CSY2028 WEB PROGRAMMING
ASSIGNMENT REPORT
TERM I

PHP Shopping Cart Application

Group 'B'

18406547

Diwas Lamsal

Backend username: administrator
Backend password: administrator

CSY2028: Web Programming			
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		Module Tutor:	Thomas Butler
This assignment is weighted as 50% of the Module's assessment			
Assessment Feedback is provided on the rubric via NILE			

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1. INTRODUCTION

1.1 Introduction to the report:

The report provides technical as well as colloquial documentation of the finalized system. The subsequent content would clarify the critical parts of the system created for completing the assignment.

1.2 Report Structure:

- **Introduction:** The introduction of the report. Slightly introduces the topics of the report and what they contain.

- **Database Structure:** The structure of the database used in the system. The ERD as well as table diagram for the used database is displayed.

- **Checklist of Completed Features:** The completed list of features as well as specific breakdowns of such features. These also contain the relevant information and filenames regrading those features.

- **Testing:** The test logs along with screenshots for different tests performed. The tests were performed as both administrator and user for relevant roles.

- **Instructions for another Developer:** Instructions for a different developer to add features on top of the existing one.

- **Security Features and Design Decisions:** The features that make the system secure and the decisions such as file folder structure, code structure, etc. that make up the design of the system.

- **Evaluation:** The good and bad aspects of the system as well as the possible solutions for provided bad aspects. Also contains the features that could be implemented if more time was available and the approach for working on the system if asked to do so again.

- **References:** References of materials used for designing the system. It contains references for the icons taken from different sources, and code help taken from different sources over the internet.
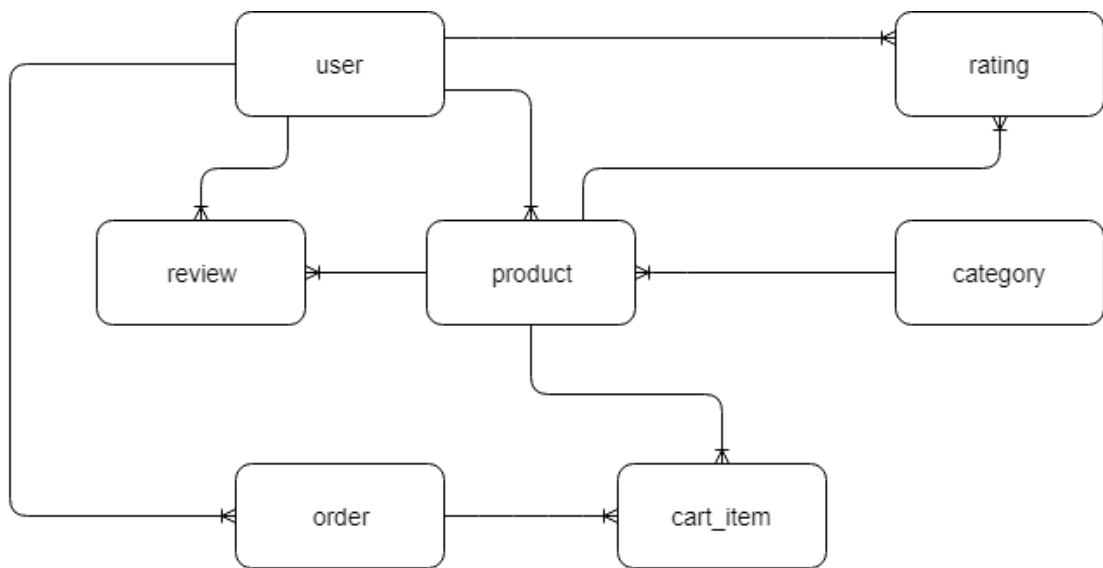
2. DATABASE STRUCTURE

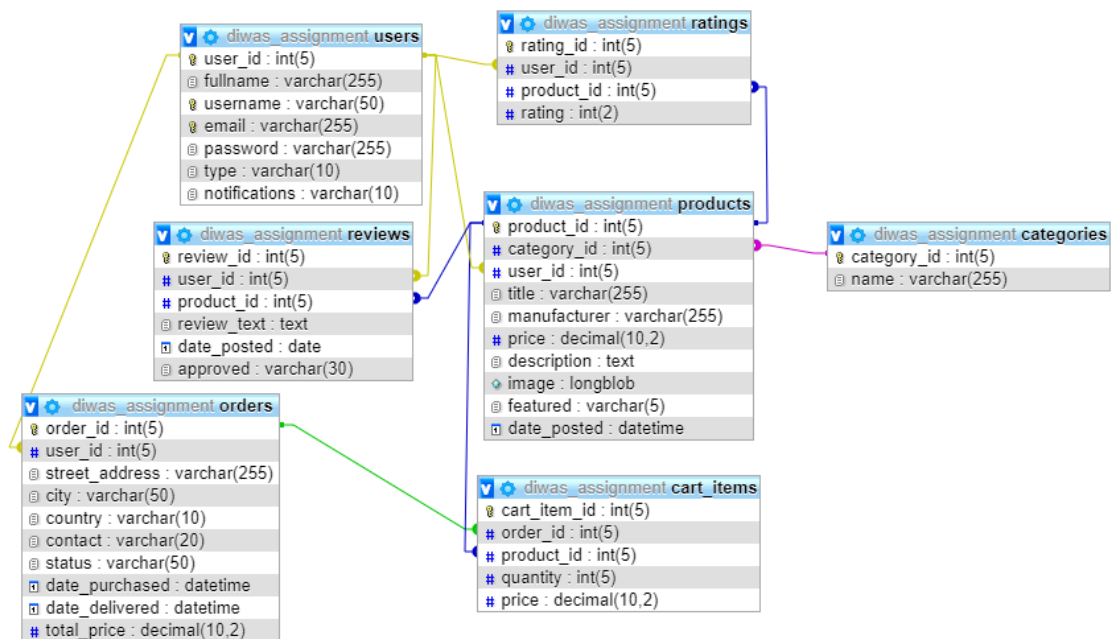*Figure 1. 1 Entity Relationship Diagram*

Figure 1. 2 Tables with attributes and relationships

3. CHECKLIST OF COMPLETED FEATURES

The following part is copied from the assignment brief and the completed system includes all the enlisted features.

Basic Requirements (Grades D- to C-)
The system must use the layout that was supplied by the designer and:
1. Have a password protected administration area that has functionality for: *(20 functionality marks)*
   a) Add products
   b) Adding categories
   c) Assigning products to categories
   d) Editing an existing product e.g. changing the title or text
   e) Deleting products from the website
   f) Editing category names
   g) Deleting categories
   h) Marking a product as "Featured" to have its title and description display in the sidebar

2. Have a publicly visible front end that allows users to: *(20 functionality marks)*
   a) Browse all the products displaying newest first
   b) Views a list of product categories in the drop-down menu in the supplied HTML layout
   c) Click on one of the categories to view products in that category (products from other categories should not be visible)
   d) Add a review to a product
   e) See reviews added to that product by other users. Reviews should be visible on the product page, and only reviews for the selected product should be visible.

Advanced Requirements
- Moderation of reviews. When a review is added, it's placed in a holding area in the administration area for administrator approval before appearing on the website *(10 functionality marks)*
- Allow uploading an image with the products and have it appear on the page with the title and product text *(5 functionality marks)*
- Social media buttons allowing users to easily share reviews *(5 functionality marks)*
- Allow searching for products by typing in a search term *(5 functionality marks)*
- Allow administrators to manage administrator accounts. Admins should be able to create, update, and delete other admin users who can then log in and post products. The system should track who posted which product and show it in the administration area *(10 functionality marks)*
- Securely store passwords with an appropriate method *(5 functionality marks)*
- Prevent users from adding reviews unless they create an account. Users should be able to register an account and log in, once logged in they should be able to review a product by entering only their review text. *(10 functionality marks)*
- Allow users to sign up to be notified via email when new products are posted *(5 functionality marks) n.b. you will not be able to test this but you can include the code*
- The ability to click on a user and see any review they have posted *(5 functionality marks)*

- Add a rating to reviews and allow users to sort products in a category by highest rated first (8 functionality marks)
- Implement a shopping basket so users can place an order with one or more products (and more than one of each product if required). The should appears in the administration area with the users address/shipping address and order then be marked as "Shipped". Administrators should be able to see any pending orders or orders which have already been shipped (15 functionality marks)
- Implement PayPal payments in the shopping basket. Make sure you use PayPal's developer mode (8 functionality marks)

Feature Checklist

BACKEND			
Functionality	**Completed? (Yes/No/ Partially)**	**Relevant files containing code for this feature**	**Any comments (e.g. usernames/passwords, known bugs/issues) or URL if different to filename**
Administrator log in	Yes	signin.php In the root directory	Username: administrator Password: administrator Username: diwaslamsal Password: diwaslamsal Username: moderator Password: moderator Takes the administrator to Admin dashboard.
MANAGE			
View all the Administrators	Yes	Admin/Admins/ manageadministrators.php In the Admin folder's Admins subfolder	• Displays a list of all the administrators in a table. • Also displays a link called 'Manage' to view one particular administrator in detail. • Has a button 'Add Another Administrator' which links to

			the page to add another admin account.
View all the Categories	Yes	Admin/Categories/ managecategories.php In the Admin folder's Categories subfolder	• Displays a list of all the categories in a table. • Also displays a link called 'Manage' to view one particular category in detail. • Has a button 'Add Another Category' which links to the page to add another category.
View all the Products	Yes	Admin/Products/ manageproducts.php In the Admin folder's Products subfolder	• Displays a list of all the products in a table. • Also displays a link called 'Manage' to view one particular product in detail. • Has a button 'Add Another Product' which links to the page to add another product.
View all the Reviews	Yes	Admin/Reviews/ managereviews.php In the Admin folder's Reviews subfolder	• Displays a list of all the products in a table. • Also displays a link called 'Manage' to view one particular review in detail.
View all the Orders	Yes	Admin/Admins/ manageorders.php In the Admin folder's Order subfolder	• Displays a list of all the orders made by users in a table. • Also displays a link called 'Manage' to view one particular order in detail.
ADMINISTRATORS			
Add an administrator	Yes	Admin/Admins/ addadmin.php	• Displays a form to add a new user. • When the form is filled up and submitted, a new admin is created and added to the database.
View an administrator's details	Yes	Admin/Admins/ viewadministrators.php	• Displays an administrator's details including the total

			• number of products added by them. • Also displays links to edit administrator's name or password or delete them.
Edit an administrator's name	Yes	Admin/Admins/ viewadministrators.php? action=edit	• Displays an input field to enter a new name for the specified account. • Submitting it will update the administrator's full name.
Edit an administrator's password	Yes	Admin/Admins/ viewadministrators.php? action=password	• Displays a form asking old password, new password and confirm password to update the administrator account's password. • Updates the password for the administrator when the form is successfully submitted.
Delete an administrator	Yes	Admin/Admins/ deleteadmin.php	• Displays a confirmation on whether to actually delete the administrator. • If chosen yes, the account is deleted, otherwise, redirected to the previous page.
CATEGORIES			
Add categories	Yes	Admin/Categories/ addcategory.php	• Displays an input field for the category name. • When it is submitted, a new category is added into the database.
Edit category	Yes	Admin/Categories/ viewcategories.php? action=edit	• Displays an input field for the category name. • When submitted, the old category name is updated to the entered name.
Delete category	Yes	Admin/Categories/ deletecategories.php	• Displays a confirmation on whether to actually delete the category

			• If chosen yes, the category deleted, otherwise, redirected to the previous page.
PRODUCTS			
Add products	Yes	Admin/Products /addproduct.php	• Displays a form to add a product. • When the details are provided, a new product is added to the system. • Submitting a product will also send emails to subscribed customers.
Assign product to category	Yes	Admin/Products /addproduct.php Admin/Products/ editproduct.php	• The form to add or edit a product contains a select menu to select a category which is used to assign a product to a category.
Edit product	Yes	Admin/Products /viewproducts.php Admin/Products/ editproduct.php	• Displays a form to edit a product's details. • There is a separate form for changing a product's image which is also displayed in the same page.
Delete product	Yes	Admin/Products /viewproducts.php Admin/Products/ deleteproduct.php	• Displays a confirmation on whether to actually delete the product • If chosen yes, the product is deleted, otherwise, redirected to the previous page. • A featured product cannot be deleted.
Feature Product	Yes	Admin/Products /viewproducts.php	• Displays a confirmation on whether to actually feature the product

		Admin/Products/ featureproduct.php	• If chosen yes, the product is featured, otherwise, redirected to the previous page.
REVIEWS			
View Reviews	Yes	Admin/Reviews/ viewreviews.php	• Displays a particular review's details. • Also displays available options to approve, unapproved or delete a review.
Approve/ Unapprove Reviews	Yes	Admin/Reviews/ viewreviews.php? action=unapprove Admin/Reviews/ viewreviews.php? action=approve	• When a review is selected to be approved or unapproved, change is made to the database and a message is displayed.
Delete Reviews	Yes	Admin/Reviews/ viewreviews.php? action=delete	• When a review is selected to be deleted, it is removed from the database and a message is displayed.
Post a Review	Yes	Particularproduct.php	• Admins can post a review in a product's page in the same way as a customer can. • However, they cannot add ratings.
ORDERS			
View Orders	Yes	Admin/Orders/ vieworders.php	• Displays a particular order's details. • Also displays available options to mark an order as shipped, pending or delete it. • Displays the ordered items and their quantity, along with the total price.
Mark Orders as Pending/ Shipped	Yes	Admin/Orders/ vieworders.php? action=shipped	• When an order is selected to be shipped or pending, change is

		Admin/Orders/ vieworders.php? action=pending	made to the status of the order and a message is displayed.
Delete Orders	Yes	Admin/Orders/ vieworders.php	• When delete button is clicked, the order is removed from the database and a message is displayed.

FRONTEND			
Customer Login	Yes	Signin.php	Username: anilupreti Password: asdasdasd Username: rameshthapa Password: rameshthapa Username: guestuser Password: asdasdasd Takes the customer to homepage or redirects to the product or page from which they followed the link to login.
Customer Registration	Yes	Signup.php	• Displays a form to add a new user. • When the form is filled up and submitted, a new customer is created and added to the system.
VIEW PRODUCTS AND REVIEWS			
View Products	Yes	Viewproducts.php	• Displays all the products available in the system.

View Products in a Category	Yes	Viewproducts.php? category=	• Displays all the products belonging to the specified category.
View Products by a Search Term	Yes	Viewproducts.php? search=	• Displays all the products that match the search term.
View Products in a Sorted Order	Yes	Viewproducts.php? sortby=	• Sorts the displayed products in some order. • Sort types include: sort by rating, sort by price and posted date.
View a Particular Product	Yes	Particularproduct.php	• Displays a product's details including the reviews added to it.
View Reviews in a Product	Yes	Particularproduct.php	• The page that displays a product's details includes reviews added to it after the product's details.
View average Rating of a Product	Yes	Viewproducts.php Particularproduct.php	• Displays the rating of a product on the form of stars.
Share a Product using Social Media Share Buttons	Yes	Particularproduct.php	• Displays Facebook and twitter share buttons. • Facebook button cannot be tested on a localhost environment.
View a Customer's account page	Yes	User.php	• Displays a list of reviews added by the specified customer. • The list includes the product's name for which a review was posted.
ADD RATING AND REVIEWS TO A PRODUCT			

Add rating to a product	Yes	Partricularproduct.php	- Displays radio buttons in the form of stars. - User can click on a star and submit to rate a product. - A customer can rate one product only once. *Needs to be logged in
Add reviews to a product	Yes	Particularproduct.php	- Displays a text box to let the user add a review. - When submit button is clicked, the review is added to the system for approval. - The review appears below the product once approved by the administrator. *Needs to be logged in
CART AND ORDER			
Add products to cart	Yes	Particularproduct.php	- Product added to cart when user selects a number and clicks add to cart. - When tried to add a product that already exists in cart, message displayed saying already in cart.
Delete products from cart	Yes	Particularproduct.php Checkout.php	- Product removed from cart when clicked the delete link next to the specific product. - Can also click the empty cart button to delete all the products in the cart.
Checkout	Yes	Checkout.php	Displays a button to checkout the final cart. *Needs to be logged in
Add order delivery details	Yes	Order.php	Displays a form that includes shipping address and payment details.

			*Needs to be logged in
Pay using PayPal	Partial	Order.php	• Displays the PayPal popup from which the customer can login and pay. • The invoices, however, have not been added to the database and hence this featured is listed as Partially completed. *Needs to be logged in

4. TESTING

4.1 Tests as an Administrator

Note: Throughout the tests, OK implies to a passed test and FAIL implies to a failed test.

4.1.1 Administrator

Create an Administrator:

	Test	Expected Result	Actual Result	Result
1.	Fill up administrator's details correctly and submit the form to add an admin.	New administrator added to the system.	Same as expected. Figure 4.1	OK
2.	Use existing username to create a new administrator.	New account not created. Message displayed saying username already exists.	Same as expected. Figure 4.2	OK
3.	Use existing email address to create a new administrator.	New account not created. Message displayed saying email already exists.	Same as expected. Figure 4.2	OK
4.	Use invalid password. (Shorter than 8 characters or longer than 16)	Submit button disabled. Cannot submit the form. Message displayed saying password invalid.	Same as expected. Figure 4.3	OK
5.	Use varying password for the password confirmation.	Submit button disabled. Cannot submit the form. Message displayed saying passwords do not match.	Same as expected. Figure 4.3	OK
6.	Submit the form leaving some fields unfilled.	Cannot submit the form. Prompted to enter the missing information.	Same as expected.	OK
7.	Use white boxes(spaces) as name or username and submit the form.	New user not created.	Not as expected. New user created with provided details. Figure 4.4	FAIL

Figure 4. 1 – Add new Administrator

Figure 4. 2 – Add user with same username or email

Figure 4. 3 – Invalid password

You successfully added the Administrator account with username: .

Click here to view the latest list of administrators.

S.N.	Full Name	Username	Email	Manage
1	Diwas Lamsal	diwaslamsal	diwaslamsal@example.com	Manage
2	Administrator	administrator	admin@edelectronics.com	Manage
3	Moderator	moderator	moderator@edelectronics.com	Manage
4	Ramesh Thakur	thakurramesh	thakurramesh@gmail.com	Manage
5			a@a.com	Manage

Figure 4. 4 – Added administrator

Edit an Administrator:

	Test	Expected Result	Actual Result	Result
1.	Add new full name for the admin account and submit.	Selected administrator's full name updated to the entered one.	Same as expected. Figure 4.5	OK
2.	Use correct old password and valid new passwords to change the password	Selected administrator's password updated to the new one.	Same as expected.	OK
3.	Use incorrect old password and valid new passwords to change the password.	Password not updated. Message displayed that informs incorrect old password was entered.	Same as expected. Figure 4.6	OK
4.	Use valid old password and invalid new passwords to change the password.	Password not updated. Cannot submit the form. Message displayed showing relevant information.	Same as expected. Figure 4.6	OK

Figure 4. 5 – Edit user full name

Figure 4. 6 – Edit administrator password with invalid password

Delete an Administrator:

	Test	Expected Result	Actual Result	Result
1.	Delete an admin by clicking on the Yes button when prompted.	Selected administrator account deleted, as well as all the products uploaded and reviews posted by the account deleted.	Same as expected. Figure 4.7	OK
2.	Delete own administrator account.	Cannot delete own account.	Not as expected. Administrator account deleted and user logged out.	FAIL

You are about to remove the administrator thakurramesh. Are you sure?

Yes   No

The administrator account thakurramesh was deleted succesfully.

Click here updated latest list of administrators

S.N.	Full Name	Username	Email	Manage
1	Diwas Lamsal	diwaslamsal	diwaslamsal@example.com	Manage
2	Administrator	administrator	admin@edelectronics.com	Manage
3	Moderator	moderator	moderator@edelectronics.com	Manage

Figure 4. 7 – Delete administrator

4.1.2 Category

Create a Category:

	Test	Expected Result	Actual Result	Result
1.	Fill up category's details and submit.	New category added to the system.	Same as expected. Figure 4.8	OK
2.	Use existing category's name to create a new category.	New category not created. Message displayed saying category name already exists.	Same as expected. Figure 4.9	OK
3.	Use white boxes(spaces) as category name and submit the form.	New category not created.	Not as expected. New category created with provided name. Figure 4.10	FAIL

Add a category!

Category Name: New Category

    Add Category

You successfully added the Category: New Category.

Click here to return to the Category List.

S.N.	Category Name	Manage
1	Computers	Manage
2	TVs	Manage
3	Uncategorized	Manage
4	Phones	Manage
5	Gaming	Manage
6	Laptops	Manage
7	New Category	Manage

Figure 4. 8 – Add new category

Add a category!

Category Name: Phones

    Add Category

The category you specified already exists.

Click here to add a new category.

Click here to return to the Category List.

Figure 4. 9 – Add category with existing name

Figure 4. 10 – Add category with whitespace name

Edit a Category:

	Test	Expected Result	Actual Result	Result
1.	Fill up category's details and submit.	Existing category's name updated.	Same as expected.	OK
2.	Use white boxes(spaces) as category name and submit the form.	Category name not updated. Message displayed saying category name cannot be blank.	Same as expected. Figure 4.11	OK

Figure 4. 11 – Edit category with whitespace name

Delete a Category:

	Test	Expected Result	Actual Result	Result
1.	Delete a category by clicking on the Yes button when prompted.	Selected category deleted, as well as all the products belonging to it.	Same as expected. Figure 4.12	OK

You are about to remove the category a. Are you sure?

The category a was deleted succesfully.

Click here to return to view latest list of categories

S.N.	Category Name	Manage
1	Computers	Manage
2	TVs	Manage
3	Uncategorized	Manage
4	Phones	Manage
5	Gaming	Manage
6	Laptops	Manage

Figure 4. 12 – Delete category

4.1.3 Product

Add a Product:

	Test	Expected Result	Actual Result	Result
1.	Fill up product's details and submit the form.	New product added to the system. Emails sent to customers who have subscribed for notifications.	Same as expected. Figure 4.13	OK
2.	Use white boxes(spaces) as product's details and submit the form.	New product not added.	Not as expected. New product added with provided details. Figure 4.14	FAIL
3.	Use a file of different type instead of an image file.	Submit button disabled. Message displayed saying not a valid image format.	Same as expected. Figure 4.15	OK
4.	Use a large image file.	Submit button disabled. Message displayed saying not a valid size for the image and size limit specified.	Same as expected. Figure 4.15	OK

Figure 4. 13 – Add a new product

Figure 4. 14 – Add product with whitespaces in fields

Figure 4. 15 – Attempt to upload invalid image

Edit a Product:

	Test	Expected Result	Actual Result	Result
1.	Fill up product's details and submit.	Existing product's details updated.	Same as expected.	OK
2.	Upload a valid image for the product and submit.	New image added to the product replacing the old one.	Same as expected.	OK

Feature a Product:

	Test	Expected Result	Actual Result	Result
1.	Feature a product by clicking on the Yes button when prompted.	Selected product featured. Appears in the sidebar of the user area.	Same as expected. Figure 4.16	OK

Product Details:

Product Image:

Product Title: 13-inch MacBook Air

Are you sure you want to feature the product 13-inch MacBook Air ?

Successfully featured the product.

Click here to view latest list of products

Figure 4. 16 – Edit product

Delete a Product:

	Test	Expected Result	Actual Result	Result
1.	Delete a product by clicking on the Yes button when prompted.	Selected product deleted, as well as all the ratings and reviews belonging to it.	Same as expected. Figure 4.17	OK
2.	Delete a product that is featured.	Cannot delete the specified product. Message displayed saying a featured product cannot be deleted.	Same as expected.	OK

You are about to remove the product . Are you sure?

The product was deleted succesfully.

Click here to view latest list of products
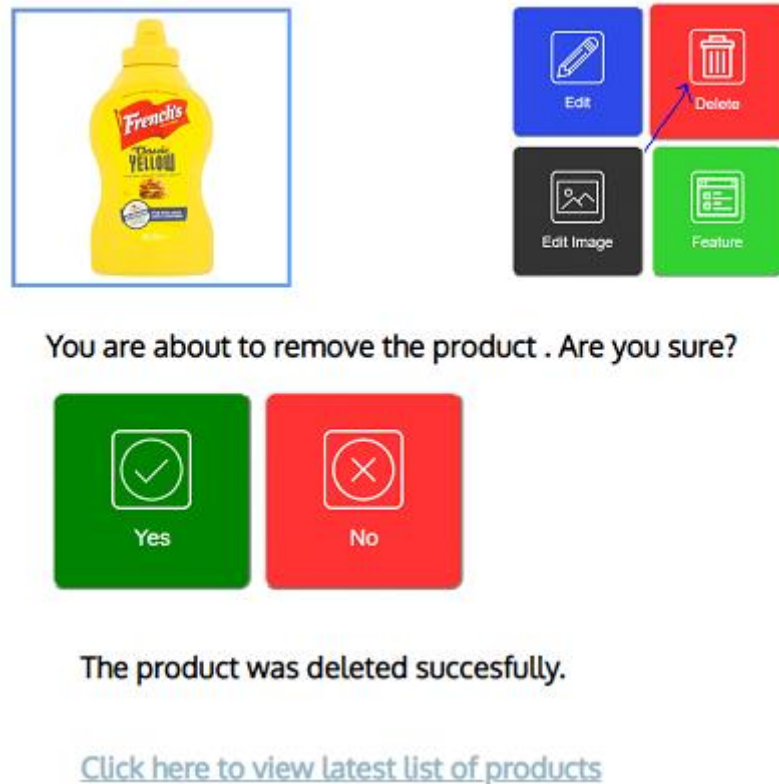
Figure 4. 17 – Delete product

4.1.4 Review

Add a Review:

	Test	Expected Result	Actual Result	Result
1.	Add a review to the product as an administrator.	Review added to the post automatically as an approved one.	Same as expected. Figure 4.18	OK

Figure 4. 18 – Add review(admin)

Approve/Unapprove a Review:

	Test	Expected Result	Actual Result	Result
1.	Approve a review by clicking on the approve button.	A message displayed saying review approved. The review now appears below the product's details in the user area.	Same as expected. Figure 4.19	OK
2.	Unapprove a review by clicking on the unapprove button.	A message displayed saying review unapproved. The review is prevented from appearing below a product's details.	Same as expected.	OK

Figure 4. 19 – Approve review

Delete a Review:

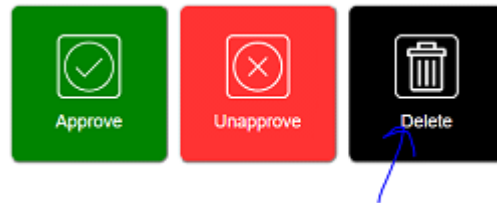|	Test	Expected Result	Actual Result	Result
1.	Delete a review by clicking on the delete button.	Selected review deleted. Message displayed saying review deleted.	Same as expected. Figure 4.20	OK

Figure 4. 20 – Delete review

4.1.5 Order

Mark an Order as Pending/Shipped:

	Test	Expected Result	Actual Result	Result
1.	Mark an order as shipped.	Selected order's status changed to shipped. Added delivery date as the current date. Message displayed saying status changed to shipped.	Same as expected. Figure 4.21	OK
1.	Mark an order as pending.	Selected order's status changed to pending. Removed delivery date. Message displayed saying status changed to pending.	Same as expected.	OK

Figure 4. 21 – Mark order shipped

Delete an Order:

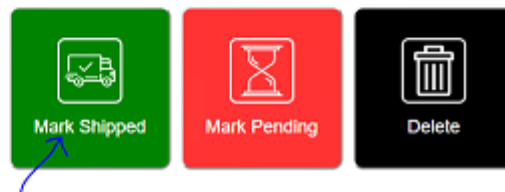|	Test	Expected Result	Actual Result	Result
1.	Delete an order by clicking on the Delete button.	Selected order deleted. Message displayed saying order deleted.	Same as expected. Figure 4.22	OK

Order Details:

Order By: Anil Upreti

Orderer Email: anilupreti@yahoo.com

Orderer Contact Number: 9841414142

Address: Bharosa Hospital, Kathmandu, NP

Order Status: shipped

Date Of Order: 2018-12-28 07:46:21

Date Delivered: 2019-01-01 15:10:53

Mark Shipped   Mark Pending   Delete

Deleted Order

Manage Orders:

Click Manage to view details about an order or to mark it as pending or delivered:

S.N.	Buyer	Street Address	City	Country	Contact	Status	Date Purchased	Date Shipped	Manage
1	Ramesh Thapa	Bagmati, Khola	Pokhara	AF	9818181818	Shipped	2018-12-28 06:09:30	2018-12-28 07:31:09	Manage
2	Anil Upreti	Sankhamul	Kathmandu	NP	9841414141	Pending	2018-12-28 07:33:53	Pending Delivery!	Manage

Figure 4. 22 – Delete order

4.2 Tests as a Non-admin (Customers, users not registered)

Create an account:

	Test	Expected Result	Actual Result	Result
1.	Fill up personal details and submit the form to register.	New customer added to the system. Message displayed saying registration successful.	Same as expected. Figure 4.23	OK
2.	Use existing username to create a new account.	New account not created. Message displayed saying username already exists.	Same as expected as for the administrator.	OK
3.	Use existing email address to create a new account.	New account not created. Message displayed saying email already exists.	Same as expected as for the administrator.	OK
4.	Use invalid password. (Shorter than 8 characters or longer than 16)	Submit button disabled. Cannot submit the form. Message displayed saying password invalid.	Same as expected as for the administrator.	OK
5.	Use varying password for the password confirmation.	Submit button disabled. Cannot submit the form. Message displayed saying passwords do not match.	Same as expected as for the administrator.	OK
6.	Submit the form leaving some fields unfilled.	Cannot submit the form. Prompted to enter the missing information.	Same as expected as for the administrator.	OK
7.	Use white boxes(spaces) as name or username and submit the form.	New user not created.	Not as expected like for a new administrator. New user created with provided details.	FAIL

Figure 4. 23 – Create account(customer)

Post a Review/Rating:

	Test	Expected Result	Actual Result	Result
1.	Fill up a review and submit as a customer.	Review posted but not approved. Appears in the administrator area.	Same as expected. Figure 4.24	OK
2.	Click on the star to rate a product and submit as a customer.	Ratting added to the product. The rating displayed on the product as an average of all the ratings.	Same as expected.	OK

3.	Post a review or rating as a user not logged in.	Cannot post a review or rating. Message displayed saying you need to be logged in to post a review.	Same as expected. Figure	OK

Add a review to the product:

Figure 4. 24 – Add rating and review to a product

Figure 4. 25 – Review not logged in

Add Items to Cart:

	Test	Expected Result	Actual Result	Result
1.	Select a number of products to add to the car and click add to cart button.	Cart is displayed showing the number of items and the total price.	Same as expected. Figure 4.26	OK
2.	Add the same product to the cart again.	Item not added to the cart again. Message displayed saying the product already exists in cart.	Same as expected. Figure 4.26	OK

Custom gaming desktops and laptops computers built with the best high performance components, overclocked processors, and liquid cooling for your gamingCustom gaming desktops and laptops computers built with the best high performance components, overclocked processors, and liquid cooling for your gaming

Product Category: Gaming

Price: £1999.99

3   Add to Cart

Your Cart:

Product	Quantity	Image	Price	Total	Delete
Origin Gaming PC	3		1999.99	5,999.97	Delete
				5999.97	Checkout

Empty Cart

Custom gaming desktops and laptops computers built with the best high performance components, overclocked processors, and liquid cooling for your gamingCustom gaming desktops and laptops computers built with the best high performance components, overclocked processors, and liquid cooling for your gaming

Product Category: Gaming

Price: £1999.99

3   Add to Cart

| | | | | 5999.97 | Checkout |

*You have already added this product to your cart!

Empty Cart

Figure 4. 26 – Add item to cart

Delete Items from Cart:

	Test	Expected Result	Actual Result	Result
1.	Click delete next to a specific product on the cart.	Cart updated, deleting the specified product from the cart.	Same as expected. Figure 4.27	OK
2.	Click empty cart to delete all the products.	Cart emptied. If in the checkout page message displayed saying no items in cart.	Same as expected.	OK

Your Cart:

Product	Quantity	Image	Price	Total	Delete
Origin Gaming PC	3		1999.99	5,999.97	Delete
13-inch MacBook Air	2		1999.00	3,998.00	Delete
				9997.97	Checkout

Empty Cart

Your Cart:

Product	Quantity	Image	Price	Total	Delete
Origin Gaming PC	3		1999.99	5,999.97	Delete
				5999.97	Checkout

Empty Cart

Figure 4. 27 – Delete item from cart

Checkout:

	Test	Expected Result	Actual Result	Result
1.	Checkout as a logged in user.	Checkout button is displayed which links to the order's detail form.	Same as expected. Figure 4.28	OK
2.	Checkout as a not logged in user.	Checkout button is not displayed, instead a message saying you need to be logged in is displayed.	Same as expected. Figure 4.29	OK

Your Cart:

Product	Quantity	Image	Price(£)	Total	Delete
Origin Gaming PC	3		1999.99	5,999.97	Delete
				5999.97	

Empty Cart
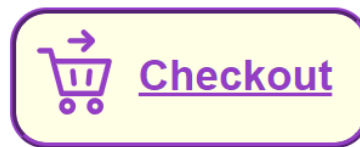
→ 🛒 **Checkout**

Figure 4. 28 – Checkout page for logged in user

Your Cart:

Product	Quantity	Image	Price(£)	Total	Delete
Origin Gaming PC	3		1999.99	5,999.97	Delete
				5999.97	

Empty Cart

You need to be logged in for checking out.

Click here to login.
Click here to register.

Figure 4. 29 – Checkout page for not logged in user

Order (Only for logged in users):

	Test	Expected Result	Actual Result	Result
1.	Fill up the order details and submit the form.	Order added to the system. Administrators will be able to view and deal with the order.	Same as expected. Figure 4.30	OK

Figure 4. 30 – Order form and checkout

View Products:

	Test	Expected Result	Actual Result	Result
1.	View all the products by clicking on the products navigation menu.	All the products in the system displayed showing newest items first.	Same as expected.	OK
2.	View all the products of a specific category by clicking on the sub-navigation under products.	All the products under the specified category displayed.	Same as expected.	OK
3.	View products by searching using specific search term.	All the products that match the search term displayed.	Same as expected.	OK
4.	Sort the displayed products in the specified order such as according to price, date or ratings.	All the products (including, if specified, a category or search term) displayed in a sorted order.	Same as expected.	OK

Share Using Social Media Buttons:

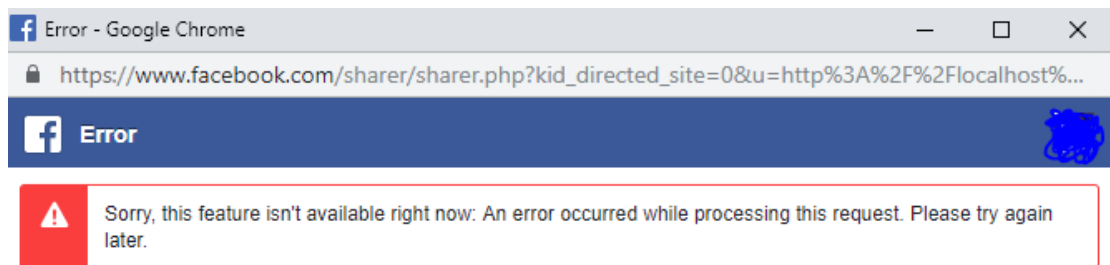|	Test	Expected Result	Actual Result	Result
1.	Click the Facebook or twitter share button available when browsing a product.	Popup displayed for respective social media sites. Facebook does not allow links to be shared in the localhost environment, so only twitter displays the link to share.	Same as expected. Figure 4.31	OK
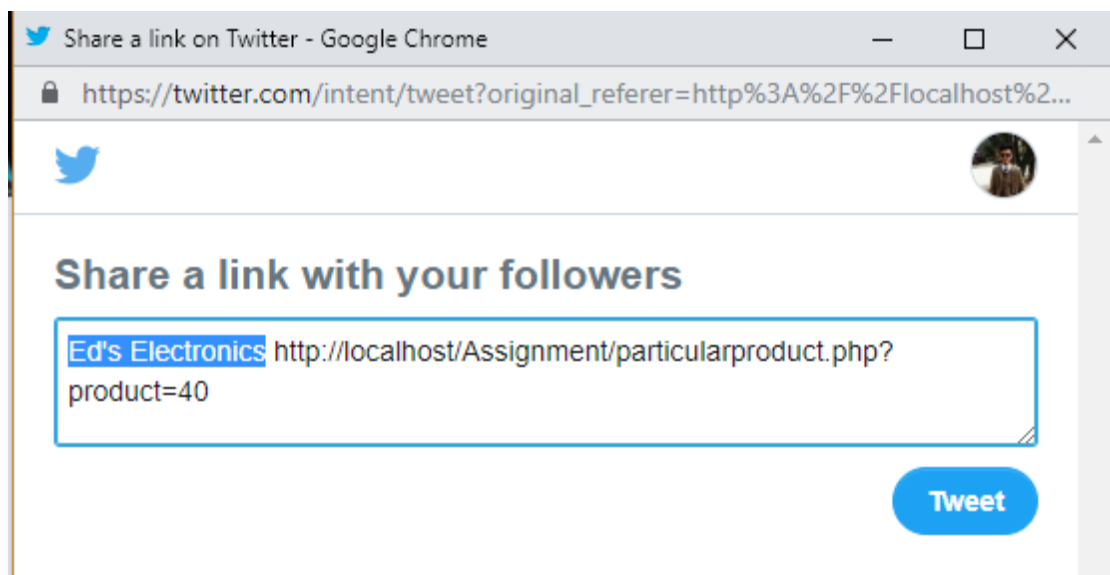
Figure 4. 31 – Social media buttons

4.3 Login and Access Controls

	Test	Expected Result	Actual Result	Result
1.	Administrator account log in.	Administrator redirected to the admin dashboard.	Same as expected.	OK
2.	Customer account log in.	Customer redirected to the homepage.	Same as expected.	OK
3.	Customer tries to access administrator area.	Customer logged out and redirected to a page that displays a message saying you tried to access restricted area.	Same as expected. Figure 4.32	OK
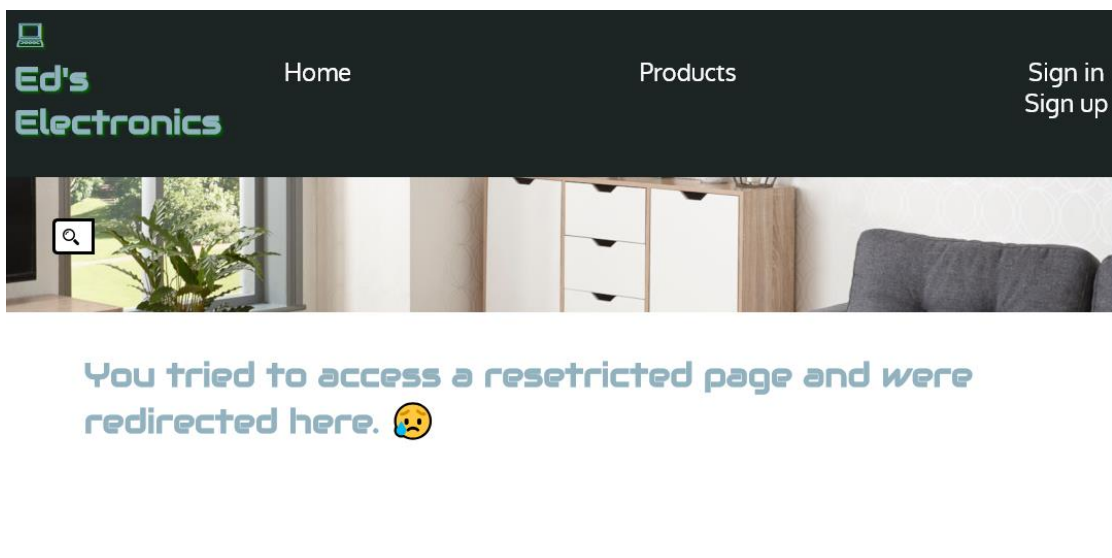
Figure 4. 32 – Access restricted area as user

5. INSTRUCTIONS FOR ANOTHER DEVELOPER

1. **Adding a new page to the website (e.g. an FAQs page) and link it to the navigation.**

Figure 5. 1 – FAQ.php file in folder structure

The FAQs page would be available for the customers and hence should be placed outside the Admin folder. The admin folder contains the backend content (Refer to Title 6 – Security Features and Design Decisions for more information about the file folder structures) and should not include files that are made available to the public. This file should be linked to a new FAQs table in the database. The administrators should be able to add, update or delete the Questions and Answers in the FAQs table. For creating the FAQs page, the order would be:
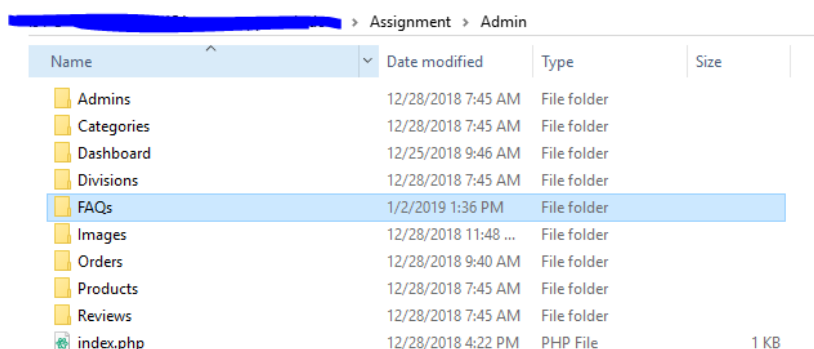
- Create a database table called FAQs with fields faq_id which would act as a primary key and set to Auto Increment, question field that hold the text question and answer field for holding the answers as text.
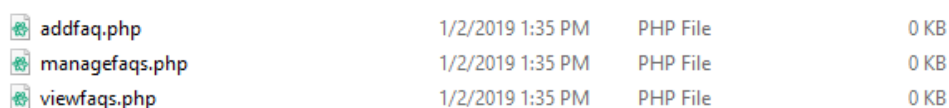

Figure 5. 2 – FAQ table creation

- Create a separate folder FAQs inside the Admin directory.

Figure 5. 3 – FAQs folder in admin directory

- Within the folder, add three files and name them as in the figure:

Figure 5. 4 – FAQs folder admin links

- The files should contain relevant codes as for other manage, add and view files.
- A link to the managefaqs.php should be added to the administrator's side bar.
- After the backend is setup, and a number of FAQs have been entered into the system, a link to the faq.php could be added for the customers.
- The navigation menu for any page is called from the header.php file in the Divisions directory.
- Simply add a new <li> tag with the faq.php file's link.

Step 1: Add a new <li> tag after the <li> tag for Products ends.
   FAQs

Step 2: Enclose the FAQs text within an anchor tag <a>.
   FAQs

Figure 5. 5 – Navigation menu

Doing this will add the FAQs to the navigation menu that appears on the homepage or any pages available for the customers where they can see all the posted FAQs.

2. Adding a new form field to the "Add Product" form

The form for dealing with products is placed inside the Admin directory's Divisions subdirectory. The file productform.php contains the code for the form. Different fields such as Product title, Product Description, etc. exist in the form. To add a new field, the code to add a label and an input field could be added above the select menu which deals with categories.

Step 1: Add a label to the form:
> \<label>Warranty: \</label>

Step 2: Add the input field with value set to a variable $warranty:
> \<input type = "text" name = "warranty" value = "\<?php echo $warranty; ?>" required>

```
<form action = "<?php echo $action;?>" method = "POST" enctype='multipart/form-data'>
  <label>Product Title:</label><input type = "text" name = "title" value = "<?php echo $title; ?>" required>
  <label>Product Manufacturer: </label><input type = "text" name = "manufacturer" value = "<?php echo $manufactu
  <label>Product Price(£):</label><input type = "text" name = "price" value = "<?php echo $price; ?>" required>
  <label>Product Description: </label><textarea name = "description" required><?php echo $description; ?></texta
  <label>Product Category: </label>
```

Figure 5. 6 – Add or edit product form

The add product and edit product features use the same file productfom.php for their forms. The edit product sends some values into the form to set the defaults. Adding a new form field such as a warranty field, requires the default values passed from the respective php files as in the figures for how it is done for other fields as of now. A variable would be declared in this case, it could be named to $warranty and a blank value would be sent if it's for adding a new product, or, a value from the database if it is an existing product, i.e. '$warranty = $product['warranty'];' would be sent.

Step: add a variable $warranty and set its value to blank ($warranty = "") if it's being called from addproducts.php or set its value to $product['warranty'] ('$warranty = $product['warranty'];') if it is being called from the editproducts.php.

```
else{
  $title = $product['title'];
  $manufacturer = $product['manufacturer'];
  $price = $product['price'];
  $description = $product['description'];
  $type = "edit";
  $action = './editproduct.php?product='.$_GET['product'].'&action=edit';
  require '../Divisions/productform.php';
}// end of else for if(isset($_POST['submit']))
```

Figure 5. 7 – Product form call from edit product page

```
<h1>Add a Product</h1>
<?php
  $title = "";
  $manufacturer = "";
  $price = "";
  $description = "";
  $type = "add";
  $action = "./addproduct.php";
  require '../Divisions/productform.php';
?>
```

Figure 5. 8 – Add product form call from add product page

This will successfully add the relevant input field to the form. However, for actually implementing the new input field, a new column needs to be added into the database table products which would hold the value passed in this new input field.

3. Add a new form (e.g. rating) field to the "Add Review" form

Although the star ratings have already been added to the system, to add a new field to the review form, the file particularproducts.php could be edited. This part of the file contains the current review field. Codes for new label and input field could be added before the end of the form (i.e. before the line </form>). This example could be used to add a field called Contact Number.

Step 1: Add a label to the form before the '<input type = "submit…':
    <label>Contact Number: </label>

Step 2: Add the input field after the label:
    <input type = "text" name = "contact_number">

```
<!-- The form to submit a review -->
    <input type = "hidden" name = "user_id" value = "<?php echo $_SESSION['loggedin'];?>">
    <input type = "hidden" name = "product_id" value = "<?php echo $_GET['product'];?>">
    <label>Review: </label> <textarea name = "review_text" placeholder="Your review text here..." required>

    <input type="submit" name="submit" value="Submit" />
</form>
```

Figure 5. 9 - Add a review form

6. SECURITY FEATURES AND DESIGN DECISIONS

Some security features have been added to the system which lead to a secure and a robust final submission. These include:

- Encryption of passwords using php password_hash function.
- Verifying password using php password_verify function.
- Use of PDO prepared statements to interact with the database which would disallow not all but almost SQL injection attacks and keep the database secure.
- A separate directory for the administrators which contains all the available features in the backend of the application and not accessible by regular users.
- Sessions destroyed with attempts of unauthorized access and user redirected to a page restricted.php. Figure
- Reviews not posted unless verified by administrators which prevents some unwanted content and spam from appearing on a product.
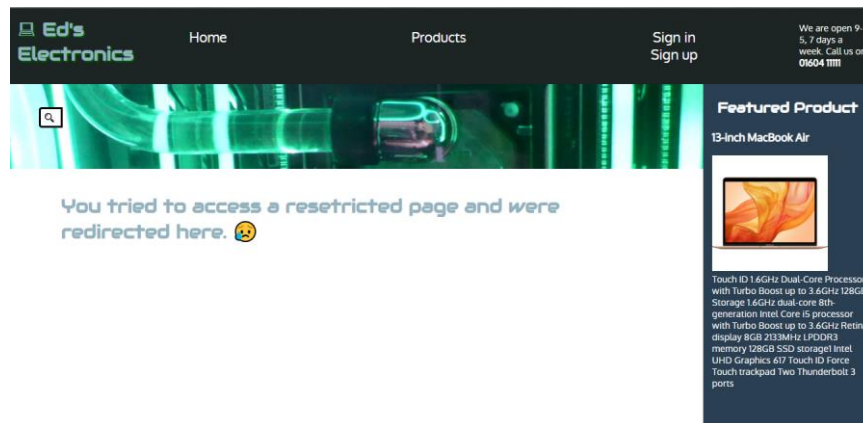

Figure 6. 1 – Restricted page

Design Decisions:

The design of the program has been made in a way which completely separates the user area and administrator area, as well as specific tasks into specific subfolders. A class called TableGenerator has been used which includes the usage of Object Oriented Programming into the system. Many functions have been used which serve different purposes to reduce repeated code as much as possible. Some key points about the design of the system would be listed as:

- Separate admin folder which contains all the files for the admin.
- Within the admin folder, separate subfolders which separate the features available for the administrator. For example: the products folder would contain all the files such as file for adding a product, file for viewing and editing a product, file for deleting a product and file that displays all the products.

Admin	1/2/2019 2:59 PM	File folder	
Divisions	12/27/2018 11:45 ...	File folder	
Images	12/28/2018 12:15 ...	File folder	
Style	12/18/2018 3:45 PM	File folder	
checkout.php	12/28/2018 11:04 ...	PHP File	4 KB
index.php	12/28/2018 11:04 ...	PHP File	3 KB
logout.php	12/28/2018 8:20 PM	PHP File	1 KB
order.php	12/28/2018 11:05 ...	PHP File	18 KB
particularproduct.php	12/28/2018 10:51 ...	PHP File	17 KB
restricted.php	12/28/2018 8:51 PM	PHP File	1 KB
script.js	12/29/2018 11:37 ...	JS File	4 KB
signin.php	12/28/2018 9:48 PM	PHP File	3 KB
signup.php	12/28/2018 9:55 PM	PHP File	3 KB
user.php	12/28/2018 11:07 ...	PHP File	3 KB
viewproducts.php	12/28/2018 11:07 ...	PHP File	5 KB

Figure 6. 2 – Folder structure

Admins	12/28/2018 7:45 AM	File folder
Categories	12/28/2018 7:45 AM	File folder
Dashboard	12/25/2018 9:46 AM	File folder
Divisions	12/28/2018 7:45 AM	File folder
Images	12/28/2018 11:48 ...	File folder
Orders	12/28/2018 9:40 AM	File folder
Products	12/28/2018 7:45 AM	File folder
Reviews	12/28/2018 7:45 AM	File folder
index.php	12/28/2018 4:22 PM	PHP File	1 KB

Figure 6. 3 – Admin folder structure

- In the root directory, another subfolder Divisions which contains the smaller files that are called by different files for specific tasks. (For example: regform.php which contains the form for registering a user and called by the signup.php file and adduser.php file, header.php which contains the header content and sessions for a logged in user and called by every page.)
- The header file is where the pdo variables have been declared so that it needs not be called again and again each time querying is necessary.
- The header file contains php functions that are used across the system for example: A function that checks if the provided username already exists in the database.

- The header file also contains the TableGenerator class which is used to create all the tables that appear in the system.

```
//This class has been taken from week 10 lecture
class TableGenerator {
  public $headings;
  public $rows = [];

  public function setHeadings($headings) {
    $this->headings = $headings;
  }

  public function addRow($row) {
    $this->rows[] = $row;
  }

  public function getHTML() {
    $result = '<table>';
    $result = $result . '<thead>';
    $result = $result . '<tr>';
```

Figure 6. 4 – TableGenerator class

- The header file contains the $_SESSION variables which verifies access controls (For example: A non-administrator not being able to access the admin area).
- The index.php file in the Admin directory redirects a non-administrator to the restricted page. This is created so that non-administrators would not be able to access the directories by editing the url.
- The header file for customers also contains $_SESSION['cart'] variable where the users would be able to add items to cart.
- The javascript file script.js is called on every header which contains different functions for validating passwords or image, or, display the star rating radio buttons.

7. EVALUATION

Good Aspects: The system has been finalized including many useful and user-friendly extra features that allows the end users to interact and use the system easily.

- A user-friendly homepage which displays three of the recently added products.
- An animated search bar which could be used to search for products in the system.
- Option to sort the products by price or date they were added – an extra feature added to the task that asks to add an option to sort the products by ratings.
- Option to add ratings to the product in the form of stars.
- Coloured avatars for the customers or Administrators who have posted a review.

Product reviews:

AU Nice phone I want it pls.

- Anil Upreti customer 2018/12/27

GU 4 Rate

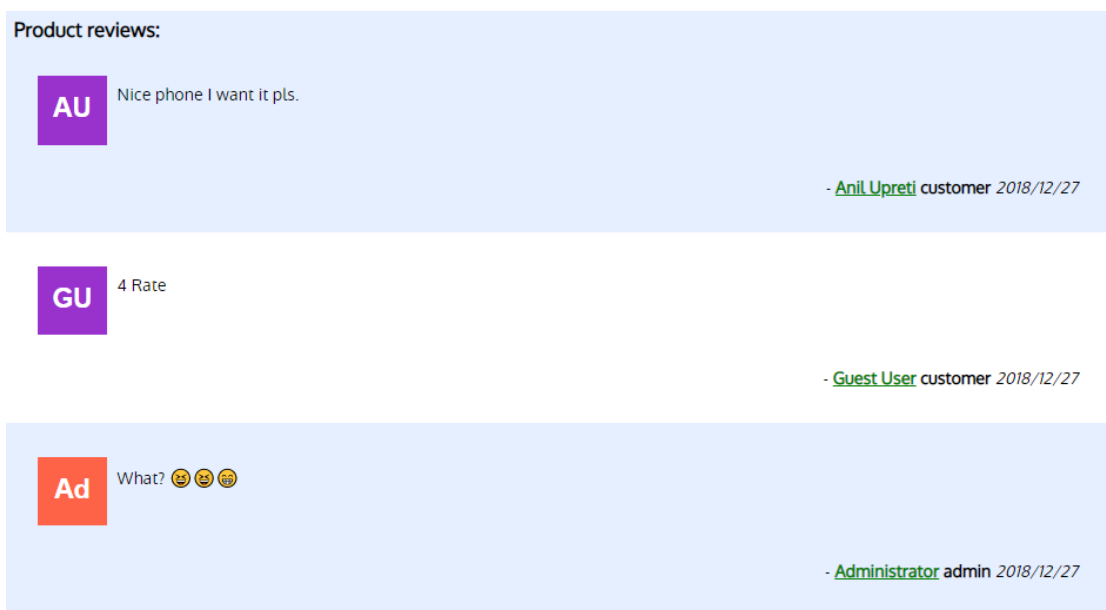- Guest User customer 2018/12/27

Ad What? 😣😖😫

- Administrator admin 2018/12/27

Figure 7. 1 – Coloured avatars

- Product ratings displayed as an average rating in the form of stars.

Product Rating: ★★★★⯪

Huawei P20 Pro

Figure 7. 2 – Star ratings

- Shopping cart displayed in an attractive tabular format which contains an easy to interact layout.
- Redirects upon logging in from the products page or the checkout page, i.e. when a customer wants to add a review, and clicks on the 'Click here to log in' link below a particular product's reviews section, the user, after logging in, is redirected back to the product's page where they can add a review without manually browsing through the products to reach the same product again.
- Administrators do not need to verify their reviews, i.e. whenever a customer adds a review to a product, it is first approved by an administrator before it appears to the public, but, when an administrator posts a review, it is automatically posted to the public.
- The shopping cart is displayed as a notification besides the navigation menu where the number indicates the different products added to cart. Clicking on the cart will take the user to the checkout page.

Figure 7. 3 – Cart displayed on navigation bar

- A user-friendly admin dashboard where the available features are easy to navigate through and it is easy to perform a specific task.
- Confirmation before deleting a user, category or product. In case the delete button was clicked by mistake, the administrator could have a chance at going back to the previous page.
- Administrators are not able to delete a featured product, as, doing so would need to have a product set to featured by default or else the featured product in the customer area would appear blank.
- A prior information is given whether or not deleting a category would remove a product. It is set such that deleting a category would completely remove all the products that are under it.
- Ability for administrators to post reviews. This would be relevant when replying some questions asked by customers.
- Administrators cannot see or add items to cart in the user area.
- Emails sent to the customers, who have subscribed for notifications, upon adding a product.

Drawbacks and Possible Solutions:

	Drawbacks	Possible Solutions
1.	Deleting an administrator who has posted a product will also remove the product from the system.	Deleting an administrator should display an option to choose whether to remove the product as well or transfer the ownership of the product to another account.
2.	The categories which have at least a product under them are not allowed to be deleted from the system.	Removing such categories should automatically set the category for all the products under it to uncategorized.
3.	All the products, reviews, orders, etc. and everything is displayed in a single page. In a larger system, loading everything on a single page would not be a good solution.	Pagination could be used to separate number of products or lists in the administrator area into different pages displaying only limited number per page.
4.	The users are not able to edit their personal information such as name or password once it's set.	The users should also be allowed to change their details by creating their own profile space as done for the administrators.
5.	One administrator can delete or edit another administrator.	A super administrator should exist who would be the only one that can create or remove administrators from the system.
6.	PayPal payments are not stored as invoice.	PayPal payments should also be stored in the database in the form of invoices to keep track of paid orders and orders with pending payments.

Other features that could be added if time was available:
- Pagination for displaying products - selected number of products per page.
- Allowing users to upload and edit profile pictures.
- Add a FAQ page where the administrators would be able to add answers to common queries from customers.
- A customer help desk where customers would be able to ask questions.

If were to rework on the assignment, the different approach would be excessive usage of Object Oriented Programming principles PHP offers.

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