E-ORDER FAST FOOD SYSTEM

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Submitted in partial fulfillment of the Degree of Bachelor of Technology

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CERTIFICATE

This is to certify that the work entitled, "E-Order Fast Food System" submitted by Shashank Thakur *(051404)*, Pankaj Sharma *(051434)* and Aditya Chaudhary *(051442)* in partial fulfillment for the award of degree of Bachelors of Technology in Information and Technology of Jaypee University of Information Technology has been carried out under my supervision. This work has not been submitted partially or wholly to any other University or Institute for the award of this or any other degree or diploma.

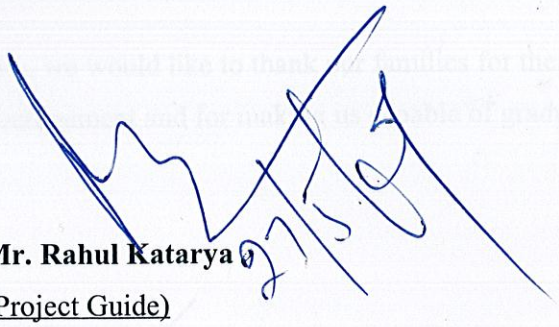

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF ABBREVIATIONS

API	Application programming interface
ASP	Active Server Pages
CGI	Common Gateway Interface
CSS	Cascading style sheets
DBA	Database Administrator
GUI	Graphic User Interface
HTML	Hypertext Markup Language
IIS	Internet Information Services
JSP	JavaServer Pages Technology
LAN	Local Area Network
LCD	Liquid crystal display
ODBC	Open Database Connectivity
OOP	Object-Oriented Programming
PHP	Hypertext Preprocessor language
SQL	Structured Query language
WWW	World Wide Web
XHTML	Extended- hypertext markup language

ABSTRACT

There is a growing culture of take away food orders and in the age of internet , interactive websites can provide an effective way to accept online orders, manage information (food items and orders) and provide post-sales analysis reports for managers using statistics , simple algebra and data mining techniques. Our aim is to develop a system that will serve as a window for sales of food items and therefore help the customer make an informed decision and also help the manager to maintain the records about the customers and the food items along with the orders.

The system has to be attractive in order to make regular customers and increase efficiency of the ordering process. The system is also a handy tool for the manager who will benefit from features like record keeping of the customers, staff, food items and orders. Also the manager can fix food prices ,set status , view customer and staff status along with checking the orders for inconsistencies . The manager can also search the database for various statistics and use the data mining tools to get patterns and an idea about the trends being followed.

A interface for delivery boy is also necessary in order to keep track of deliveries and use the system to check for inconsistencies in delivery . The delivery boy also act as a verification agent of the customer's delivery point and so a address is verified only when a delivery boy has verified it. Also the delivery boy is accountable for deliveries on time and for payments by the customer. The main aim of the system is to replace the traditional telephonic way of food ordering and provide the customers as well as the staff the advantages of web based ordering system that is efficient and productive. The system depends on PHP as the server side scripting language and MySQL provides the database connectivity

CHAPTER 1 PROJECT INTRODUCTION

This chapter gives a overview about the whole project. The chapter contains Background, Objective of the project (why we opted for this project?), a Brief Introduction about the project & its market perspective which describes its application in the present market, and the benefits over other similar available alternatives and benefits arising out of successful implementation of the project.

1.1 Background And Motivation

In India with the growing cultural and economic condition fast food centers have opened in large numbers. Incidentally there also is a growth of internet especially in the urban sector.

Now in this scenario the opportunity to combine the above two factors results in a window of success. The principle of e-commerce when applied to a fast food center results in e-order fast food system. In e-commerce geography and tradition plays a decisive role in determining the approach to build a new system.

In India the window of opportunity lies in tapping the growth of fast food centers and internet penetration.

Taking a clue from existing and traditional technologies it is easy to grasp the way to build a new and efficient system. The system of take away orders through phone has its disadvantages which can be exploited in making new and modern system.

With the modern method and approach a system such build will cater to the new fast food centers and provide them with an efficient and productive system.

Speaking in business terms and efficient and productive web based system translate into profit. By just converting the existing customer base the system will be helpful for the fast food centers.

This is a specific pragmatic solution which can be generalized to add new features and serve different type of businesses.

1.2 Objective of the Project

The selection of the project was a challenging task for us because we wanted to work on a technology which was relatively new, had some commercial viability.

Therefore we selected a web based technology. Now out of various options available in the market our concern was to have a open source, cost effective and platform independent technology which would help us to curtail the project cost and at the same time be customizable (open source) so that as programmers the tweaking of the technology could be done.

In order to depict a worthy real life project we decided upon a new idea that can be developed even after the completion of the project and have high value in the market. A real time project also attracts industry's attention Though the solution is specific but the system can be generalized and applied for other solutions also. The development of project is such that it accommodates addition of future features without hassle.

The technology selected has a wide support base so as to have support in case of implementation, designing, coding etc. or in any other problem.

The project should also be practical and have a real time application. The technology used is currently very popular and has the maximum usage world wide.

The real life application will also help people to use internet and e-commerce in there day to day life as it will form an easy, attractive and fast way to order food.

The commercial implementation attached to such a system increases its value.

1.3 Brief Introduction

The aim of this paper is to introduce a new system of ordering food online , that is both consumer friendly and management convenient .In the Indian context a growing online community and a deeper broadband penetration opens new avenues of doing business online .

Fast Food industry is also on a rise, so a new system is purposed that is simple, attractive and practical in approach and more feature rich than the old phone order traditional system. A new way of making fast food orders (E-Commerce) has many advantages as there are more ways to make an order, the more business can be covered. Therefore, a web-based fast food electronic ordering system is developed.

Provides an effective way to accept online orders, manage information (food items and orders) and provide post-sales analysis reports for managers using statistics , simple algebra and data mining techniques. This system serves as a window for sales of food items and therefore help the customer make an informed decision and also help the manager to maintain the records about the customers and the food items along with the orders.

The system is designed in such a way so as to attract people to tryout the new system , make them regular customers and increase efficiency of the ordering process.

The system is also a handy tool for the manager who will benefit from features like record keeping of the customers, staff, food items and orders. Also the manager can fix food prices ,set status , view customer and staff status along with checking the orders for inconsistencies . The manager can also search the database for various statistics and use the data mining tools to get patterns and an idea about the trends being followed.

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1.4 Benefits

This project was chosen as it inherits many advantages from its underlying technology and the concept.

Some Technological benefits associated with the successful implementation of the system.

Cost Effectiveness –. all the three main technologies i.e. PHP, MySQL & Apache are distributed free for development purposes.

Ease of Use –.all the three technologies are fully documented and wide support networks exists which makes working on them easy and fun.

Open Source Code –.all the three technologies are open source such that the source code is customizable and any new development on them contributes to the open source cause

Cross platform –.a major issue arises when Windows written code has to be run on Linux/Unix or vice versa. But the three technologies run on Windows, Mac OS and Linux/Unix without any problems.

Some Conceptual benefits associated with the successful implementation of the system.

An All Time Open Restaurant – Facilitating the customers to visit the restaurant even during the odd hours, i.e. when the restaurant is closed.

Ability To Remember Last Orders- Enabling the restaurateurs to easily identify the frequent customers and their preferred orders.

No Error Prone Ordering- As a little is left to be done manually; there is no chance of error in ordering.

Various Payment Gateways - Payment can be done via various payment gateways like Pay Pal, Pay upon Delivery etc.

Benefits for Restaurant Owners & Managers

* Tracking the food order
* Tracking hourly sales, General Sales, Weekly Sales, per outlet sales report
* Online customer tracking,
* Customer ordering pattern etc..
* These important details give the owner an idea of the sales/customers,
* Assists in production,
* Forecasting, human resource management
* Customer loyalty,
* Customer preference management etc…

Benefits For the customers

* A dynamic feel of the menu,
* Select from daily special
* Browse the chef's corner
* Create your own combo's
* Select ingredients & toppings
* View ordering pattern
* Send in gift cards & Vouchers
* Advance ordering

CHAPTER 2 PROJECT THEORY

This chapter explains the principle and the technologies on which this project has been made and why were these technologies chosen & what all advantages do these technologies provide over their competitors. This chapter covers the theoretical aspects that are attached with the system

2.1 PHP v5

PHP is Web development language written by and for Web developers. PHP stands for Hypertext Preprocessor. The product was originally named Personal Home Page Tools.

PHP is a server side Scripting language, which can be embedded in HTML or used as a standalone binary(although the former use is much more common).Proprietary products in this niche are ASP, Macromedia, JSP. Some tech journalists used to call PHP "the open source ASP" because its functionality is similar to that of the Microsoft product-although this formulation was misleading, as PHP was developed before ASP. Over past few years, however, PHP and server side java have gained momntum,while ASP has lost mindshare, so this comparison no longer seems appropriate.

PHP is an official module of Apache HTTP server, the market-leading free web server that runs about 67% of the World Wide Web (according to Netcraft Web server survey). This means that the PHP scripting can be built into the web server itself, leading to faster processing, more efficient memory allocation, and greatly simplified maintenance.

PHP5 strives to deliver something many users have been clamouring for over the past few years: much improved object-oriented programming (OOP) functionality. PHP5's newly rebuilt object model brings PHP more in line with other object-oriented languages such as Java and C++, offering support for features such as overloading, interfaces, private member variables and methods, and other standard OOP constructions
PHP4 has two main parts to it:

The Zend Engine : is the part of the PHP package that keeps track of the requests, processes scripting files, and handles variables and resources. *

PHP : implements 90% of the functionality seen by the end user. It provides a wide range of modules such as MySQL, ODBC and XML support.

PHP5's Zend Engine

The Zend Engine is the internal compiler and runtime engine used by PHP.In the given figure all the shaded boxes are optional. PHP Scripts are loaded into memory and compiled into Zend opcodes. These opcodes can now be optimized using an optional peephole optimizer called Zend Optimizer. The opcodes can be optionally cached in memory using several alternative open source products and the Zend Accelerator (formerly Zend Cache), which is a commercial closed source product.

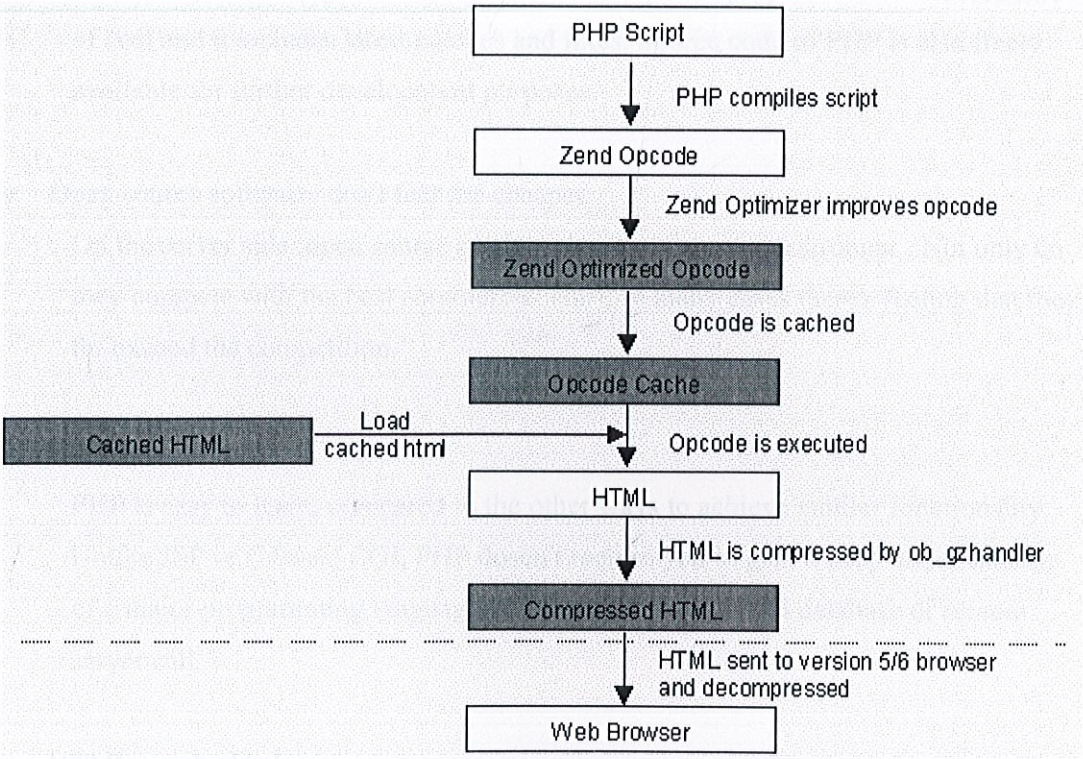


Figure 2.1 Working of PHP scripts through Zend Engine

Reasons for choosing PHP v5

- It cross-platform

  PHP runs on Windows2000/NT/CE/XP and Unix and with both IIS and Apache. But the cross-platform abilities of PHP go far beyond these platforms. If you happen to be using Netscape, Roxen, or just about anything else, it is likely PHP works with it.

- Cost

  PHP cost you nothing. As a open source development project PHP is released free of cost and it includes latest patches and fixes. Source code of PHP is also freely available for further development purposes.

- Open source software: don't fear the cheaper

  On the server side ,open source products have come oneven stronger . Not only do they compete with the best commercial stuff; in many cases there's feeling that they far exceed the competition.

- Ease of Use

  PHP is easy to learn, compared to the other ways to achieve similar functionality. Unlike JSP or C based CGI, PHP dosen't require you to gain a deep understanding of a major programming language before you make a trivial database or remote server call.

- HTML - embeddedness

  PHP is embedded within HTML. In other words , PHP pages are ordinary HTML pages that escape into php mode only when necessary.

- Not tag-based

  PHP is real programming language.In php , you can define functions to your own content just by typing a name and a definition.

- Stability

  Stability means two different things in this context-

  The server dosen't need to be rebooted often.

  The software dosen't change radically and incompatibly from release to release.

- Speed

  PHP is pleasingly zippy in its execution , especially when complied as an Apache module on the Unix side. The MySQL server, once started, executes even very complex quries with huge result set in record-setting time.

- Many extensions

  PHP makes it easy to communicate with other programs and protocols. The PHP development team seems committed to providing maximum flexibility to the largest numbers of users.

- It Accesses Everything

  What do you need to access in the course of creating your Web applications? LDAP? IMAP mail server? Oracle? Informix? DB2? Or maybe you need an XML parser or WDDX functions.

  Whatever you need to use, it is more than likely that PHP has a built-in set of functions that make getting whatever you need very easy

- Popularity

  PHP is fast becoming one of the most popular choices for so-called two-tier development(web plus data)..

- It's Constantly Being Improved

  As it is a open-source development there are thousands of very technical, very talented programmers out there who love to spend their time creating great, and mostly free, software. In an active project such as PHP, a variety of developers look to improve the product almost daily. It is truly remarkable. If you happen to find a bug, you can submit a report to a mailing list that the core developers read. Depending on its severity, it is likely that the bug will be addressed within a couple of hours to a couple of days. When PHP was put together, it was done so in a modular fashion. This makes adding greater functionality reasonably easy. If there are sets of functions you'd like added to PHP, there's a good chance that someone can do it with minimal effort

- Your Peers Can Support You

  Most languages have active mailing lists and development sites. PHP is no exception. If you run into trouble—if there's a bug in your code that you just can't figure out or if you can't seem to fathom some function or another—someone among the hundreds subscribed to PHP mailing lists will be happy to check and fix your code. The open-source nature of PHP creates a real feeling of community. When you get into trouble, your PHP-hacking brethren will feel your pain and ease it.

2.2 MySQL v5.0

MySQL is an open source, SQL Relational Database Management System (RDBMS) that is free for many uses. Early in its history, MySQL occasionally faced opposition due to its lack of support for some core SQL constructs such as sub selects and foreign keys. Ultimately, however, MySQL found a broad , enthusiastic user base for its liberal licensing terms, perky performance, and ease of use.

Acceptance of MySQL was aided in party by the wide variety of other technologies such as PHP, Java, Perl, Python and the like that have encouraged its use through stable, well-documented modules and extensions.

Database in general are most consistently useful family of software products- the "killer product" of modern computing. Like many competing products, both free and commercial

Its popularity for use with web applications is closely tied to the popularity of PHP, which is often combined with MySQL. Several high-traffic web sites (including Flickr, Facebook, Wikipedia, Google, Nokia and YouTube) use MySQL for its data storage and logging of user data.

MySQL is written in C and C++. The SQL parser uses yacc and a home-brewed lexer, sql_lex.cc. The MySQL server and official libraries are mostly implemented in ANSI C/ANSI C++.

MySQL works on many different system platforms, including AIX, BSDi, FreeBSD, HP-UX, i5/OS, Linux, Ubuntu, Mac OS X, NetBSD, Novell NetWare, OpenBSD, OpenSolaris, eComStation, OS/2 Warp, QNX, IRIX, Solaris, Symbian, SunOS, SCO OpenServer, SCO UnixWare, Sanos, Tru64 and Microsoft Windows.

Libraries for accessing MySQL databases are available in all major programming languages with language-specific APIs. In addition, an ODBC interface called MyODBC allows additional programming languages that support the ODBC interface to communicate with a MySQL database, such as ASP or ColdFusion.

The conceptual architecture of MySQL which is a view of the control flow of the MySQL system

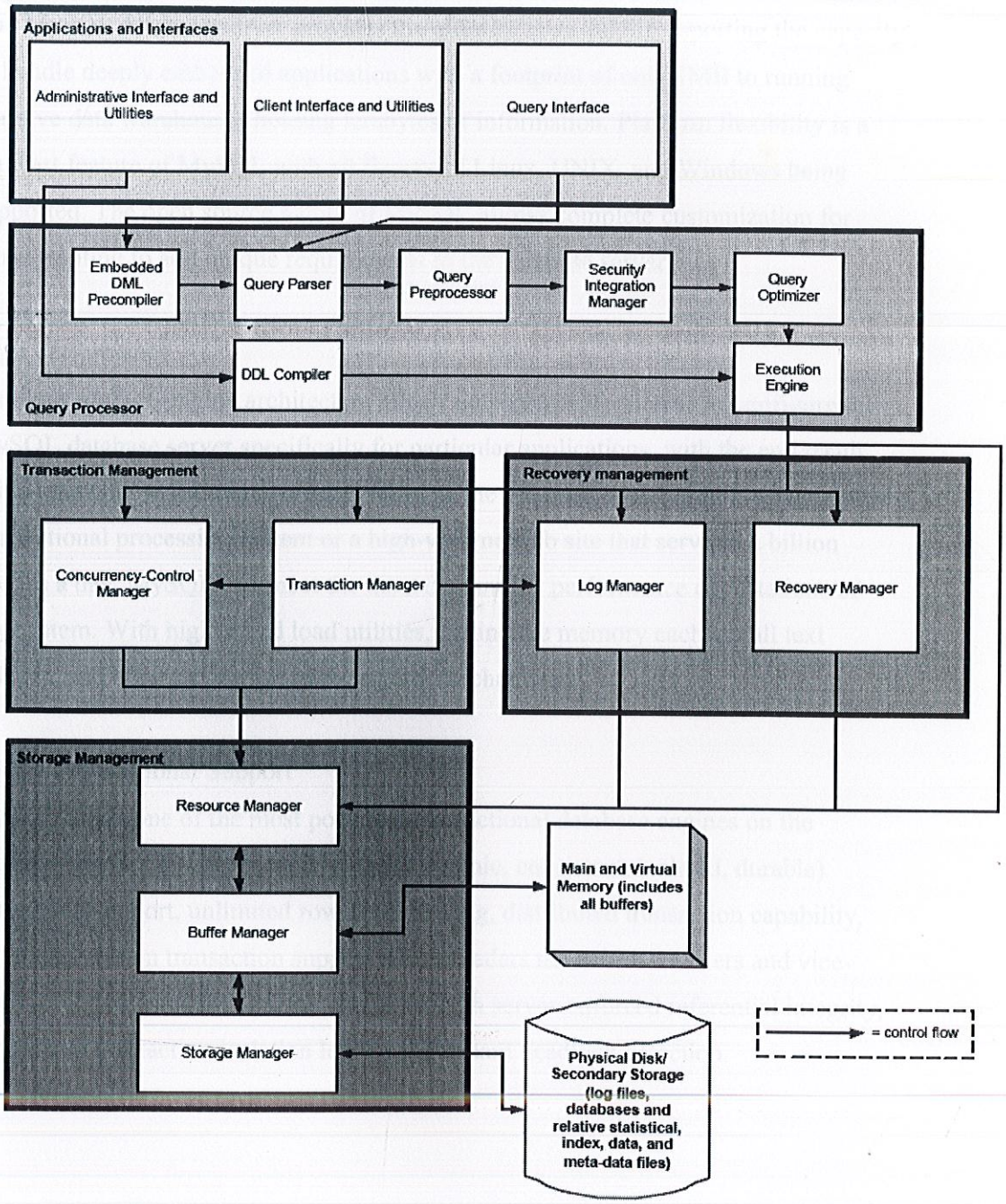


Figure 2.2 Detailed Heterogeneous Conceptual MySQL

Reasons for choosing MySQL v5

- Scalability and Flexibility

  The MySQL database server provides the ultimate in scalability, sporting the capacity to handle deeply embedded applications with a footprint of only 1MB to running massive data warehouses holding terabytes of information. Platform flexibility is a stalwart feature of MySQL with all flavors of Linux, UNIX, and Windows being supported. The open source nature of MySQL allows complete customization for those wanting to add unique requirements to the database server.

- High Performance

  A unique storage-engine architecture allows database professionals to configure the MySQL database server specifically for particular applications, with the end result being amazing performance results. Whether the intended application is a high-speed transactional processing system or a high-volume web site that services a billion queries a day, MySQL can meet the most demanding performance expectations of any system. With high-speed load utilities, distinctive memory caches, full text indexes, and other performance-enhancing mechanisms.

- Robust Transactional Support

  MySQL offers one of the most powerful transactional database engines on the market. Features include complete ACID (atomic, consistent, isolated, durable) transaction support, unlimited row-level locking, distributed transaction capability, and multi-version transaction support where readers never block writers and vice-versa. Full data integrity is also assured through server-enforced referential integrity, specialized transaction isolation levels, and instant deadlock detection.

- High Availability

  Rock-solid reliability and constant availability are hallmarks of MySQL, with customers relying on MySQL to guarantee around-the-clock uptime. MySQL offers a variety of high-availability options from high-speed master/slave replication configurations, to specialized

- Web and Data Warehouse Strengths

  MySQL is the de-facto standard for high-traffic web sites because of its high-performance query engine, tremendously fast data insert capability, and strong support for specialized web functions like fast full text searches. These same strengths also apply to data warehousing environments where MySQL scales up into the terabyte range for either single servers or scale-out architectures.

- Strong Data Protection

  Because guarding the data assets of corporations is the number one job of database professionals, MySQL offers exceptional security features that ensure absolute data protection. In terms of database authentication, MySQL provides powerful mechanisms for ensuring only authorized users have entry to the database server, with the ability to block users down to the client machine level being possible..

- Comprehensive Application Development

  Within the database, support can be found for stored procedures, triggers, functions, views, cursors, ANSI-standard SQL, and more. For embedded applications, plug-in libraries are available to embed MySQL database support into nearly any application. MySQL also provides connectors and drivers (ODBC, JDBC, etc.) that allow all forms of applications to make use of MySQL as a preferred data management server. It doesn't matter if it's PHP, Perl, Java, Visual Basic, or .NET, MySQL offers application developers everything they need to be successful in building database-driven information systems.

- Management Ease

  MySQL offers exceptional quick-start capability with the average time from software download to installation completion being less than fifteen minutes. This rule holds true whether the platform is Microsoft Windows, Linux, Macintosh, or UNIX. Once installed, self-management features like automatic space expansion, auto-restart, and dynamic configuration changes take much of the burden off already overworked database administrators. MySQL also provides a complete suite of graphical management and migration tools that allow a DBA to manage, troubleshoot, and control the operation of many MySQL servers from a single workstation.

- Cost-Effective

  MySQL is free for development and can be used in a live production environment for a minimal cost. The use of the MySQL database server and scale-out architectures that utilize low-cost commodity hardware, corporations are finding that they can achieve amazing levels of scalability and performance, all at a cost that is far less than those offered by proprietary and scale-up software vendors

- Improving All the Time

  MySQL is improving at a staggering rate. The developers release updates frequently and are adding impressive features all the time. Along with it MySQL providers around-the-clock support as well as indemnification is available through MySQL Network

2.3 Apache v2.2

A Web Server is any Machine that receives requests from a client machine and is able to turn around process the requests and send back a response. This is usually in terms of a Web Server to send back a Web pages when people what to go navigate to a webpage that is hosted on that server now one may ask how do you send and receive the information to and from the server. This is where HTTP begins to play a role into how this all goes about. Apache is a open source HTTP web server. It handles HTTP Requests sent to it and then it is able to them. Very easy to implement and very easy to add extend its abilities by the adding of different modules.

Version 2 of the Apache server has a strong focus on modularization and the development of a portability layer, the Apache Portable Runtime. Major features are UNIX threading, better support for non-Unix platforms (such as Microsoft Windows), a new Apache API, and IPv6 support. Popular authentication modules include mod_access, mod_auth, mod_digest, and mod_auth_digest, the successor to mod_digest. A sample of other features include SSL and TLS support (mod_ssl), a proxy module, a URL rewriter (also known as a rewrite engine, implemented under mod_rewrite), custom log files (mod_log_config), and filtering support (mod_include and mod_ext_filter).

Virtual hosting allows one Apache installation to serve many different actual websites. For example, one machine with one Apache installation could simultaneously serve www.example.com, www.test.com, test47.test-server.test.com, etc.

Apache features configurable error messages, DBMS-based authentication databases, and content negotiation. It is also supported by several graphical user interfaces (GUIs)

Apache is redistributed as part of various proprietary software packages including the Oracle Database or the IBM WebSphere application server. Mac OS X integrates Apache as its built-in web server and as support for its WebObjects application server. It is also supported in some way by Borland in the Kylix and Delphi development tools. Apache is included with Novell NetWare 6.5, where it is the default web server. Apache is also included with many Linux distributions.

The overall overview of the Apache Web Server is comprised of a Modular approach to the way the system is built instead of just having the server just be one piece of code handling everything. This in turn allows for more robustness and allow for better customization without getting rid of the security that is implemented within the Apache Core.In order to achieve this Modular Approach the Apache Designers decided to break down the server into two main Components.

- The Apache Core: Which Handles the Basic functionality of the Server. Such as allocating requests and maintaining and pooling all the connections.
- The Apache Modules: Which are in a sense the added extensions to the server which handle a lot of the other types of processing the server must achieve such as doing user Authentication.

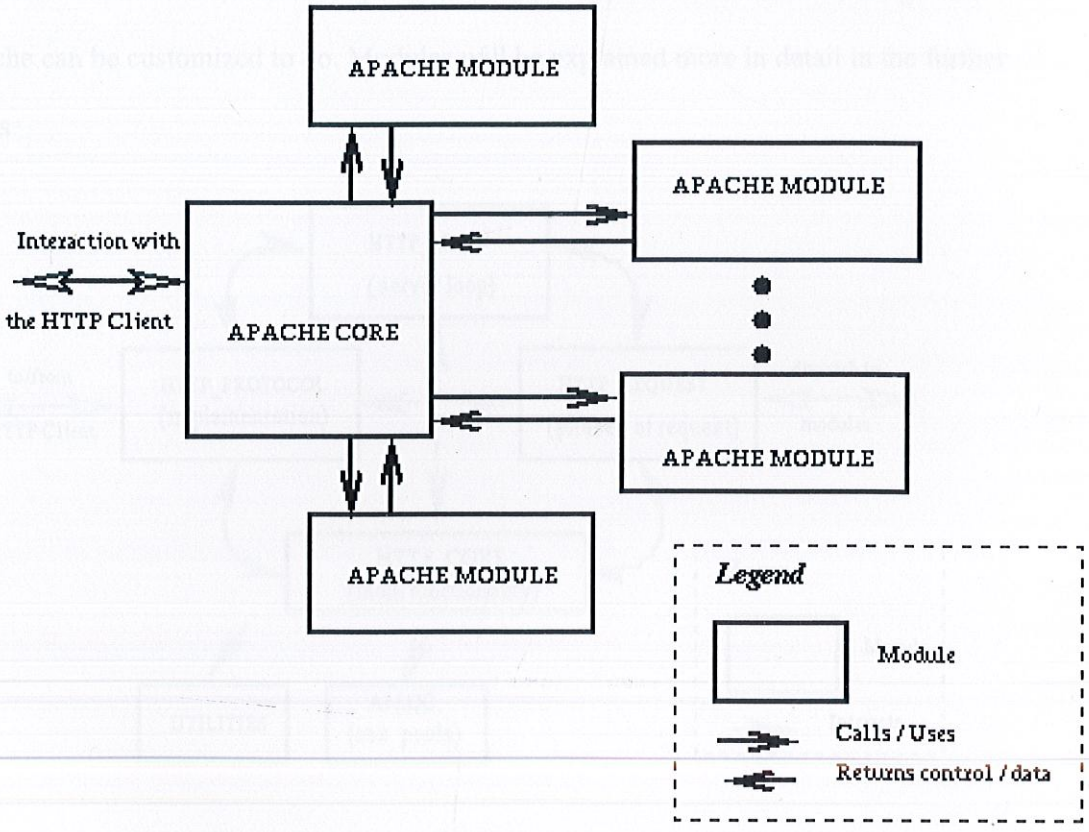


Figure 2.3 Apache Overview Diagram

Apache Core

This is what usually occurs in the Apache Core in a sense an overview of the flow that happens in the Apache Core. This is the Apache Core interacting with all the other components that surround it. These are the core components of the Apache architecture. The purpose for this was that the designers wanted to keep every component that didn't need each other separate so they made them into modules. So this is what was left after everything was left. So this is the Basic "brain" of the Apache Web Server. The core components are a series of classes that handle specific tasks. These should not be confused with modules, which are just add on implementations of different things that Apache can be customized to do. Modules will be explained more in detail in the further slides

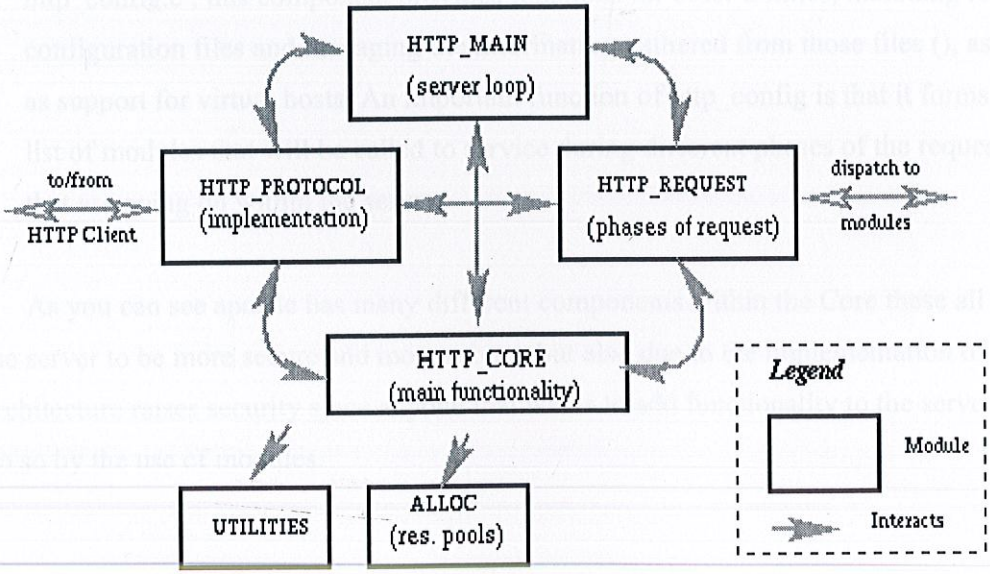


Figure 2.4 Apache Core Diagram

The core components of make up the Apache core are as follows:

- http_protocol.c: This is the component that handles all of the routines that communicate directly with the client by using the HTTP protocol. This is the component that knows how to also handle the socket connections through which the client connects to the server. All data transfer is done through this component.
- http_main.c: this component is responsible for the startup of the server and contains the main server loop that waits for and accepts connections. It is also in charge of managing timeouts.
- http_request.c: This component handles the flow of request processing, passing control to the modules as needed in the right order. It is also in charge of error handling.
- http_core.c: the component implementing the most basic functionality, it just bairly serves documents.
- alloc.c: the component that takes care of allocating resource pools, and keeping track of them.
- http_config.c : this component provides functions for other utilities, including reading configuration files and managing the information gathered from those files (), as well as support for virtual hosts. An important function of http_config is that it forms the list of modules that will be called to service during different phases of the requests that are going on within the server.

As you can see apache has many different components within the Core these all allow the server to be more secure and more robust, but also due to the implementation of the architecture raises security since anyone that wants to add functionality to the server must do so by the use of modules.

Reasons for choosing Apache v2.2

- Easy to administrate:

  The administration is one of the main elements of all kind of servers. With Apache Server you won't have administration problems that can be easily solved. Apache Server has a list of configuration files that are well documented with all the necessary information in order you can read and inform yourself about all the features and settings of the Apache Server. Furthermore this configuration files are in ASCII format and can be handed without any complication.

- Apache Web Server is Open:

  The API of Apache Server belongs to the Open Source Community. In other words, you will be able to add inexistent modules to Apache Server written for you. Also you can write your own code and adapt to your Apache Server features and improvements that fit with your needs. The popularity of Apache is the product of the integration of thousand of programmers and advanced users around the globe, suggesting important changes and improvement to create a robust web server as Apache.

- Apache Web Server is Efficient:

  The efficient of Apache is a great virtue for a web server. Apache Server has accomplished what not all the web servers can do. All the efforts in get an Apache Server more optimized have been really successful. Today we can see the fruit of a very stable and mature web server with a great efficiency like no other web server on the earth.

- Portability and Support:

  The greatest benefit of the Open Source Community is the support of their five-star-software is bigger than other software in the market. Also Apache offers a wonderful portability that can be installed and operated under multiple platforms with a high level of portability.

2.4 LCD Display System

A display system has been developed for the cook . Through the LCD screen the cook will be able to see the order and the input will be regulated by the manager. from the computer.

For this a LCD , a parallel port connector ,some additional wires and a port program were the requirements.

A 16 x 2 LCD attached to a Hitachi hd44780 microcontroller, is used

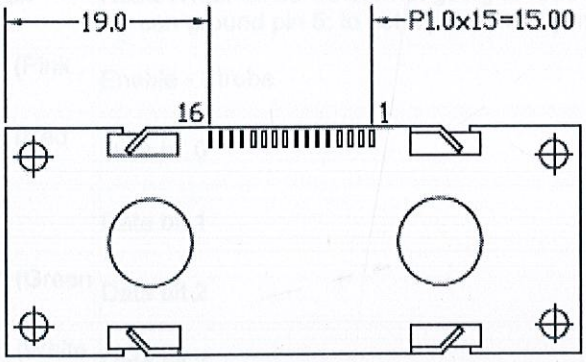


Figure 2.5 Backside view of LCD attached to hd44780 microcontroller

PIN ASSIGNMENT

16 PIN CONNECTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	VSS	VDD	VO	RS	R/W	E	DB0	DB1	DB2	DB3	DB4	DB5	DB6	DB7	A	K

Figure 2.6 16 Pin assignment of hd44780 attached LCD

Interfacing the LCD to the computer through parallel port

LCD pin	Connect to	Function
1	Earth (Black wire on Molex connector)	Earth
2	+5V (Red wire on Molex connector)	Power
3	Earth (Black wire on Molex connector)	This adjusts the contrast of the LCD digits. Earthing pin 3 provides maximum contrast. A 10k pot can be used to provide a variable value if required.
4	Parallel Port pin 16 (Green/white wire)	Register Select
5	Earth (Black wire on Molex connector)	Read/Write. Since we are not going to read data from the LCD, we can ground pin 5; to set it permanently in write mode.
6	Parallel Port pin 1 (Pink wire)	Enable - Strobe
7	Parallel Port pin 2 (Red wire)	Data bit 0
8	Parallel Port pin 3 (Yellow wire)	Data bit 1
9	Parallel Port pin 4 (Green wire)	Data bit 2
10	Parallel Port pin 5 (White wire)	Data bit 3
11	Parallel Port pin 6 (Blue wire)	Data bit 4
12	Parallel Port pin 7 (Purple wire)	Data bit 5
13	Parallel Port pin 8 (Pink wire)	Data bit 6
14	Parallel Port pin 9 (Grey wire)	Data bit 7

Figure 2.7 Table of Pin connections from LCD to Parallel port

Circuit diagram of the LCD to Computer connection

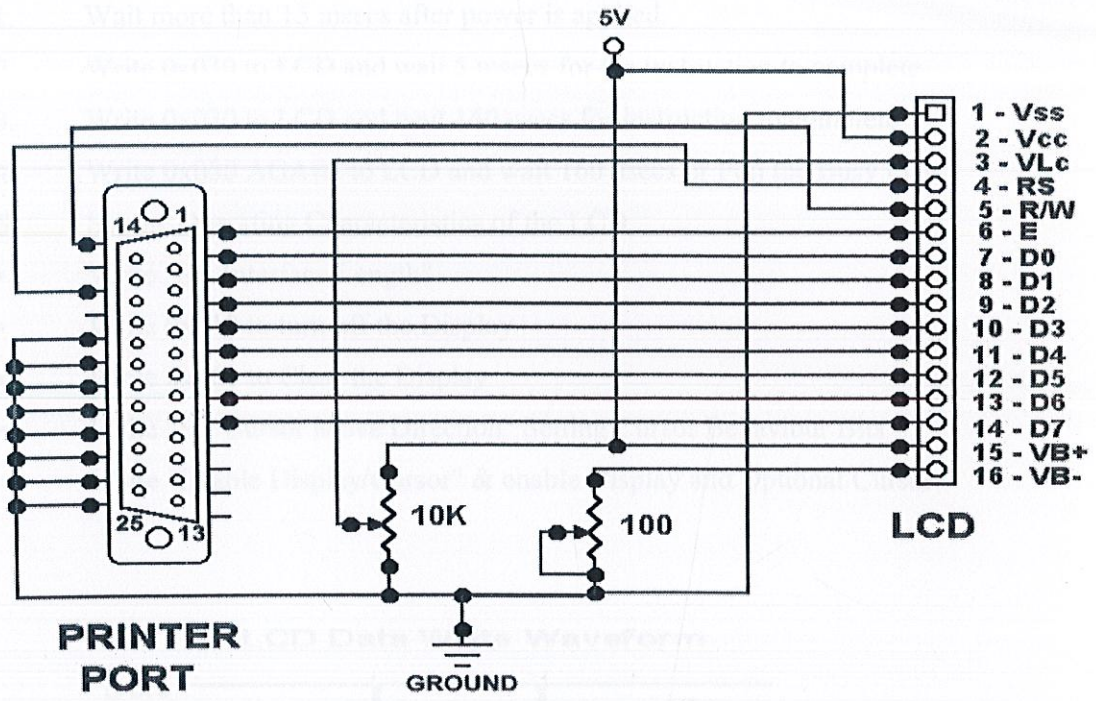


Figure 2.8 Circuit diagram of Pin connections from LCD to Parallel port

The interface is a parallel bus, allowing simple and fast reading/writing of data to and from the LCD. This waveform will write an ASCII Byte out to the LCD's screen. The ASCII code to be displayed is eight bits long and is sent to the LCD either four or eight bits at a time.

Sending parallel data as either four or eight bits are the two primary modes of operation. While there are secondary considerations and modes, deciding how to send the data to the LCD is most critical decision to be made for an LCD interface application

Before you can send commands or data to the LCD module, the Module must be initialized. For eight bit mode, this is done using the following series of operations:

1. Wait more than 15 msecs after power is applied.
2. Write 0x030 to LCD and wait 5 msecs for the instruction to complete
3. Write 0x030 to LCD and wait 160 usecs for instruction to complete
4. Write 0x030 AGAIN to LCD and wait 160 usecs or Poll the Busy Flag
5. Set the Operating Characteristics of the LCD

- Write "Set Interface Length"
- Write 0x010 to turn off the Display
- Write 0x001 to Clear the Display
- Write "Set Cursor Move Direction" Setting Cursor Behaviour Bits
- Write "Enable Display/Cursor" & enable Display and Optional Cursor

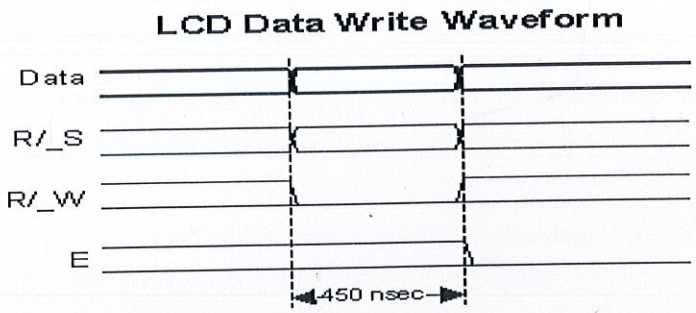


Figure2.9 LCD data write waveform

CHAPTER 3 PROJECT DESCRIPTION

This chapter gives the detailed description of the modules of the project. The modules have been described right from ideation till incubation. The entire design, architecture, circuits, working and optimization have been included.

3.1 Architecture

E-Order Fast Food System needs a Server to run on , a Browser for interface & display, and a middleware application to control it. Simply stated it is a web based system and this web based system works off a client/server architecture. Simply stated, that means that both a central server and a client application are responsible for some amount of processing. This setup differs from that of a program such as Microsoft Word, which operates just fine without any help from a server

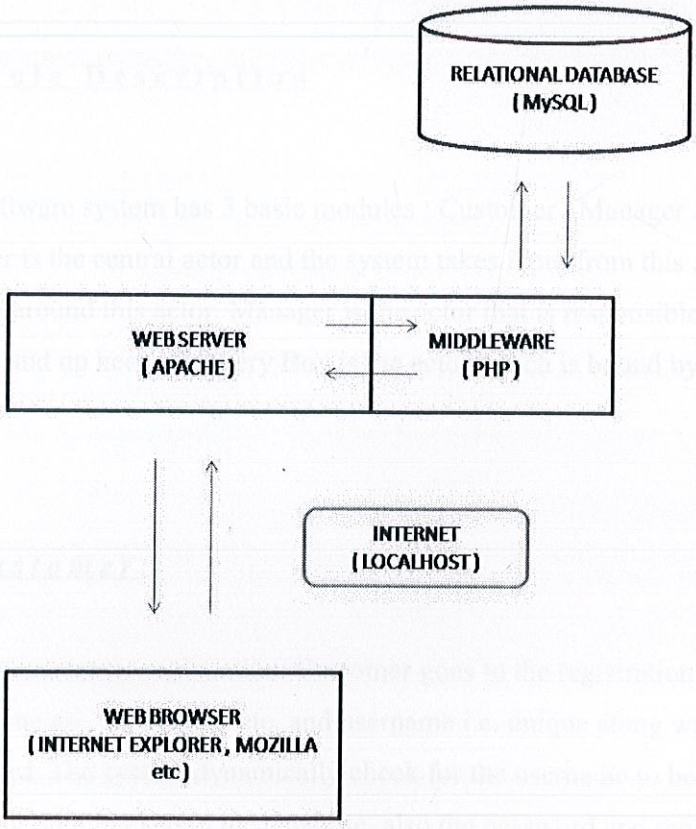


Figure 3.1 A 3-Tier architecture of the web application

The only client that to be concerned with is the Web browser. The applications need to generate HTML to be rendered in the browser.

Almost all of the work of Web applications takes place on the server. A specific application, called a Web server, is responsible for communicating with the browser. A relational-database server stores whatever information the application requires. Finally, a language is needed to broker requests between the Web server and the database server; it is also used to perform programmatic tasks on the information that comes to and from the Web server

3.2 Module Description

The software system has 3 basic modules : Customer , Manager and Delivery Boy. The customer is the central actor and the system takes input from this actor. the design of the system is around this actor. Manager is the actor that is responsible for the system's maintenance and up keep. Delivery Boy is the actor which is bound by the system's time constraints.

3.2.1 *Customer*:

First is the customer registration. Customer goes to the registration form and adds name, telephone no., id, address etc. and username i.e. unique along with the password and repassword. The system dynamically check for the username to be unique and no same username should exist in the database, also the password and repassword match and is minimum 8 characters long and at max 20 characters with no special characters are allowed. The address has drop down menu indicating some places out of which customer chooses a place that he thinks nearest to his place.

After submit e-mail will be dispatched to customer indicating his status-

-verified

-unverified

-date of joining

-customer id

If a registered customer has made some error or change in his address then he can change it in profile by logging in.

After Customers logged in-

Once logged in , the page that the user will see the status "verified or unverified and defaulter or ok" , last visited date and time last order date and time.

-Now an order is placed

On the first page links to the entire menu that is to be offered if e.g. customer clicks Pizza, he is taken to all the varieties of Pizza.

Format will be item code no., description, price, status. Similarly for other food items and for extras. The price is taken from the database and is set by the top manager and the status "available or unavailable" is displayed and the value is taken from the database and is updated by the branch manager.

There are different options for a new (unverified) and a verified customer .

A verified customer is allowed to order anything that is available and also that special promotions and discounts for verified customers are shown as messages in the text box and links will also be there to further explain the offers.

A unverified customer is allowed to order food items upto Rs 250 only and this is checked by the system.

The acceptance of the order is done by the branch manager and the customer gets a mail about his order status from the manager and the same is updated to the order database and a message is also shown in the text box provided to user.
A customer has a link to view his past orders and see the time of order, its delivery time , its cost etc. also the customer can see his total number of orders , his total bill or his last month's bill &orders.

3.2.2 *Manager*:

Manager is pre-registered with all the details.
There are 2 kinds of managers 1st branch manager that is responsible for each branch and 2nd top manager who has authority over all other branch manager.
The branch manager when logged in has various options to choose from but the main work of a branch manager is to maintain the record of customer as well as staff and also check for the food availability status order status and delivery status. He also has to compile the sales and analyze them weekly, monthly, quarterly and yearly for this the system will provide him options to compute the overall sales, item specific sales, customer specific sales and keep records of raw materials.
The Top manager is responsible for the overall upkeep of all the restaurants and also supervises various branch managers and view & analyse various reports.

- Branch Manager

The branch manager is responsible for the inventory & update the system with information regarding to the food items (raw material) being purchased and at the rate, whom and when they are purchased but the branch manager does not have the permission to set the prices of the food item to be sold. This access is with the food manager to set the sales price for e.g. branch manager can update the database with raw material item

like cheese, wheat and toppings there cost price from where they have been purchased and what amount they have been purchased.
The branch manager also sees inconsistencies in the delivery database which takes input from the delivery boy and includes time of order which is taken from customer the delivery time which the customer will give and the delivery time by the delivery boy.

If the delivery boy makes a delivery after the delivery time when he has to update the same time in the delivery database and has to state region of late delivery if applicable. The branch manager on his part will check if the delivery date by the customer matches with the with the delivery time of the delivery boy. If there is a inconsistency then the system will automatically inform the branch manager about the inconsistency. The branch manager will also have data mining tools such as finding the most popular food items, finding the most valued customers who spend a given amount of money using the K-mean algo., making of decision tree based on popularity of the food item. The branch manager will keep the record about staff the salary they take. There identification (PAN no. , Driving license)

Branch manager has option to view the results in graphical form like pie charts , graphs etc.
The branch manager has access to all the databases but he can not fix the selling price of the food items. but the branch manager can only see information regarding his own branch so there should be a mechanism that lets the branch manager select his own branch information and not other's. there fore he can input data relevant to his own branch and do analysis of data that is relevant to his branch.

- Top Manager

Top manager presides over the branch manager & has statistical as well as data mining tools for analysis. Basically a top manager is head of all managers and he sets the

selling price of food items. All the items have the same price in all the branches but a top manager can also set prices for the same item different for different branches.

The top manager has all the tools available to his branch managers like sales analysis , data mining tools but he can compile the data branch wise or as data of all branches put together. Therefore a analysis about different branch performance parameters is possible.

3.2.3 *Delivery Boy*:

The basic job of delivery boy is to verify customer's address and enter the time of order delivered and the payment made or not.

The registration of the delivery boy is done by the branch manager i.e a delivery boy is pre registered.

Once the delivery boy logs on to the system , he has 3 options 1st to just verify a new customer's address , 2nd to input payment details of a verified customer or 3rd to input payment details and also verify the customer who has for the first time made a order.

For the first option , when the delivery boy verifies a customer's address , a mail is sent to the branch manager to set that customer's status to verified or unverified. if the customer is found to be unverified by the delivery boy then that address is copied to a defaulter's table and next time a same address is registered by the customer then that customer will not have the right to order food till he is verified.

For the second option delivery boy has to add the delivery time and the bill's amount , there will also be options that will ask him if he was late in delivering the order & if yes the reason and also if the customer made any default.

For the third option above 2's union apply. All this is saved in the delivery database.

The Delivery Boy is managed by the system through time constraints

3.3 Methodology

For the development of the system the programming platform used is PHP (version 5) as it is simpler in coding but provides features that are not only powerful but easier to code and embed and also due to the back end support (database integration) provided by PHP which is fast and reliable. Basic web site design is HTML along with CSS and also Java script is used. For the back end MySQL 5.0.51b provides database connectivity. The web server used is Apache 2.2.9 which provides the platform on which the system runs. The system has been optimized for running on Mozilla Firefox 3.x .

The database is handled by a GUI application 'phpMyAdmin' that makes it simpler to work with the MySQL database. Apache 2.2.9 is the web server used which makes the computing machine ready to run PHP scripts.

The methodology used to develop the system includes the integration of PHP script into the HTML code and wide use of C like functions in PHP that are used to process the data and display that required result.

Our main emphasis have been

a. Faster Page-Loading Speed
b. Keep GUI simple and meaningful
c. Limit the use of animation and/or multimedia plug-in requirements
d. Provide 'text-only' choice
e. Provide contact information on each page
f. Use simple background colors and textures
g. Limit registration forms and the amount of requested information on them
h. Avoid 'Under Construction' signs
i. Use well labeled, accurate (no broken) links
j. Use long pages with links rather than subsequent pages
k. Generate a confirmation page after a consumer makes a purchase

3.4 Phases Of The Project

3.4.1 *Assembly*

PHP and MySQL are usually associated with LAMP (Linux, Apache, MySQL, PHP). However, most PHP developer (including me) are actually using Windows when developing the PHP application. So this page will only cover the WAMP (Windows, Apache, MySQL, PHP). You will learn how to install Apache, PHP, and MySQL under Windows platform.

The first step is to download the packages:

* Apache: www.apache.org
* PHP: www.php.net
* MySQL: www.mysql.com

One should get the latest version of each package. As for the use in this project we are using Apache 2.2.9, PHP 5. and MySQL 5.0.51b

CONFIGURE APACHE

1. Follow the on-screen instructions, install like any normal programs.
2. Whatever inquiries regarding domain name or server name use "localhost" (meaning your computer) so that by default your computer's domain when you launch you Intranet will be "http://localhost". Imagine localhost as "adomain.com" or something like that. Logically your email address is you@localhost.

3. Find the first word(s) of the following and add the following setting(s)

- DocumentRoot

: by default it is "D:/Web server"

: change to where you want to set your active domain, if you install everything in C:/ then type

DocumentRoot "C:/"

: so that means, your entire C:/ drive is an Intranet access

- <Directory "D:/Web server">

if you notice the guideline included in the configuration file, it is recommended to change this to the same as DocumentRoot

- ServerName

: by default it is empty

: change to localhost

- DiretoryIndex

: by default you will have DirectoryIndex index.html.var

: change to... DirectoryIndex index.html index.php index.html.var

: meaning, the first file to look for is index.html, so if you type http://localhost it is actually pointing to http://localhost/index.html

: if index.html is missing, index.php will be looked for

: set your priority for which file to lookup first, normally we use index.html

4. Finally, add the following at the last line of your httpd.conf file, just cut and paste

LoadModule php5_module "C:/php5/php5apache2.dll"

AddType application/x-httpd-php .php

5. Change the directory setting of your php5_module to a file called php5apache2.dll

: by default, in PHP5, the directory for this module is in C:/php5/php5apache2.dll but just to make sure, try finding the file :)

CONFIGURE MySQL5

1. Unzip and execute the "Setup.exe" file. Install like a normal program. By default, I assume you install it in C:/MySQL5
2. Any further configurations during installation shouldn't be changed, but if you feel you should there's no harm trying though

CONFIGURE PHP5

1. Unzip php-5.1.2-Win32.zip to a directory. If you installed MySQL5 as C:/MySQL5 then appropriately unzip PHP5 as C:/PHP5
2. Unzip php-5.1.2-installer.exe and run the installer. Install in C:/PHP5 directory (same as php-5.1.2-Win32.zip unzip directory)
3. No changes required, everything is set when we installed Apache earlier
4. Except, copying the files php.ini and libmysql.dll in your PHP5 installation directory to C:/WINDOWS

: php.ini is the configuration file for PHP

: libmysql.dll is the required module to run MySQL using PHP5. In older versions of PHP, the modules are automatically included

Another much simple and easy alternative also exists that not only installs PHP, Apache and MySQL but also installs extra useful tools and provide a simple graphical interface. The name of the installer package is Xampp , it is free and easy to install.
We have used Xampp V2.5 installer package as installing individually the three technologies and then to synchronize them is a lot of work and even one mismatch in any one of them leaves the operating system hangin.

3.4.2 *Database Design*

For design purposes we built a E-R (Entity Relation) diagram that would help us design the database according to our needs . Entity-Relationship Model (ERM) is an abstract and conceptual representation of data. Entity-relationship modeling is a database modeling method, used to produce a type of conceptual schema or semantic data model of a system, often a relational database, and its requirements in a top-down fashion.

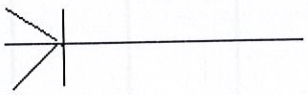
The first stage of information system design uses these models during the requirements analysis to describe information needs or the type of information that is to be stored in a database. The data modeling technique can be used to describe any for a certain universe of discourse (i.e. area of interest). In the case of the design of an information system that is based on a database, the conceptual data model is, at a later stage (usually called logical design), mapped to a logical data model, such as the relational model; this in turn is mapped to a physical model during physical design.

Relationship Types :

* One to Many
* Many to Many
* One to One

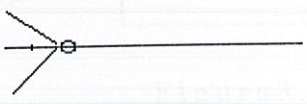
Notations:

Min 1 Max 1 Mandatory



Min 1 Max Many Mandatory

Min 0 Max 1 Optional



Min 0 Max Many Optional

E-R Diagram for the whole database

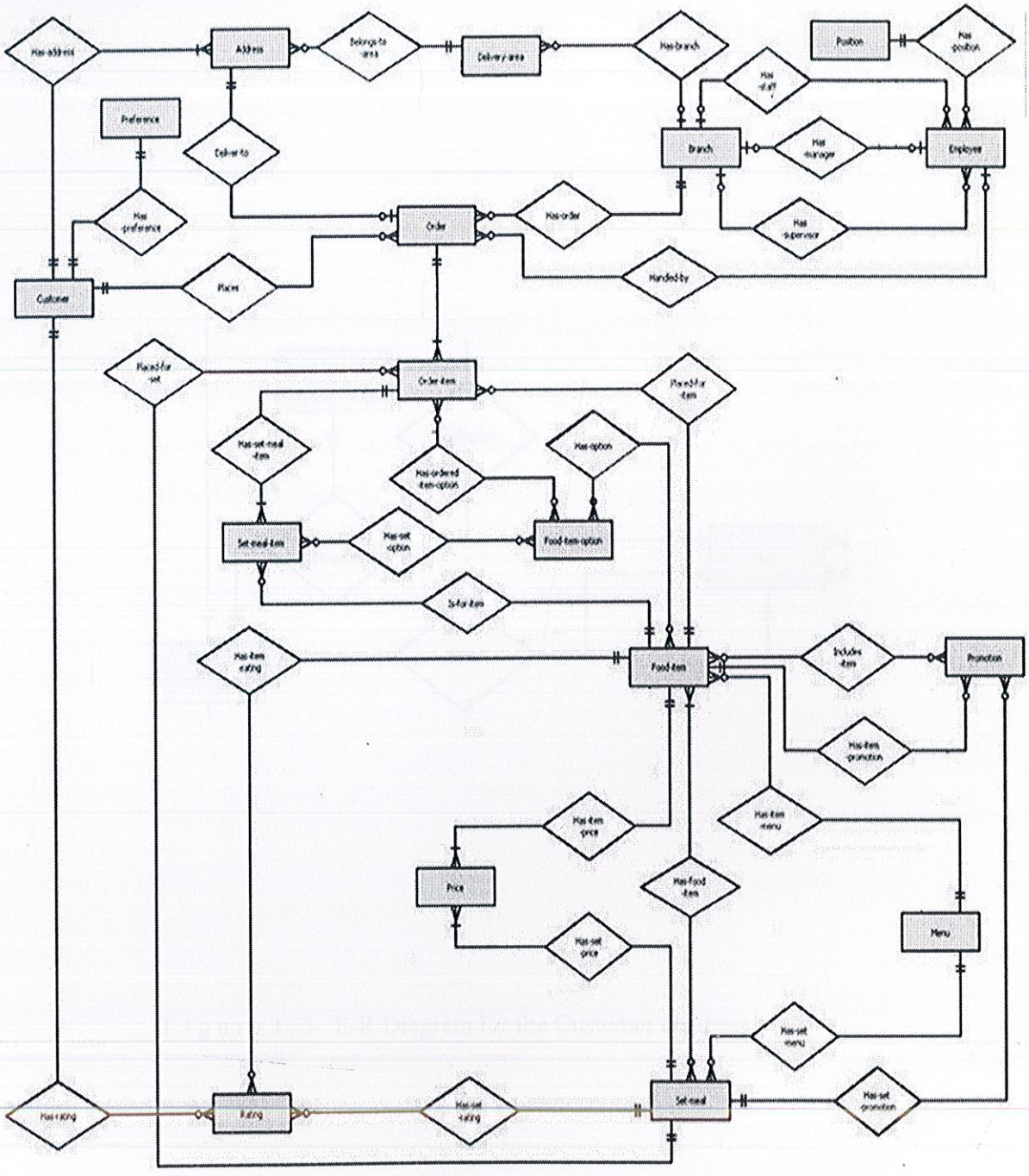


Figure 3.2 E-R Diagram for the whole database

E-R Diagram for the Customer Portion

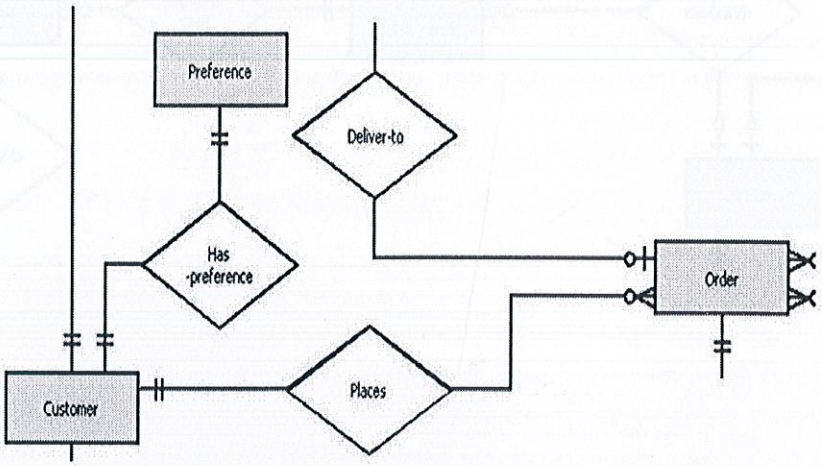


Figure 3.3 E-R Diagram for the Customer database

E-R Diagram for the Delivery Portion

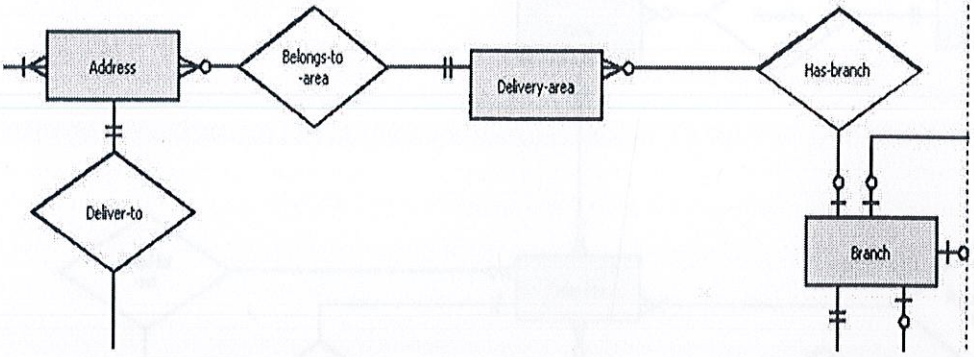
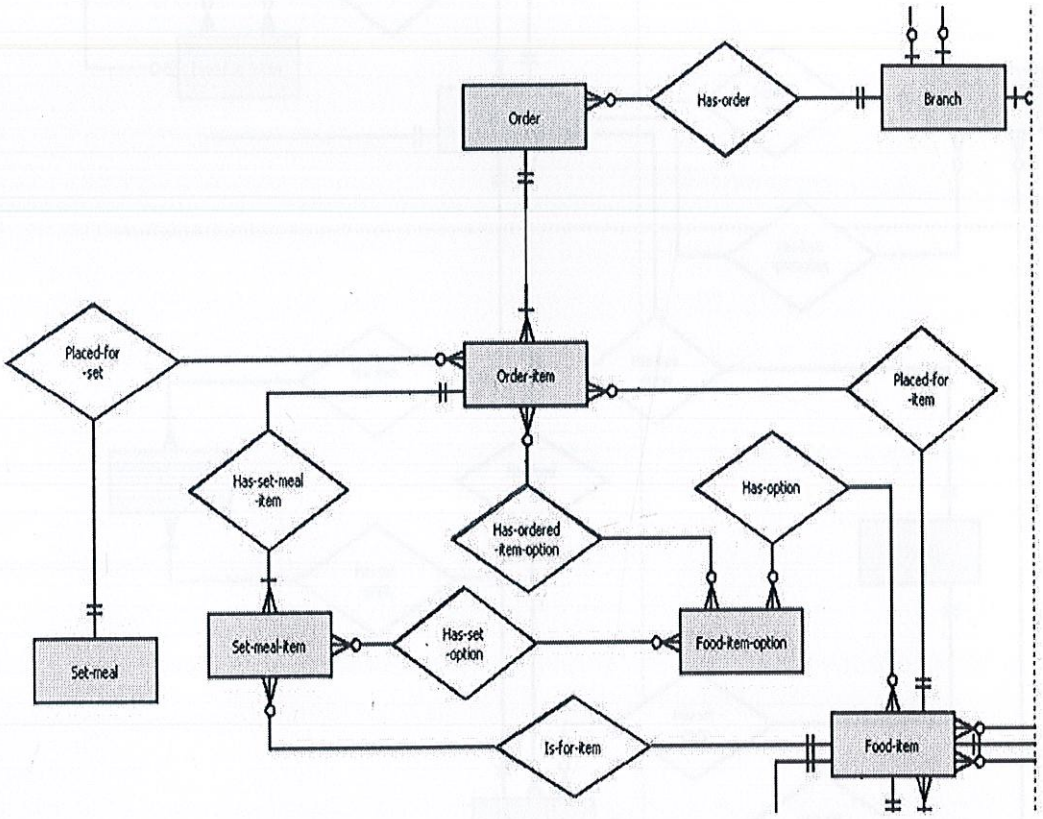


Figure 3.4 E-R Diagram for the Delivery database

E-R Diagram for the Order Portion



F i g u r e 3 . 5 E-R Diagram for the Order database

E-R Diagram for the Food Portion

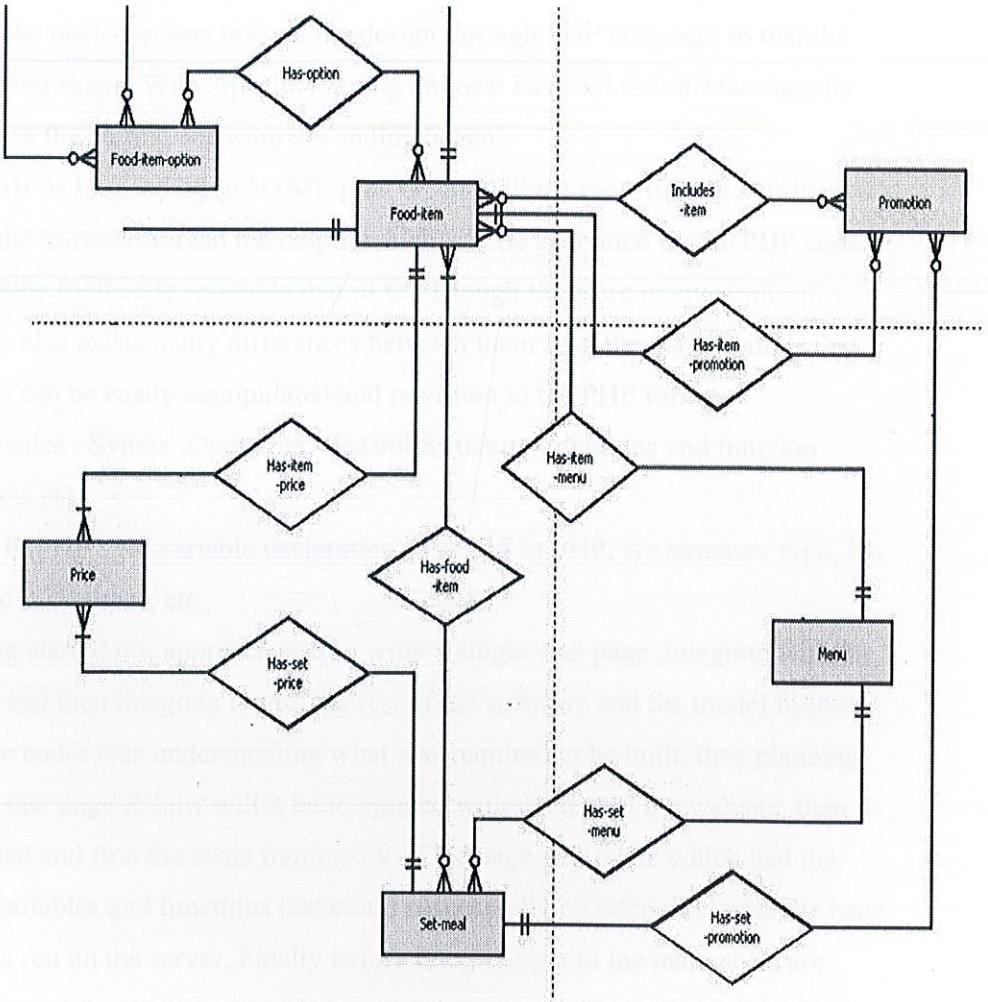


Figure 3.6 E-R Diagram for the Food database

3.4.3 *Implementation & Testing*

For the implementation part after the successful installation of PHP v5, Apache Server v2 and MySQL v5 and after designing the database which would be the guiding factor , the next step was to code the design through PHP language so that the system starts taking shape. With Apache running on local hast and use of Macromedia Dreamweaver 8 as the editing software the coding began..

Coding in PHP is like coding in HTML plus C . In PHP the tag structure is followed so as to enable the browser to read the output which will be generated by the PHP code by the syntax of the PHP code resemble that of C . Though there are many similarities in C and PHP there also exists many differences between them , but the main point is that a code written in c can be easily manipulated and rewritten in the PHP form

Some similarities : Syntax ,Operators, Control Structure, functions and function names, objects.etc.

Differences In PHP : No variable declaration, Use of $ in PHP, No structure type, No Pointers , No Prototypes, etc

So the coding started our approach was to write a single web page ,integrate with the backend , test it and then integrate it with the rest of the software and the model followed while writing the codes was understanding what was required to be built, then planning on how to build that page & how will it be integrated with the rest of the website, then coding was started and first the basic framework of the page was made which had the bare minimum variables and functions that could successfully be integrated with the back end and could be run on the server. Finally before integrating it to the main software additional feature and functions were added so that the page could be integrated with the rest of the software (website.)

When all the page's were assembled then were added the PHP's inbuilt functions like Sesseion(),cookie()etc

The hardware display system was implemented through the use of 16 x 2 LCD on a Hitachi hd44780 microcontroller connect to the computer through parallel port and controlled by a third party software.

In regards to testing of the software as we were following an Integration model of development so our testing techniques were such, that conformed with the Integration model of development.

First was Verification and Validation of the modules (single web pages) that were built. As soon as the page was ready it was verified that it runs smoothly and no unexpected faults occur. Then it was validated that the module (page) built is required by the software and will integrate with out any errors into the software. After integrating the module with the software it was again verified that the integrated software runs without any faults.

Now after a module was ready it had to go through Unit testing and that module was tested against input and output values ang its ability to handle constraints and boundary values. Each module was tested individually by this technique

The integration of the modules (pages) followed a bottom up integration approach and after each integration the software changed in its behavior. Therefore Regression testing was applied to the integrated software. Regression testing is similar to unit testing. When the same set of tests are applied many times then it is known as Regression testing ,here the parameters were sama but the module was integrated into the software and so the behavior was different.But the integrated software was tested against input and output values ang its ability to handle constraints and boundary values

In the last phase when the software (web site) was fully developed Black Box testing was done In black box testing the software was tested for handling boundary values and fault tolerance. The web site was provided with incorrect and invalid inputs and it was tested , how the website performed . Also faults were introduced intentionally into the website to test its working. For eg when a database transaction was in process the pc was shuttled down to test the website.

3.4.4 *Code Optimization*

Initially the code written in PHP was not optimum both in terms of code size and execution time. For code optimization there were implemented some steps which helped in optimizing the code.

Steps included

- Use of echo() function instead of print() function to print variables onto th screen because echo is faster than print.
- Use of switch statements instead of multi if, else if, statements wherever possible
- Closing of database connections when not in need as open databases will result in more execution time
- No use of functions inside of for loop, such as for ($x=0; $x < count($array); $x) as the count() function gets called each time.
- Just declaring a global variable without using it in a function also slows things down (by about the same amount as incrementing a local var). PHP probably does a check to see if the global exists.
- Code is written in reuse format ,with methods, links, and functions that are shared by different web pages are grouped together and put under a single page.
- For security precautions the password of the database is kept in a different file any the database opens when that file is called.
- PHP is compiled with the "configure –-enable-inline-optimization" option to generate the fastest possible PHP executable

CONCLUSION

For the past one year this project was developed with the view to create the best fast food website available. There were many problems and many hurdles to cross but progress was steady and improvements were made through our and our teacher's efforts.

Now the project has been completed with a running software that has been coded in the PHP language and runs on Apache HTTP server and as its back end we have MySQL providing with the database servicer. There is a display system for the cook that displays the orders on a 16 x 2 LCD screen.

The system is intended to be used in Fast Food Centers & will provide greater efficiency and productivity to the center and also help maintain customer's information that will boost marketing strategies.

Further development will increase the features of the system and be more efficient and productive and finally be implemented by a large Fast Food Chain.

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