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Food Order Web Application Using React.

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Abstract

Human-computer interaction (HCI) is a field of study focusing on the design of computer technology, in particular, the interaction between humans (the users) and computers. This project describes the development of a web application (React) for customers to make their purchases online. The purpose of the project is to use interaction design and usability goals to create an application for food lovers.

The aim is to study how react can be used to produce a finished product. To build the product, interaction design should be able to have well function app. Interaction Design principles is used to have a great user experience. Usability was done to meet user's needs.

This system will allow hotels and restaurants to ease users' time during the food ordering process. Users were able to test the app and their suggestions and feedback. In conclusion, using react for the application was a good choice and through interaction design the application was able to do its tasks successfully. Evaluating the usability of the app, more than average of the users were pleased and able to use the web application at ease. The application can be further developed in the future to improve the user experience and more functions can be added to satisfy customer's needs. Implementation of backend will be also a plus for the App in the future.

Keywords: JavaScript, React, Human-Computer Interaction, HTML.

Sammanfattning

Människan-datorinteraktion (HCI) är ett studieområde som fokuserar på design av datorteknik, särskilt interaktionen mellan människor (användarna) och datorer. Detta projekt beskriver utveckling av en webbapplikation (React) för kunder att göra sina onlineköp. Syftet med projektet är att använda interaktionsdesign och användbarhetsmål för att skapa en applikation för konsumenter.

Målet var att studera hur react användas för att ta fram en en färdig produkt.För att bygga produkten bör interationsdesign kunna ha en välfungerade app. Interationdesign används för att skapa en bra användarupplevelsen.Annvändbarhet gjordes för att möta andvändarens behov.

Detta system kommer att tillåta hotell och restauranger att underlätta användarnas tid under mat beställningsprocessen. Användare kunde testa appen och lämna deras förslag och feedback. Avslutningsvis, att använda react för applikationen var ett bra val och genom interaktionsdesign kunde applikationen utföra sina uppgifter framgångsrikt. När man utvärderade appens användbarhet, var fler än genomsnittet av användarna nöjda och kunde använda webbapplikationen utan svårighet. Applikationen kan vidareutvecklas i framtiden för att förbättra användarupplevelsen och fler funktioner kan tilläggas för att uppfylla kundens behov. Implementering av backend (servrar och databaser som är inte synliga för användarna) kommer också att vara ett plus för Appen i framtiden.

Nyckelord: JavaScript, React, Människan-datorinteraktion, HTML.

Acknowledgements / Foreword

I would like to thank my supervisor Roger Olsson for all his feedback and support. The motivation for designing this application came because my family is involved in the fast-food business, and I personally do not like waiting for long in the store or to have to call the store to place an order especially during the peak lunch or dinner hours. Moreover, I value recent learning about React and JavaScript language as well as seeing how powerful and dynamic they are when it comes to web designing and applications. The languages used to build this application are JavaScript, HTML, React for the frontend side.

1 Introduction

It is known globally that, in today's market, it is extremely difficult to start a new small-scale business and live-through the competition from the well-established and settled owners. In the fast-paced time of today, when everyone is squeezed for time, most people are finicky when it comes to placing a food order. The customers of today are not only attracted because placing an order online is very convenient but also because they have visibility into the items offered, price and extremely simplified navigation for the order.

Online ordering system that I am proposing here greatly simplifies the ordering process for both the customer and the restaurant. System presents an interactive and up-to-date menu with all available options in an easy-to-use manner. Customers can choose one or more items to place an order which will land in the Cart. Customers can view all the order details in the cart before checking out. At the end, the customer gets order confirmation details. This allows Restaurant Employees to quickly go through the orders as they are received and process all orders efficiently and effectively with minimal delays and confusion.

1.1 Background and problem motivation

Frameworks have become an essential part of web development, as the standards of web applications are always rising, so does the complexity of the technology need. It's completely unreasonable to reinvent the wheel for such sophisticated techniques -assuming that you can reinvent all that. That's why using frameworks endorsed by thousands of developers around the world is a very sensible approach for building rich and interactive web applications.[1] Some frameworks include vuejs, angular, jQuery and many more.[2]

Nowadays the most used framework is react.React.js is an open-source JavaScript library that is used for building user interfaces It's used for handling the view layer for web and mobile APPs [3]. React is used in development of single -page web application or mobile applications, as it is optimal for fetching rapidly changing data that needs to be recorded. React virtual Dom (Document Object Model) makes the Dom-manipulation much faster, and it's quite easy to pick up, mainly thanks to its JSX syntax. React could be used server-side or client-side [4].

1.2 Overall aim

The purpose of the project is to use interaction design to build an application using JavaScript library in programming namely react. The project is aimed at developing an interactive and user-friendly application whereby the customers can place orders and the orders are delivered with ease at their specified location.

The purpose of this project is to build an application using JavaScript library. The application is a website for orders foods. When the application is built, it will evaluate that focuses on usability goals, effectiveness and efficiency.

1.3 Concrete and verifiable goals

Reacts is to be designed therefore with simplicity in mind having all necessary features while discarding the unnecessary ones for better user experience.

- Describe how react can be used for web applications such as food ordering.
- Develop a food ordering application using react that take into consideration interaction design principles.
- Evaluate the developed application in terms of usability

1.4 Scope

This project focuses on react as a front-end framework with interest in human computer design. Then it looks at how to evaluate a react application using usability goals and design principles. Future work will also be included in this project.

1.5 Outline

Chapter 2 discusses the theory of this project. Chapter 3 describes the method used in collecting data for the project whiles chapter 4 talk about the web application implementation, sketches, information architecture and many more. In chapter 5 evaluation is done based on effectiveness and efficiency. Chapter six talks about the conclusion of the project, and finale chapter is about the future work.

1.6 Contributions

The project was done by me and spent most of the time learning about framework and how to implement it. An application was later evaluation depended on some human computer interaction points. React is a fast-growing web development tool that can be used to develop complex applications with interaction design in mind.

2 Theory / Related work

2.1 React

React is a library for helping developers build user interfaces (UIs) as a tree of small pieces called components. A Component is a mixture of HTML and JavaScript that captures all the logic required to display a small section of a larger UI. Each of these components can be built up into successively complex parts of an app. [5]

Specific functionality in React that is so suitable to access for this web application.

- React makes it easier to create dynamic web applications because it requires less coding and offers more functionality, as opposed to JavaScript, where coding often gets complex very quickly.
- React uses Virtual DOM, thereby creating web applications faster. Virtual DOM compares the components' previous states and updates only the items in the Real DOM that were changed, instead of updating all the components again, as conventional web applications do.
- React is easy to learn, as it mostly combines basic HTML and JavaScript concepts with some beneficial additions.
- Components are the building blocks of any React application, and a single app usually consists of multiple components. These components can be used lots of times in a react application. [6]
- React Developer Tools are extension for Chrome which is created by Facebook. This can be used to debug react applications faster and easier.

Some notable features for reacts are:

- Declarative – It adheres to declarative programing paradigm. It makes it program easier to read and avoid lower-level detail. Code written are easier to reason about because it is much abstracted and we describe the solution instead of procedure.[7]
- Components - are independent and reusable bits of code. They serve the same purpose as JavaScript functions, but work in isolation and return HTML.

Components come in two types, Class components and Function components

- Functional Components - A Function component also returns HTML, and behaves much the same way as a Class component, but Function components can be written using much less code, are easier to understand
- Class based Components - A class component must include the extends React.Component statement. This statement creates an inheritance to React.Component, and gives your component access to React. Component's functions. The components also require a requires a render ( ) method. This method returns HTML.
- Virtual DOM - Instead of manipulating the browser's DOM directly, react creates a virtual DOM in memory, where it does all the necessary manipulating, before making the changes in the browser DOM.
- Lifecycle methods - Each component in React has a lifecycle which you can monitor and manipulate during its three main phases. These phases are Mounting, Updating and Unmounting.
  - Mounting means putting elements into the DOM.
  - A component is updated whenever there is a change in the component`s state or props.
  - Unmounting is when a component is removed from the Dom.
- JSX – JSX stands for JavaScript XML. JSX allows us to write HTML in React. JSX makes it easier to write and add HTML in React.
- React Hooks - Hooks allow function components to have access to state and other React features. Because of this, class components are generally no longer needed.[8]
- Architecture beyond HTML – The basic architecture of React applies beyond rendering HTML in the browser. For example, Facebook has dynamic charts that render to `<canvas>` tags,[14] and Netflix and PayPal use universal loading to render identical HTML on both the server and client.[9]

Material-UI, the React component library based on Google Material Design, allows for faster and easier stylized web development. With basic React framework familiarity, you can build a deliciously material app with Material-UI.[10]

2.2 User Experience

The user experience refers to how a product behaves and is used by people in the real world. It is about how people feel about the product, their pleasure and satisfaction when using it. There are many aspects of the user experience that can be considered and many ways of taking them into account when designing interactive products. These are usability, functionality, aesthetics, content, look and feel. [11] The usability of a product or service determines whether you can complete a task or achieve your objectives with it. If you want people to use it frequently, it ought to be simple to use. If consumers have to spend a significant amount of time just to comprehend the system, they are likely to abandon your program. Functionality refers to whether a design works and helps the users meet their goals and needs. When a design is highly functional, it accomplishes the task at hand and does so successfully.

Human-computer interaction, information architecture, Effectiveness, Efficiency are important parts of interactivity design and design principles that are used to decide how the application should be developed. The finished application will be evaluated on the overall design of the site, the notable features react have and been used in the developed application.

2.3 Interaction Design

Designing interactive products to support the way people communicate and interact in their everyday and working lives. It is also about creating user experiences that enhance and augment the way people work, communicate and interact. Terms involved in design are interface design, software design, product design, web design, user experience design and interactive system design. Interaction design is generally used to describe the field, including its method, theories and approaches. In Figure 1 shows how interaction design collaborate with other fields to produce products.

Designers need to know many different things about users, technologies and the interactions among them to be able to create an effective user experience. They need to understand how people act and react to events and how they communicate and interact with each other. Interaction is carried out by teams, where the skill sets of engineers, designers, artists, marketing people and many are drawn upon [12]. Some interaction design principles are:

- **UX**: Match user experience and expectations
- **Learnability**: Make user interactions easy to learn and remember
- **User control**: Allow the user to control, trust, and explore
- **Consistent design**: Maintain consistency throughout the application

- **Affordability**: Simulate actions by taking inspiration from usual and physical world interactions.
- **Engagement**: Design interactively such that it keeps the user engaged.[13]

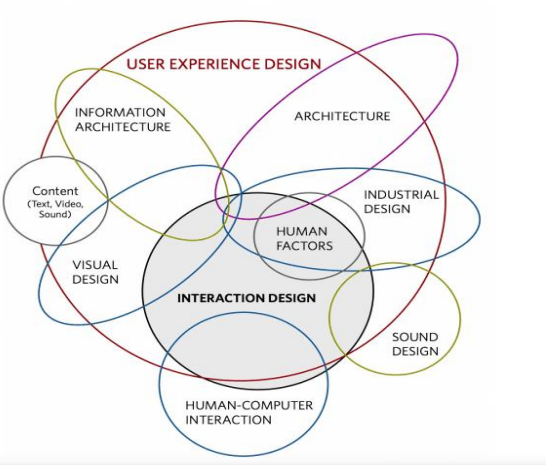

Figure 1: Overlapping Fields of UX and interaction design

2.3.1 Human-computer interaction (HCI)

Human-Computer Interaction (HCI) is a field of science that studies the design and use of computer technology. HCI focuses on interfaces between people and computers and how to design, evaluate, and implement interactive computer systems that satisfy the user. Humans interact with computers in many different ways which means that having a good interface that facilitates that interaction is crucial for our day-to-day activities. Poorly designed human-machine interfaces can lead to many unexpected problems. At the start of the design project, the attention has to be set on the users and the tasks they will be performing and who those users will be. Does the user require some kind of expertise in some area? How often that specific task will be performed? Does the interface use non-standard layouts and/or icons? These are the sort of questions we need to answer before implementing the interface itself. After that work is done and we know what we want to accomplish with our interface, we can start implementing a prototype of the interface and test it with real users as soon as possible. We should never start the implementation before testing with real users since they will be the ones using the interface and we don’t want to spend time designing and implementing an interface with no practical use.

Testing with the users helps to understand what is working and modify what is not in the prototype.

After we achieve what we think is a good result with the prototype, we can finally start implementing the interface. It's important to note that we should keep using the same interactive design model where we implement, test, and if needed, modify the interface.[14]

2.3.2 Information Architecture

Information architecture is the logical expression of the physical data locations, applications and services that are mapped to and underpin common business processes within an organization. Information architecture helps users understand where they are, what they've found, what to expect, and what's in the area. [15]

2.3.3 Usability Goals

It refers how to useful and easy it is to use a product or system. When we design a product, we consider usability goals in order to ensure that the product delivers the expected solution to the identified problem [16]. These usability goals are:

- Effectiveness
- Efficiency
- Easy to learn
- Safety
- Good utility
- Memorability

Effectiveness and Efficiency are the selected goals for the web application, and they will be further look at and explained in the next chapter (Methodology).

2.4 Client -side web (front-end)

In web development, the client side refers to everything in a web application that is displayed. It takes place on the client. This includes what the user sees, such as text, images, videos, and the rest of UIs, along with any actions that an application performs within the user's browser.

HTML, CSS and JavaScript are interested in the browser on the client side. In addition, many developers are including client-side processes in their application architecture and moving away from doing everything on the server side usually runs client side in a modern web application. client-side processes are almost always written in JavaScript.

The client side is also known as frontend, although these two terms do not mean the same thing. Client-side refers solely to the location where processes run while frontend refers to the kinds of the process that run the client-side.[17]

2.5 Visual Studio

Visual Studio Code is a lightweight but powerful source code editor which runs on your desktop and is available for Windows, macOS and Linux. It comes with built-in support for JavaScript, TypeScript and Node.js and has a rich ecosystem of extensions for other languages (such as C++, C#, Java, Python, PHP, Go) and runtimes (such as .NET and Unity).[18]

2.6 Graphic User Interface

A GUI (graphical user interface) is a system of interactive visual components for computer software. A GUI displays objects that convey information, and represent actions that can be taken by the user. The objects change color, size, or visibility when the user interacts with them.

GUI objects include icons, cursors, and buttons. These graphical elements are sometimes enhanced with sounds, or visual effects like transparency and drop shadows.

A GUI is considered to be more user-friendly than a text-based command-line interface, such as the shell of Unix-like operating systems.

The GUI was first developed at Xerox PARC by Alan Kay, Douglas Engelbart, and a group of other researchers in 1981. Later, Apple introduced the Lisa computer with a GUI on January 19, 1983.[19]

3 Methodology

This part describes the process by which the project was carried out and how the evaluation on the web application was done with help of human computer interaction.

The method used in collecting data is the Qualitative method. This is carried out by using primary data, that is collecting data through interviews, from number of people from all works of life.

The collected data gives a clearly foundation on how the web application will look like and how it should be built. As the one of the aims of the work is to develop a food ordering application using react, it is important to collect data from people help to understand and solve problems concerning the application. The numbers of people we interviewed and talked about the idea s and suggestions for Website. During the interview suggestions and ideas were shared to be able to come up with a sketch of the site. They were all sketch on a paper to come up with the finale design for the web application. Secondary data was gathered from book to develop the theoretical side.

3.1 Data collection

In order have a better insight to build a functioning application, semi-structured interviews were conducted with 6 people who like to order foods online. The selected were people like to order foods online using different platforms. Interviews were carried in persons with each person and it lasted approximately 10 minutes each. Answers were recorded by taken notes and writings to be looked at later. The reasons for the interview were people give suggestions, ideas and personal opinions which are important for building the application. Secondary data was done by reading textbooks to gain some knowledge when it comes design principles.

Evaluation is integral to the design process; it involves collecting and analyzing data about users when interacting with the product. The aim is to improve the products to a better standard for users. Evaluation enables them to check that their design is appropriate and acceptable for the target user population. During evaluating, that is where we try to find problems and try to solve them instead of debating of it.

3.2 Usability and Testing.

The main purpose of usability testing is to make sure the product does what is supposed to do. Testing was done in person so that they will be more effective in gaining trust and cooperation from the users. Users try to use the product to carry out a task and see if it is usable or not. It is also easier to observe how users interacts with the application. People try the prototype and recordings are gathered from them using the products. Such recordings are the number of times

a user clicked the button, was the user able to navigate through the application without any difficulty and many more.

3.3 Effectiveness and Efficiency.

3.3.1 Effectiveness

It refers to how well the system performs. “Can users use the system to do the work they need to do?” [20]. This effectiveness matters because it makes sure the system or product does the task for which it was designed or made.

Under effectiveness these were carried out the food Order application

- Number of Clicks

The system was evaluated based on the number of clicks a user/admin/employee needs to click to achieve a required goal (Order food/ check food ordered). A user only needed to click on the selected food item on the menu, then proceed to check out by filling the name and delivery details and a final completion of the checkout confirmation.

- Number of users completing a task successfully

Once the site has loaded, a user is only needed to make 3 clicks. The first click is to have the user select the “Menu” page, after which he/she will select the meal/food he needs will be the second click. Finally, the user will be prompted to confirm and complete the order by placing the ordered item in the Cart section.

All this was successfully done by the users we had in the test cases used.

- Time to complete a task after a specific time away from the product

The time a user is allowed to complete an order placement is unlimited as long as the web browser is not closed unlike some systems which allows users only about 300 seconds. If a user does not make it through the checkout process, he is not logged off the system and can proceed the checkout process at his time of convenience.

However, a majority of users took an average of two minutes to complete the checkout procedure.

- Time to complet a task

The system effectiveness was also evaluated based on the amount of time taken/spent by the user (admin/user/employee) to achieve a task. It took users an average of about two minutes all from the start of the food selection process in the menu all the way through the checkout process which is quite faster compared to locally available systems.

- Is the website easy to use?

The system proved to be easy to use and navigate through the tabs.

Other subsequent evaluations including the page loading time, the site reliability and the loading time proved how effective the site was as well.

3.3.2 Efficiency

Efficiency refers how fast a user can perform tasks once she has learned to use a system. Some users who don't need to learn to use a system fully, but are satisfied when they have learned its basic functionality [21]. The site's efficiency was evaluated based on tasks for how accurately they were completed and how often they produce errors.

- Number and type of errors per Task

Some errors found in the system was a runtime error where the system takes the users input and tries to capitalize for instance the first letter of a food ordered and breaks if the form was sent without.

Another error was noted was a resource error where the given computer could not allocate enough resources that the system needed to execute its tasks.

However, in ideal cases where the site was run on the required environment, no errors sparked and the site's efficiency proved to be true.

- Number of errors per unit of time

Errors only sparked on rare occasions which only occurred due to a user's inability to complete a check out if he accidentally closes the web browser while still placing an order as all the food orders placed in the cart would be lost.

In cases where the user completes the order without closing the tab, the system loads and processes the order successfully.

- Number of users making a particular error

A couple of users experienced interface errors due to fluctuation in screen sizes especially in cases where the system needed a larger screen orientation for better display of products despite it being compatible with several screen orientations.

- Number of navigations to online help or manuals

The system offers easy navigation procedures in every stage during the ordering process.

4 Design / Implementation

In this capital, the implementation the application is further explained into details. As said in previous capital, react is chosen because of lots reason sone being its reusable components and it growing the web development community.

When it comes to design, the main purpose of design in the application, is to make it simple and easy for users to able to understand navigate through the application without any problem. In this aspect the we focus more on the usability testing (efficiency, effectiveness).

Planning is the first to take place before building the web application, from the beginning images, heading and paragraphs, colors are thing we need to know in other to build the site. Through interviews we get to answer these following questions, these questions are

- What will the website look like?
- What does the site do?
- What do I need in my website?
- What information does my site offer?
- What colors and font should be used for the site?

After interviewing, discussing and answering these questions, I start designing the website from the simple to complex.

4.1 Sketching out designs

Four sketches we made, and the final sketch was the one being picked from the lots.

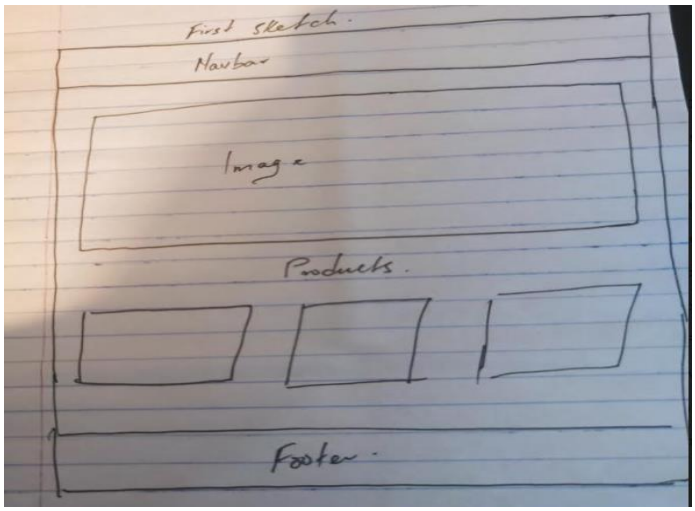

Figure 2: First sketch of the website

This is the design from the beginning, Navbar on top and body get image and below image there the others follow and then comes the footer, this is the shown in Figure 2.

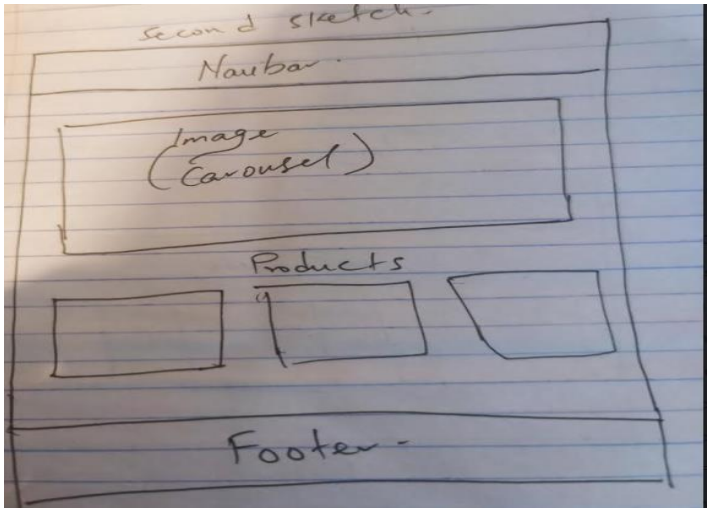

Figure 3: Second sketch

Figure 3 present the sketch which was drawn after the user wanted to have a carousel in the website. The image carousel will be in the body of the application, and it will have 5 to 6 images.

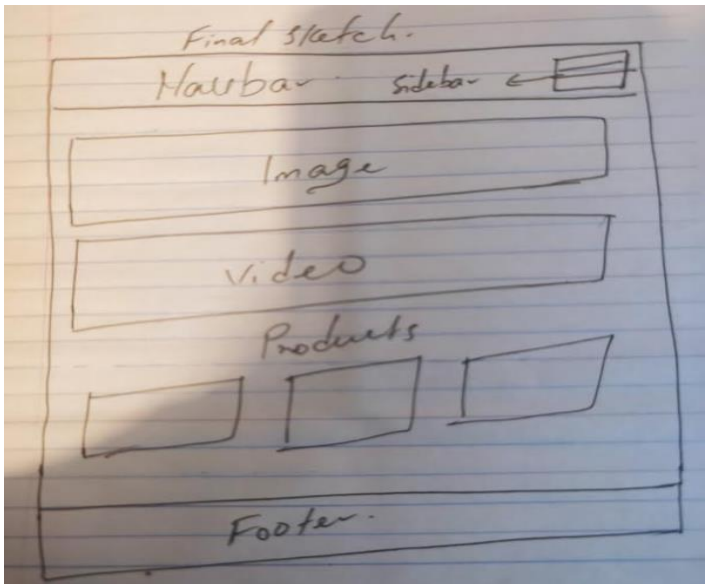

Figure 4: Final sketch

Figure 4 presented the final sketch after many people prefer to have an image and video in the homepage, this will successfully attract them to the site.

In Human-computer interaction what I have learnt is design is used to solve problems and make it easy. Information is gathered, sorted, break them down and use to meet the user needs, create the solution and deliver it in the best possible manner.

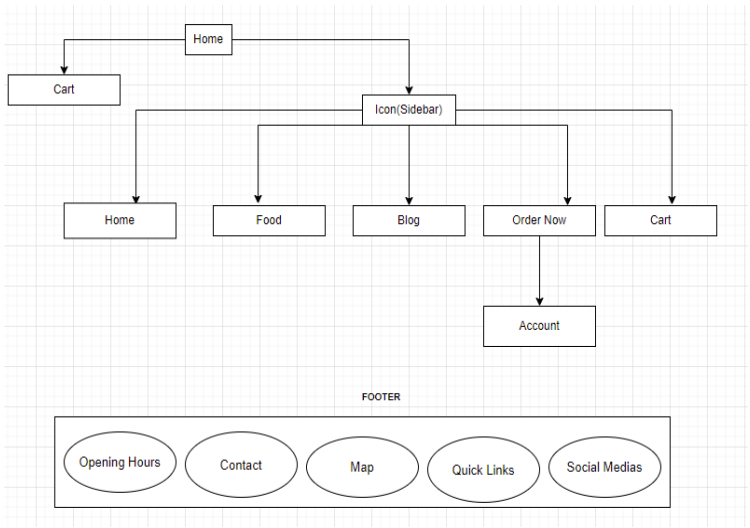

Figure 5: Diagram showing the website information architecture

- **Home**

This is the first page the user opens the website. The home has a sidebar Menu option where a user can get access to anything on the sidebar that he or she pleases. As the user scrolls through the home, there are a variety of products show cased as well as a video demonstration of some food varieties. The user has an option of "Adding to Cart" the food he pleases. Below the page is a footer which in it carries the location of the restaurant and contact details. All the products in the site are listed. The carried details include the Name of the food product, the food image, the description and the price. Figure 5 demonstrate how the website will look, which components will build in the homepage.

- **Food**

This page contains a list of food products available in the restaurant. The details in the product include The Food Name, Description and Price.

- **Blog page**

This page talks about foods and it nutritional values.

- **Order Now**

In this page, all the user needs to fill in is the Names, Email, Telephone number and delivery address.

- **My orders**

This page contains products added to the Cart that a user desires to purchase. The information of the products includes Food Name, Description and Price.

- **Footer**

The footer carries in the location and contact details of the site as well as the links.

In Figure 5 makes it clear for the user to understand how the application was built even without knowing how to program. It provides simplicity of the information at hand and shows how the structure fit together and interact with each other. In an example in the above architectural design the pages i.e. (Food, Blog and many more) they are known as components in reacts, but any user can see them as a structure connected to work smoothly.

4.2 User Flow Chart

The site can be described by the stages a user takes in the web application. These steps are taken in consideration when building the project and for other to be able to understand the process with ease.

In order to place a food order, the user has the following options

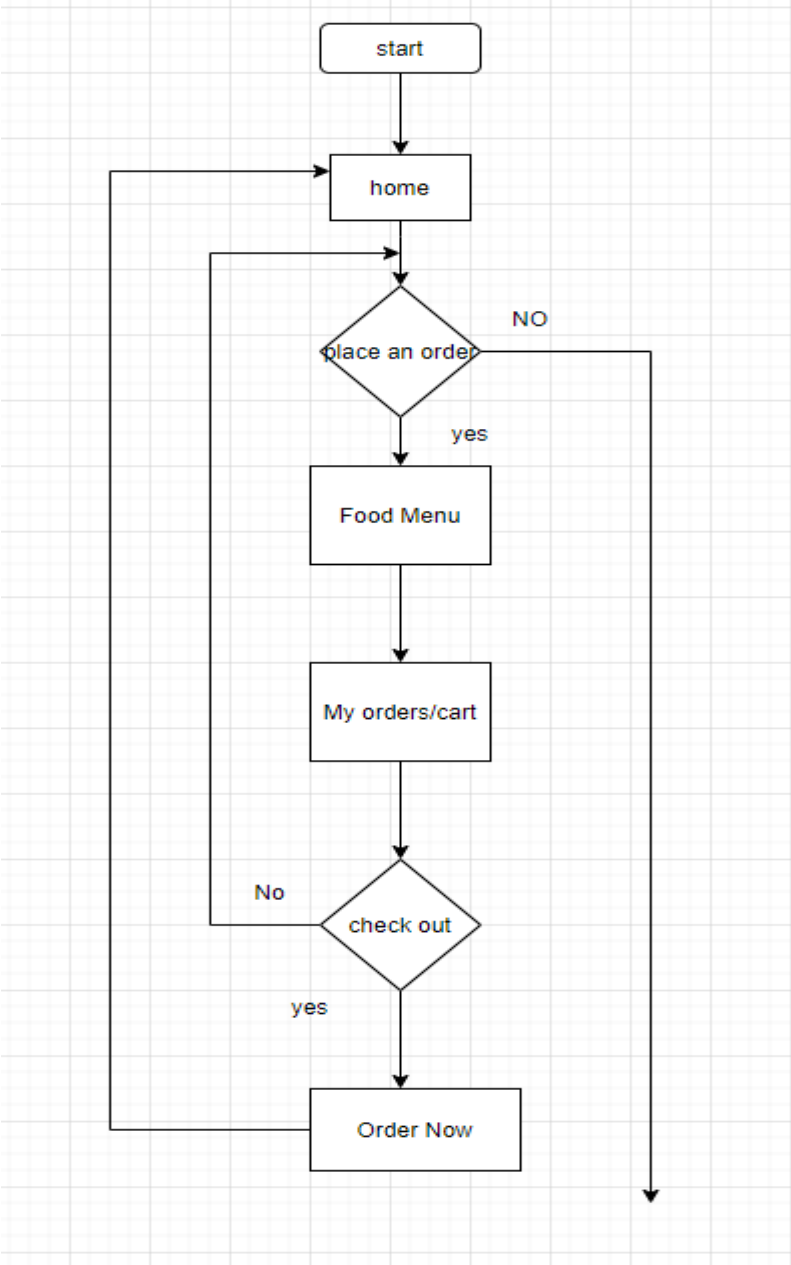

Figure 6: The flow chart of the application when ordering food

- **Home**

This is the first page the user lands into when he or she opens the website. The home page has a sidebar Menu option where a user can get access to anything on the sidebar that he pleases. Figure 6 present when the chart will begin and shows the necessary steps to be taken in order to make a purchase or cancel it.

As the user scrolls through the home page, there are a variety of products show cased as well as a video demonstration of some food varieties. The user has an option of "Adding to Cart" the food he pleases.

- **Food Menu**

Home, can one navigate to food menu where their varieties of foods to choose from. Figure 5 shows the next main steps the user is willing to take.

- **Cart**

Once products are added to the cart, the user can navigate to the "Wishlist" page to check the list of selected items in the cart. The user has an option of removing any undesired product.

- **Order Now**

On satisfaction of the selected products, the user can continue to finally place the order. He will be required to fill in the name, email and delivery address then finally complete the order. In Figure 6, the order now is the last step for the user to complete his or her purchase.

When a user wants to read about the weekly websites offers, blog posts and promotional services, the user navigates through the following process

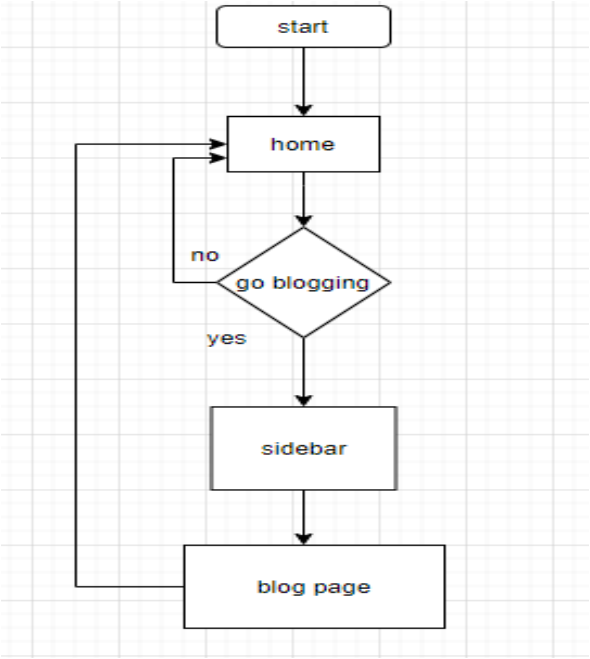

Figure 7: Flow chart to access blog page

- **Home**

This is the first page the user lands into when he/she opens the website. The home page has a sidebar Menu option where a user can access to anything on the sidebar that he pleases. Figure 6 clearly shows the beginning stages.

- **Sidebar**

Sidebars are options where to go through different pages on the web application. The user can either go back to homepage or continue to the blog page.

- **Blog**

Figure 7 shows the user has been able to arrive at the right place, user can then read more about the restaurant in the Blogs page In the Side Bar Menu.

To navigate to the food varieties in the website, a user can easily access them through this step:

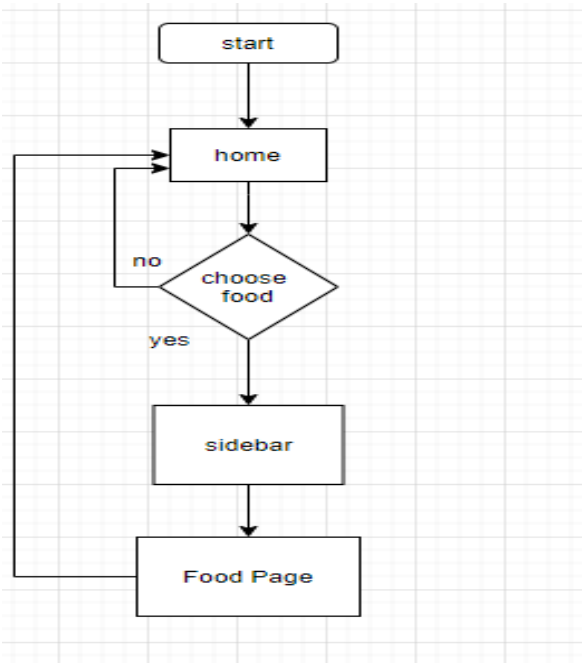

Figure 8: This flow chart is to order varieties of food

- **Home**

This is the first page the user lands into when he/she opens the website. The home page has a sidebar Menu option where a user can get access to anything on the sidebar that he or she pleases.

- **Sidebar**

Sidebars are options where to go through different pages on the web application. The user can either go back to homepage or continue to the blog page. Figure 8 shows the next step to take in order to reach the users interest page.

- Food page

In this page, user can select the food of their choice. In Figure 8, the page shows where user can choose varieties of foods.

4.3 Application Contents

The target of the web application is people from all walks of life and must find the information needed on the platform with ease. The knowledge needed to build or have these were from the answers from people who were interviewed. Each users have their opinions but the majority or those with clear point of view were used to build the application. Design principles (effectiveness and efficiency) were also included when building the application. Each content are

components on its own and by bring it together makes the web application. These contents are:

- Navbar

A navigation system enables visitors to find content by searching and browsing can not only improve the chances of visitors browsing your site longer — it can also improve the chances of them taking action on your site. On a website, a navigation menu is an organized list of links to other webpages, usually internal pages. Navigation menus appear most commonly in page headers or sidebars across a website, allowing visitors to quickly access the most useful pages [22]. The Navbar has a heading, cart and an icon(sidebar) at the right-hand side. Clicking the icon will send you to a different page and that will be the sidebar. It is simple without submenus and it is for every user can simply go through and find any information they need without any worries.

- Hero

The Hero is component which includes images and button and its part on the home page. It is the first image the user sees on the homepage. It attracts the visitor to the site and the visitor will want to explore more.

- Sidebar

The sidebar is also called hamburger navigation menu. The sidebar consistent of pages where the user is maybe interested to view or want know more about. Such page on the application is food and that where food varieties are located.

- Products

This is components is collections of products. The products are is where each product has details for the user to gain enough information. Each product on the have details like image, name, description, price and many more.

- Featured

This is components which includes video, a button and description. This is will also attracts users and want to browse more on the site.

- Cart

This component is where foods which are placed by the user waiting to be ordered. It is where products are stored and ready to be processed to next step, that is payment or cancel order.

- Footer

This component is where the user gets all the necessary details about the website, this information is opening hours, maps, contact us, quick links, telephone and many more.

5 Results

5.1 Overall Site Evaluation

Table 1.

The site's overall evaluation as assessed by several users.

Below is feedback and their thoughts about the site.

Name	Feedback	Recommendation	Ratings
User 1	Lovely site, Easy to use, fast and efficient	Addition of more products	6/10
User 2	The site has a perfect UI and an easy human interaction. Saves up a lot of Hustle and bustle.	Take the site Live now.	7/10
User 3	Zero error codes, I didn't have to struggle much hovering about as everything was straight to the point.	Addition of user authentication.	5.5/10
User 4	I found the site easy to install and run, it's beautiful.	Social Media login.	5.6/10
User 5	Efficient and satisfactory, I loved it!	None	8/10
User 6	Awesome site!	More food deliveries.	6/10

Table 1 shows what user thinks about the application, feedbacks, recommendations, ratings were collected from the users.

The users rate the application over 10, so to find the average rating the users gave for the website we use this formular to find the mean:

Mean: $\overline{x} = \sum \times \div \mathbf{n}$ **n = 6** users

$\sum \times = 38.1$ The total sum of all the user's ratings

$\overline{x} = 38.1 \div 6 = 6.35$

The mean tells us the in our table, participants rate an average of 6.35 for the application. This shows majority of the user rated the application above 6 and means the application is accepted. Each users have what they like about the website but does not mean the website has no problem. The main tasks were to evaluate it with usability goals in mind (efficiency and effectiveness).

The site performed average in the User Authentication where the site did not provide the users with an option to log into nor validate their identity into the system. It however, allowed them to fill in their details during the checkouts which seemed easier for irregular/busy customers to a restaurant.

Users also found the site fast in its loading time and also how fast it was to find and achieve a desired task which was the main goal of the site as majority users only needed three clicks to place an order.

5.2 Notable features

Table 2

React have features which can be used to build a web application. In this result we will look at some the features use in this web application.

Notable Features	Did use it	Did not use it
Declarative	x	
Components	x	
Functions components	x	
Class based components		x
Virtual DOM	x	

Lifecycle methods		x
JSX		x
Architecture beyond HTML		x
React Hooks	x	

Table 2 shows the features used for the application and those which were not used. The other features that have not been use is either they are not needed, or they are not needed in this design implementation. The Features used are those needed for the site.

6 Conclusion / Discussion

The main objective of the application is to help the users place their food orders and get the food delivered to their doorstep within the shortest time possible. The users can place multiple food orders by simply adding to the Cart which is automatically generated by the web application after placing the first food order.

In conclusion the goals and objective of the application were met successfully. Choosing react makes it easier to build and develop an application very fast. This happens using react components and these components can be used multiples place in the application. React makes it easier to create interactive UI's. It helps in designing simple views for each state in the web application for ordering food. React helps in efficiently updating and rendering just the right components when the data changes. Declarative views created by React helps in making the code more predictable and easier to debug.

Interaction design principles are also another goal of the application which matters in the app. Using Interaction design principles make it easier for the users to use. The ease of navigation objective of the web application is successful as every user was able to navigate easily without any aid. The web application was able to meet the efficiency objective as user's experience noted.

Usability test was carried out and from the result above shows that the test was a success. More than average of the user like the product and were able to use without the any assistance.

The reason for using React was because I read a lot and I find it to be good for the project. Some of the things I find useful with react, it was easy to learn and faster. In using it for the project, I found out about the way it is, I learned, enjoyed working with it and may want to use it more in the future.

This project was an interesting and very knowledgeable, because I get learn and use of technology which were new me. When building or developing an application one needs to think about the user experience, through user experience one gets to correct errors and bugs.

7 Ethical and Societal Discussion

The application has issues when talking about ethics and societal. When we talk about societal issues is matters that influences a community or a group of people. An application like this makes it easier for people to directly order food directly from their home without the need to go to the shop. This prevents overcrowding or making long queues at the counter in the restaurant especially during busy hours. Overcrowding leads to stressing and lots of mistakes. All of these can be prevented by sitting at home, order and wait patiently to receive your order.

When ethics come into consideration, we look at problems or matters an individual faces. Loss of jobs may occur or reduction of manpower, people who uses the application will stop coming to the counter to order food and as such makes people in the counter areas to lose their jobs. An application like this makes work faster, smarter, easier and less stressful. On the other hand, illiterate may find it difficult to use the application and may cause the restaurant to lose customers.

Another factor concerning factor about ethnics and social is a person's information may fall in the wrong hands. Information of person food habits, such as allergies, routines can fall in the hands of a criminal, which can lead to one being poisoned though food. Food order apps makes a person being addicted to ordering foods when he or she feels hungry. Others who always order foods which are unhealthy foods or fatty foods, without proper healthy living style (exercise) may lead to diseases, increase in weight (Obesity).

In consideration, both the application and people should be available at the counter for those who cannot use the application and those who can use the application should do so. People's details should be kept secrets and prevent from falling in the hands of a wrong people. One should always try to live a healthy life, by reducing eating fatty foods and by exercising regularly that may prevent one from increasing in weight and getting diseases. In doing so issues and problems concerning ethics and societal maybe leveled even though some problems may take time to be solved.

8 Future Work

The following section describes the work that will be implemented with future releases of the software. In future works additional functions or features will be added to the web application and will help to improve user effectiveness and efficiency.

- Customize orders: Allow customers to customize food orders
- Enhance User Interface by adding more interactive features. Such as Deals and promotional Offers to the home page and provide recipes of the Week/Day to Home Page
- Payment Options: Add different payment options such as PayPal, Cash, Gift Cards. Allow to save payment details for future use.
- Allow to process an order by first logging/ signing up.
- Delivery Options: Add delivery options.
- Order Process Estimate: Provide customer a visual graphical order status bar
- Order Status: Show only Active orders to Restaurant Employees.
- Order Ready notification: Send an Order Ready notification to the customer
- Integrate with in store touch screen devices like iPad.

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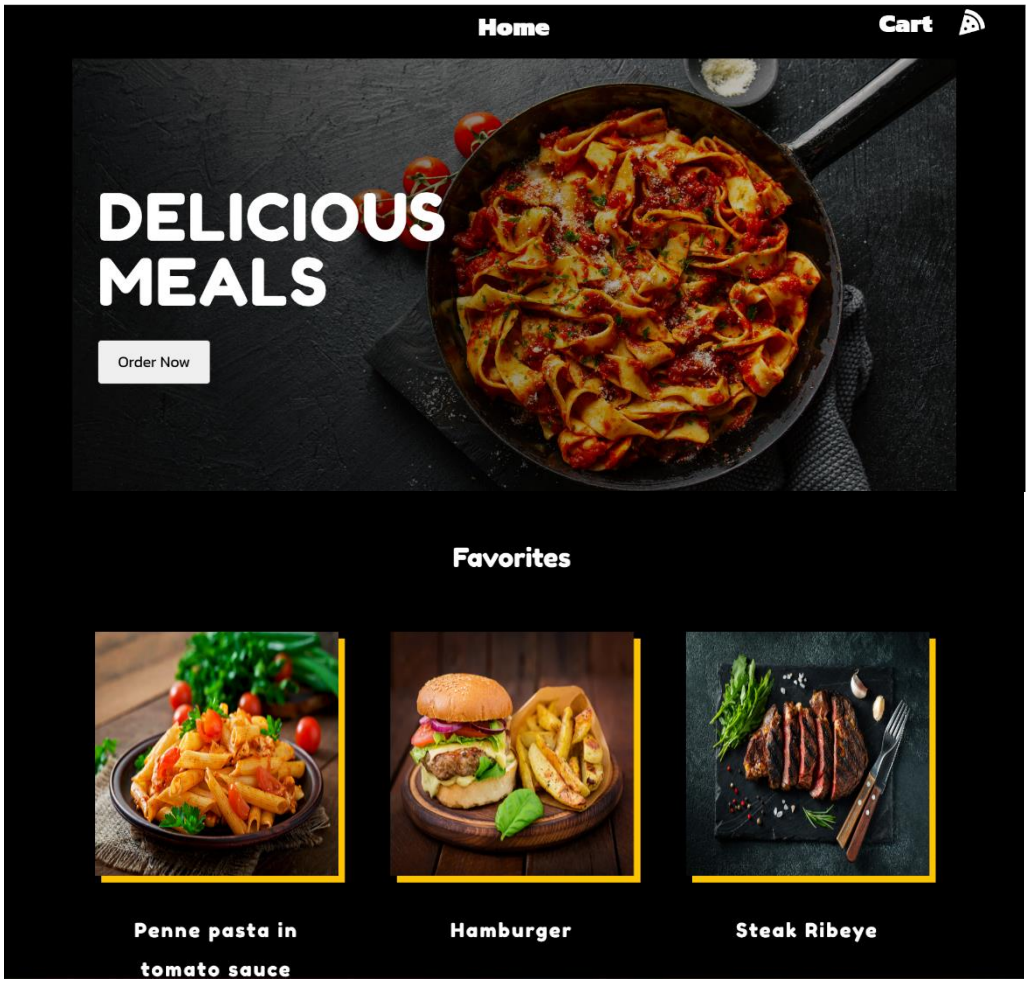
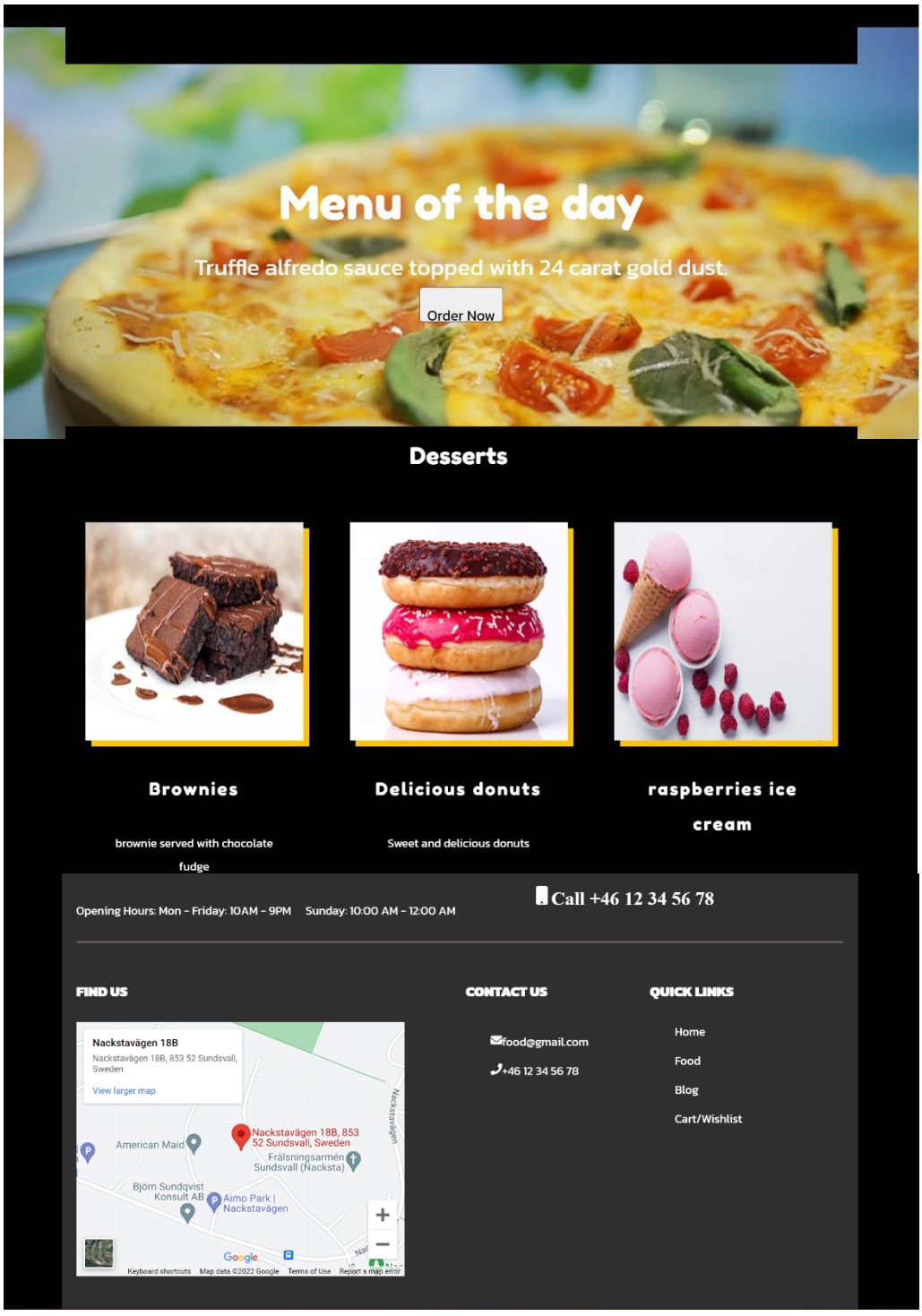
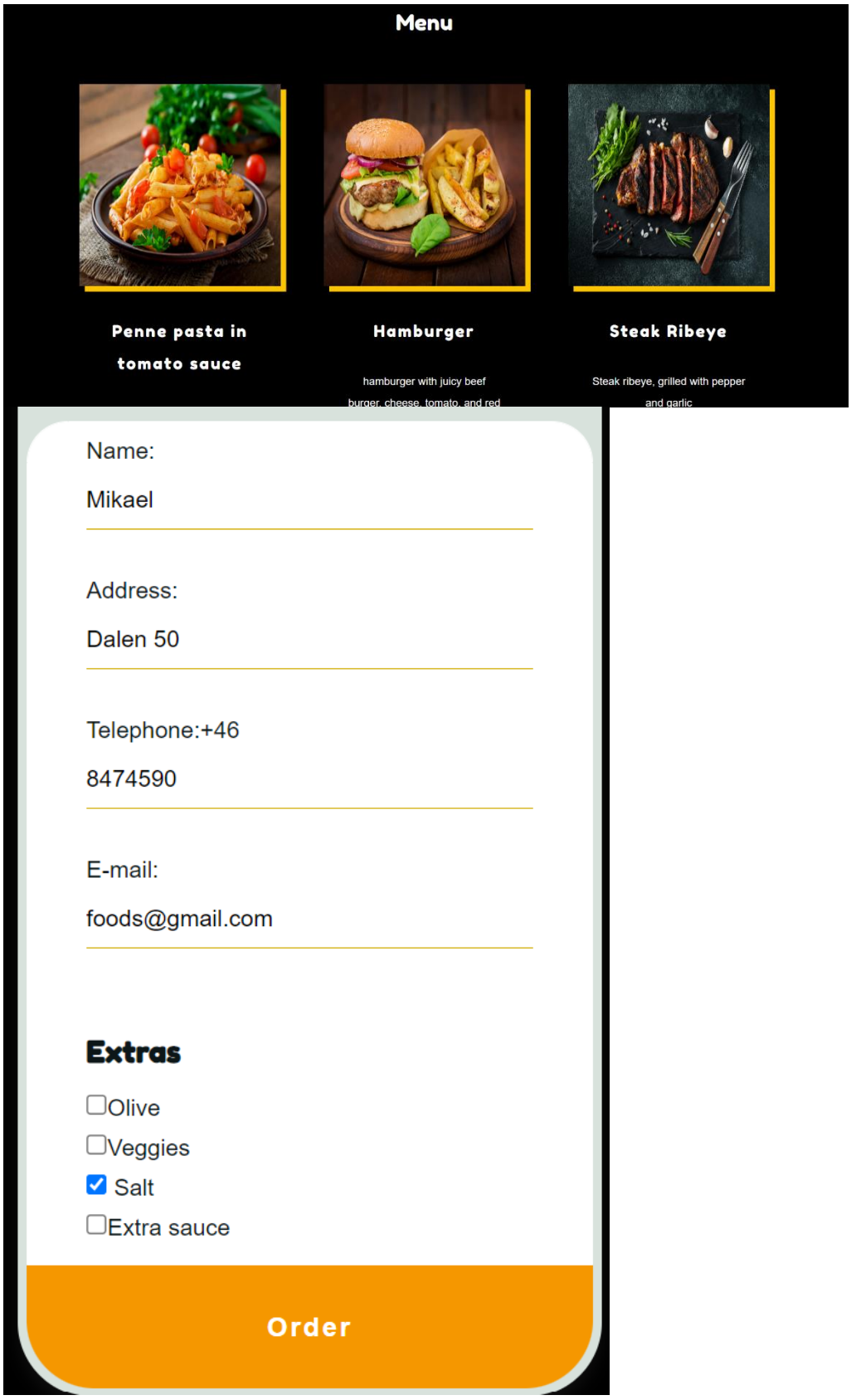
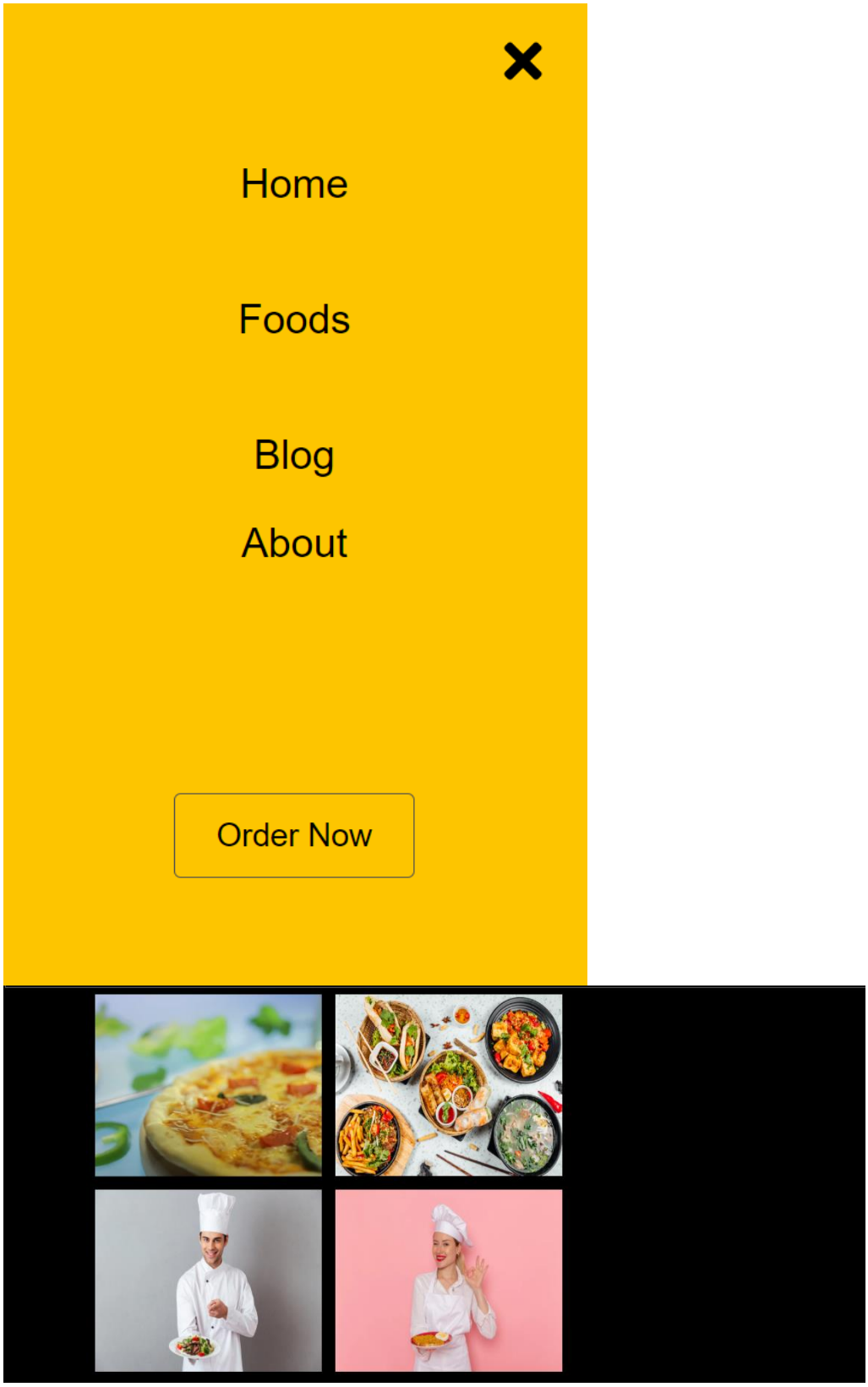
Appendix A:

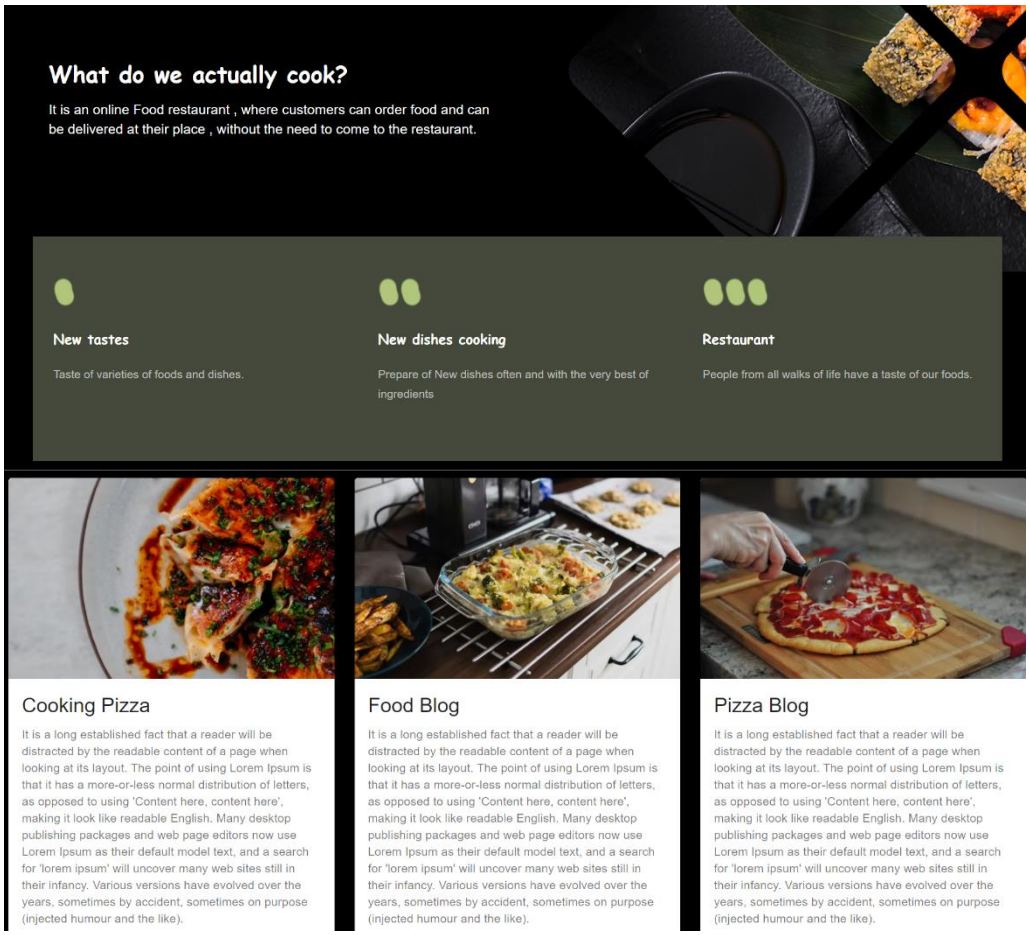
Application images




Menu of the day
Truffle alfredo sauce topped with 24 carat gold dust.
Order Now
Desserts
Brownies
brownie served with chocolate fudge
Delicious donuts
Sweet and delicious donuts
raspberries ice cream
Opening Hours: Mon - Friday: 10AM - 9PM Sunday: 10:00 AM - 12:00 AM
Call +46 12 34 56 78
FIND US
CONTACT US
QUICK LINKS
Nackstavägen 18B
Nackstavägen 18B, 853 52 Sundsvall, Sweden
View larger map
food@gmail.com
+46 12 34 56 78
Home
Food
Blog
Cart/Wishlist


Menu
Penne pasta in tomato sauce
Hamburger
hamburger with juicy beef burger, cheese, tomato, and red
Steak Ribeye
Steak ribeye, grilled with pepper and garlic
Name:
Mikael
Address:
Dalen 50
Telephone:+46
8474590
E-mail:
foods@gmail.com
Extras
Olive
Veggies
Salt
Extra sauce
Order


Home
Foods
Blog
About
Order Now



Answers from interviewing people

- What will the website look like?

I would like it to have pictures and have nice designs .

I like videos too.

- What does the site do?

Sell foods

- What do I need in my website?

To pay, change language ,nice fonts, delivery.

- What information does my site offer?

Prices, navigation correct,informations

- What will the website look like?

Videos, pictures of foods

- What does the site do?

Sell foods,drinks, beverages

- What do I need in my website?

To pay, login,customer review

- What information does my site offer?

informations

- What will the website look like?

Tasty pictures,nice and simple application

- What does the site do?

Sell foods and drinks

- What do I need in my website?

To pay, reviews

- What information does my site offer?

discounts , special offers,buffet

- What will the website look like?

Nice images of foods,nice colours and themes

- What does the site do?

Sell foods and drinks

- What do I need in my website?

To pay, special dates

- What information does my site offer?

events

- What will the website look like?

Great pictures to attract people to buy the foods

- What does the site do?

Sell foods and drinks

- What do I need in my website?

payment

- What information does my site offer?

Discounts and buffet