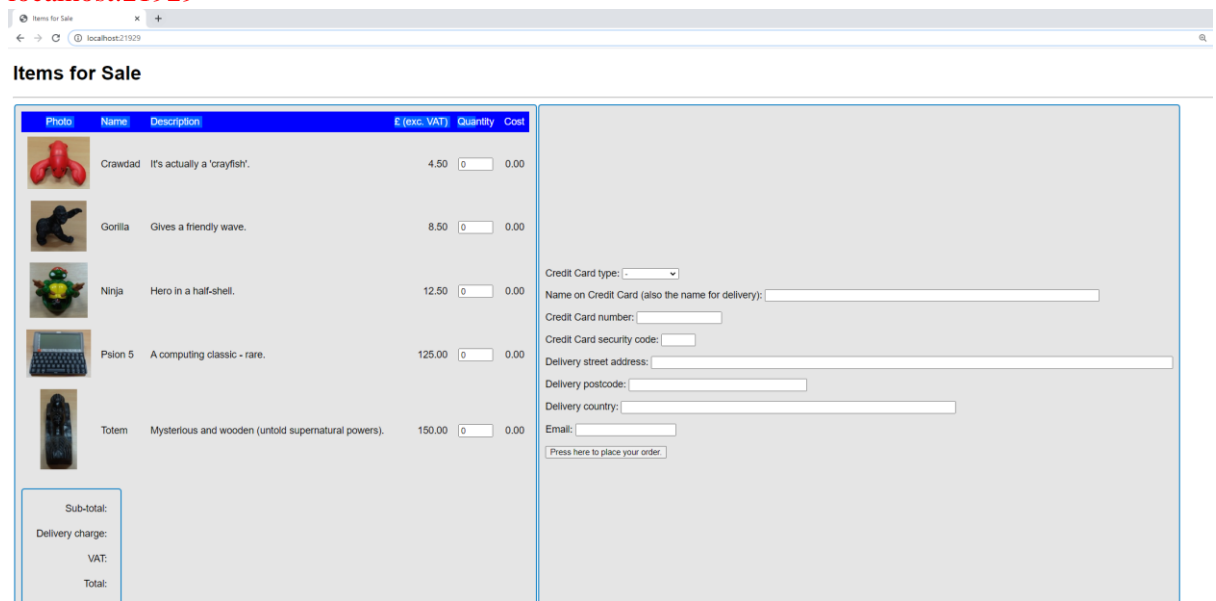







Photo	Name	Description	E (exc. VAT)	Quantity	Cost
	Crawdad	It's actually a 'crayfish'.	4.50	<input type="text" value="0"/>	0.00
	Gorilla	Gives a friendly wave.	8.50	<input type="text" value="0"/>	0.00
	Ninja	Hero in a half-shell.	12.50	<input type="text" value="0"/>	0.00
	Pison 5	A computing classic - rare.	125.00	<input type="text" value="0"/>	0.00
	Totem	Mysterious and wooden (untold supernatural powers).	150.00	<input type="text" value="0"/>	0.00

Sub-total:

Delivery charge:

VAT:

Total:

Credit Card type:

Name on Credit Card (also the name for delivery):

Credit Card number:

Credit Card security code:

Delivery street address:

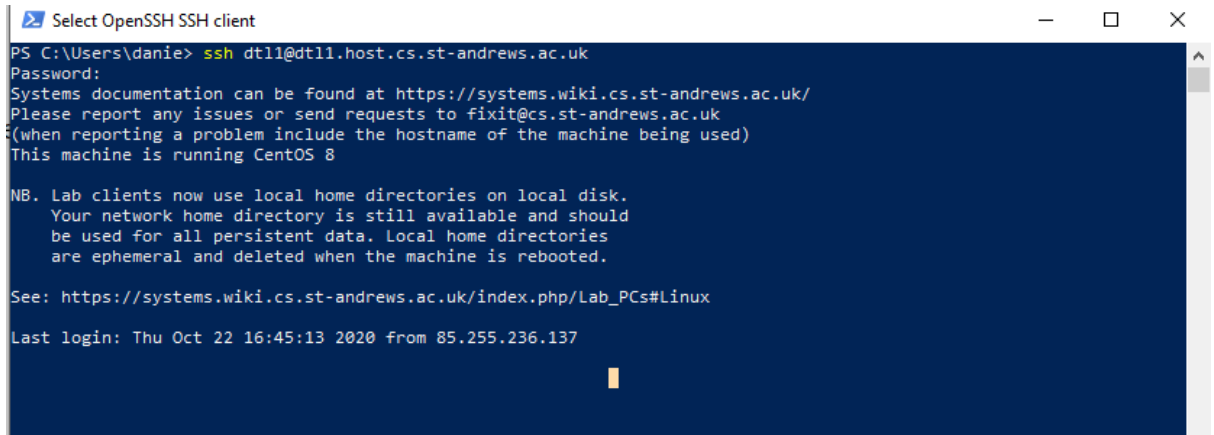
Delivery postcode:

Delivery country:

Email:

Accessing shop on host server

1. ssh into host server in a terminal, and input password
`ssh <username>@<username>@.host.cs.st-andrews.ac.uk`



```
Select OpenSSH SSH client
PS C:\Users\danie> ssh dtl1@dtl1.host.cs.st-andrews.ac.uk
Password:
Systems documentation can be found at https://systems.wiki.cs.st-andrews.ac.uk/
Please report any issues or send requests to fixit@cs.st-andrews.ac.uk
(when reporting a problem include the hostname of the machine being used)
This machine is running CentOS 8

NB. Lab clients now use local home directories on local disk.
Your network home directory is still available and should
be used for all persistent data. Local home directories
are ephemeral and deleted when the machine is rebooted.

See: https://systems.wiki.cs.st-andrews.ac.uk/index.php/Lab_PCs#Linux
Last login: Thu Oct 22 16:45:13 2020 from 85.255.236.137
```

2. Navigate to the folder where shop.js is stored



```
dtl1@klovvia:~/Documents/cs2003/P2
dtl1@klovvia:~$ cd Documents/cs2003/P2
dtl1@klovvia:~/Documents/cs2003/P2$
```






3. Using node, run shop.js
`node shop.js`



```
dtl1@klovvia:~/Documents/cs2003/P2
dtl1@klovvia:~/Documents/cs2003/P2$ node shop.js
Server running
```

4. In a browser, preferably Google Chrome, access the shop at <https://<username>.host.cs.st-andrews.ac.uk/node/>

Items for Sale

Photo	Name	Description	£ (exc. VAT)	Quantity	Cost
	Crawdad	It's actually a 'crayfish'.	4.50	<input type="text" value="0"/>	0.00
	Gorilla	Gives a friendly wave.	8.50	<input type="text" value="0"/>	0.00
	Ninja	Hero in a half-shell.	12.50	<input type="text" value="0"/>	0.00
	Psion 5	A computing classic - rare.	125.00	<input type="text" value="0"/>	0.00
	Totem	Mysterious and wooden (untold supernatural powers).	150.00	<input type="text" value="0"/>	0.00

Sub-total:
Delivery charge:
VAT:
Total:

Credit Card type:

Name on Credit Card (also the name for delivery):

Credit Card number:

Credit Card security code:

Delivery street address:

Delivery postcode:

Delivery country:






Email:

Using the shop

1. Now you have access to the shop, fill out all the fields on the right and make sure to order at least one item on the left.

Once you are done click the “Press here to place order button”

Items for Sale

Photo	Name	Description	£ (inc. VAT)	Quantity	Cost
	Crawdad	It's actually a 'crayfish'.	4.50	<input type="text" value="1"/>	4.50
	Gorilla	Gives a friendly wave.	8.50	<input type="text" value="0"/>	0.00
	Ninja	Hero in a half-shell.	12.50	<input type="text" value="0"/>	0.00
	Psion 5	A computing classic - rare.	125.00	<input type="text" value="0"/>	0.00
	Totem	Mysterious and wooden (untold supernatural powers).	150.00	<input type="text" value="0"/>	0.00

Sub-total: £4.50
Delivery charge: £0.45
VAT: £0.99
Total: £5.94

Credit Card type:

Name on Credit Card (also the name for delivery):

Credit Card number:

Credit Card security code:

Delivery street address:

Delivery postcode:

Delivery country:

Email:

2. This takes you to the receipt page where you can either confirm your order or cancel and return to the shop.

Receipt

Date: 28/10/2020
Transaction ID: 14

Name	Number Ordered	Unit Cost	Line Cost
Crawdad	1	£4.50	£4.50

Sub-total: £4.50
Delivery charge: £0.45
VAT: £0.99
Total: £5.94

Credit Card type: Mastercard
Name on Credit Card: Dave
Credit Card number: 52*****56
Delivery street address: Somewhere
Delivery postcode: KY16 9LY
Delivery country: Scotland






3. Confirming your order then takes you to this page where you receive a conformation message and then can return to the shop.

Your order has been placed, thank you.

[Press here to return to the shop.](#)

4. Returning to the shop at either the receipt or conformation stage will take you back to the shop page.

Items for Sale

Photo	Name	Description	E (inc. VAT)	Quantity	Cost
	Crawdad	It's actually a 'crayfish'.	4.50	<input type="text" value="0"/>	0.00
	Gorilla	Gives a friendly wave.	8.50	<input type="text" value="0"/>	0.00
	Ninja	Hero in a half-shell.	12.50	<input type="text" value="0"/>	0.00
	Psion 5	A computing classic - rare.	125.00	<input type="text" value="0"/>	0.00
	Totem	Mysterious and wooden (untold supernatural powers).	150.00	<input type="text" value="0"/>	0.00

Sub-total:

Delivery charge:

VAT:

Total:

Credit Card type:

Name on Credit Card (also the name for delivery):

Credit Card number:

Credit Card security code:

Delivery street address:

Delivery postcode:

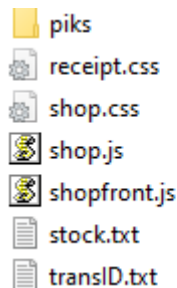
Delivery country:

Email:

[Press here to place your order.](#)

Application operation summary

My application consists of the following files:



- piks folder to store images for the shop
- 2 Stylesheets, one for the main shop page and one for the receipt and conformation page
- Shop.js, the shop file
- Shopfront.js, the script file
- Stock.txt, a CSV file holding information of items in the shop
- transID.txt, a txt file holding the transaction ID of the last confirmed order.

My application fully completes all the 7 requirements as listed in the specification.

It dynamically calculates and updates line costs and totals. Then sends the order data to the server where it is validated and then either a receipt page is served to confirm the order, or if the data is invalid, a pop-up error box is displayed.

I made use of a txt file to store the last transaction ID from the last confirmed order, so for new orders this last ID is read, incremented and displayed, this ensures that a unique ID is being served every time.

If the user confirms their order, then this new incremented ID is written to the file.

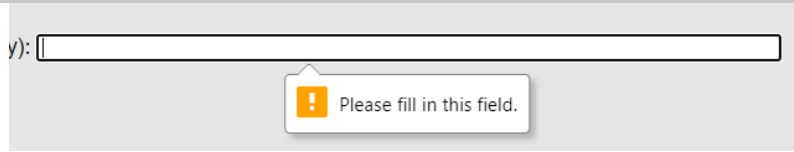
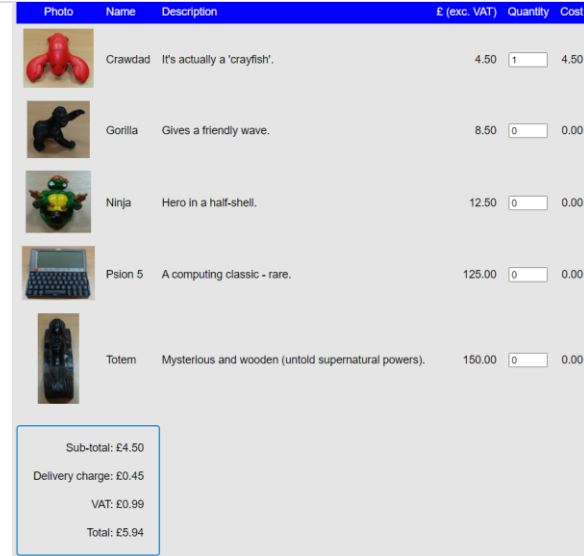















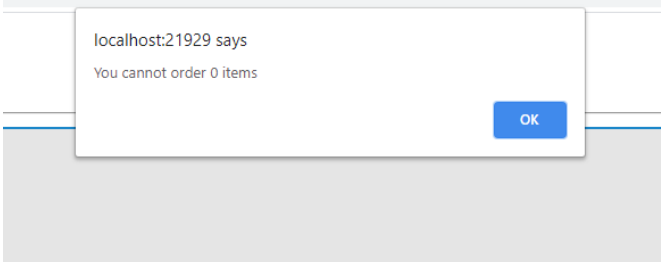
On the receipt page, the user can then either confirm the order or return to the shop.

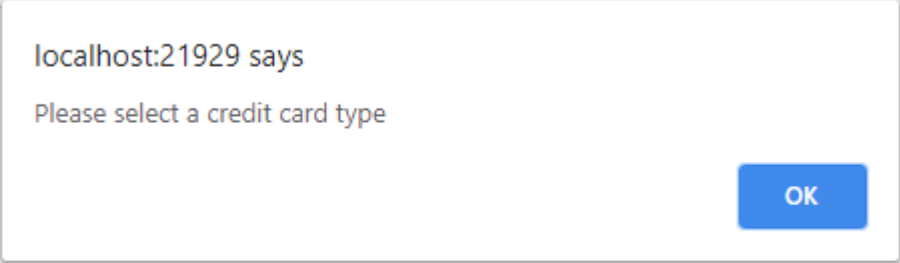
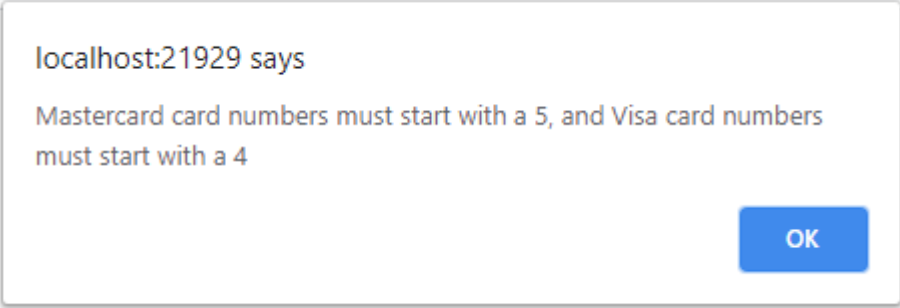
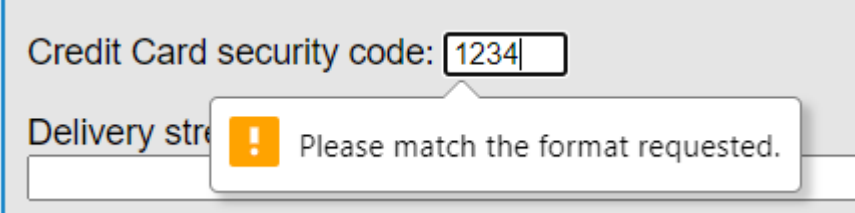
I also styled and improved the presentation of the web pages, on the main page I moved the credit card and delivery order information to the right of the shop, as beforehand the page was too long and didn't use up the horizontal space on the screen. I also styled the tables to have a grey background, so the white input boxers are easier to see and identify, and a blue border to match the blue table header already given to us.

On the receipt page I chose to display the information in tables so the names and then values of fields could be lined up into columns which makes it easier to read, I also kept the same grey and blue table style from the main page.

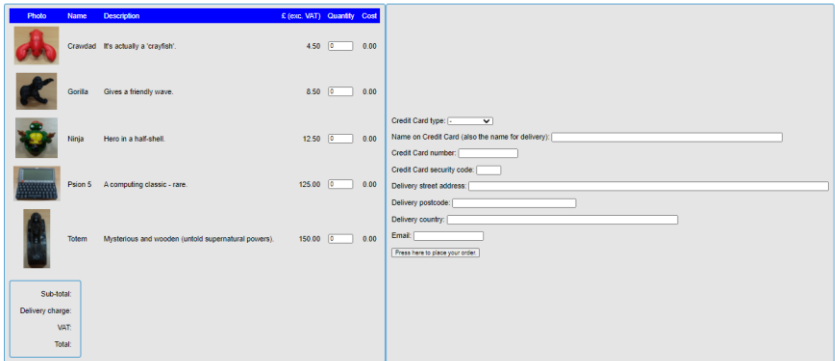
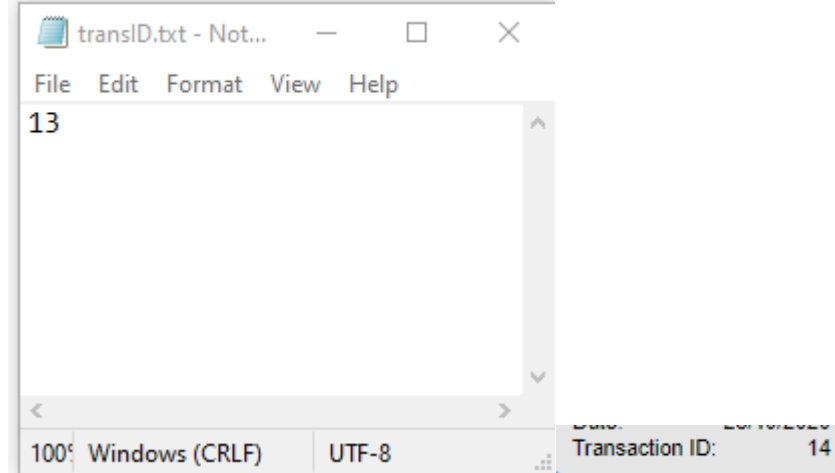
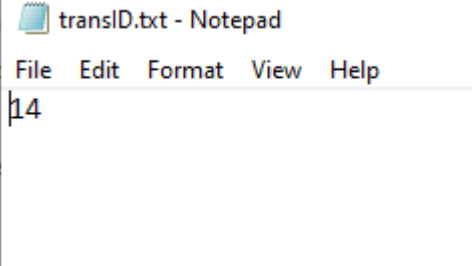
Testing

(see next page)

Test	Expected Result	Actual Result	Screenshot																																																												
Trying to place an order with an empty field	Pop up saying to fill in the field	As expected																																																													
Changing the quantity of an item	The line cost and totals change	As expected	 <table><thead><tr><th>Photo</th><th>Name</th><th>Description</th><th>£ (exc. VAT)</th><th>Quantity</th><th>Cost</th></tr></thead><tbody><tr><td></td><td>Crawdad</td><td>It's actually a 'crayfish'.</td><td>4.50</td><td>1</td><td>4.50</td></tr><tr><td></td><td>Gorilla</td><td>Gives a friendly wave.</td><td>8.50</td><td>0</td><td>0.00</td></tr><tr><td></td><td>Ninja</td><td>Hero in a half-shell.</td><td>12.50</td><td>0</td><td>0.00</td></tr><tr><td></td><td>Psion 5</td><td>A computing classic - rare.</td><td>125.00</td><td>0</td><td>0.00</td></tr><tr><td></td><td>Totem</td><td>Mysterious and wooden (untold supernatural powers).</td><td>150.00</td><td>0</td><td>0.00</td></tr><tr><td colspan="3">Sub-total: £4.50</td><td colspan="3"></td></tr><tr><td colspan="3">Delivery charge: £0.45</td><td colspan="3"></td></tr><tr><td colspan="3">VAT: £0.99</td><td colspan="3"></td></tr><tr><td colspan="3">Total: £5.94</td><td colspan="3"></td></tr></tbody></table>	Photo	Name	Description	£ (exc. VAT)	Quantity	Cost		Crawdad	It's actually a 'crayfish'.	4.50	1	4.50		Gorilla	Gives a friendly wave.	8.50	0	0.00		Ninja	Hero in a half-shell.	12.50	0	0.00		Psion 5	A computing classic - rare.	125.00	0	0.00		Totem	Mysterious and wooden (untold supernatural powers).	150.00	0	0.00	Sub-total: £4.50						Delivery charge: £0.45						VAT: £0.99						Total: £5.94					
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Trying to place an order for 0 items	Alert saying “you cannot order 0 items”	As expected																																																													

Not inputting a credit card type	Alert saying “please select a credit card type”	As expected	
Inputting a card number with a wrong first digit for the type	Alert saying “Mastercard card numbers must start with a 5, and Visa card numbers must start with a 4”	As expected	
Not matching the correct format for the inputs	Popup saying “please match the format requested”	As expected	

Ordering with correct and valid data	<p>Takes me to the receipt page.</p> <p>Date is correct.</p> <p>Unique Transaction ID is printed.</p> <p>Only items that have orders are printed.</p> <p>Only displays the first and last 2 digits of the card number</p> <p>Displays all other relevant data as requested by the requirements for the order correctly</p>	As Expected	<div><h3>Receipt</h3><div><div>Date: 28/10/2020 Transaction ID: 13</div><table><thead><tr><th>Name</th><th>Number Ordered</th><th>Unit Cost</th><th>Line Cost</th></tr></thead><tbody><tr><td>Crawdad</td><td>1</td><td>£4.50</td><td>£4.50</td></tr><tr><td>Gorilla</td><td>2</td><td>£8.50</td><td>£17.00</td></tr></tbody></table><div><div>Sub-total: £21.50 Delivery charge: £2.15 VAT: £4.73 Total: £28.38</div><div><div>Credit Card type: Mastercard Name on Credit Card: Daniel Credit Card number: 52*****56 Delivery street address: Somewhere Delivery postcode: Somewhere Delivery country: Somewhere</div><div><div>Press here to confirm your order.</div><div>Press here to cancel and return to the shop.</div></div></div></div></div></div>	Name	Number Ordered	Unit Cost	Line Cost	Crawdad	1	£4.50	£4.50	Gorilla	2	£8.50	£17.00
Name	Number Ordered	Unit Cost	Line Cost												
Crawdad	1	£4.50	£4.50												
Gorilla	2	£8.50	£17.00												
Clicking the confirm order button	Takes me to the order conformation page	As expected	<div><h3>Your order has been placed, thank you.</h3><div>Press here to return to the shop.</div></div>												

Clicking the return to shop button	Takes me back to the shop	As expected	<p>Items for Sale</p> 
Checking to see if a unique transaction ID is correctly calculated	Current ID in the txt file is 13, so new one should be 14	As expected	
Confirming the order should update the txt file to 14	Txt file correctly updates	As expected	

Security and Privacy

Due to this application being a shop that requires a user to input personal data, there are several privacy issues that arise.

Firstly, the shop requires credit card data, this data is obviously sensitive and would have severe consequences if it ended up in the hands of someone with malicious intent. The credit card data is sent to the server via POST however instead of GET, this is the more secure and therefore right option as sending the data via GET would append the data in the URL string which could easily be intercepted by an attacker, whereas POST carries data in the message body.

On top of not only the credit card data there is other data sensitive to the user such as their full name and address. So, if the application were to store this kind of data and order transactions then it would need to do so in a secure manner that meets the requirements of the Data Protection Act.