**Restaurant**

**Phase 1: Software Engineering Project**

**Submitted To**

Dr. Reham Adel

TA. Eng.Ahmed Youssef

**Submitted By**

|  |  |  |
| --- | --- | --- |
| **Student ID** | **Student Name** | **Section Number** |
| **42110340** | **Ali Abdelkader** | D1 |
| 42110111 | Abdulrahman Mohammed | D1 |
| 42110435 | Abdalla Osama Aboulftouh | D1 |
| 42110403 | Ziad Hamdy | D1 |
| 42110468 | Shehab Sayed Oka | D1 |
| 42110535 | Yousef Amr | D1 |

**Contact Email:** 42110340.Ali@acu.edu.eg

# **Introduction**

## The program's goal is to create a comprehensive restaurant management system that streamlines sales and financial operations. This system aims to facilitate restaurant administration by efficiently managing finances, calculating sales and purchases percentages, and determining profitability. It also improves the sales process by enhancing worker and employee interactions. Additionally, it provides the restaurant owner with organized and comprehensive information. The document outlines detailed functional and nonfunctional requirements for the restaurant system. The project aims to create an efficient and user-friendly restaurant management system. It enables restaurant staff, including the manager, to log in and offers various functions such as recording purchases, managing suppliers and their information, optimizing marketing efforts, tracking inventory, and several other features designed to streamline restaurant operations and enhance productivity.

* 1. **Purpose**
* software's goal is to help restaurants manage finances, sales, and operations efficiently, providing a user-friendly system for tasks like recording purchases, managing suppliers, and tracking inventory to improve overall productivity and success.
  1. **Scope**
* The software's goal is to help restaurants manage finances, sales, and operations efficiently, providing a user-friendly system for tasks like recording purchases, managing suppliers, and tracking inventory to improve overall productivity and success.

# **Requirements**

* 1. **Functional Requirements**

**2.1.1 Login**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | Comments |
| R001 | Login to the system will be through. for the first time, first choose which type manager or staff then write title job and (first/last)name ,phone number to access on system ,username and password to registering on system. | **MUST** | Login for the first time |
| R002 | Username and Password register by employee for the first time on a system and uses it to enter always. | **MUST** | Username  and password |

**2.1.2 Manager**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/want | Comments |
| R003 | Have fully access of system and have only edit any object of system. | MUST |  |
| R004 | Register the performance feedback and rate of every employee in archive. | MUST |  |
| R005 | Registration of new employees and all their data after accepted them after interviews. | MUST |  |
| R006 | Use suppliers function in system to take an information of suppliers to help self to contact best supplies. | MUST |  |

**2.1.3 Suppliers**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | Comments |
| R007 | Register and enter information about suppliers and the goods they sell and the prices of each | MUST | Information of suppliers |
| R008 | The system allows an evaluation of each supplier according to the quality of the goods it sells | MUST |  |
| R009 | The system works by making a comparison between suppliers according to the previous evaluation and according to their prices, and it shows you the best suppliers | MUST | Best suppliers |

**2.1.4 Purchases**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | Comments |
| R010 | Devices (the system allows the registration of the electrical devices that were purchased, their type and the price of each of them) | MUST |  |
| R011 | Food (The system allows recording the items needed by the restaurant to make food, their quantity, and prices | MUST |  |
| R012 | Other requirements (It is allowed to register other requirements that have been purchased, such as seats, tables, and the resources needed to make food such as utensils, spoons, cups ,etc.) | MUST | Other machines and objects |

**2.1.5 Inventory**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | Comments |
| R013 | The system calculates the quantity of goods that are in the warehouses and also reminds the workers if there is a shortage of goods in the warehouse. | **MUST** |  |
| R014 | Calculating the consumption and inventory of goods, knowing their type, and registering them on the site | **MUST** |  |

**2.1.6 Order Management**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | Comments |
| **R015** | The system allows the waiter to take the order number, then record the order and record the customer's name, then this order is automatically sent to the display screen in the kitchen, and then the chef works on it. | MUST |  |
| R016 | The system allows the waiter to cancel the order if it is canceled by the customer. | MUST |  |

**2.1.7 Cashier**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | Comments |
| R017 | The cashier was allowed to enter the table number, and the system automatically displays the orders ordered by the customer and the account of each order and their total | MUST |  |
| R018 | The system allows the cashier to calculate the value of all orders on every day | MUST |  |

**2.1.8 Sales**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | Comments |
| R019 | This system records sales at the end of every day, at the end of every month, and at the end of every year, and gives statistics on the sales of all food items. | MUST |  |
| R020 | Each sold item, its price, and the number of times it has been ordered shall be organized in a table  Thus, the most sold item and the least sold item will appear. | MUST |  |

**2.1.9 Finance**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | Comments |
| R021 | The system works to make a comparison between sales and purchases, and on the basis of that, it determines whether this restaurant wins or loses, and also calculates the value of the gain or the value of the losses. | MUST |  |
| R022 | Examination of financial statements and preparation of reports | Should |  |
| R023 | Part of finance is called payroll system This system is used to manage employee compensation, including hourly wages, salaries, and tips | MUST |  |

**2.1.10 Archive**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | Comments |
| R024 | All data of system members will register here. | MUST |  |

**2.1.11 Menu**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/want | Comments |
| R025 | The system shall allow manager restaurant manage the menu items, including adding, removing, and modifying menu items and Staff. | MUST |  |
| R026 | Display the menu with categorizes the food with size and prices on clear screen in reception. | MUST |  |

**2.1.12 Logout**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | Comments |
| R027 | When you want to change account system or logout from the system | MUST |  |

* 1. **Non Functional Requirements**

**2.2.1 Security**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | Comments |
| NR001 | The restaurant system should be secure, with appropriate measures in place to protect sensitive restaurant information. It should also be protected against external threats such as hacking and malware | MUST |  |

**2.2.2 Usability**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | | Comments |
| NR002 | The Restaurant system should be easy to use and navigate, with a clear and intuitive user interface. It should also be accessible for users with disabilities. | MUST | | For all human |
| NR003 | such as adding more servers or resources during peak usage periods, to ensure consistent and reliable performance. | MUST |  | | |

**2.2.3 Availability**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | Requirements statement | Must/should | Comments |
| NR004 | The restaurant system should be available to staff at all times. | MUST |  |

# **Used Technologies**

* **Jira**: Is a website to make a board, put all tasks on it and assign each task to each member. We used it to manage our project and tasks upon the team members by organizing the tasks, creating sprints, and keeping track of our progress.

A screenshot of a computer

Description automatically generatedA screenshot of a computer

Description automatically generatedA screenshot of a computer

Description automatically generated

* **GitHub repository link**: This repository is made to make it easy for our team to communicate with each other. Every member will upload his copy of code with his modification to the code, so every member will always know the updates. This repository will help avoid and reduce the reasons of errors.

“https://github.com/ayashoush644

* **Frontend technology:**

**Web application**

* HTML and CSS, Visual Studio Code
* **Backend technology:**
* C#, .NET Framework, SQL Server, Microsoft Visual Studio

# **System Models**

# **Smart Draw**

* 1. **Use Case Model**

=

**A diagram of a company

Description automatically generated**

* + **Use Case Description Tables**

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-1 | |
| Use Case Name: | Login | |
| Actors: | Manager , cashier , waiter | |
| Overview: | User enter, type, name, Phone, and password. | |
| Related use cases: | None | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- User enter his data. |  |
|  | 1- System Verify registration and log in |
|  |  |
| Exceptions: | Password must contain more than 6 letters and 3 digit and none space and username at least 3 letters and one digit | |
| Comments: | Login for the first time : user name and password | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-2 | |
| Use Case Name: | Manage Has full access system | |
| Actors: | Manager | |
| Overview: | This use case take Full Authority over entire system | |
| Related use cases: |  | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- Verify admin log in |  |
|  | 2- Give all system attributes and access for it. |
|  |  |
| Exceptions: |  | |
| Comments: |  | |
| Use Case Number: | UC-3 | |
| Use Case Name: | Review and editing archive | |
| Actors: | Manager | |
| Overview: | Display data archive and editing any time of data . | |
| Related use cases: | Manage Has full access system | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- Open archive |  |
|  | 2- System display and edited in archive |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-4 | |
| Use Case Name: | Review report and finance | |
| Actors: | manager | |
| Overview: | Calculate sales and purchases to know the Profit/Loss on report | |
| Related use cases: | Manage Has full access system | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- open the finance department |  |
|  | 2- system display report of finance |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-5 | |
| Use Case Name: | Manage system object | |
| Actors: | manager | |
| Overview: | Give access to Review Daily, Monthly, and Yearly Sale , edited and modify staff and items , Review most , least sold item , Register Purchases , Review feedback . | |
| Related use cases: | Manage Has full access system | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- choose type of need from available object |  |
|  | 2- System display the chosen type |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-6 | |
| Use Case Name: | Review Daily, Monthly, and Yearly Sale | |
| Actors: | Manager | |
| Overview: | Display yearly , monthly sales that cashier recorded it | |
| Related use cases: | Manage system object | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- Review Daily, Monthly, and Yearly Sale | Display Review Daily, Monthly, and Yearly Sale |
|  |  |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

8

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-7 | |
| Use Case Name: | Register new employee | |
| Actors: | Manager | |
| Overview: | give access to manager to register employee | |
| Related use cases: | Manage system object | |
| Event (Stimulus): | **User Action** | **System Action** |
| 1- register new employee |  |
|  | 2- add new employee |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-8 | |
| Use Case Name: | Register Purchases and review need Purchases | |
| Actors: | Manager | |
| Overview: | Register, input purchases and review require purchases that system need it . | |
| Related use cases: | Manage system object | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1-Register purchases |  |
|  | 2- Save purchases and display need purchases |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-9 | |
| Use Case Name: | Review most and least sold items | |
| Actors: | Manager | |
| Overview: | Display most item sold in currently moment and least item sold in general at this time. | |
| Related use cases: | Manage system object | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- review least and most sales item |  |
|  | 2- Display least and most sales item |
|  |  |
| Exceptions: |  | |
| Comments: | It is renewed every second | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-10 | |
| Use Case Name: | Manage Menu Item | |
| Actors: | Manager | |
| Overview: | Give access to manager to add, delete and modify items in menu | |
| Related use cases: | Manage system object | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- Add and modify items in menu |  |
|  | 2-system add and modify items in menu |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-11 | |
| Use Case Name: | Review performance feedback | |
| Actors: | Manager | |
| Overview: | Make manager register all feedback of each employee in system | |
| Related use cases: | Manage system object | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- Record Employee feedback |  |
|  | 2- system Register and save feedback |
|  | 3-disblay feedback to manager |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-12 | |
| Use Case Name: | Review Warehouse Quantity Review Consumption and Inventory | |
| Actors: | Manager | |
| Overview: | system calculates the quantity of goods that are in the warehouses and Calculating the consumption and inventory of goods, knowing their type, and registering them on the site to make the manager review it . | |
| Related use cases: | Manage Has full access system | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- Record quantity of goods |  |
|  | 2- save the quantity of goods and display it to manager |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-13 | |
| Use Case Name: | Manage suppliers system | |
| Actors: | Manager | |
| Overview: | Make manager control and give it access for suppliers department system . | |
| Related use cases: | Manage Has full access system | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- open suppliers department |  |
|  | 2- system display point of suppliers department |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-14 | |
| Use Case Name: | Review best Suppliers | |
| Actors: | Manager | |
| Overview: | Compare between suppliers by register information for each it and give best supplier. | |
| Related use cases: | Manage suppliers system | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- Review best suppliers |  |
|  | 2- system compare and display best suppliers |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-15 | |
| Use Case Name: | Register Supplier information | |
| Actors: | Manager | |
| Overview: | Register information for each supplier and after sell by manager to convert it to best supplier | |
| Related use cases: | Manage suppliers system | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- register Suppliers information |  |
|  | 2- system record – save Suppliers information |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-16 | |
| Use Case Name: | Evaluate supplier | |
| Actors: | Manager | |
| Overview: | After the manager received supplements see and review each supplie and register final evaluate in this part to help his remember after time he need supplies. | |
| Related use cases: | Manage suppliers system | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- Enter Evaluate Supplie |  |
|  | 2- system save evaluate supplie of manager |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-17 | |
| Use Case Name: | Record Daily, Monthly, and Yearly Sales | |
| Actors: | Cashier | |
| Overview: | Dailey , monthly , yearly cashier enter the sales and the system record it to display for manager | |
| Related use cases: | None | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- Enter sales daily |  |
|  | 2- record sales daily monthly and yearly |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-18 | |
| Use Case Name: | Display orders and total | |
| Actors: | Cashier | |
| Overview: | After cashier take the order and table number from waiter in details enter to display it on screen in kitchen | |
| Related use cases: | None | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- record orders and total |  |
|  | 2- system display orders on screen in kitchen |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-19 | |
| Use Case Name: | Calculate daily order value | |
| Actors: | Cashier | |
| Overview: | After cashier take order from waiter and after take order money record the money to use it to calculate the sales | |
| Related use cases: | None | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- enter all orders money daily |  |
|  | 2- system record it and convert it sales department |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-20 | |
| Use Case Name: | Take order and record customer name | |
| Actors: | Waiter | |
| Overview: | Waiter take the order and name of customer to record it in his customer order bill and submit to cashier | |
| Related use cases: | None | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- waiter record order name |  |
|  | 2- system save it and convert to cashier department |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

|  |  |  |
| --- | --- | --- |
| Use Case Number: | UC-21 | |
| Use Case Name: | Cancel order | |
| Actors: | Waiter | |
| Overview: | Waiter access to cancel order if customer want it | |
| Related use cases: | None | |
| Event(Stimulus): | **User Action** | **System Action** |
| 1- waiter cancel the order of customer |  |
|  | 2- system cancel all process of the order |
|  |  |
| Exceptions: |  | |
| Comments: |  | |

# **4.2** **Class diagrams**

**A diagram of a computer

Description automatically generated with medium confidence**

* + **Use Classes Description Tables**

| **Class ID** | **Class Name** | **Description** |
| --- | --- | --- |
| 1 | Manager | The manager have full access on the system |
| 2 | Waiter | The waiter login on system and create order and modify for customer |
| 3 | cashier | Confirm order for customer and register payment |
| 4 | Order | Add menu item for customer for to receipt |

# **4.4 Physical Entity-Relationship Diagram**

**A diagram of a diagram

Description automatically generated**

# **Ownership Report**

|  |  |  |
| --- | --- | --- |
| **Student ID** | **Student Name** | **What the student done** |
| 42110340 | *Ali Abdelkader* |  |
| 42110111 | *Abdulrahman Mohammed* |  |
| 42110435 | *Abdalla Osama Aboulfatouh* |  |
| 42110403 | *Ziad Hamdy Rajab* |  |
| 42110468 | *Shehab Sayed* |  |
| 42010535 | *Yousef Amr* |  |