Internet and Web Programming (CSE 326)
Project

SHOP-CART
(A WEBSITE FOR FRUITS AND HERBS SHOPPING)
USING ADOBE DREAMWEAVER

A Project Report

Submitted by

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ABSTRACT

I had the splendid opportunity to work with Tata Consultancy Services, a company whose interests and area of work centred to help customers achieve their business objectives by providing innovative, best-in-class consulting, IT solutions and services. Initially we were assigned various departments and the projects under which we had to work on. I had been given the OBIA Project.

The Interns were required to clear a simple mandatory safety and security course which encompassed the guidelines we were supposed to follow and included the restrictions and our limits.

The project guides started our training for Web Development. They introduced us with the various topics we would cover along the training period and informed us about the project we had make to apply what we had learnt. The Guide started with the basics of HTML. We were taught about the various tags and the methods to create a skeleton of a website. After each lesson the interns including me were given time and hands-on experience to code and see how it actually worked. The team of interns, which includes me, took care of the creation of the environment, programming and packaging, and created the demo menu interface.

After each training session we were given individual or group assignments to enhance our problem solving skills and the team work.

After a week of training sessions and assignments, we had to apply our skillset and knowledge in the first test for HTML. The test was an individual one and included two simple layouts which we had to make. After the first week of training, when we were comfortable with all the tools and environment, the guides asked us to start working on our project which was to make a fully fledged working website.

The interns were given time to think of a title of a project and were supposed to start analysing the things required for making the website. I wanted to make a E-Commerce Website which basically offers the customers to buy vegetables and Fruits online without any hassle. The project guide approved the idea and asked to us to start working on the user interface.

In the second week of the training, we were introduced with the CSS and the guides introduced us with the new platform which was ADOBE DREAMWEAVER. It is a very useful tool since it reduces a lot of time and work. This week we were thoroughly taught CSS and the Dreamweaver software. In between we used to get time to work on our project and build by applying what we learnt. I built the basic framework and designed the website using dreamweaver.

The interns were also given a mini group assignment which was in continuation of the previous test given after the first week.
The following weeks the interns were taught the validations and various other methods using JavaScript and PHP. The interns were expected to learn the topics separately and link them with what they had learnt.
In the mean time the interns including me were building their website and were finally ready with a fully-fledged working website.

The team at TCS were highly helpful and approachable. Everyone was understanding and helpful. However, they pushed our team when necessary and helped us understand the dynamics of the fields we wish to pursue in life. They were patient with our flaws and bettered our vision whenever we were lacking with ideas.

Their conviction and captivation for Web Development, and all of the inputs they gave served to strengthen my belief that this field is where I wish to continue my work. The exposure I received from this internship is priceless and the knowledge I received is immense.

Owing to the experience I gained from the internship, I now have a better understanding of the tools used and the time it takes to bring a vision to life.

Introduction

Through the university, I obtained much valuable information which helped me to adapt to the role given to me easily. The knowledge imparted to me helped me in grasping concepts and applying them in the projects given to me successfully. We were taught the C programming language in the first semester. This, coupled with the teaching of C++ in the following year helped me gain an insight in the coding and Web Development field. Further, the concepts taught in Computer Networks helped me understand the backend process involved in the project.

The Internet And Web Programming classes that I took in the college also helped me getting a head start. The various concept taught of HTM,CSS,PHP helped me in making my Website.

The following are the skillsets gained through the course curriculum

1. Database Management Systems

A database management system (DBMS) is system software for creating and managing databases.

The semester before the training, I completed the Database Systems course as a part of my curriculum which helped me greatly when it came to designing and managing the database for the project assigned to me. The various components of this course which I applied included –

- **ER Model** is a graphical representation of entities and their relationships to each other, typically used in computing regarding the organization of data within databases or information systems.
- **Mapping Schema** is a specification that describes how data structured under one schema (the source schema) is to be transformed into data structured under a different schema (the target schema).
- **Normalization** is a systematic approach of decomposing tables to eliminate data redundancy and undesirable characteristics like Insertion, Update and Deletion Anomalies.

I had sufficient knowledge about the aforementioned components to design a complete and efficient database for a given scenario. Again, this proved to be very useful during the training as I could design the database for the project from the very start which was essential in the big picture since it reduced the number of variables in the big picture.

2. CSS

Cascading Style Sheets (**CSS**) is a style sheet language used for describing the presentation of a document written in a markup language.Although most often used to set the visual style of web pages and user interfaces written in HTML and XHTML, the language can be applied to any XML document, including plain XML, SVG and XUL, and is applicable to rendering in speech, or on other media. Along with HTML and JavaScript, CSS is a cornerstone technology used by most websites to create visually engaging webpages, user interfaces for web applications, and user interfaces for many mobile applications.

CSS is designed primarily to enable the separation of presentation and content, including aspects such as the layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple HTML pages to share formatting by specifying the relevant CSS in a separate .css file, and reduce complexity and repetition in the structural content.

3. HTML

HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

Before the training, I had very limited knowledge about HTML and had used it in the past to create very simple pages with almost no functionality and very limited tampering with the aesthetics of the page. Needless to say, I only knew the bare basics of front end development and did not even know what CSS and JavaScript were, and how they are used in tandem with HTML.

4. JAVASCRIPT

Javascript ("JS" for short) is a full-fledged dynamic programming language that, when applied to an HTML document, can provide dynamic interactivity on websites. It was invented by Brendan Eich, co-founder of the Mozilla project, the Mozilla Foundation, and the Mozilla Corporation.

JavaScript is incredibly versatile. You can start small, with carousels, image galleries, fluctuating layouts, and responses to button clicks. With more experience, you'll be able to create games, animated 2D and 3D graphics, comprehensive database-driven apps, and much more!

JavaScript itself is fairly compact yet very flexible. Developers have written a large variety of tools on top of the core JavaScript language, unlocking a vast amount of extra functionality with minimum effort.

Though I learned immensely during the internship, the knowledge and information imparted to me through the courses prescribed in our curriculum proved to be invaluable during my time with the company. They helped me adjust with the software I was using and allowed me to concentrate more on the advanced part Web Development.

Even the non-technical classes helped, as developing PowerPoint presentations came in handy when we were discussing about the implementation and working of the projects. The group discussions and public speaking activities helped me in interacting with my superiors more efficiently, and allowed for a much smoother experience of receiving and completing work.

From a more holistic point of view, the process of thinking out a project in phases, gauging the area of the project to undertake first, and general problem solving were not new to me, as the projects I submitted in the courses which required them helped me organise myself and my work better. The tight schedules and management of classes with projects helped me keep my calm and composure when deadlines came rushing. Further, the minimum quality maintained for the projects were at the very least satisfactory to the training officials, a habit I developed when creating projects for the courses prescribed in the curriculum.

METHODOLOGY

During the internship, I learned various new software and tools which are relevant to the field of Web development. The first software I learnt was the Adobe Dreamweaver. Adobe Dreamweaver is a software program for designing web pages, essentially a more fully featured HTML web and programming editor. The program provides a what-you-see-is-what-you-get interface for users to create and edit web pages in a more user-friendly environment. Dreamweaver supports many markup languages, including HTML, XML, CSS, and JavaScript.

Upon first look, the software was highly confusing and, in my opinion, haphazard in the way it was presented by the company. However, upon researching and reading up on the software, I realised the immense power and potential it held. Realising that learning the entire software in-depth was at least a year's job, I limited my research to level designing.

These are the knowledge skillset acquired from the In-Plant training report.

1. HTML

HyperText Markup Language (HTML) is the standard markup language for creating web pages and web applications. With Cascading Style Sheets (CSS), and JavaScript, it forms a triad of cornerstone technologies for the World Wide Web. Web browsers receive HTML documents from a webserver or from local storage and render them into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects, such as interactive forms, may be embedded into the rendered page. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. HTML elements are delineated by *tags*, written using angle brackets. Tags such as `<img />` and `<input />` introduce content into the page directly. Others such as `<p>...</p>` surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags, but use them to interpret the content of the page.

HTML can embed programs written in a scripting language such as JavaScript which affect the behaviour and content of web pages. Inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), maintainer of both the HTML and the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997.

As mentioned before, I had very limited knowledge about HTML. The project assigned to me was to develop a web application, and the simplest tool to start the learning process with was HTML. The first few days of my training were spent reading about and experimenting with HTML. As a result, I became exponentially more comfortable with HTML.

2. CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language. Although most often used to set the visual style of web pages and user interfaces written in HTML and XHTML, the language can be applied to any XML document, including plain XML, SVG and XUL, and is applicable to rendering in speech, or on other media. Along with HTML and JavaScript, CSS is a cornerstone technology used by most websites to create visually engaging webpages, user interfaces for web applications, and user interfaces for many mobile applications.

CSS is designed primarily to enable the separation of document content from document presentation, including aspects such as the layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple HTML pages to share formatting by specifying the relevant CSS in a separate .css file, and reduce complexity and repetition in the structural content. Changes to the graphic design of a document (or hundreds of documents) can be applied quickly and easily, by editing a few lines in the CSS file they use, rather than by changing markup in the documents.

The CSS specification describes a priority scheme to determine which style rules apply if more than one rule matches against a particular element. In this so-called *cascade*, priorities (or *weights*) are calculated and assigned to rules, so that the results are predictable.

Prior to the training, I had no knowledge about CSS. Learning about it was an eye opener. The ability to create HTML pages which actually looked half decent was a lot more motivating than one would expect. Although as the back end developed of the web application, I had very limited involvement with the CSS files involved in the project, I did contribute a bit to them. I

never thought that becoming a front end designer was a desired career path for me, but tinkering around with CSS was making me rethink that particular decision if only a little bit.

3. JavaScript

JavaScript is a high-level, dynamic, untyped, and interpreted programming language. It has been standardized in the ECMAScript language specification. Alongside HTML and CSS, JavaScript is one of the three core technologies of World Wide Web content production; the majority of websites employ it, and all modern Web browsers support it without the need for plug-ins. JavaScript is prototype-based with first-class functions, making it a multi-paradigm language, supporting object-oriented, imperative, and functional programming styles. It has an API for working with text, arrays, dates and regular expressions, but does not include any I/O, such as networking, storage, or graphics facilities, relying for these upon the host environment in which it is embedded.

Although there are strong outward similarities between JavaScript and Java, including language name, syntax, and respective standard libraries, the two are distinct languages and differ greatly in their design. JavaScript was influenced by programming languages such as Self and Scheme.

JavaScript is also used in environments that are not Web-based, such as PDF documents, site-specific browsers, and desktop widgets. Newer and faster JavaScript virtual machines (VMs) and platforms built upon them have also increased the popularity of JavaScript for server-side Web applications. On the client side, developers have traditionally implemented JavaScript as an interpreted language, but more recent browsers perform just-in-time compilation. Programmers also use JavaScript in video-game development, in crafting desktop and mobile applications, and in server-side network programming with run-time environments such as Node.js.

As a programmer, I love to play around with new programming language which have a simple syntax yet a lot of flexibility. JavaScript was a joy to use. This language allows you to do so much with so little, and it has so many features which are so simplistic and clean that it is a programmer’s dream come true. It works like a charm with HTML using its Document Object Model (DOM) and makes adding dynamic properties to a static page so convenient. The use of JavaScript in the project was very minimal though due to the power of Java Servlets.

4. SQL SERVER

Microsoft SQL Server is a relational database management system developed by Microsoft. As a database server, it is a software product with the primary function of storing and retrieving data as requested by other software applications—which may run either on the same computer or on another computer across a network (including the Internet).

Microsoft markets at least a dozen different editions of Microsoft SQL Server, aimed at different audiences and for workloads ranging from small single-machine applications to large Internet-facing applications with many concurrent users.

Data storage is a database, which is a collection of tables with typed columns. SQL Server supports different data types, including primary types such as *Integer*, *Float*, *Decimal*, *Char* (including character strings), *Varchar* (variable length character strings), binary (for unstructured blobs of data), *Text* (for textual data) among others. The rounding of floats to integers uses either Symmetric Arithmetic Rounding or Symmetric Round Down (*fix*) depending on arguments: `SELECT Round(2.5, 0)` gives 3.

Microsoft SQL Server also allows user-defined composite types (UDTs) to be defined and used. It also makes server statistics available as virtual tables and views (called Dynamic Management Views or DMVs). In addition to tables, a database can also contain other objects including views, stored procedures, indexes and constraints, along with a transaction log. A SQL Server database can contain a maximum of 2^{31} objects, and can span multiple OS-level files with a maximum file size of 2^{60} bytes (1 exabyte). The data in the database are stored in primary data files with an extension `.mdf`. Secondary data files, identified with a `.ndf` extension, are used to allow the data of a single database to be spread across more than one file, and optionally across more than one file system. Log files are identified with the `.ldf` extension.

It helped me in setting up the backed and frontend connection in a single module in Visual basic.

The experience I gained on using this software will prove very useful when I work on future web application development projects.

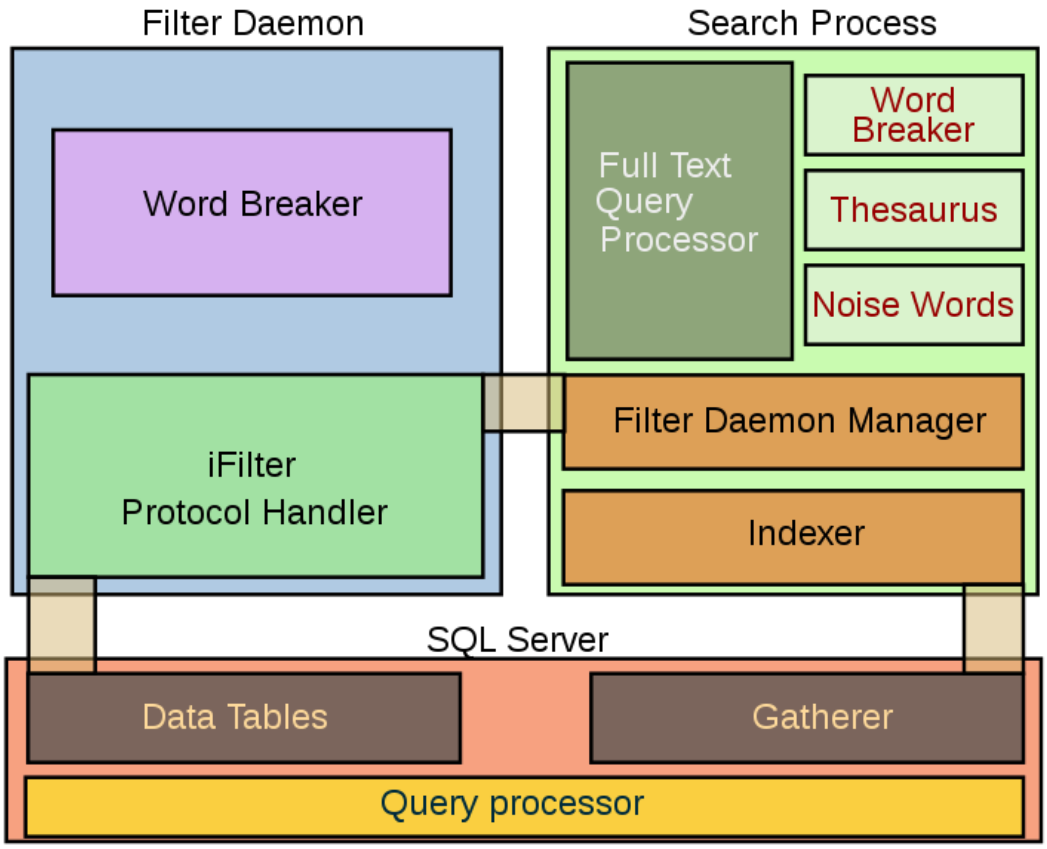

Fig 1 – The SQL Server Full Text Search service architecture

5. ASP.NET

ASP.NET is an open-source[I] server side web application framework designed for web development to produce dynamic web pages. It was developed by Microsoft to allow programmers to build dynamic web sites, web applications and web services.

It was first released in January 2002 with version 1.0 of the .NET Framework, and is the successor to Microsoft's Active Server Pages (ASP) technology. ASP.NET is built on the Common Language Runtime (CLR), allowing programmers to write ASP.NET code using

any supported .NET language. The ASP.NET SOAP extension framework allows ASP.NET components to process SOAP messages.

ASP.NET Web pages, known officially as Web Forms, are the main building blocks for application development in ASP.NET. There are two basic methodologies for Web Forms, a web application format and a web site format. Web applications need to be compiled before deployment, while web sites structures allows the user to copy the files directly to the server without prior compilation. Web forms are contained in files with a ".aspx" extension; these files typically contain static (X)HTML markup or component markup. The component markup can include server-side Web Controls and User Controls that have been defined in the framework or the web page. For example, a textbox component can be defined on a page as `<asp:textbox id='myid' runat='server'>`, which is rendered into a html input box. Additionally, dynamic code, which runs on the server, can be placed in a page within a block `<% -- dynamic code -- %>`, which is similar to other Web development technologies such as PHP, JSP, and ASP. With ASP.NET Framework 2.0, Microsoft introduced a new *code-behind* model that lets static text remain on the .aspx page, while dynamic code remains in an .aspx.vb or .aspx.cs or .aspx.fs file (depending on the programming language used).

6. BOOTSTRAP

Bootstrap is modular and consists of a series of Less stylesheets that implement the various components of the toolkit. These stylesheets are generally compiled into a bundle and included in web pages, but individual components can be included or removed. Bootstrap provides a number of configuration variables that control things such as color and padding of various components.

Since Bootstrap 2, the Bootstrap documentation has included a customization wizard which generates a customized version of Bootstrap based on the requested components and various settings.

As of Bootstrap 4, Sass is used instead of Less for the stylesheets.

Each Bootstrap component consists of an HTML structure, CSS declarations, and in some cases accompanying JavaScript code.

Grid system and responsive design comes standard with an 1170 pixel wide grid layout. Alternatively, the developer can use a variable-width layout. For both cases, the toolkit has

four variations to make use of different resolutions and types of devices: mobile phones, portrait and landscape, tablets and PCs with low and high resolution. Each variation adjusts the width of the columns.

This helped me in making the website more interactive and attractive.

7. MySQL

MySQL (officially pronounced as "My S-Q-L") is an open-source relational database management system (RDBMS). Its name is a combination of "My", the name of co-founder Michael Widenius' daughter, and "SQL", the abbreviation for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation. For proprietary use, several paid editions are available, and offer additional functionality.

MySQL is a central component of the LAMP open-source web application software stack (and other "AMP" stacks). LAMP is an acronym for "Linux, Apache, MySQL, Perl/PHP/Python". Applications that use the MySQL database include: TYPO3, MODx, Joomla, WordPress, phpBB, MyBB, and Drupal. MySQL is also used in many high-profile, large-scale websites, including Google (though not for searches), Facebook, Twitter, Flickr, and YouTube.

I found it more convenient/easy to use as compared to oracle, especially due to the Workbench application available with the software.

PROPOSED MODEL

All theses tools helped me in making the online fruit and vegetable shopping website. The following describes the web portal that was made.

Online Fruits And Vegetable shopping portal will be a web-based software system written in JavaScript ,HTML,php using Adobe Dreamweaver. It will help the customers and sellers to manage their fruits and vegetables with regard to simplifying and speeding up the process of selection, ordering and purchasing items for customers as well as managing a database of users and a database of products for he owners through a conveniently designed Graphical User Interface which will utilize a user-friendly intuitive design approach.

The portal will be an e-commerce software system which will be designed to automate the selling of fruits and vegetables. The main function of the website will be to aid hassle free selling of fruits and vegetables online. The system will be therefore designed to allow a user to perform the following functions:

- log on as a customer
- browse through the database of available products
- register
- add a product to a shopping cart
- provide a credit card information
- select a shipping method
- select the next screen to view

Data Model and Description

This website encompasses two major informational domains: Customer data and warehouse or inventory data.

Data Description

Customer - a user who can use the software system in a book store to purchase books;

Administrator - the storeowner or a manager with authority to update a database of users and products.
Product – fruits and vegetables,storing the information about the products sold in the store.

Inventory – dynamic information related to the product
Shopping cart – placeholder to store customer selections.
Order - Itemized summary of products being purchased by customer.

Billing – billing and shipping information.

Data objects

Customer – user name, email, password, address
Administrator – user name, password
Product –name, id, description, price

Inventory – product ID, price, qty in stock
Shopping cart – product ID, qty
Order – product ID, qty, price,
Billing – billing name, billing address, phone number, credit card number, expiration date, shipping name, shipping address, shipping method.

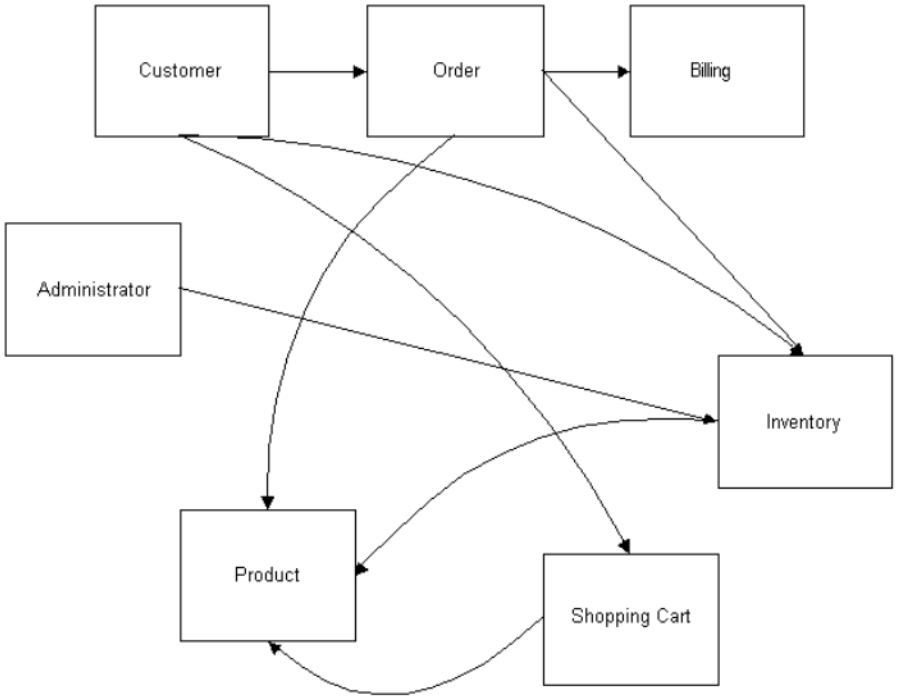

Figure 2: Relationships between the entities

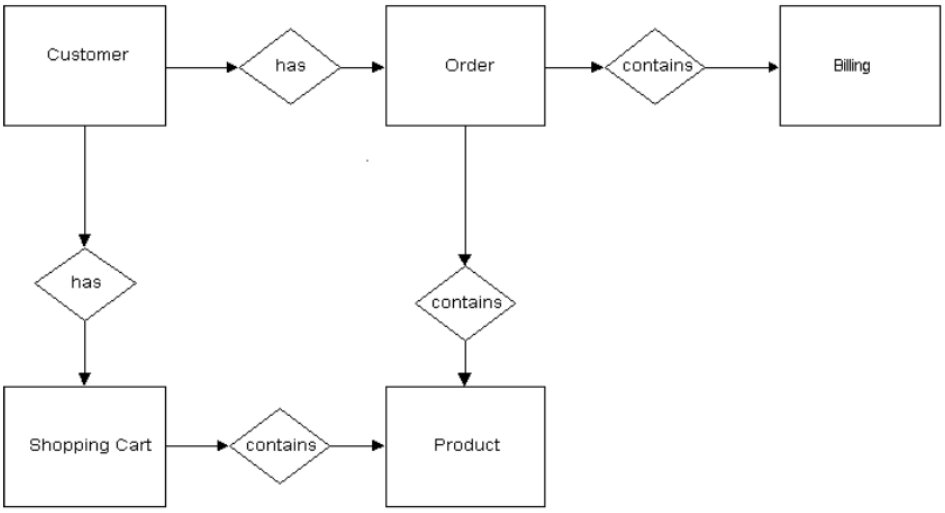

Figure 3: Data Model

RESULT/SCREENSHOTS OF PROJECT

This training basically made a decent web developer out of me. The following are pages designed by me–

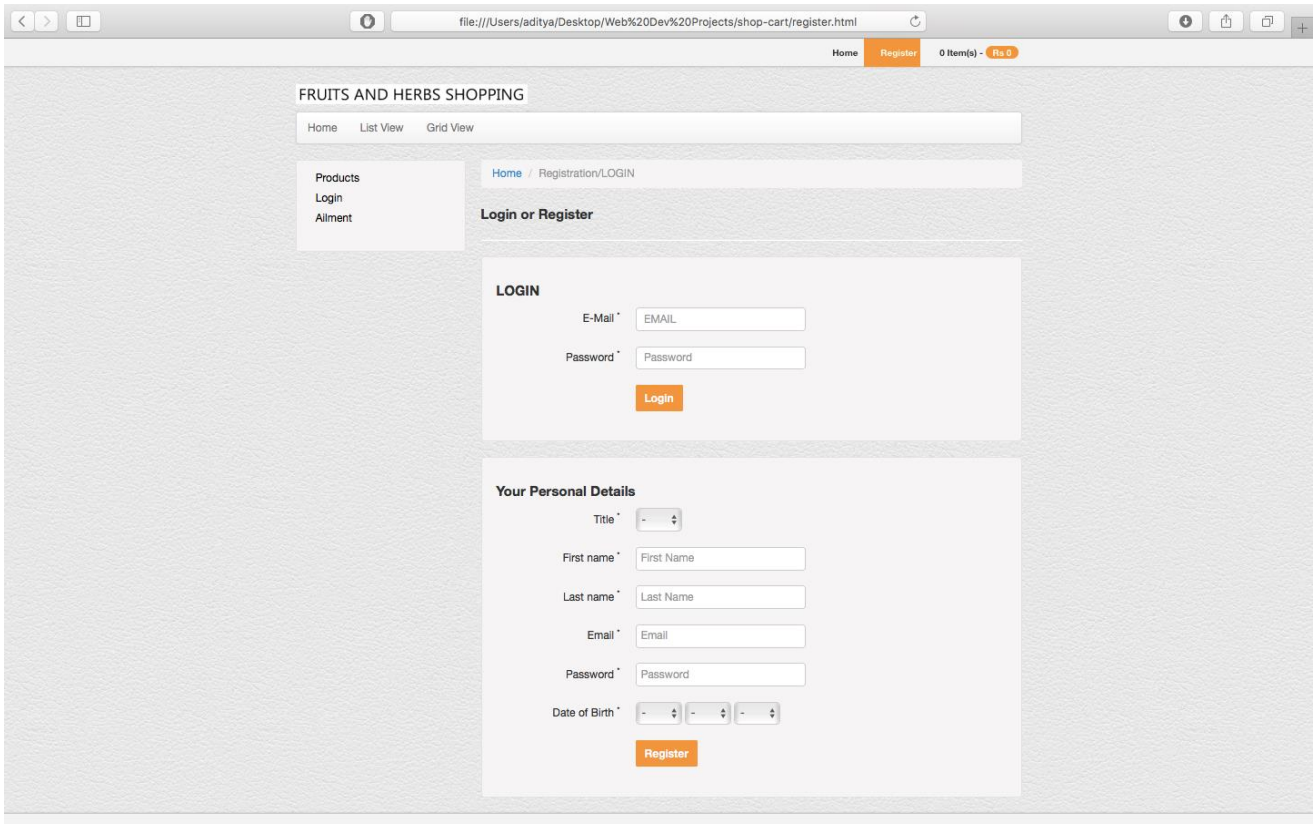

Figure 4- Login Page

Login form with two labels, two text box and one login page.

Textbox1 used for Customer E-mail Id.

Textbbox2 used for customer password which is verified from the sql database.

Once verified then proceed to the products page otherwise login failed.

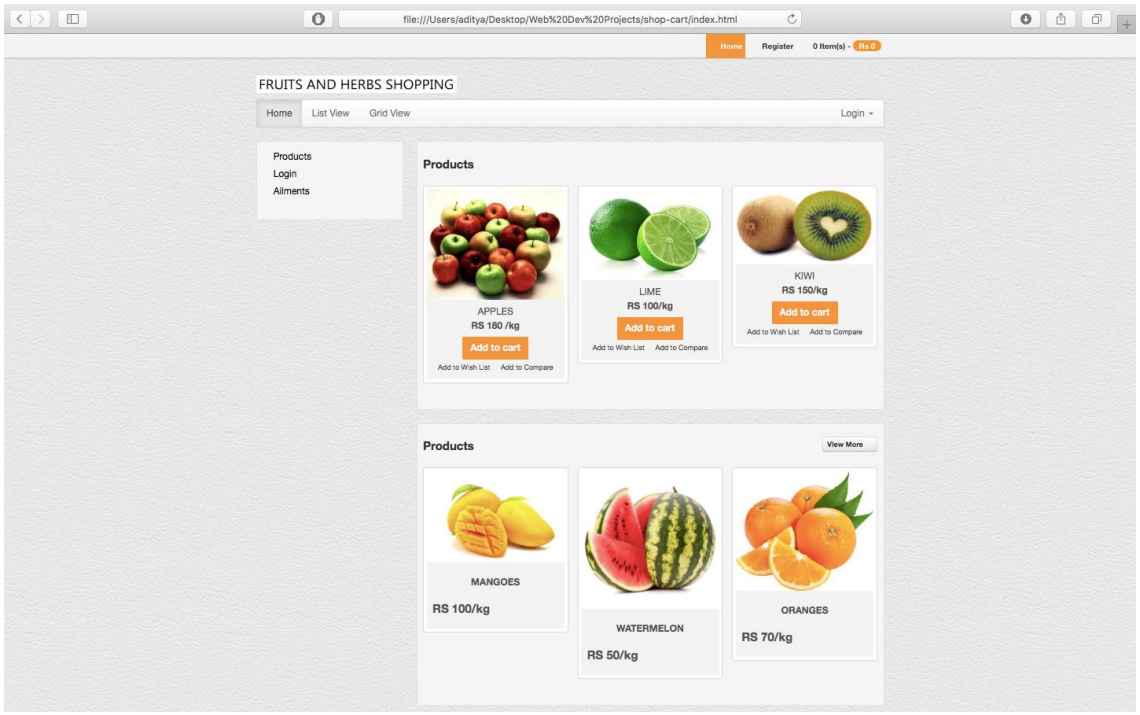

Figure 5-Products Page(Catalogue)

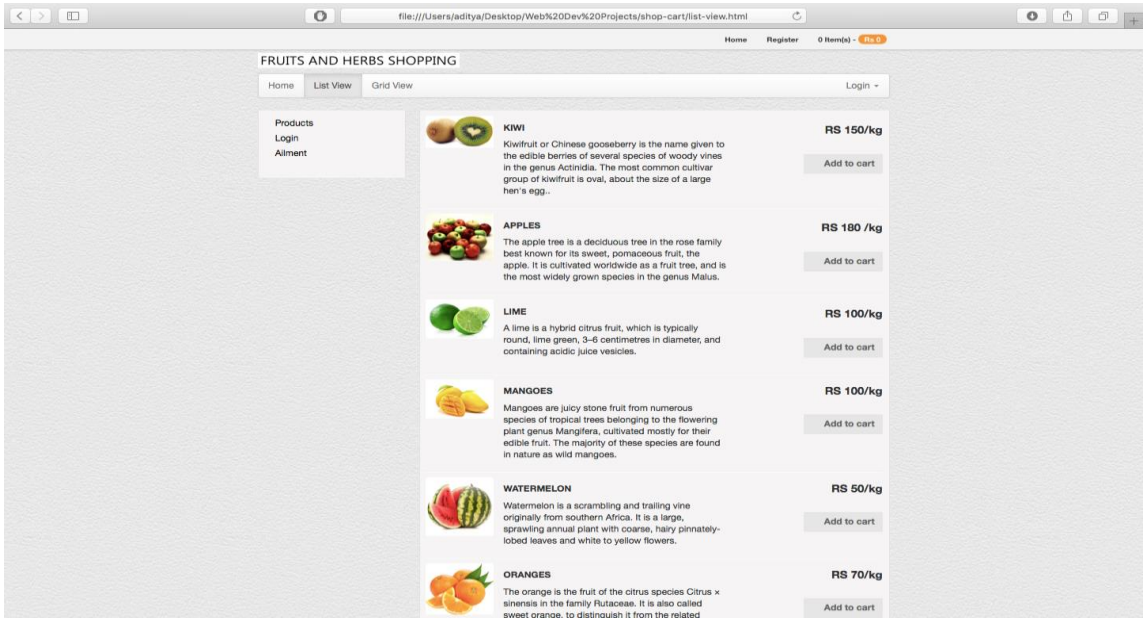

Figure 6-Products page(list View)

The Products page lets the customers choose from various items which are updated daily according to the stock.

The items can be viewed in the list view also.

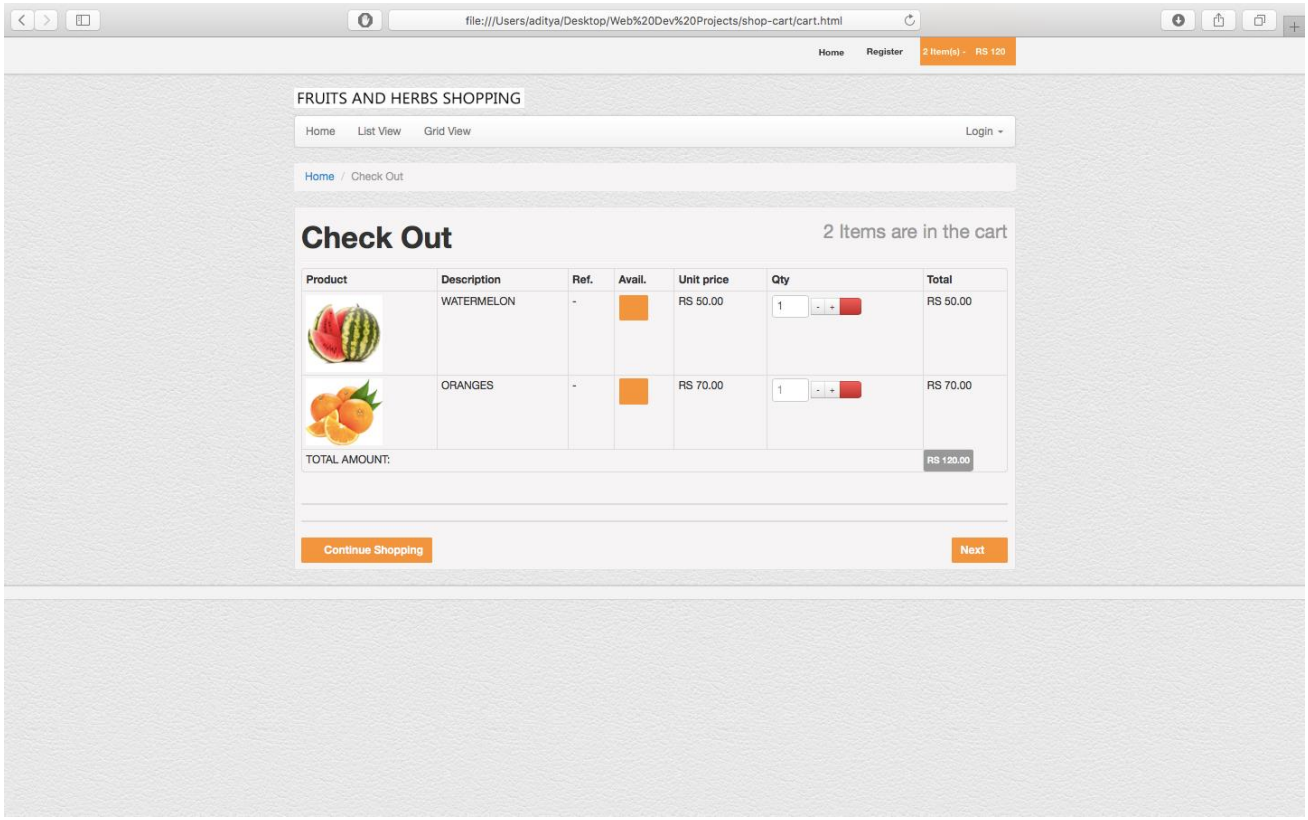

Figure 6- Checkout Page

After selecting the products from the catalogue page the customers can add the items to cart and either buy them now or can buy them later. The users can also increase the quantity according to needs.

CONCLUSION

The internship provided a special and much needed opportunity to me. I have always been interested in web development, and have known that I want to be a front end Web developer from a very young age. However, owing to the lack of enthusiasm faced by the industry in the country, I was sceptical of the opportunities open to me. Then, I got selected for the internship, which changed my outlook of the field.

The team at TCS were extremely polite, helpful, and cordial. Even though the team of us interns had a tough time sticking to deadlines, the team were supportive and encouraged us throughout. The first project made me realise several things before it even began. I learned the importance of knowing the matter before delving into the application. This happened to me, as I started Dreamweaver a little later than I should have, However, I invested that much more time to make up for the lost time. This made me realise the importance of organising the plan of action and creating a blueprint for the same. Further, I realised that resource gathering is as important as the actual level creation.

I always thought that resource gathering would not require much time. The assumption was true; however the assets procured through these means are generally subpar. Upon proper scouting of assets, it became apparent that resource gathering itself accounts for about twenty percent of the entire project's development time.

I also learnt the importance of scripting and the hardships which come as a part and parcel of the coding which is to be done within each script. Upon encountering the various bugs in the scripts created by the team, the importance of testing also became lucid.

Apart from getting practical experience of the industrial environment and how the organizations work I acquired various new skills such as CSS, JavaScript and HTML, SQL Server and Asp.Net. Theses news skills acquired can be applied to make websites responsive, single page application, and gives neat common code for different platforms respectively. The assignment given to me such as creating the customer support system to help customers made me realize the power of the web applications i.e. how the web applications can be deployed for making things easier for both client and server. This not only saves time but also makes system efficient. On a scale of 1-10 with 10 being excellent I put myself at 8 as I created the pages with full of my effort and approached every task systematically from the beginning. I believe

I successfully created the pages as single page applications without compromising with the speed and have used the suitable coding language according to the problem statement. Thus, the training has given me a great experience, by strengthening my understanding of the basics of web development while giving me the opportunity to see the concepts in action in the form of applications and broadened my technical knowledge by introducing new concepts.
Designing the levels and completing projects for the TCS team made me recognise some of the abilities I had not known till know. I found out that I am a fairly successful information gatherer, as I have a knack of extracting essential information and discarding the rest. This helped me in grasping the concepts and adapt to the interface of the software used during the internship quicker than usual.

The deadlines kept by our superiors always seemed unrealistic to us. Personally, this made me question our basic understanding of the projects. Though we did deliver the projects, the fact that we overshot the deadline each time serves as a reminder that, even though we all did our best, there is no other way than to work hard if we are to achieve the objectives set forth by the TCS team. I am thankful that the team understood that we are college students and did not take stringent measures, though I have realised the areas in which I need to improve in order to be confident enough to call myself a Web Developer.