An Exclusive Website Application for eat-in / takeaway Restaurant Business.

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# **Chapter One: Introduction**

## 1.1 Overview of the Project

# **Chapter Two: Background and Related Research**

## 2.1 Background

Today the restaurant business is the most challenging business in the world. The biggest concern for business owners of the restaurant is to face one of the major issues like managing orders over the phone or in-person (Daries et al., 2018). Delay in delivering orders, mis-match order deliveries, this may lead to bring big loss in the business and customer dissatisfaction. The expectation of the customers is to have good quality of food, good taste and good customer service which is not always the case. There has been a lack of technology and solutions in place to manage and handle the above concerns.

When used alongside revenue management concepts, effective technology will help restaurants of all types increase sales and benefit (Kimes, 2008). This project looks at how things can make easy for customers by introducing a good restaurant business website or application. In this project the implementation of the website includes different types of pages like Home page, Menu page, about us page, contact page and the Cart page where customers can visit the website and order the food online, also customers can add feedback to the restaurant through the website.

In this day and age, the organisational problems at restaurants have a lot to do with automation. It makes the restaurant issues and their solutions for small businesses more difficult. Most restaurant issues are caused by taking orders online. However, these problems can be solved by introducing an online ordering programme on the restaurant website , making the order button clearly visible and tailored for the smartphone (Miranda, Rubio and Chamorro, 2015). This website will be facing the issues by providing a good view of the website to the customers and giving easy navigation of the website to select the appropriate services of the website. There will be many different kinds of pages in website including a menu page where all the food item will be displayed with their price and with detailed description.

This website/application of the restaurant will allow the customer to order the food item online through the website, once the order is placed the customer will get the email notifying the order confirmation and once the order is completed by the restaurant the customer will get an alert on their mobile stating the order is now completed and ready for collection. This will help the customers to keep track of their orders once they have placed. The application will also allow the customer to make a secure payment online after once the customer has placed the order of food item.

## 2.2 Literature Review and Research Questions

A big issue (Ph.D and Borovicka, 2007) for many restaurant owners is that their standards for the launch of a website are Almost always unacknowledged, and their investment benefits mystify them. It is not commonplace to consider how prospective customers arrive at an impression of a restaurant company via a visit to its Website. Restaurant owners were described as being part of a sector Is slow to understand the power of websites which can exert as an instrument for boost or subtract from a company's profile (Ph.D and Borovicka, 2007).

A website is something which allows the restaurant owners to greet the quality of the websites from customer point of view which will promote the preparation and deployment of quality sites which is achievable advantage for the business. Thus, it is essential that the software is straightforward, simple to understand and to implement, and should help the website owner's capacity to take successful charge of the Website smoothly, even if the owner lacks the technological skills to make the changes personally (Bennett, 2017). Most consumers are searching for online guides and social media knowledge about restaurants. Restaurant websites especially include customer feedback that differ in quality and reflectivity. Online contact brings not only obligations relating to trust and partnerships, but also harmful impacts such as consumer deceptions and allegations. While, companies also benefit from this approach advertising in the areas of brand placement, product development and the development of customer value (Qi, Yang and Li, 2013). Websites for restaurant reviews help operators assess their internet activity, recognize their solutions and offer measures on complaints from customers.

In 1994 the Web reached community popularity. In less than two years, many restaurants moved to develop websites and were motivated to consider the new platform as a mediator to redefine the relationship between restaurant owner and consumer (Ph.D and Borovicka, 2007). The scholars of this early research managed to draw up a list of support function on restaurant websites such as email contact, group catering opportunities, booking services and attractive schemes and indicated that web marketing might become a technical requirement rather than an ability. As information technology has introduced a better way of communicating person-to - person, restaurant owners have the space to enhance competitors dominance not only by offering users with the precise data they need when they need it, but also by offering extra venues through which customers can interact with the restaurant owner (Young Namkung MS, Seo-Young Shin PhD and Il-Sun Yang PhD, 2007).

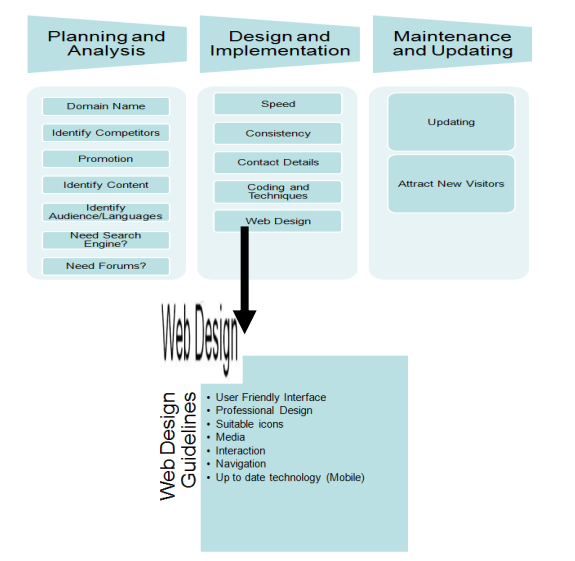
Using the restaurant websites, customers can state their thoughts and concerns about their restaurant experience through e-mails and/or bulletin boards. This knowledge can then be used to create a long-term customer-restaurant relationship by constantly modifying their incorrect acts to meet the needs of the customers. Restaurant websites clarify that users achieve both functional and physiologic advantages when browsing restaurant websites, impacting their real buying aim and fulfilment (Daries-Ramon, Cristobal-Fransi and Mariné-Roig, 2019). Information via the restaurant website has a strong impact on user fulfilment. Additionally, users have content of essential on internet reviews to make buying decisions especially in the restaurant industry. In fact (Lim, 2013) found the addition information quality of restaurant websites has a major impact on eWOM (electronic word-of - mouth), and the performance expectancy reduces the interactions between fulfilment / ego driven demands and eWOM expectations considerably (Lim, 2013). Higher-rate restaurant websites could be assumed to have one Stronger identification of the e-commerce intellect and the content of websites than those in the lower class band (Daries-Ramon, Cristobal-Fransi and Mariné-Roig, 2019).

### 2.2.1 What frameworks are used to implement a successful website?

Picking the right Web development framework (Salas-Zárate et al., 2015)that better suits the needs of the developer is not a simple job, because there are several frameworks focusing on various domains. In addition, choosing an incorrect framework will mean losing time learning the specifics of another language, failing to meet the necessary time if developers are not accustomed to the framework, and spending more time taking appropriate actions to select a new framework. To prevent these issues, understanding and recognising the best practises for Web creation is of great importance (Salas-Zárate et al., 2015).

As far as computer technology is concerned, a framework is an abstraction layer in which common code that typical service features can be preferentially overruled or speculated by developer code, thus providing specific functions (Bifet et al., 2011). The aim of a framework is to encourage designers and developers to concentrate on creating their project's unique characteristics, instead of recreating the system by programming standard, recognisable components available in several websites and web applications (Upadhyay, 2018). Creating effective websites needs to go through three main phases: planning and research, design and implementation, and updating and maintenance. Every of these three stages possesses its own features and Properties. Such aspects differ as per type of company and target market. A framework can be called a pre-constructed pattern / framework that manages most of the specific or redundant functions. As a consequence, unlike a CMS, a framework possibly won't have a user experience. Much of the operation will be accomplished by coding and communicating with the various parts of the framework by code itself (Mohammad, Ghwanmeh and Al-Ibrahim, 2013).

Developing more highly qualified useful site plays a big part in enticing viewers. It ensures the architecture needs to be pleasant and simple. Website creator should also consider whether or not website needs search tool and should be loaded as quickly as possible.



(Mohammad, Ghwanmeh and Al-Ibrahim, 2013)

A framework is a high-level solution for reusing software packages, a step forward in easy library-based reuse that support solutions similar attributes and a domain application's standard logic. This also provides a higher quality standard for the finished product, because one essential aspect of the specification has already been identified inside the system and has thus already been reviewed (Salas-Zárate et al., 2015). Angular is a popular Google-supported JavaScript Platform. It provides a large collection with plenty of user-written extra plugins. This framework is becoming the backbone of several projects because of the reuse of code it provides full front-end development, powerful performance and less development time.

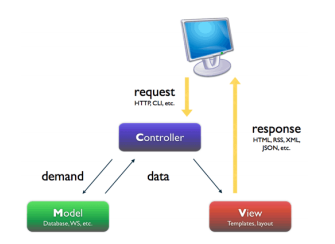
* The use of MVC architectural pattern.
* User Interface can be developed with HTML.
* Ready-made templates to build the framework faster.
* The use of the "plain old JavaScript objects" model.
* The built-in dependency injection subsystem.

This framework is used by such companies as Google, Microsoft, PayPal, and other tech giants (Shirazi, Haefner and Ray, 2017). Frameworks are a particular type of software or scripting libraries, which vary widely from them in that they are reusing abstractions of code wrapped in a well-defined application programming interfaces (API). These also possess some primary distinguishing characteristics that differentiate them from standard libraries (Bifet et al., 2011).

Some advantages of the framework are (Manger, 2010): Open-source, Documentation and support, Efficiency, Security and Integration. Many common frameworks are open-source (or are available for free use) in several languages. They also come with non-restrictive licencing and able to build specific products using those frameworks (Hasan, Morris and Probets, 2013). Also, some of the dis-advantages of the framework has be identified like: Limitations, Performance, Learning bias, Steep learning curve and Cost. Implementation could also be identified as a factor with the relevancy of client-side JavaScript MVC frameworks such as AngularJS, EmberJS and BackboneJS increasing since 2012. The frameworks involve more expertise and experience in implementation than most integrations. Hiring reliable System Developers can also be more costly than inexperienced WordPress Developers (Hasan, Morris and Probets, 2013).

### 2.2.2 How can a website be implemented by using the ASP.NET MVC (Model View Controller) technology?

Model-View-Controller (MVC) programming (Krasner, Pope and Systems, n.d.) is the implementation of this three-way computation, in which artefacts of various classes take over discovering important to the application domain (model), representation of the application state (view), and user interaction with the model and view (controller). ASP.NET MVC is Microsoft's open-source Platform. The software development system puts together the functionality of MVC (Model-View - Controller) design, the most up-to - date Agile development concepts and strategies and the best sections of the current ASP.NET platform (Sarker and Apu, 2014).



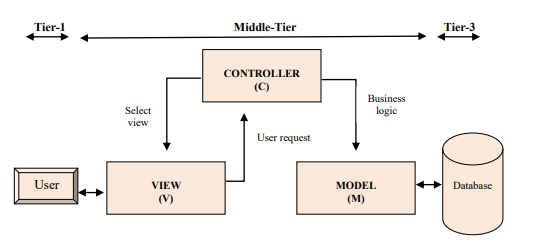
(Pop and Altar, 2014)

Trygve Reenskaug first conceived the MVC architecture model at Xerox Parc in the 1970s. As per him, "MVC 's fundamental aim is to close the gap between cognitive properties of the human user and the digital model present in the machine". The MVC pattern divides responsibilities into three major duties, thus enabling more effective collaboration. Growth, design and integration are those key roles (Pop and Altar, 2014). Software developers who are accountable for the application's logic assume the development role. They do data query, validate, process and more. The design role is for the development team who are responsible for the appearance and feel of the site. They view data provided from the programmers who are operating on the first function. The position of integration combines programmers with accountability for gluing the work of the two previous positions.

The MVC (Model-View-Controller) technology (Prabowo, 2015) is broken down into three different parts, the three different parts are:

* Users
* MVC components
* Database

The very first stage is only composed of users. User can submit requests and get reaction from the middle stage's 'View' components. Secondly, there are three elements called 'Model, View and Controller' in the middle stage. These components can interact with each other, and process information. Finally, the third stage contains only the database where permentally the data is stored (Berardi, Katawazi and Bellinaso, 2009).



(Sarker and Apu, 2014)

User feedback is acknowledged via the graphical user interface (GUI) through the 'View' element. The user interactions can be button clicks or menu selection in a stand-alone GUI client. The 'Controller' mechanisms requests from users. The Controller calls methods in the View and Model to perform the desired action on the basis of the user request. The 'View' takes responsibility for the model 's performance. A simple GUI view connects to a device and allows the display surface to its contents (Berardi, Katawazi and Bellinaso, 2009).

|  |  |
| --- | --- |
| Strengths | Weakness |
| Gives precise control across created HTML | Not event driven by the framework, so it may be more difficult for ASP.NET webform developers to understand |
| Clear separation of concerns | Requires the need to understand, at least at basic level, HTTP, HTML, CSS and JavaScript |
| * Supports all the core ASP.NET features, like authentication, caching, membership and so on | * Third-party library support is not as strong |
| * Size of pages generated typically much smaller because of the lack of view state | * No direct upgrades path from Web Forms |
| * Easy integration with JavaScript frameworks like jQuery or Yahoo UI frameworks | * No ViewState and PostBack model |

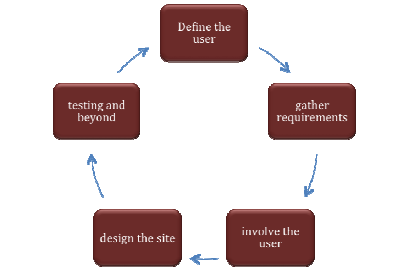
Below are some of the pros & cons of the MVC technology (Pop and Altar, 2014):

### 2.2.3 How communication and good understanding between you and client can make you build a good website?

Web application creation (Bolchini and Paolini, 2003) also needs to use appropriate methods to Facilitate some different features of the requirement analysis process: collecting high-level communication priorities, considering multiple web pages and participants, identifying hypermedia-specific criteria (concerning navigation, content, information structure and presentation aspects) and reusing requirements for an efficient usability evaluation. In addition to client satisfaction, the client must be engaged to each Website production phase and his / her goals and prior experiences should be taken into account. The website must be not only right in itself but, above all, it should fulfil the aims for which it has been created (Alghamdi, 2012). Every communication apparition (and a web application can be called a communication way) is adequately built if and only if it has the quality of congruency, i.e. if it is consistent with the purposes it will meet. For a web application, every overall objective can be to improve the user experience and, at the same time, to meet the needs of the customers that developed the application. Identifying the priorities and the criteria is the Activities have been carried in every development process and the actual quality of a design is primarily related to how well it suits the specifications (Bolchini and Paolini, 2003).

To develop an immersive website (Degelman, 2015) that addresses all user requirements the project goals need to be explained first. Usability criteria are a collection of characteristics that can assess and analyse a given website, and identify and fix the weak points. The essential towards effective website is good contact between web developer and client. Communication problems between both the developer and the customer arise when the developer is not very skilled in assessing the company website ideas / suggestions and if the customer is not sure what he wants for his website the same way the experienced user will face the problems (Mazzoleni, Rembert and Subbian, 2015).

User specifications apply to features / attributes (Bland and Nepustil, 1998) that your programme or framework should have or should execute prospectively from the user. User-centred design is a discipline where needs are gathered and evaluated. User-centred design is a process to system development which focuses on system end-users. The concept is that the programme should match the user, instead of having the user match in with the programme. This is achieved by the use of strategies , procedures, and approaches that concentrate on the consumer during the product lifecycle. (Courage and Baxter, 2005). User-centred web development applies to "a process of designing a website which meets user needs. It emphasizes the importance of user participation in the development process to achieve the highest degree of customer satisfaction. Web design focused on consumers is a very useful approach in ensuring the usability of a website. Facility of use and navigability seem the top UCD (User-centred design) benefit (Alghamdi, 2012).



(Alghamdi, 2012)

The value of collecting requirements is frequently misunderstood on several scales. If budgets are low, schedules are short, and scope creeps, documentation on specifications appears to be the first component to go and the last deliverable to be considered. We typically see two types of specifications in web design and in services. There's also other forms, such as financial and institutional specifications, and the person in charge of managing specifications documents may need further experience in professional writing, visualization of details and more, depending on the context (Geissler, 2001). There are two types of main requirements for the web development: Functional and Non-functional requirement. Functional requirement refers to the functionality of a system: its capabilities, accessibility, functions and processes as they refer to the product's intended purpose. Non-functional requirements cover everything that is not linked to the functionality of a system: its efficiency, reliability, safety and technical specifications, to name only a few examples of non-functional requirements in the digital industry. Documentation of both functional and non-functional specifications is similarly important in its own ways. They live hand in hand; one is influenced directly by the other (Bolchini and Paolini, 2003).

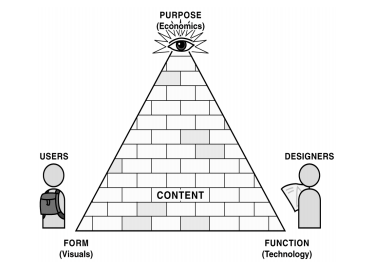
### 2.2.4 How a web-designs is important for the website?

The Web design (Powell, 2002)strategy involved a variety of things for different people. Web design based on the user involves several aspects like graphic design, programming, HTML, problems with navigation, usability and business (e-commerce) issues. In reality, focusing on the project web design can rely from all of these areas so it can really be a very multidiscipline environment. There are four critical elements of web design: content- informing or persuading people, technology- implementing the website feature, graphics- providing website forms and economics- providing intention for the website. The impact of one or the other aspect of site design varies according to the project.

For example, by using the internet, an organisation can easily access consumers and provide them not only with general knowledge about their goods or services but also with the ability to make direct business transactions (Cebi, 2013). Efficient website design also plays a significant role for organisations who want their revenues to be maximised by supporting their services or products in a successful and restricted market. There are various design specifications that must be taken into account concurrently in order to design an effective website. Design specifications can be defined as qualitative and quantitative aspects of a website's physical and functional characteristics which play an important role in efficiency of website design. Due to its dynamic existence based on human perceptions, however, it is not easy to decide the design parameters of a successful web design (Gevorgyan and Porter, 2008). Thus, web designer must take into account a growing number of design parameters such as usability, accessibility, cost, delay, efficiency, protection, maintenance, etc. during the design process to meet the needs of users. Hence, consideration has been given to the design parameters of a successful website to improve the efficiency of the websites (Gevorgyan and Porter, 2008).

Web design is like a pyramid, the content we use as bricks to create the pyramid, the structure of the project is based on graphics and technology and economics makes the project worth doing (Powell, 2002).





(Powell, 2002)

Web design (Flavian, Gurrea and Orús, 2009)has been described as a key factor for website acceptance and performance. In order to create an effective website, we examine from a marketing point of view the key factors that may affect the attitudes and behaviours of online users. Website design has been intensively researched from multiple perspectives, most of them identifying the factors that could reflect the extent of website acceptance, designing is "the method of constructing an object with a scheduled, creative, consistent, meaningful and helpful form structure." Through a customer viewpoint, a website with all these features must be designed to arouse the users' affective states and to improve their online visits or purchase intentions (United States and United States, 2006).

Anyone who wants more control over a page's layout may choose to design a Web page with a fixed width which remains the same for all users, regardless of their monitor size, or the resizing of the window. That web design technique is Based on design concepts learned in print, such as the maintenance of a constant grid, page element relationships and convenient line lengths. Below mentioned will be some advantages and some dis-advantages of the web design technology (Dringus, 1997).

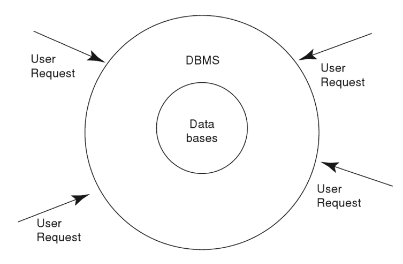
|  |  |
| --- | --- |
| Advantages | Dis-advantages |
| Regardless of the display size the web page would appear the same. That is also the case Crucial for businesses wishing to show a positive corporate picture every member. | If the available browser window is smaller than the grid for the page, parts of the page will not be visible and may require horizontal scrolling to be viewed. |
| Pages and columns with set widths have greater control over line lengths. Tables can be used to avoid lengths of the line from becoming too long when the page is shown on a large monitor. | Management of type size in browsers is still difficult, and objects may still change irregularly due to a larger or smaller type than was used during the design process. |

(Dringus, 1997)

### 2.2.5 How data warehouse or a database can be designed for the project in MS SQL?

A database (Yarger et al., 1999)is an ordered collection of data which defines some function as per the concept of a database. Only getting a DBMS isn't enough to give meaning to your database. The aim determines how you use your data. Database design is part of the learning process of database creation which focuses on the analysis of a proposed solution (specifications and requirements) and includes all the required findings for the construction of a logical data model (Letkowski, 2005). Such as DDL (Data Definition Language) (consists of SQL statements within relational database systems, which generate databases along with their tables, views, indexes, etc. Usually, data models are represented as Entity Relationship Diagrams (ERDs) and perhaps most modern database design tools are capable of translating the diagrams into metadata. Commercial database management systems (Agrawal et al., 2004) support many variations to physical design such as tables, materialised views, and various types of hierarchical data partitioning or indexing structures.

Database (Weikum et al., n.d.) takes as its input a workload comprising of T-SQL (SQL Server language flavour) statements such as SELECT, INSERT, UPDATE, DELETE, stored procedure calls, dynamic SQL and DDL statements and generates a T-SQL script comprising of index suggestions, materialised views as the output (Called Microsoft SQL Server indexed views), and horizontal partitioning. A database can have several tables and columns, clustered or non-clustered indexes, single-column or multi-columns. Relevant data such as originality, source limitations and basic statistics ("small" vs. "big" tables) to produce a database design performs poorly because it ignores valuable information about the workload. Current query optimization techniques use dynamic techniques such as intersection of indexes and access only by number. Thus, making an optimizer's accurate model and keeping it stable as the optimizer progresses is an incredibly difficult job and will possibly result in the collection of indexes that the optimizer does not use when creating a plan as required by the index selection tool (Weikum et al., n.d.).



(Norman, 2006)

Databases include administrators (Chaudhuri and Narasayya, 1997) accountable for performance optimization of databases. With large-scale database deployment, to reduce the role of administration of databases becomes essential. MSQL aren't databases, actually they are computer software which makes user creating, maintaining and managing the electronic databases. This Application group is known as the Database Management System (DBMS). A DBMS acts as the dealer between that database's physical database and its users (Yarger et al., 1999). As SQL is an approved framework for relational databases, and enables for declarative, set level, substantially optimised expressions, it is desirable for users to be able to use SQL primitives such as sorting, group-by, and others such as these within MSQL, and to express nested queries using SQL nested query constructs such as [NOT] IN, [NOT] EXISTS etc (Imieliński and Virmani, 1999).

MsSQL is what has been known as DBMS (Database Management System). The management solution defines how the data is processed, stored and retrieved and how user access to it is managed. Every time the user retrieves data, deletes data or adds more data the request is handled by the DBMS. The user can not directly access the data files and can only talk to the DBMS (Norman, 2006). The input to the method is a set of databases and a workload (a set of queries and procedural calls inserts / updates / deletes / stored). One way to get such a reflective task is to use tools such as the Microsoft SQL Server Profiler that logs server events. Conversely, metrics unique to consumers or to organisations can be used (Agrawal et al., 2004).

### 2.2.6 What are the methods and system to improve security of website?

While WWW becomes more and more complicated, there are several problems that have to do with the protection of the website (Taral and Gite, 2014). Security of websites is the most critical aspect of the web construction post design phase. Web publisher has to review the websites and website audit so as to prevent unwanted surprises. Important to remember that security is never a set-it-and-forge-it solution. Rather, it's a continuous process that requires constant evaluation to lower the total risk. We may think of it as an onion by applying a systemic approach to website security, with several layers of protection joining together to form one object (Hanes, 2013).

Often the easiest methods of resolving any problem are the safest. Below are some of the simple ways to improve your website security (Sheleheda et al., 2015):

* **Update Everything**

Its important having all applications and scripts that you've built up to date is important. As soon as a new plugin or CMS version is available it is essential to upgrade your account. These upgrades can contain only improvements to security or fix a weakness. Hackers are actively targeting security vulnerabilities in common web applications, and need to upgrade the programmes to plug security holes. It is essential that every software product you use is maintained and updated. Most threats on the Website are streamlined. Bots constantly scan every site they can for any possibilities of impoverishment. Updating once a month or even once a week is no longer good sufficiently, because spammers are very likely to find a weakness before patching it. That's why you should use a website firewall which will fix the security vulnerability virtually as soon as updates are published (Sheleheda et al., 2015).

* **Have Strong Passwords**

Having a secure website depends a great deal on your safety viewpoint. Using the strong passwords is necessary. Hackers regularly use specialized technology to crack passwords, using extreme strength. To clear up contaminated websites, remediators need to log into a client's website or server using user information of their admin. Passwords must be complicated, with upper case letters, lower case letters, numerals and special characters to defend against brute strength. Your passwords have to be a minimum of ten characters long. This password policy should be kept across your organisation (Sucuri, 2019).

* **Install SSL Certificates**

SSL certificates are often used to transfer information between the server (web server or firewall) and the client (web browser) during transportation. This will make sure the information has been sent to the appropriate client and not intercepted. Many forms of SSL certificates like company SSL or extended SSL authentication provide an extra layer of authenticity so the client will see the specifics of your company and recognise that you are a transacting (Taral and Gite, 2014).

* **Have Websites Backups**

In the case of a breach, server backups are vital if the server is to rebound from a significant security accident. Although it should not be considered a substitute for getting a secure system for the website, a backup that help to recover damaged data. Backup the website frequently. Backups of all your website files must be preserved in case your site is unavailable or your information is lost. Your hosting service provider will have copies from their own servers however, your files must also be backed up periodically. Most content management systems have plugins or extensions which will back up the site remotely, so you will also be enabled to manually back up databases and information (Sheleheda et al., 2015).

* **Limit User Access & Permissions**

Website functionality will not be attacked by an intruder but there will be users. Later IP address documentation and all records of operation would be useful in network forensics. For example, a large rise in the number of active members can signal a weakness in the verification process and allow hackers to overload your site with viral accounts. Client functions and access rules are clearly defined to minimise any errors that might be made. This also reduces the effects of hacked accounts and will guard against the harm that rogue users inflict. Holding audit logs is essential to keeping the website on top of any suspect changes. An inspection log is a report that documents the activities on a website so you can find irregularities and check that the database has not been breached with the person in charge (Sucuri, 2019).

### 2.2.7 How can you link website quality with customer loyalty?

According to (Antanas, 2019)Your website is the organisation's face and several customers look to receive everything on the company website that they want and need. Loyalty is among the most important topics these days. Each shop would want to have a broad loyal community of customers (Antanas, 2019). In the online environment, consumer loyalty is difficult to overcome than in the offline one. When a website has high quality of content, system and service, consumers will be more likely to sustain, deepen and extend their relation to a specific provider of online services. Moreover, in order to achieve the aim of online consumer engagement, businesses need to consider the unique electronic marketplace environment.

According to (Liang and Chen, 2009) Good content may be text, video, any kind of digital sound, or other stuff. All content is added purposefully to satisfy consumer needs with lack of attention. It has been shown that excellent service attributes create customer loyalty which is expressed in retaining customers, word-of - mouth endorsement, premium payment and bridge-buying. Some of the factors include like Personalisation, interactive content, information, background and network quality, sophistication, technological integration, accessibility, information quality, software quality, unique content and adjustable, website design, order delivery, communication, protection / privacy and information quality, speed of transaction, user-friendliness and security are all considerations.

Consumers typically expect three website attributes to help their online purchase, which is information quality, quality of the system and quality of service (Kassim and Abdullah, 2008). **Information quality** is the performance value of an information system (IS), which has been calculated in terms of precision, simplicity of interpretation, efficiency, comprehensiveness, importance and whether it has been up to date. In addition, a website with a high level of data can help the organization deliver personalised, creative, and value-added components / services to its clients. The more the information presented on a website is beneficial and comprehensive, the greater the likelihood that the website will obtain and retain customers. **System quality** is the production quality of an IS that has been assessed with respect to ease of use, usability, accessibility, flexibility, reliability and responsiveness. The quality of the system is thus influenced by factors such as fast page loading, consistent layout and easy, side access. Furthermore, fast, efficient and reliable transfer processes are also very critical for transaction completion. **Quality of service** is the total assistance offered by the online service provider, which was calculated in terms of reliability, empathy and tangibility. Quality of service as an important factor for success of the information system. Online companies must also pay attention to the pre- and post-purchase customer interface operations intended to enable both instant transactions and long-term customer interactions, such as making sure no collapse in system, and immediately resolving any customer-related problems (Kuan, Bock and Vathanophas, 2008).

# **Chapter Three: Research Methodology**

## 3.1 Qualitative Research & Quantitative Research Methods

The aim of this investigation is to explore the answers to investigative questions. There are two qualitative, and quantitative types of methodology. According to (Kothari, 1990) Popular usage work refers to a knowledge search. Once again study can be characterised as a detailed and systematic search for relevant knowledge on a particular subject. Research is a scholarly practise and the concept must be used in a scientific context as such. Work involves identifying and reinventing concerns, developing theories or possible solutions, gathering, organising and analysing data, making assumptions and drawing conclusions, and eventually carefully checking the assumptions to decide if they match in with the study to formulate hypothesis.

The methodology to be decided relies on the study problem complexity (Mackey and Gass, 2015). The quantitative analysis is based on size or quantity measurements. Whereas Qualitative research is concerned with the amount of work done. The methodology below will be addressed using the methods of qualitative & quantitative analysis that include Surveys and Questionnaires, Telephone Interviews, User Interviews and Face To Face Interviews (Kothari, 1990). Quantitative work is focused upon quantity calculation or quantity. This refers to occurrences which can be represented quantitatively. And the, qualitative research concerns a qualitative process, i.e. phenomena linked to, or including, consistency or type. Of example, when we are engaged in studying the motives of human actions (i.e. why people think or do such things), we often speak about 'Motivation Analysis,' an essential form of qualitative study (Groves et al., 2011). This method of study is aimed at exploring the underlying motivations and interests, utilising the objective of in-depth interviews. Some such testing strategies include word recognition tests, discourse completion tests, storey completion tests, and many other projective techniques. Applying qualitative research to the application of Research Methodology is a fairly complicated process and thus one should receive advice from experimental psychologists when doing such work (McKeown and Thomas, 2013).

## Data Generation Methods

### 3.2.1 Interview’s

The interview is among the techniques being used commonly to obtain qualitative data. In this work interview approach is chosen to better explain how and what people think of getting a website. Through setting up the user interview process, in contrast with the Questionnaire approach, the subject can be elaborated more deeply on. Interview questions are usually querying that are clean-ended to obtain in-depth awareness of subjects than other methodologies. When correct information is gathered, this benefits the investigator too. Additionally, the researcher may ask some questions as per the responses of the respondents to clarify their viewpoints in detail. Interviews provide the opportunity for the public to share their perspectives.

While the interview process is intended to be a little lengthy, it is the best way to obtain quite enough accurate knowledge about the research subject as possible. Telephone, internet, and face-to - face interviews are also the methods which may take place. For example, an investigator can make an arrangement to setup an interview, also a voice call can be made for interview and the best case can be by making video calls for the interview process.

**Telephone Interview:** Confrontation with stakeholders is not always feasible and this is where telephone interviews can be particularly useful. These also help us to quickly and efficiently create the qualitative data. User habits, desires and thoughts can really be digged over the telephone, so it's always useful to find out what actually bothers people when they interact with an agency or website, telling us something to avoid.

**Face-To-Face Interview:** This can provide the additional advantage of seeing the emotions of the interviewees as they clarify, providing more insight on emotional reactions and motives. Interviews face-to - face can be performed in user's residences, workshop environments, focus groups and even on the avenue. Often, we can combine interviews with user research, as it encourages users to ask for tasks to be completed, see how they proceed and then question them about their impressions afterwards, which contributes to a deeper assessment process.

### 3.2.2 Surveys & Questionnaires

Survey and Questionnaires are the best and easiest quantitative method to answer questions relevant to the study subject. A Survey and Questionnaires system for answering research questions is utilized in this report. Developing quantitative data is critical for us to be able to determine trends in users' preferences, hopes and desires. Surveys and Questionnaires gather a clear insight easily from several various user groups; via established consumer email info, targeted advertisement ads (such as on Facebook) or even pop-up web site surveys. Surveys and Questionnaires are the best strategy, as it can be done numerically or by picking the text option to answer the question of the study. Information obtained through Surveys and Questionnaires is straightforward to analyse. Since nearly people can undertake surveys, data can be retrieved from an enormous number of people.

All methods of approaching a customer base are true, it varies just on which user categories you seek to offer knowledge into and how best to reach them. Survey and Questionnaires should spend a little less time and less time than the method of interviews. People are able to complete tasks very quickly but can provide the most efficient information on the survey questions. Surveys and Questionnaires are also very straightforward for the people to complete, as it can only be by clicking the radio buttons or ranking comments between 1 and 5.

### 3.2.3 Focus Groups

The focus group is an approach that relies solely on the conversation that the participants create. Members are required not just to reply to the moderators but also to other attendees' comments, and to participate in more contemplation of life observations as others talk. In this project Focus Group Methodology has been used to discuss the requirements of the project and for the design of the website. At the time of the requirements discussion of this project myself being a moderator and involving the chef, owner and admin of the business to do a brain storming and gathering the ideas to build the website.

Focus groups has a very well-documented tradition, however challenged, as a means of gathering data in both public and private sector organisations. These have indeed become a proven and integrated part of the range of analytical methods available to academic researchers in more recent years. Throughout research, focus-group interviews have become extremely prevalent to investigate what people believed or think as well as why they act in the way they do. A focus group is a methodology including the utilization of in-depth group interviews in which individuals are chosen as being a purposeful, but not typically representative, sample of a particular population, this group being 'based' on a specific subject. Focus groups may provide data on a range of participants' thoughts and feelings about other topics, as well as highlight the gaps in viewpoint amongst groups of people.

Qualitative research, and interviewing with focus groups in particular, produce vast volumes of data, that appear to exhaust novices as well as accomplished researchers. The focus group has been very well preplanned in the research literature Conversations represent a type of group conversation in which people are invited to debate particular subjects in a fairly casual environment so that fundamental problems (norms, views, values) relevant to the experiences of all respondents can be revealed.

# **Chapter Four: Design Consideration**

The design considerations are developed in order to draw the developers' exposure to understanding the ideas and specifications of user requirements layout to structures and installations. There were many prototypes that had to be examined before another development process began. The models that were mentioned are Gantt Chart for Project Management, Application ERD chart, Class Diagram, MVC conceptual design, and GUI Development frontend.

### 4.1 User Interface Design (UI Design)

UI design is a critical feature of virtually all computer systems. UI projects have been responsible on several injuries and disasters (Stone et al., 2005). Creation of a web interface is simpler if the author has a good understanding of the website's architecture and format (Galitz, 2007). Initially, for the UI design of the restaurant website project, all web pages were produced and the descriptions were defined for all web pages. This made it a lot easier how many pages the system needs, and how all of the functionality would be arranged on web pages. Furthermore, the Website template has been set. For example, the navigation style, the location of the logo, and the system architecture of functions on web pages. Using the template trend during the development process was easier.

4.2 ERD (Entity Relationship Diagram)

The ERD was seen as a very effective way to incorporate a logical database model. ERD is a visual way of presenting data base knowledge inside the system. Using database developers with an ERD diagram will translate this knowledge to generate a database table (Al-Masree, 2015). It is a structural diagram used in database design which helps the developer visualize the major entities of the system, dataflow and relationships amongst entities. It helped me to identify the tables, fields, and relationship between each table. There are eight tables in this project website Database; they are Customer, Order, Food Items, Payment, Order Details, Order Status, Card Payment and Cash Payment.

### 4.3 Class Diagram

Class diagram defines the device class structure, its properties, methods, and relationships. This is being used for oriented modelling of the proposed application, and for comprehensive modelling that translates the concepts into programming code. Data modelling can also be performed using class diagrams. In this project there are major classes like Customer, Payment, Order and Order Details.

### 4.4 Gantt chart

The Gantt Map is used in the preparation of activities. Following the Gantt chart, completion of tasks in the scheduled timeline becomes simpler. It supported coordinate various project activities in a reasonable period of time and predicted the achievable goal date that required to be within the time limit (Maylor, 2001).