Project Title Here

CS262- Design Document



Project Supervisor

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Table of Contents

[Project Description: 3](#_Toc119621420)

[Project Features: 3](#_Toc119621421)

[Technology Stack: 3](#_Toc119621422)

[Project Actors: 3](#_Toc119621423)

[Use Cases: 3](#_Toc119621424)

[Use Case 1(Write the name of the use case): 3](#_Toc119621425)

[User Interface Details 4](#_Toc119621426)

[Classes: 5](#_Toc119621427)

[Object Oriented Features: 5](#_Toc119621428)

[Composition: 5](#_Toc119621429)

[Inheritance: 5](#_Toc119621430)

[Multiple Inheritance: 5](#_Toc119621431)

[Multi-Level Inheritance: 5](#_Toc119621432)

[Polymorphism: 5](#_Toc119621433)

[Detailed Object Oriented Design: 5](#_Toc119621434)

[Data Structure: 6](#_Toc119621435)

[Exceptions: 6](#_Toc119621436)

[Data Storage: 6](#_Toc119621437)

[Email Sending: 6](#_Toc119621438)

[Project Plan 6](#_Toc119621439)

# Project Description:

The system is designed for a company that provides:

* Logistics (delivery of products to its client).
* Product management(crud operations).
* Effective communication with their vendor or clients(including internal communication as well).

The company has its office, warehouse, and shopkeeper.

It has a different contract with multiple firms to take the shipment and store it in dedicated warehouses. The company's clients (shopkeepers) can make orders. Their order is received at the office, and the office will create the feasibility report according to their client's needs and instructions generated for their warehouse manager to fulfill their order. The available rider will receive an email about their order. The office will send a confirmation email to their client.

There are a total of five actors in the system. Their name and role are:

* **CEO:** The owner of the company could manage all the operations.
* **Employee:** They directly report to CEO and help in company operations.
* **Warehouse Manager:** Ready the shipment for the rider and managed other expenses.
* **Rider:** Received the order detail and delivered the product to pre-subscribed routes.
* **Shopkeepers:** Can outlook products, place orders, and check detail.

All the actors will be able to create their accounts, and the system will give specific security codes to them. It helps to protect the system from security breaches.

There first dedicated dashboard for the owner where they monitor all operations. The operations manage their employees, products, and expenses and send emails. The CEO is the only person in the system with access to all operations. CEOs could analyze company operations, including the performance of their workers. The system will generate the company expenditure report.

The second dashboard is for the office employees directly reporting to the CEO. They have duties to manage emails, clients' orders, vendors' orders, and company expenses. The company's expenses are the CEO, rider, and warehouse salaries. The payment of the vendor, clients, and other miscellaneous expenses. Miscellaneous expenses help the company to run smoothly, like paperwork, food items, etc. An employee will enter all the shipments that the company receives their record. They add the product name, SKU number, weight, volume, cost price, manufacturer, and many more to identify the products that are confirmed. proven

The third dashboard is for the warehouse manager, who receives feasibility reports of office employees and readies the order for the rider. The warehouse manager must provide a record of the labor used in preparing the order. It could provide the miscellaneous expenses of the warehouse, like electricity costs, etc.

The fourth dashboard is for a rider who takes orders from the warehouse and delivery them to the company client. The system will provide the routes for the destination with the order detail. The rider received a specific amount of fuel to perform the operations. The prescribed fuel is calculated according to the formula.

The fifth dashboard is for the shopkeeper, who can see all the products. The product will be sorted in order, like assessing and descending. Search for a specific product from a wide range of available products. The system will deploy different sharp algorithms to access the desire date in quick order. Able to place the order and view the detail of the order as well.

The system will provide the report to the CEO according to the performance of their worker, expenditure, and profit.

Like how many products are received in the warehouse, how many products are left, how many products are delivered to company clients, how many riders have done shipments, which rider performs most shipments, and which rider needs to perform better. It also includes how many orders a shopkeeper placed and whether the company received the payment.

The email notification mechanism is embedded in the system, which helps the company communicate within and outside with other vendors and clients. The internal communication will send the order details to the warehouse manager to prepare the shipment for the rider. The rider also received the email for the delivery of the order. The employee emails the CEO for any need of assistance with an issue. The warehouse manager and rider also mail to the company office for any assistance. In external communication, the client will receive a confirmation email from the system about their order. They also take assistance from the company with any issue.

The flow of new users will be like this. A potential user provides the required detail for account creation and selects their role in the company. Account successfully creation the, they create the security code to use the system according to their role.

All the data is stored in an effective data structure to extract the data according to the need of the system actor. The system performance label highlights how much time is consumed by the operation to perform a certain task. The supposed system will be implemented on the desktop to run smoothly.

# Project Features:

1. CEO are able to manage employee, warehouse manager, rider and shopkeeper.
2. CEO and Employee manage product related operations.
3. CEO will be able to analyze company operations.
4. Warehouse manager ready the shipment for rider.
5. Rider delivered the shipment to their shopkeeper.
6. Rider are able to selected the shortest route to reach the destination.
7. One user is able to notify other user through email.
8. Shopkeeper are able to view products and place order.
9. Dedicated security password for each user.
10. Company expenditure report will be generated.

In this section, write down the project features clearly. These are the features that will be available to the end user of your project directly. You should be able to describe, how to write the features of the project.

# Technology Stack:

|  |  |
| --- | --- |
| Language | C# (.net framework 4.8) |
| IDEs | Microsoft Visual Studio 2022 |

# Project Actors:

* **CEO:** The owner of company could manage all the operations
* **Employee:** They directly reported to CEO and help in company operations.
* **Warehouse Manager:** Ready the shipment for rider and manage other expenses.
* **Rider:** Received the detail of order and delivered the product to presubscribed routes.
* **Shopkeeper:** Are able to outlook products, place order and check detail.

In this sections, write the name of actors and brief description, who will be using the system. Students should be fully aware of the actors and stakeholder concept.

# Use Cases:

All the use cases should be written in the following format. The name of use should be start with a verb e.g. Add Student. It should not be as Student/ Student Add. Add Student is separate use case and Edit Student is separate use case: (Reference Document for use cases: <https://www.craiglarman.com/wiki/downloads/applying_uml/larman-ch6-applying-evolutionary-use-cases.pdf> )

## Use Case 1(Write the name of the use case):

|  |  |
| --- | --- |
| Use Case ID | U01 |
| Name |  |
| Actor |  |
| Description | Brief description of the use case. With at least 50 words. |
| Flow |  |

# Use Interfaces:

|  |  |
| --- | --- |
| Interface ID | I01 |
| Name |  |
| Linked Use Case |  |
| UI Screen (JustInMind) |  |
| Validators | Add here the name of validators that will be applied on this page |

# User Interface Details

In this section, fill the table for summary that which use case will have the required component. Inside each box, write the counts for each component. If component is not used, write zero.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Interface Id | TextBox | DropDown | Password Box | Table | Date Field | Buttons | AutoComplete | Radio Button | CheckBox | Menu | Text Area | ProgressBar |
| I01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| I02 |  |  |  |  |  |  |  |  |  |  |  |  |

# Classes:

In this section, we do not require detailed design diagram. But identify the tentative classes with the requirement Fill the following table for details. Note that class name should follow naming conventions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Class Name** | **Software/ Domain** | **Is Abstract (Yes/No)** | **Is Singleton (Yes/No)** | **Is the class will has parametrized constructor(Yes/No)** |
| CEO |  |  | Yes | Yes |
| Company |  |  | Yes | Yes |
|  |  |  |  |  |

# Object Oriented Features:

## Composition:

In this section, Identify the solid examples where composition can be perform. Add UML diagram of each example.

## Inheritance:

Examples where inheritance will take place with UML diagrams.

## Multiple Inheritance:

example with UML diagrams of multiple inheritance.

## Multi-Level Inheritance:

Examples with UML diagrams of multi-level inheritance.

## Polymorphism:

Examples with UML diagram for polymorphism.

# Detailed Object Oriented Design:

Draw complete design of project in StartUML.

# Data Structure:

In this section, identity the use case in which you will use Data Structures e.g. ArrayList, LinkedList, Queue, Stack, HashSet and TreeSet etc. why you are forced to use these data structures.

|  |  |  |
| --- | --- | --- |
| Use Case Id | Data Structures Used | Justification for the usage of data structure |
| U01 |  |  |
| U02 |  |  |
| U03 |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# Exceptions:

In this sections, identify at high level which type of exceptions you can face in your code and what are the solutions. Add more rows in the table as per requirements.

|  |  |  |  |
| --- | --- | --- | --- |
| Type of Exception | Why this exception will occur | Use Case Id in which exception could be occurred | How you will handle the exception |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# Data Storage:

In this sections, describe the files with their format from where you will read or store data. In case of database table, write down the names of columns for tables.

# Email Sending:

In this section, describe the points where you will be required to send the email from the code. Additionally, write down the sample subject and email content.

# Project Plan

This section should include the implementation plan and work division among the members. All the estimated dates should be before December 20, 2022 including report and presentation.

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Id** | **Use Case Name** | **Member Name** | **Estimated Completion Date** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# Analytical Reports

In this section, you are required to describe the type of reports that are required by the management team of the distribution company. Also attach the format of the business reports.