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Food Board: A Restaurant Management System

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Abstract: ***The Restaurant Management System provides necessary services for the typical fast food restaurant to manage all the day-to-day activities. The restaurant management system is there to help communication between all teams within a restaurant by minimizing the probability of human error and getting more efficient and effective information. This system has a built-in POS system with order management solutions and kitchen management to handle all the food production efficiently to get the orders to the customer***

Keywords: Restaurant Management, Menu, Pos, Billing, Kitchen

I. INTRODUCTION

Over the years, technology has tremendously revolutionized the restaurant industry. Much of the innovation has been with point-of-sale (POS) operations. There is a famous saying that “People eat with their eyes”. The e-Menu provides additional information about menu items and drinks than a traditional paper menu. The simplicity and ease of access to a menu are the main things that facilitate ordering food in a restaurant.

"Restaurant Management System." is a web-based system for fast food restaurant businesses. The system for managing the restaurant business is known as a restaurant management system. The major goal of building this system is to help restaurant administrators in managing the day-to-day activities of restaurant businesses with managing kitchen orders too. Employees in a restaurant may utilize this restaurant management system to handle clients, and their orders and alert the kitchen. The kitchen dashboard can update about the food whether the food is canceled, prepared, or ready for the customer.

In our system, we have advanced food-management where a single food can have multiple variants and their significant add-ons to giving access to a wide range of foods.

The restaurant pos system can be organized by categories uploaded by the restaurant admin. With this system managing orders and the flow of orders to the kitchen and back to the customer will become easier and more systematic to replace the traditional systems where still paper is being used.

II. LANGUAGES USED FOR THE DEVELOPMENT OF THE APPLICATION

1) *HTML:* The HTML file plays a couple of significant roles in a webpage. Hypertext Markup Language, or HTML, is a programming language used to describe the structure of information on a webpage. Together, HTML, CSS, and JavaScript make up the essential building blocks of websites worldwide, with CSS controlling a page’s appearance and JavaScript programming its functionality.
2) *CSS:* CSS (Cascading Style Sheets) is a language for styling the webpage. We can change the appearance and the layout of the webpage by using CSS. We can also define how a website’s view changes on different screens like desktops, tablets, and mobile devices.
3) *JavaScript:* JavaScript is a client-side programming language that helps web developers to do Web Application Development and make dynamic and interactive web pages by implementing custom client-side scripts. Developers can also use cross-platform runtime engines like Node.js to write server-side code in JavaScript.
4) *Bootstrap:* Bootstrap is a free and open-source tool collection for creating responsive websites and web applications. It is the most popular HTML, CSS, and JavaScript framework for developing responsive, mobile-first websites. Bootstrap is a framework to help you design websites faster and easier. It includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels, etc.
5) *ReactJS:* ReactJS tutorial provides basic and advanced concepts of ReactJS. Currently, ReactJS is one of the most popular JavaScript front-end libraries which has a strong foundation and a large community. ReactJS is a declarative, efficient, and flexible JavaScript library for building reusable UI components

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6) *NodeJS:* Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on the V8 engine and executes JavaScript code outside a web browser. Node.js lets developers use JavaScript to write command-line tools and for server-side scripting—running scripts server-side to produce dynamic web page content before the page is sent to the user's web browser.

III. SYSTEM DEVELOPMENT PROCESS

Various Steps consider in the Website Development Process:

1) *Analysis:* Firstly, better understand the website requirement creation, including website Design and Website looks and feels, the Web page uses, website content and for suggestions and discussions, a proper space available on a website for easily approachable.
2) *Specification:* Predicated on prerequisite, prepare a draft designation of Web pages to be developed including the sitemap and a flow of the various process.
3) *Design:* Web design is what creates the overall look and feel when you're using a website. It's the process of planning and building the elements of your website, from structure and layout to images, colors, fonts, and graphics. Design of web pages, including navigation mock-ups, template content, placeholders, and prototype.
4) *Coding:* The coding process includes web design, web content development, client-side/server-side scripting, and network security configuration. Among other tasks, coding encompasses all the actions, updates, and operations required to build, maintain and manage a system to ensure its performance, user experience, and speed are optimal. It's divided into front-end devs and back-end dev. A front-end takes care of all the visual aspects of the website (layout, navigation bar, etc.), its interactivity, and binds together all its elements. Back-end devs take care of less visible tasks that ensure the website runs smoothly, such as managing the website's hosting services, database, and applications.
5) *Testing & Security:* Testing as well plays an important role in website development, testing is done for browser compatibility, and broken links and can check the speed of loading pages, and loading speed of images. We can also check the validation of HTML code, validation of CSS, checking of spelling, and building alterations to rectification of mistakes and can perform tests of functional processes of the system like payment, postal services, registration, etc., these checks as per requirement.

IV. PROPOSED SYSTEM

In our project Restaurant Management System, an order is received from the customer by using our POS system accessible by the employee on the counter.

The above order is updated/added in our database from where it's accessible to the Kitchen dashboard. This system provides a display from which users can order food items and even can see if the food item is prepared or not in the display only which makes it easy for customers to track their order preparation.

After the order is prepared their bill number is displayed on a screen through which customers can get the food. We have used a complete MERN stack for the development of our system and from Figma, we have created all the designs and prototypes for the system

Our system consists of the following modules:

1) *Module 1-User Module:* In this module restaurant's login will be taken while they have already registered on the system or registration to create a new user in the system. Every manager/employee will have a login id and password to login into the system.
2) *Module 2-POS Module:* In this module restaurant orders are received, necessary updates of the orders are handled, and generates receipts and bills for the user.
3) *Module 3-Food Management Module:* In this module, all the information regarding foods is managed (Add, Update and Delete) like food variants, categories, addons, menus, etc
4) *Module 4-Kitchen Module:* In this module, all the kitchen tasks can be handled after receiving the order from pos like accepting or canceling the order, preparing the food, and serving the food to the counter.
5) *Module 5-Report Module:* In this module reports of all the transactions can be viewed and processed like the orders processed, received, canceled, etc

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V. SOFTWARE ENGINEERING DESCRIPTIONS

A. *Functional Requirements*

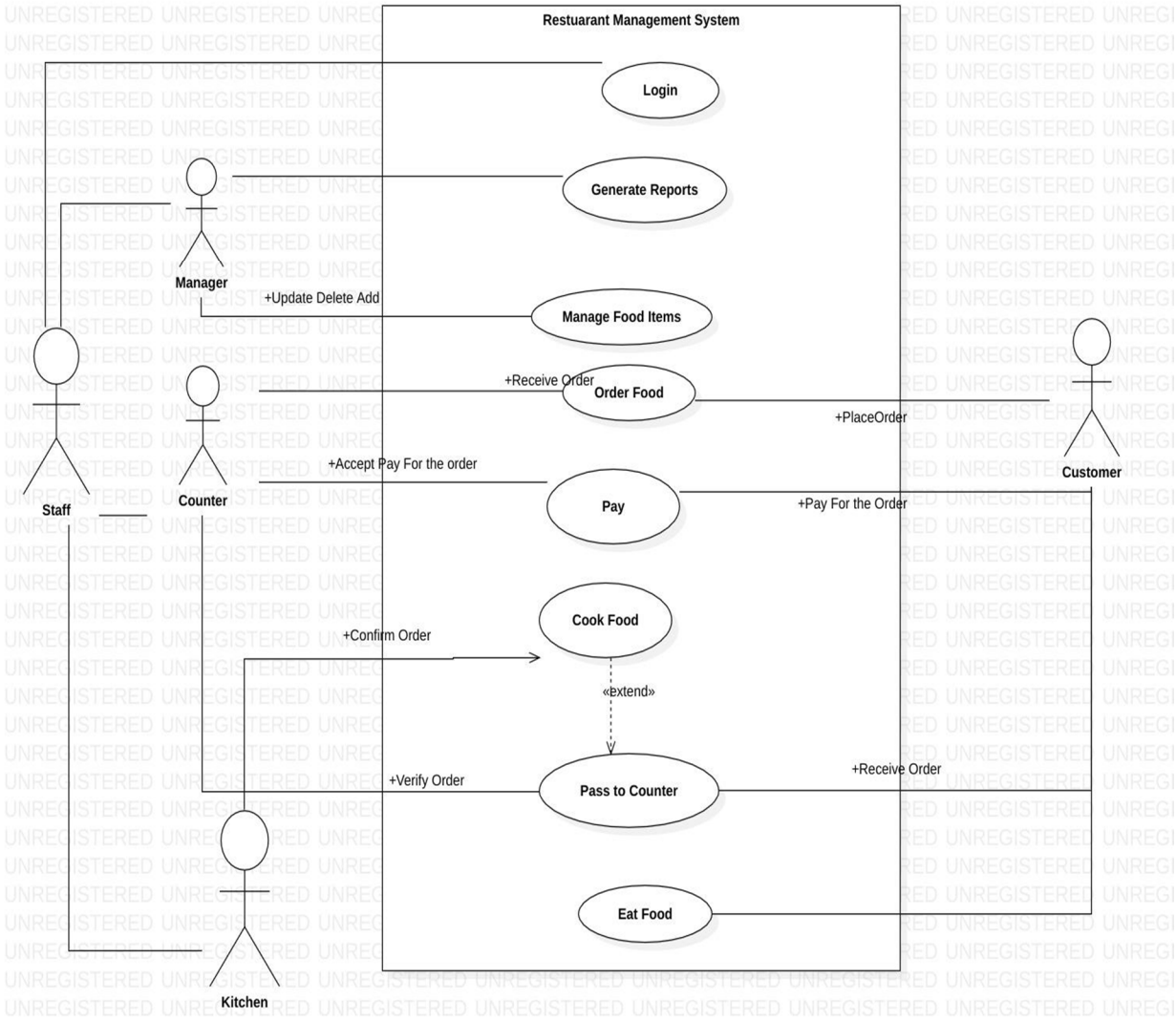
The functional description of the system is done using UML diagrams. The functional requirements of the system are:

1) Register/Update Users
2) Create/Update/Delete Categories
3) Create/Update/Delete AddOns
4) Create/Update/Delete Foods
5) Add variants for the foods
6) Generate order reports
7) Receive and update orders
8) Accept/Prepare/Cancel Orders
9) Notify the order status

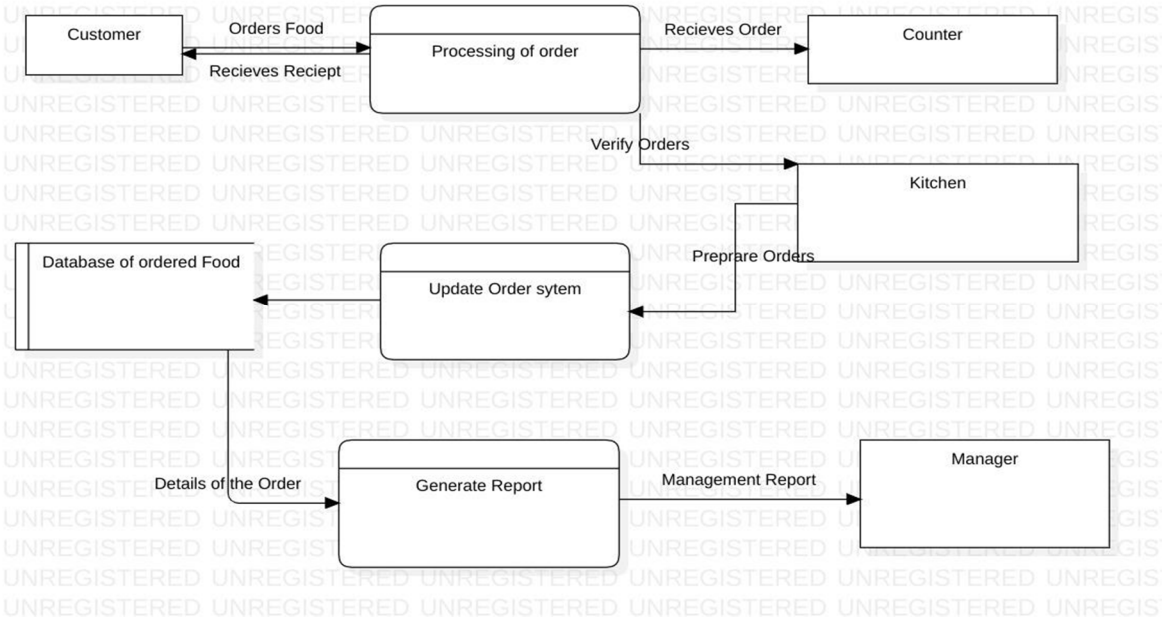
B. *Design*

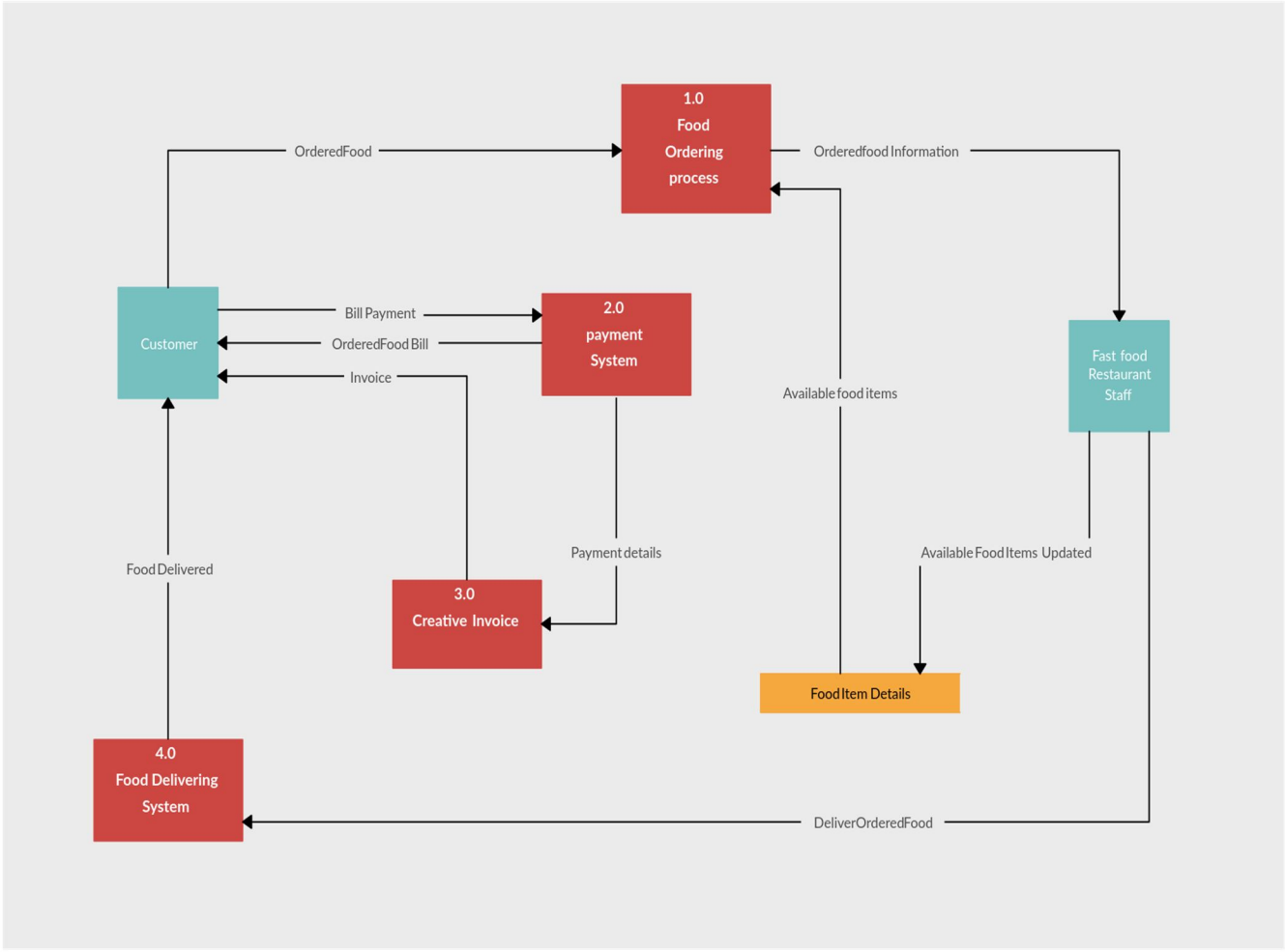
The user interface will be simple, user-friendly, and reliable. Some of the pages we have designed in sigma are as follows:

1) *Use Case Diagram*

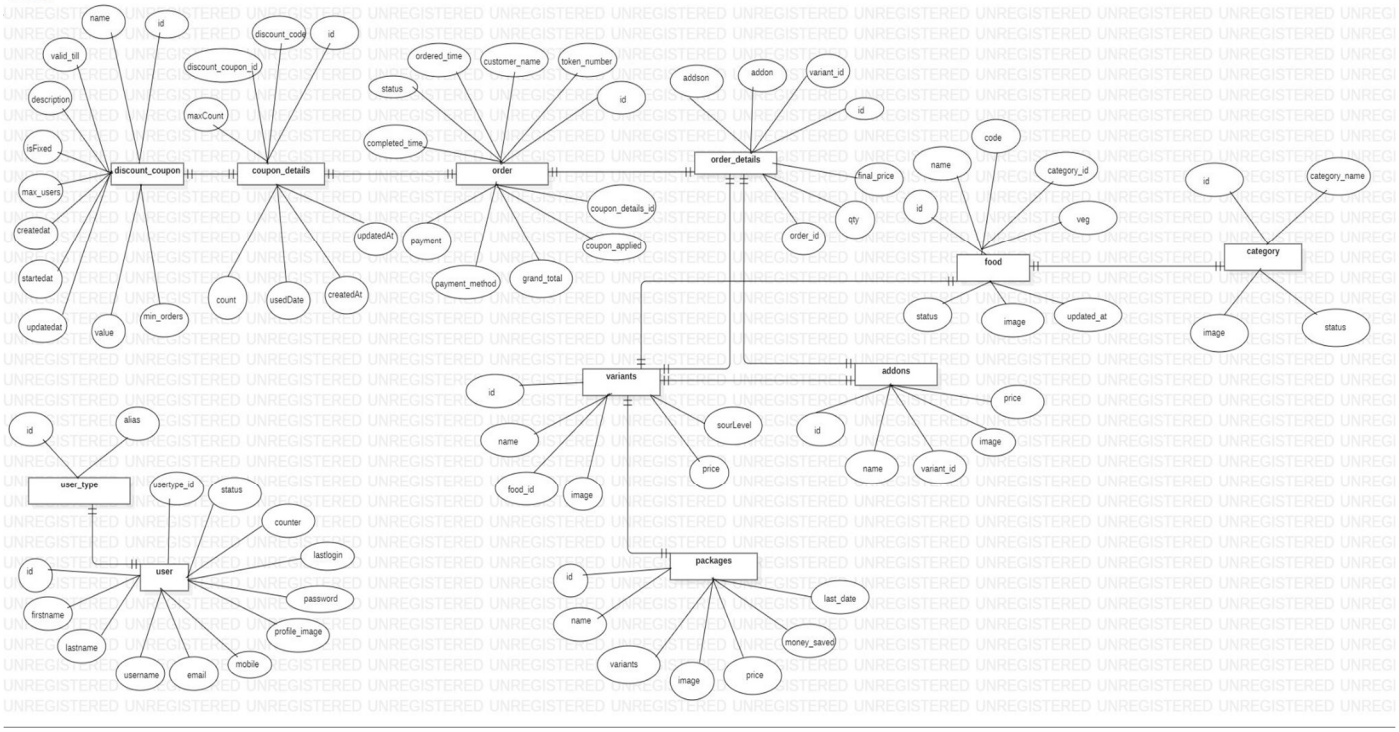


2) Dataflow Diagram





3)



VI. ADVANTAGES

The advantages of using our restaurant management system:

1) Improve Customer Relationships

2) Employee Satisfaction

3) Reduction of Errors

4) Enhanced Productivity

5) Great UI/UX

VII. CONCLUSIONS

This report aims to create a restaurant management system that can handle all the day-to-day tasks for the proper management of the restaurant. Our system provides seamless integration to all the restaurants for proper handling of the orders that give proper satisfaction to the customer and proper communication between the employees. This system mainly focuses on saving time and eliminating human errors

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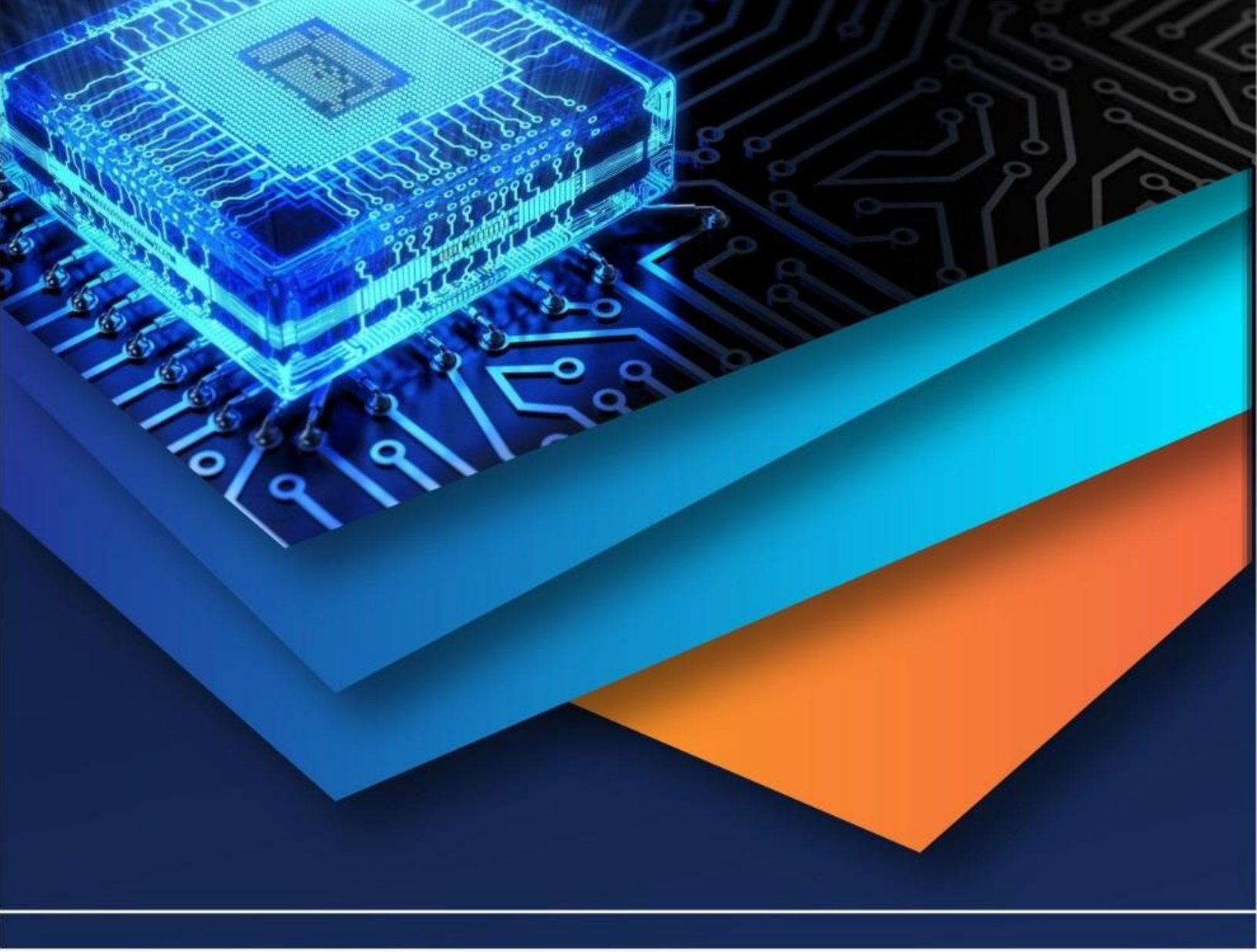
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