# Criterion B: Design

Class Functionality

The following outlines the primary function of each of the three components:

- *Controller:* Contains the main servlet that provides for and controls the entire user interface through its connection to the Database class.

- *Database:* This class establishes the connection to the database. This class contains the essential methods to carry out SQL commands that will manipulate the tables in the database.

- *CartForm:* This class establishes the form that is opened once the purchase button on the database is clicked. Here, the user can confirm their order, view the total price to be paid, and enter their details including their email address so that an email can be sent to them regarding their order.

- *HTTP Session:* Default class that is formed when creating this project. It creates a session between an HTTP client and an HTTPserver.

- *Webpages:* Pages that contain the main aspects of each page of the website.
  - Home Page
  - About Us Page
  - Contact Us Page
  - Products Page

Class Relationships

The following is an illustration representing the relationship between the program's 5 components, and was generated using the interactive Java development environment "Draw.io".
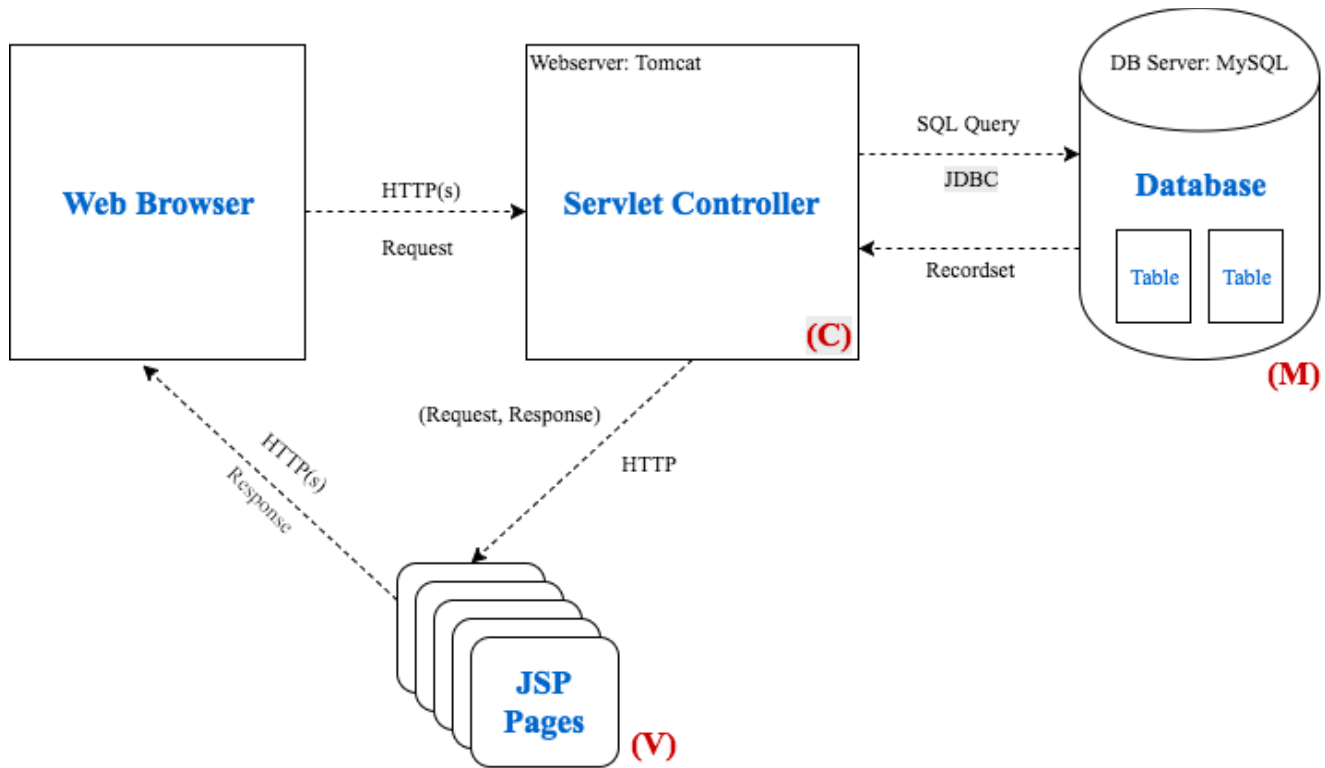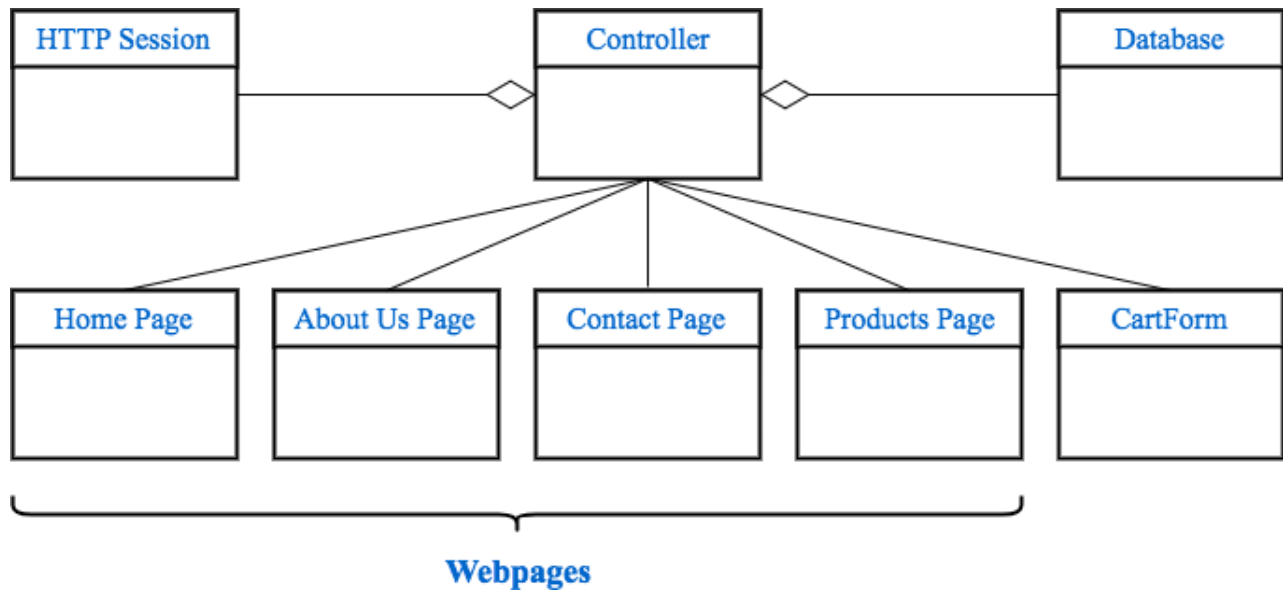

Class Relationships Illustration

The project is divided into three main interconnected components:
1. **M** refers to the Model which includes the database that manages the data involved in the project.
2. **V** refers to the View, which expresses the user interface of the project in the form of multiple web pages.
3. **C** refers to the Controller, which manages the user's input and converts it into commands for the Model or View.

Class Relationships

The following is an illustration representing the relationship between the program's five classes, and was generated using draw.io.

Class (Unified Model Language) Diagrams

Controller

serialVersionUID : long
defaultPage : String
loginPage : String
logoutPage:String
shoppingCartPage : String
actionError : String
actionLogin : String
actionShoppingCart : String
actionLogout : String
databaseName : String
server : String
port : String
mySqlUsername : String
mySqlUrl : String
errorPage : String

Controller()
doGet(HttpServletRequest, HttpServletResponse)
closeDatabaseConnection(Connection)
doPost(HttpServletRequest,HttpServletResponse)
insertOrder(String, String, String, String, String, String, String)
getImage(String, Connection)
convertDatabaseRecordToProductObject(ResultSet)
tryToLogin(String, String, Location)
getCookie(HttpServletRequest, String)
getDatabaseConnection()

HTTP Session

getAttribute(shoppingCart)
setAttribute()
getAttributeNames()

Data Validation

Data Input	Type of Check	Description
Email	Presence Check	Once an email address is entered into the *CartForm*, the validation ensures that data has been entered into the field.
Name	Presence Check	Once a name is entered into the *CartForm*, the validation ensures that data has been entered into the field.
Last Name	Presence Check	Once a last name is entered into the *CartForm*, the validation ensures that data has been entered into the field.
Student's Mentor Group	Presence Check	Once a mentor group is entered into the *CartForm*, the validation ensures that data has been entered into the field.
Email	Format Check (Email Format)	Once an email address is entered into the *CartForm*, the validation ensures that the email address is in the right format (eg. it has an '@', and does not include values such as '&')

Database Table & Columns

Table Name: Products

This Database will contain all the products being sold, including images, available colours, sizes, etc.

Field	*Example*	*Type*
Product id	"5"	Int
Product Name	"cotton quilt"	String
Product Size	"Large"	String
Product Price	"7"	int
Product Stock	"Available"	String
Product Image	".png image file"	mediumblob
Availability	"Yes"	String

Table Name: Orders

This database contains details about each order including the user's name, and their email.

Field	*Example*	*Type*
Order id	"5"	int
First Name	"Ella"	String
Last Size	"Smith"	String
Email	"email@gmail.com"	String
Student's Mentor Group	"12JAj"	String

Process Flowcharts
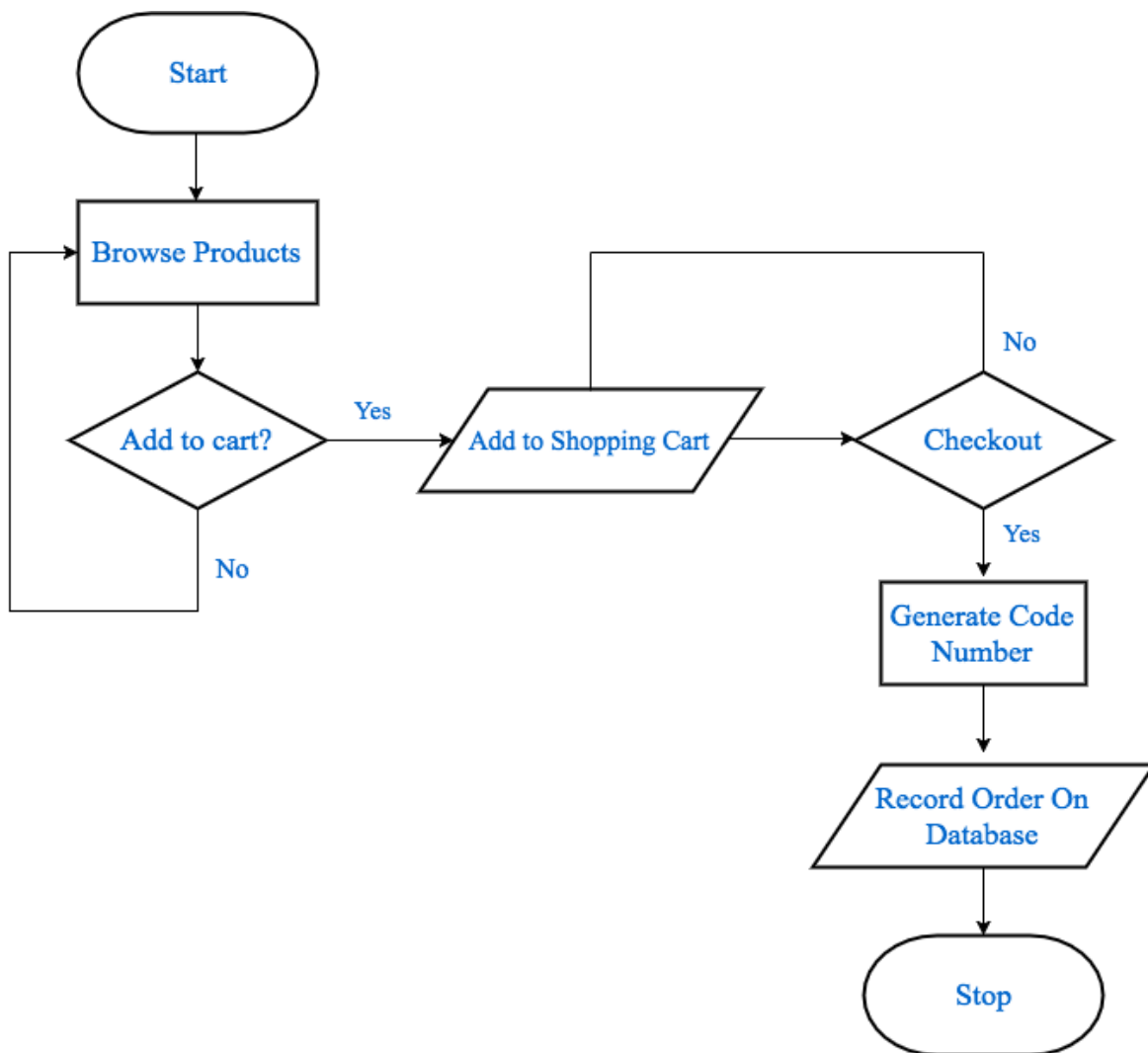
Panels' (GUI) top-down design – The flowchart above illustrates the navigation paths between the different pages in the Tiger Watch Website.

Internal Structure of Components
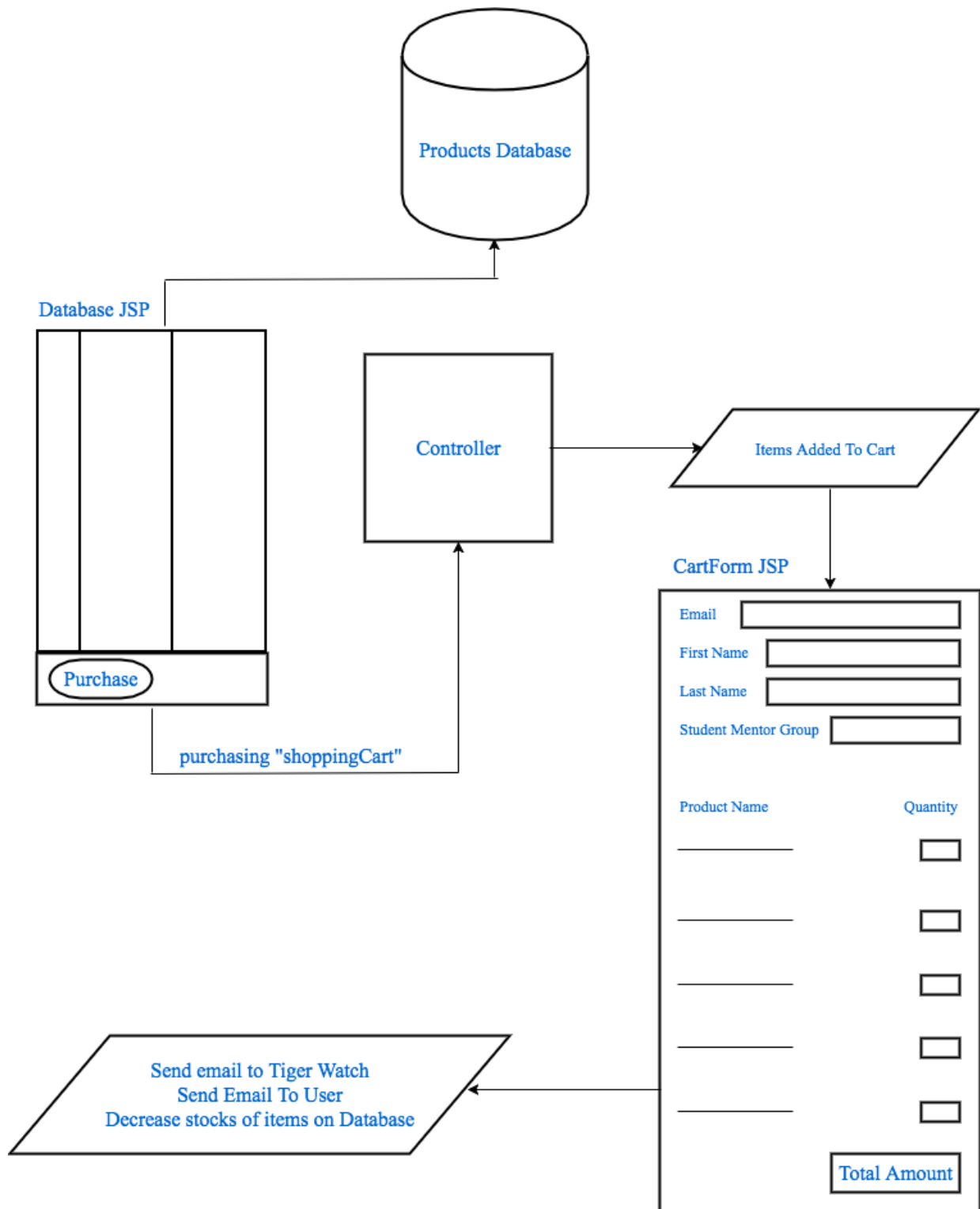
Design of the function involved when purchasing a product. Once the purchase button is pressed, the user is taken to a form which asks for their details including their email, confirms their order and displays a total price to be paid.

Panel Designs & Top-Down Design (Graphical User Interface)
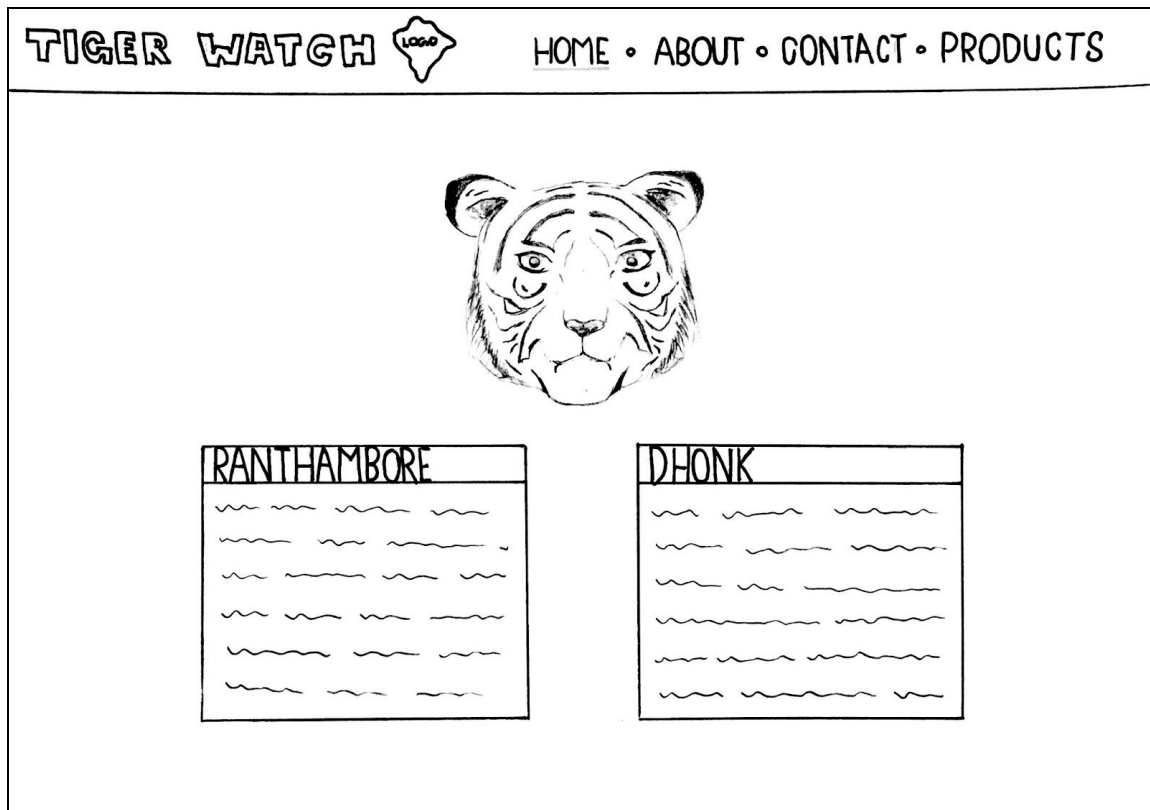
Home Page: Tab utilized as a welcome window that displays images and the names and links of Organisations that the Global Concern is working with.
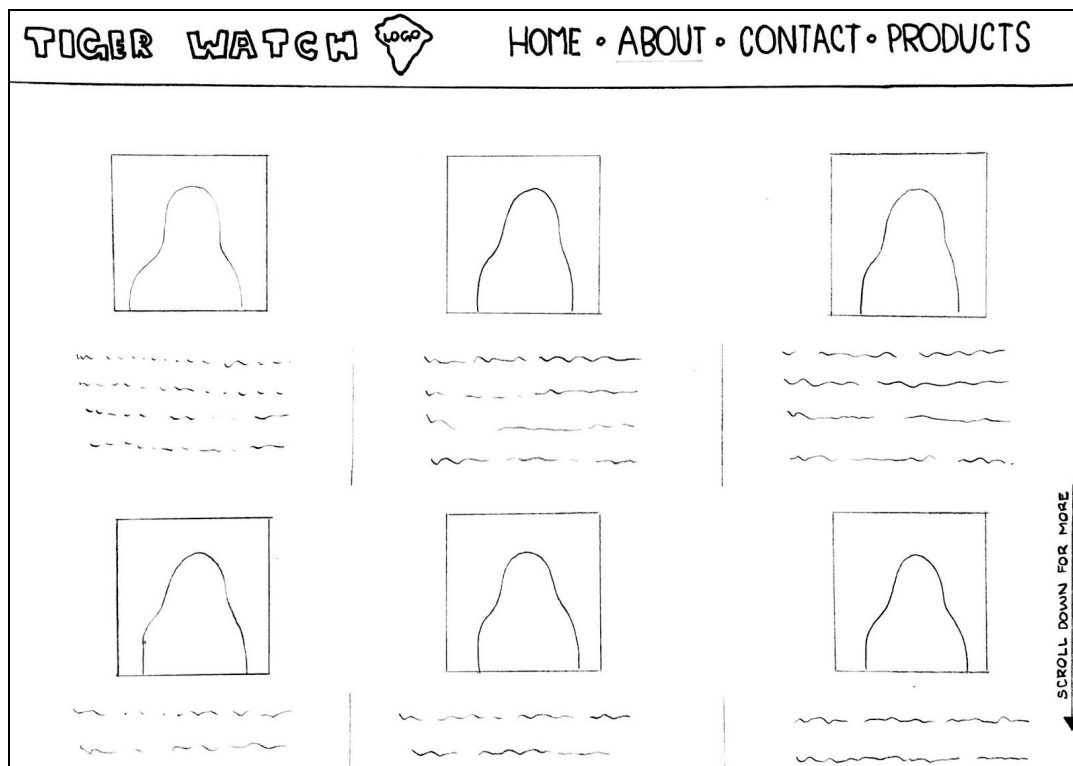
About Us Page: Tab utilized as a page with information and photographs of all the GC members.

ID	PRODUCT	SIZE	PRICE	IMAGE	AVAILABILITY	QUANTITY
TIGER WATCH 🏁				HOME • ABOUT • CONTACT • PRODUCTS		
1	～～	-	$ 50		✓	0 ⌃⌄
2	～～ ～	～～	$ 20		✓	0 ⌃⌄
3	～～～	-	$ 15		✗	0 ⌃⌄
4	～ ～～	-	$ 35		✓	0 ⌃⌄

Products Page: Tab utilized as a page where products can be viewed and then added to the user's cart.

Contact Us Page: Tab utilized as a page with contacts for the users to use when searching for the status of their order.

TIGER WATCH 〔LOGO〕 HOME • ABOUT • CONTACT • PRODUCTS

EMAIL

FIRST NAME

LAST NAME

STUDENT'S MENTOR GROUP

PRODUCT AMOUNTS SELECTED

id	Image	Product Name	Price	Quantity
7		Product #1	$17	2
11		Product #2	$5	9

TOTAL PRICE TO BE PAID: $79

CartForm: This class establishes the form that is opened once the purchase button on the database is clicked. Here, the user can confirm their order, view the total price to be paid, and enter their details including their email address so that an email can be sent to them regarding their order.

Test Plan

The following is an outline of the plan to be utilized in order to test whether the program is fully functional according to the success criteria set in Criterion A, which was determined following an interview with the client.

Number	Action To Be Tested	Test Method
1	A *Home* page with information about Ranthambore National Park and Dhonk.	Give 10 students a questionnaire to fill about the website after they have seen and used it.
2	An *About Us* page with information and photographs of all the GC members.	Give 10 students a questionnaire to fill about the website after they have seen and used it.
3	A *Contact Us* page with all the GC members' emails in order for users to contact them to know the status of their order.	Give 10 students a questionnaire to fill about the website after they have seen and used it.
4	A *Products* page that will showcase all the products with pictures and information about them.	Give 10 students a questionnaire to fill about the website after they have seen and used it.
5	Images displaying each product alongside its name on the *Products* page.	Give 10 students a questionnaire to fill about the website after they have seen and used it.
6	A form at the end of the purchasing process that confirms the user's order.	Order an item and see if a form appears once a purchase is confirmed.
7	A function that emails the user about the products purchased.	Enter an email address into the field provided and use it in order to see if an email is sent to the address successfully.
8	A well organised database of all the products, their prices, availabilities and sizes if applicable.	Give 10 students a questionnaire to fill about the website after they have seen and used it.