Text

Description automatically generated with low confidence

**SEMESTER 1 21/22**

**TITLE: [Kementerian Perdagangan Antarabangsa dan Industri]**

|  |  |  |  |
| --- | --- | --- | --- |
| **MATRIC ID** | **NAME** | | **SECTION** |
| SD21037 | Wong Zi Ming | A picture containing person, necktie, wearing, clothing  Description automatically generated | 02G |
| SD21031 | Tan Chek Cheng | A picture containing person, necktie, clothing, suit  Description automatically generated | 02G |
| SD21040 | Ken Fong Ka Kin | A picture containing person, wall, person, indoor  Description automatically generated | 02G |
| SD21063 | Tean Jin He | A picture containing person, necktie, wearing, clothing  Description automatically generated | 02G |

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1. **CASE STUDY (2 pages)**

SuperCool Corporation Berhad started as a trader and exporter of latex gloves. Max Glove Sdn Bhd is a new division of SuperCool Corporation Berhad, a glove manufacturing company. It's in Selangor's Petaling Jaya. Customers from other nations place orders over the phone for the commodity. Gloves are available in a range of patterns but only available in fixed colour(white) and size(L).

Currently the operation of management in export is not functioning well because of unclear listed details on the order of company oversea. When the exported item is categorised and arrangement in order to transport to different country. It is found that there is not a clear list on the order of item exported to differentiate the details of item ordered. This will increase the operation burden as they spend more time in confirm back the order details during the process categorization and packaging that follow the quantity, size, material, price and destination of order oversea.

As the burden increasing, some errors occur such as wrong order is placed and transport to oversea. These errors may cause by the mistake of personnel when record the order from customer oversea during conversation. Other reason such as incomplete information provided by customer result in unclear order detail. If the error is keep increasing, this will induce increase in storage fees and production fees, which will increase input costs and in turn will charge customer. This will also cause the unsatisfactory of customer and lose their confidence in towards the trust of industry. Therefore, before it occurs and deteriorates, a perfect order management system must be designed to prevent it.

Due to that matter, The Max Glove Sdn Bhd proposes a order detailing system. By using this system, the order information related to the product including the quantity, size, material, destination of order oversea and total price are displayed clearly. This system will significantly decrease the number of errors caused by human mistake when recording order. This system will perform all the order details and calculation automatically and systematically based on the customer input with the least of error. Thus, this will increase the efficiency of operation of order transportation depend on the output of system.

|  |  |  |  |
| --- | --- | --- | --- |
| Type of glove | Latex | Nitrile | Vinyl |
| Glove code | L | N | V |
| Price per carton | RM 130.00 | RM 185.00 | RM 220.00 |

Table 1

|  |  |  |  |
| --- | --- | --- | --- |
| Country | Thailand | Indonesia | Philippine |
| Code | T | I | P |
| Total Quantity | Shipping Fee | | |
| 1-199 cartons | RM 75 | RM 90 | |
| 200-399 cartons | RM 105 | RM 120 | |
| 400-599 | RM 135 | RM 150 | |
| >600 | RM 150 | RM 180 | |

Table 2

1. **EARLY ANALYSIS OF CASE STUDY (Heuristic or Algorithmic with explanation)**

The above problem will be solved by using algorithmic algorithm. This is due to the operation of management in export is not functioning well because of the unclear listed details on the order from foreign customer.

* 1. **Identify the problem**

First, the problem of Max Glove Sdn Bhd is identified which is the operation of management in export is not functioning well due to the unclear listed details on the order from foreign customer.

* 1. **Understand the problem**

It is found that there is unclear list on the order item exported to differentiate the details of item ordered. This will lead to increase the operation burden as they need to spend lots of time in double check and confirm the order details during the process categorization and packaging that follow the quantity of each item, size, material, price, and destination of order oversea. Moreover, some errors occur such as wrong order is placed and transport to foreign countries, these may be caused by mistake of personnel when recording the order from the customer during conversation. Furthermore, the other reason such as incomplete information provided by the customer result in unclear order detail.

* 1. **Identify alternative way to solve the problem**

A few alternatives are identified which are changing the staff that make lots of mistake in recording the order form. In addition, checking the order details repeatedly until confirming the information is correct. Next, creating an order detailing system, that to store the information related to the product including the quantity, size, material, destination of order oversea and total price. Also, this system will perform all the order details and calculation automatically and systematically based on the input.

* 1. **Select the best way to solve the problem from the list of alternative solution**

An order detailing system that automatically collects order information.

* 1. **List instruction that enables you to solve the problem using the selected solution**

Because the requirements of the order are complex and changeable, manual entry may make mistakes. By using this system, product-related order information, including quantity, size, colour, material, overseas order destination and total price, can be clearly displayed.

* 1. **Evaluate the solution**

This system will perform all the order details and calculation automatically and systematically based on the customer input. With the automatic order collection system, unnecessary errors can be reduced, and the overall work can become smoother and faster. This will also actually increase the efficiency of operation of order transportation depend on the output of system. Therefore, more labour can be saved in exchange for more benefit and profit.

1. **PROBLEM ANALYSIS CHART (PAC)**

|  |  |
| --- | --- |
| **Given Data** | **Required Result** |
| Client\_Name  Address  Bill\_Date  Colour  Size  Quantity  Control (1 for Yes/0 for No)  Glove\_Code ( L==Latex, N==Nitrile , V==Vinyl)  Glove\_Code, Price:  Glove\_Code is ‘L’ = RM130 per/carton  Glove\_Code is ‘N’ = RM185 per/carton  Glove\_Code is ‘V’ = RM220 per/carton  Country\_Code(T==Thailand, I==Indonesia, P==Philippines)  Country\_Code equal to ‘T’ Then  Total\_Quantity, Shipping\_Fee:  less than 200 = RM 75  200 - 399 = RM105  400 - 599 = RM135  equal or more than 600 = RM150  Country\_Code equal to ‘I’ or Country\_Code equal to ‘P’ Then  less than 200 = RM90  200 - 399 = RM120  400 - 599 = RM150  equal or more than 600 = RM180 | Client\_Name  Address  Bill\_Date  Glove\_Code  Colour  Size  Quantity  Type\_of\_Glove  Price  Total\_Price  Country\_Code  Total\_Quantity  Shipping\_Fee  Total\_Payment |
| **Processing Required** | **Solution Alternative** |
| If Glove\_Code == ‘L’ Then  Type\_of\_Glove == “Latex”  Price = Quantity \* 130  ElseIf Glove\_Code == ‘N’ Then  Type\_of\_Glove == “Nitrile”  Price = Quantity \* 185  ElseIf Glove\_Code == ‘V’ Then  Type\_of\_Glove == “Vinyl”  Price = Quantity \* 220  Else  Print “System Error”  EndIf  Total\_Quantity += Quantity  Total\_Price += Price  If Country\_Code == ‘T’ Then  If Total\_Quantity < 200 Then  Shipping\_Fee == 75  ElseIf Total\_Quantity < 400 Then  Shipping\_Fee == 105  ElseIf Total\_Quantity < 600 Then  Shipping\_Fee == 135  Else  Shipping\_Fee == 150  EndIf  ElseIf Country\_Code == ‘I’ || Country\_Code == ‘P’ Then  If Total\_Quantity < 200 Then  Shipping\_Fee == 90  ElseIf Total\_Quantity < 400 Then  Shipping\_Fee == 120  ElseIf Total\_Quantity < 600 Then  Shipping\_Fee == 150  Else  Shipping\_Fee == 180  EndIf  Else  Print “System Error”  EndIf  Total\_Payment = Total\_Price + Shipping\_Fee | i. Define the given data as constant  ii. \*Define the given data as input values |

1. **INTERACTIVITY CHART (IC)**

Until NoMoreOrder

1. **INPUT, OUTPUT AND PROCESSING (IPO)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Input** | **Processing** | **Module** | **Output** |
|  | 1. Total\_Price = 0.00 |  |  |
|  | 1. Total\_Quantity = 0 |  |  |
| Client\_Name | 1. Enter Client\_Name | 1000 |  |
| Address | 1. Enter Address | 1000 |  |
| Bill\_Date | 1. Enter Bill\_Date | 1000 |  |
|  | 1. Do |  |  |
| Glove\_Code | 1. Enter Glove\_Code | 1000 |  |
| Colour | 1. Enter Colour | 1000 |  |
| Size | 1. Enter Size | 1000 |  |
| Quantity | 1. Enter Quantity | 1000 |  |
|  | 1. If Glove\_Code == ‘L’ Then 2. Type\_of\_Glove == “Latex” |  |  |
|  | 1. Price = Quantity \* 130 | 2000 |  |
|  | 1. ElseIf Glove\_Code == ‘N’ Then 2. Type\_of\_Glove == “Nitrile” |  |  |
|  | 1. Price = Quantity \* 185 | 2000 |  |
|  | 1. ElseIf Glove\_Code == ‘V’ Then 2. Type\_of\_Glove == “Vinyl” |  |  |
|  | 1. Price = Quantity \* 220 | 2000 |  |
|  | 1. Else |  |  |
|  | 1. Print “System Error” |  |  |
|  | 1. EndIf |  |  |
|  | 1. Total\_Quantity += Quantity | 2000 |  |
|  | 1. Total\_Price += Price | 2000 |  |
|  | 1. Print Glove\_Code | 3000 | Glove\_Code |
|  | 1. Print Type\_of\_Glove | 3000 | Type\_of\_Glove |
|  | 1. Print Colour | 3000 | Colour |
|  | 1. Print Size | 3000 | Size |
|  | 1. Print Quantity | 3000 | Quantity |
|  | 1. Print Price | 3000 | Price |
|  | 1. Print “Anymore Order? (1 for Yes/ 0 for No)” |  |  |
| Control | 1. Enter Control | 1000 |  |
|  | 1. While Control <> 0 |  |  |
| Country\_Code | 1. Enter Country\_Code | 1000 |  |
|  | 1. If Country\_Code == ‘T’ Then |  |  |
|  | 1. If Total\_Quantity < 200 Then |  |  |
|  | 1. Shipping\_Fee == 75 |  |  |
|  | 1. ElseIf Total\_Quantity < 400 Then |  |  |
|  | 1. Shipping\_Fee == 105 |  |  |
|  | 1. ElseIf Total\_Quantity < 600 Then |  |  |
|  | 1. Shipping\_Fee == 135 |  |  |
|  | 1. Else |  |  |
|  | 1. Shipping\_Fee == 150 |  |  |
|  | 1. EndIf |  |  |
|  | 1. ElseIf Country\_Code == ‘I’ || Country\_Code == ‘P’ Then |  |  |
|  | 1. If Total\_Quantity < 200 Then |  |  |
|  | 1. Shipping\_Fee == 90 |  |  |
|  | 1. ElseIf Total\_Quantity < 400 Then |  |  |
|  | 1. Shipping\_Fee == 120 |  |  |
|  | 1. ElseIf Total\_Quantity < 600 Then |  |  |
|  | 1. Shipping\_Fee == 150 |  |  |
|  | 1. Else |  |  |
|  | 1. Shipping\_Fee == 180 |  |  |
|  | 1. EndIf |  |  |
|  | 1. Else |  |  |
|  | 1. Print “System Error” |  |  |
|  | 1. EndIf |  |  |
|  | 1. Total\_Payment = Total\_Price + Shipping\_Fee | 2000 |  |
|  | 1. Print Client\_Name | 3000 | Client\_Name |
|  | 1. Print Address | 3000 | Address |
|  | 1. Print Bill\_Date | 3000 | Bill\_Date |
|  | 1. Print Total\_Price | 3000 | Total\_Price |
|  | 1. Print Country\_Code | 3000 | Country\_Code |
|  | 1. Print Total\_Quantity | 3000 | Total\_Quantity |
|  | 1. Print Shipping\_Fee | 3000 | Shipping\_Fee |
|  | 1. Print Total\_Payment | 3000 | Total\_Payment |
|  | 1. End | 0000 |  |

1. **ALGORITHM (WITHOUT MODULE)**

**OrderSystem**()

Total\_Price = 0.00

Total\_Quantity = 0

Enter Client\_Name

Enter Address

Enter Bill\_Date

DO

Enter Glove\_Code

Enter Colour

Enter Size

Enter Quantity

If Glove\_Code == ‘L’ Then

Type\_of\_Glove == “Latex”

Price = Quantity \* 130

ElseIf Glove\_Code == ‘N’ Then

Type\_of\_Glove == “Nitrile”

Price = Quantity \* 185

ElseIf Glove\_Code == ‘V’ Then

Type\_of\_Glove == “Vinyl”

Price = Quantity \* 220

Else

Print “System Error”

EndIf

Total\_Quantity += Quantity

Total\_Price += Price

Print Glove\_Code

Print Type\_of\_Glove

Print Colour

Print Size

Print Quantity

Print Price

Print “Anymore Order? (1 for Yes/ 0 for No)”

Enter Control

While Control <> 0

Enter Country\_Code

If Country\_Code == ‘T’ Then

If Total\_Quantity < 200 Then

Shipping\_Fee == 75

ElseIf Total\_Quantity < 400 Then

Shipping\_Fee == 105

ElseIf Total\_Quantity < 600 Then

Shipping\_Fee == 135

Else

Shipping\_Fee == 150

EndIf

ElseIf Country\_Code == ‘I’ || Country\_Code == ‘P’ Then

If Total\_Quantity < 200 Then

Shipping\_Fee == 90

ElseIf Total\_Quantity < 400 Then

Shipping\_Fee == 120

ElseIf Total\_Quantity < 600 Then

Shipping\_Fee == 150

Else

Shipping\_Fee == 180

EndIf

Else

Print “System Error”

EndIf

Total\_Payment = Total\_Price + Shipping\_Fee

Print Client\_Name

Print Address

Print Bill\_Date

Print Total\_Price

Print Country\_Code

Print Total\_Quantity

Print Shipping\_Fee

Print Total\_Payment

End

1. **FLOWCHART (WITHOUT MODULE)**

Graphical user interface, diagram

Description automatically generated with medium confidence

Graphical user interface, application

Description automatically generated

Graphical user interface, application

Description automatically generatedGraphical user interface, diagram, application

Description automatically generated

1. **DESK CHECKING**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | Client\_Name | **Address** | Bill\_Date | Glove\_Code | Colour | Size | Quantity/carton | Type\_of\_Glove | **Price** | Total\_Price | Total\_Quantity | Country\_Code | Shipping\_Fee | Total\_Payment | **Condition** | **Input/Output** |
| 1. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2. |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |  |
| 3. |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |
| 4. | “Wong Jin Ken” |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Client\_Name?  “Wong Jin Ken” |
| 5. |  | **“**Jr. Ters. Pasir Koja No. 564 , 78250 Kediri , Bilzen , Indonesia.” |  |  |  |  |  |  |  |  |  |  |  |  |  | **Address? “**Jr. Ters. Pasir Koja  No. 564 , 78250 Kediri,  Bilzen , Indonesia.” |
| 6. |  |  | “15/1/2022” |  |  |  |  |  |  |  |  |  |  |  |  | Bill\_Date? “15/1/2022” |
| 7. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8. |  |  |  | “L” |  |  |  |  |  |  |  |  |  |  |  | Glove\_Code? “L” |
| 9. |  |  |  |  | “White” |  |  |  |  |  |  |  |  |  |  | Colour? “White” |
| 10. |  |  |  |  |  | “L” |  |  |  |  |  |  |  |  |  | Size? “L” |
| 11. |  |  |  |  |  |  | “250” |  |  |  |  |  |  |  |  | Quantity? “250” |
| 12. |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Glove\_Code == ‘L’? T |  |
| 13. |  |  |  |  |  |  |  | “Latex” |  |  |  |  |  |  |  |  |
| 14. |  |  |  |  |  |  |  |  | 250\*130=32500 |  |  |  |  |  |  |  |
| 15. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24. |  |  |  |  |  |  |  |  |  |  | 250 |  |  |  |  | Total\_Quantity=+250 |
| 25. |  |  |  |  |  |  |  |  |  | 32500 |  |  |  |  |  | Total\_Price=+32500 |
| 26. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | “L” |
| 27. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | “Latex” |
| 28. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | “White” |
| 29. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | “L” |
| 30. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | “250” |
| 31. |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Print “Anymore Order? 0 |  |
| 32. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 33. |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 0 <>0 ? Is F |  |
| 34. |  |  |  |  |  |  |  |  |  |  |  | I |  |  |  | County\_Code? |
| 35. |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Country\_Code == ‘T’? F |  |
| 36. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 37. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 38. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 39. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 40. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 41. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 42. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 43. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 44. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 45. |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Country\_Code == ‘I’ || Country\_Code == ‘P’? T |  |
| 46. |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Quantity < 200? F |  |
| 47. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 48. |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Quantity < 400? T |  |
| 49. |  |  |  |  |  |  |  |  |  |  |  |  | 120 |  |  |  |
| 50. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 51. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 52. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 53. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 54. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 55. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 56. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 57. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 58. |  |  |  |  |  |  |  |  |  |  |  |  |  | 32500+120=32620 |  |  |
| 59. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | “Wong Jin Ken” |
| 60. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | **“**Jr. Ters. Pasir Koja No. 564 ,  78250 Kediri, Bilzen ,  Indonesia.” |
| 61. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | “15/1/2022” |
| 62. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 32500 |
| 63. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | “I” |
| 64. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 250 |
| 65. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 120 |
| 66. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 32620 |
| 67. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Test Data**

|  |  |
| --- | --- |
| **DATA SET** | |
| **Client Name** | Wong Jin Ken |
| **Address** | Jr. Ters. Pasir Koja No. 564 , 78250 Kediri , Bilzen , Indonesia. |
| **Country Code** | I |
| **Bill Date** | 15/1/2022 |
| **Glove Code** | L |
| **Size** | L |
| **Color** | White |
| **Quantity / carton** | 250 |

1. **COUPLING DIAGRAM**

**ControlOrderSystem**

Process ReadClient(\*Client\_Name, \*Address, \*Bill\_Date)

Process ReadGlove(\*Glove\_Code, \*Colour, \*Size, \*Quantity)

Process ReadCountry(\*Country\_Code)

Process CalcTotal\_Price(Glove\_Code, Quantity, \*Type\_of\_Glove, \*Price, \*Total\_Quantity, \*Total\_Price)

Process CalcShipping\_Fee(Country\_Code, Total\_Quantity, \*Shipping\_Fee)

Process CalcTotal\_Payment(Total\_Price, Shipping\_Fee, \*Total\_Payment)

Process Print1(Type\_of\_Glove, Price)

Process PrintTotal(Total\_Price, Shipping\_Fee, Total\_Quantity, Total\_Payment)

End

**ReadClient(\*Client\_Name, \*Address, \*Bill\_Date)**

Enter Client\_Name, Address, Bill\_Date

Exit

Client\_Name

Address

Bill\_Date

**ReadClient**

Client\_Name

Address

Bill\_Date

**ControlOrderSystem**

**ReadGlove(\*Glove\_Code, \*Colour, \*Size, \*Quantity)**

Enter Glove\_Code, Colour, Size, Quantity

Exit

Quantity

Size

Glove\_Code

Glove\_Code

Quantity

Size

Colour

**ControlOrderSystem**

Colour

**ReadGlove**

**ReadCountry(\*Country\_Code)**

Enter Country\_Code

Exit

Country\_Code

Country\_Code

**ControlOrderSystem**

**ReadCountry**

**CalcTotal\_Price(Glove\_Code, Quantity, \*Type\_of\_Glove, \*Price, \*Total\_Quantity** **\*Total\_Price)**

If Glove\_Code == ‘L’ Then

Type\_of\_Glove == “Latex”

Price = Quantity \* 130

ElseIf Glove\_Code == ‘N’ Then

Type\_of\_Glove == “Nitrile”

Price = Quantity \* 185

ElseIf Glove\_Code == ‘V’ Then

Type\_of\_Glove == “Vinyl”

Price = Quantity \* 220

Else

Print “System Error”

EndIf

Total\_Quantity += Quantity

Total\_Price += Price

Exit

Total\_Quantity

Total\_Quantity

Quantity

Type\_of\_Glove

Type\_of\_Glove

Quantity

Glove\_Code

Glove\_Code

Price

**ControlOrderSystem**

**CalcTotal\_Price**

Price

Total\_Price

Total\_Price

**CalcShipping\_Fee(Country\_Code, Total\_Quantity, \*Shipping\_Fee)**

If Country\_Code == ‘T’ Then

If Total\_Quantity < 200 Then

Shipping\_Fee == 75

ElseIf Total\_Quantity < 400 Then

Shipping\_Fee == 105

ElseIf Total\_Quantity < 600 Then

Shipping\_Fee == 135

Else

Shipping\_Fee == 150

EndIf

ElseIf Country\_Code == ‘I’ || Country\_Code == ‘P’ Then

If Total\_Quantity < 200 Then

Shipping\_Fee == 90

ElseIf Total\_Quantity < 400 Then

Shipping\_Fee == 120

ElseIf Total\_Quantity < 600 Then

Shipping\_Fee == 150

Else

Shipping\_Fee == 180

EndIf

Else

Print “System Error”

EndIf

Exit

Total\_Quantity

Total\_Quantity

Country\_Code

Country\_Code

**ControlOrderSystem**

**CalcShipping\_Fee**

Shipping\_Fee

Shipping\_Fee

**CalcTotal\_Payment(Total\_Price, Shipping\_Fee, \*Total\_Payment)**

Total\_Payment=Total\_Price+Shipping\_Fee

Exit

**ControlOrderSystem**

**CalcTotal\_Payment**

Shipping\_Fee

Total\_Price

Total\_Price

Shipping\_Fee

Total\_Payment

Total\_Payment

**Print1(Type\_of\_Glove, Price)**

Print Type\_of\_Glove, Price

Exit

Type\_of\_Glove

Price

Price

Type\_of\_Glove

**Print1**

**ControlOrderSystem**

**PrintTotal(Total\_Price, Shipping\_Fee, Total\_Quantity, Total\_Payment)**

Print Total\_Price, Shipping\_Fee, Total\_Quantity, Total\_Payment

Exit

Shipping\_Fee

Shipping\_Fee

Total\_Price

Total\_Price

Total\_Payment

Total\_Payment

**PrintTotal**

**ControlOrderSystem**

Total\_Quantity

Total\_Quantity

Type\_of\_Glove

Type\_of\_Glove

Price

Price

**Print1**

Client\_Name

Address

Bill\_Date

**ReadClient**

Client\_Name

Address

Bill\_Date

**ControlOrderSystem**

Quantity

Size

Glove\_Code

Glove\_Code

Quantity

Size

Colour

Colour

**ReadGlove**

Country\_Code

Country\_Code

**Read**

**Country**

Total\_Quantity

Total\_Quantity

Quantity

Type\_of\_Glove

Type\_of\_Glove

Quantity

Glove\_Code

Glove\_Code

Price

**CalcTotal\_Price**

Price

Total\_Price

Total\_Price

Total\_Quantity

Total\_Quantity

Country\_Code

Country\_Code

**CalcShipping\_Fee**

Shipping\_Fee

Shipping\_Fee

**CalcTotal\_Payment**

Shipping\_Fee

Total\_Price

Total\_Price

Shipping\_Fee

Total\_Payment

Total\_Payment

Shipping\_Fee

Shipping\_Fee

Total\_Price

Total\_Price

Total\_Payment

Total\_Payment

**PrintTotal**

Total\_Quantity

Total\_Quantity

1. **DATA DICTIONARY**

|  |  |  |  |
| --- | --- | --- | --- |
| **Data Item** | **Variable Name** | **Data Type** | **Module** |
| Client’s Name | Client\_Name | String | ControlOrderSystem / ReadClient |
| Client’s Address | Address | String | ControlOrderSystem / ReadClient |
| Bill Date | Bill\_Date | String | ControlOrderSystem / ReadClient |
| Glove Code | Glove\_Code | Character | ControlOrderSystem / ReadGlove/ CalcTotal\_Price |
| Colour | Colour | String | ControlOrderSystem / ReadGlove |
| Size | Size | String | ControlOrderSystem / ReadGlove |
| Quantity | Quantity | Numeric: Integer | ControlOrderSystem / ReadGlove / CalcTotal\_Price |
| Country Code | Country\_Code | Character | ControlOrderSystem / ReadCountry/ CalcShipping\_Fee |
| Type of Glove | Type\_of\_Glove | String | ControlOrderSystem / CalcTotal\_Price/ Print1 |
| Price of Glove | Price | Numeric: Real | ControlOrderSystem / CalcTotal\_Price / Print1 |
| Total Quantity | Total\_Quantity | Numeric: Integer | ControlOrderSystem / CalcTotal\_Price / CalcShipping\_Fee/ PrintTotal |
| Total Price | Total\_Price | Numeric: Real | ControlOrderSystem / CalcTotal\_Price / CalcTotal\_Payment / PrintTotal |
| Shipping Fee | Shipping\_Fee | Numeric: Real | ControlOrderSystem/ CalcShipping\_Fee / CalcTotal\_Payment / PrintTotal |
| Total Payment | Total\_Payment | Numeric: Real | ControlOrderSystem / CalcTotal\_Payment / PrintTotal |

1. **ALGORITHM WITH MODULE**

|  |  |  |  |
| --- | --- | --- | --- |
| Algorithm | Annotation | | Test |
| ControlOrderSystem()  Total\_Quantity = 0  Total\_Price = 0.00  Process ReadClient(\*Client\_Name, \*Address, \*Bill\_Date)  Do  Process ReadGlove(\*Glove\_Code, \*Colour, \*Size, \*Quantity）  Process CalcTotal\_Price(Glove\_Code, Quantity, \*Type\_of\_Glove, \*Price, \*Total\_Quantity, \*Total\_Price)  Process Print1(Type\_of\_Glove, Price)  Enter Control  While Control <> 0  End While  Process ReadCountry(\*Country\_Code)  Process CalcShipping\_Fee(Country\_Code, Total\_Quantity, \*Shipping\_Fee)  Process CalcTotal\_Payment(Total\_Price, Shipping\_Fee, \*Total\_Payment)  Process PrintTotal(Total\_Price, Total\_Quantity, Shipping\_Fee, Total\_Payment)  End | Enters all data from order detail  Calculates total price, shipping fee and total payment according to the total quantity  Prints data and total payment | | 1. Start  2. Transfer to Read  3. Transfer to Calculate  4. Transfer to Print |
| Internal Documentation | | External Documentation | |
| 1. Remark at top: Create a looping that is “Anymore Order?”  2. Include annotations | | 1. Same as 1 in Internal Documentation | |

The algorithm for ControlOrderSystem Module

The algorithm for Read Module

|  |  |  |  |
| --- | --- | --- | --- |
| Algorithm | Annotation | | Test |
| **ReadClient(\*Client\_Name, \*Address, \*Bill\_Date)**  Enter Client\_Name, Address, Bill\_Date  Exit    **ReadGlove(\*Glove\_Code, \*Colour, \*Size, \*Quantity)**  Enter Glove\_Code, Colour, Size, Quantity  Exit    **ReadCountry(\*Country\_Code)**    Enter Country\_Code  Exit | 1. Enters all data from order detail | | Client\_Name    Mohammad Ali  Address  80/1 Sukhumvit 21 Road, Bangkok 10110,  Bill\_Date  16/1/2022  Glove\_Code  L  Colour  White  Size  L  Quantity  300  Country\_Code |
| Internal Documentation | | External Documentation | |
| 1. Remark at top: Module to enters all data from order detail | | 1. Explain input data | |

The algorithm for Calculate Module

|  |  |  |  |
| --- | --- | --- | --- |
| Algorithm | Annotation | | Test |
| **CalcTotal\_Price(Glove\_Code, Quantity, \*Type\_of\_Glove, \*Price, \*Total\_Quantity, \*Total\_Price)**    If Glove\_Code == ‘L’ Then  Type\_of\_Glove == “Latex”  Price = Quantity \* 130  ElseIf Glove\_Code == ‘N’ Then  Type\_of\_Glove == “Nitrile”  Price = Quantity \* 185  ElseIf Glove\_Code == ‘V’ Then  Type\_of\_Glove == “Vinyl”  Price = Quantity \* 220  Else  Print “System Error”  EndIf  Total\_Quantity += Quantity  Total\_Price += Price  Exit  **CalcShipping\_Fee(Country\_Code, Total\_Quantity, \*Shipping\_Fee)**  If Country\_Code == ‘T’ Then  If Total\_Quantity < 200 Then  Shipping\_Fee == 75  ElseIf Total\_Quantity < 400 Then  Shipping\_Fee == 105  ElseIf Total\_Quantity < 600 Then  Shipping\_Fee == 135  Else  Shipping\_Fee == 150  EndIf  ElseIf Country\_Code == ‘I’ || Country\_Code == ‘P’ Then  If Total\_Quantity < 200 Then  Shipping\_Fee == 90  ElseIf Total\_Quantity < 400 Then  Shipping\_Fee == 120  ElseIf Total\_Quantity < 600 Then  Shipping\_Fee == 150  Else  Shipping\_Fee == 180  EndIf  Else  Print “System Error”  EndIf  Exit  **CalcTotal\_Payment(Total\_Price, Shipping\_Fee, \*Total\_Payment)**  Total\_Payment = Total\_Price + Shipping\_Fee  Exit | 1. Calculates total price, shipping fee and total payment according to the total quantity | | Total\_Payment = 300 \* 130 + 105  = 39105 |
| Internal Documentation | | External Documentation | |
| 1. Remark at top: Module to enter all data and calculate total price, shipping fee and total payment | | 1. Specify equation | |

|  |  |  |  |
| --- | --- | --- | --- |
| Algorithm | Annotation | | Test |
| **Print1(Type\_of\_Glove, Price)**  Print Type\_of\_Glove, Price    Exit  **PrintTotal(Price, Total\_Price, Total\_Quantity, Shipping\_Fee, Total\_Payment)**  Print Price, Total\_Price, Total\_Quantity,  Shipping\_Fee, Total\_Payment    Exit | 1. Print each variable on a separate line with a label | | Prints what is required |
| Internal Documentation | | External Documentation | |
| 1. Remark at top: Module to print required output | | 1. Specify output | |

The algorithm for Print Module

1. **FLOWCHART WITH MODULE**

The flowchart for ControlOrderSystem Module

|  |  |  |
| --- | --- | --- |
| Flowchart | Annotation | Test |
| ControlOrderSystem  Total\_Quantity = 0  Total\_Price = 0.00  ReadClient  Graphical user interface  Description automatically generated with low confidence  ReadGlove  CalcTotal\_Price  Print1  Enter Control  While Control == 0  NO  YES  ReadCountry  CalcShipping\_Fee  CalcTotal\_Payment  PrintTotal  Exit | Enters all data from order detail  Calculates total price, shipping fee and total payment according to the total quantity  Prints data and total payment | 1. Start  2. Transfer to Read  3. Transfer to Calculate  4. Transfer to Print |
| Internal Documentation | External Documentation | |
| 1. Remark at top: Create a looping that is “Anymore Order?”  2. Include annotations | 1. Same as 1 in Internal Documentation | |

The flowchart for Read Module

|  |  |  |  |
| --- | --- | --- | --- |
| Flowchart | Annotation | | Test |
| Read  Enter Glove\_Code, Colour, Size, Quantity  Enter Client\_Name, Address, Bill\_Date  Read  Exit  Exit | 1. Enters all data from order detail  Enter Country\_Code  Exit  Read | | Client\_Name    Mohammad Ali  Address  80/1 Sukhumvit 21 Road, Bangkok 10110,  Bill\_Date  16/1/2022  Glove\_Code  L  Colour  White  Size  L  Quantity  300  Country\_Code |
| Internal Documentation | | External Documentation | |
| 1. Remark at top: Module to enters all data from order detail | | 1. Explain input data | |

The flowchart for Calculate Module

|  |  |  |
| --- | --- | --- |
| Flowchart | Annotation | Test |
| CalcTotal\_Price  T  If Glove\_Code == ‘L’  Type\_of\_Glove == “Latex” Price = Quantity \* 130  F  T  If Glove\_Code == ‘N’  Type\_of\_Glove == “Nitrile”  Price = Quantity \* 185  F  T  If Glove\_Code == ‘V’  Type\_of\_Glove == “Vinyl”  Price = Quantity \* 220  F  Print “System Error”  Total\_Quantity += Quantity  Total\_Price += Price  Exit  CalcShipping\_Fee  If Country\_  Code == ‘T’  T  If Total\_  Quantity < 200  T  Shipping\_  Fee == 75  F  T  If Total\_  Quantity < 400  Shipping\_  Fee == 105  F  F  T  If Total\_  Quantity < 600  Shipping\_  Fee == 135  F  If Country\_  Code == ‘I’ || Country\_  Code == ‘P’  Shipping\_Fee == 150  If Total\_  Quantity < 200  T  T  Shipping\_  Fee == 90  F  If Total\_  Quantity < 400  T  Shipping\_  Fee == 120  F  T  If Total\_  Quantity < 600  Shipping\_  Fee == 150  F  Shipping\_Fee == 180  F  Print “System Error”  Exit  Total\_Payment = Total\_Price + Shipping\_Fee  Exit  CalcTotal\_Payment | 1. Calculates total price, shipping fee and total payment according to the total quantity | Total\_  Payment = 300 \* 130 +  105  = 39105 |
| Internal Documentation | External Documentation | |
| 1. Remark at top: Module to enter all data and calculate total price, shipping fee and total payment | 1. Specify equation | |

|  |  |  |  |
| --- | --- | --- | --- |
| Flowchart | Annotation | | Test |
| PrintTotal  Print Total\_Price, Total\_Quantity,  Shipping\_Fee, Total\_Payment  Exit  Print Type\_of\_Glove, Price    Print1  Exit | 1. Print each variable on a separate line with a label | | Prints what is required |
| Internal Documentation | | External Documentation | |
| 1. Remark at top: Module to print required output | | 1. Specify output | |

The flowchart for Print Module

1. **CODE**

#include <stdio.h>

int main()

{

char Client\_Name[30], Address[50], Country\_Code, Type\_of\_Glove[20], Glove\_Code, Colour[10], Size[5], Bill\_Date[20];

int Control, Quantity, Total\_Quantity=0;

float Price, Shipping\_Fee, Total\_Price=0, Total\_Payment;

printf("Enter Client Name : "); //Enter Client Name

fflush(stdin);

gets(Client\_Name); //Client\_Name

printf("Enter Address : "); // Enter Address

gets(Address); //Address

printf("Enter Bill Date : ");

fflush(stdin);

gets(Bill\_Date);

printf("===========================================================\n");

do

{

    printf("\nEnter Glove Code (L= Latex, N= Nitrile ,V= Vinyl): "); //Enter Glove Code

scanf(" %c", &Glove\_Code); //Glove\_Code

fflush(stdin);

printf("Enter Colour :"); //Enter Colour

fflush(stdin);

gets(Colour); //Colour

printf("Enter Size : ");

scanf(" %s", &Size); //Size

printf("Enter Quantity: "); //Enter Quantity

scanf("%d", &Quantity); //Quantity

     {

     if(Glove\_Code =='L')

         {

            printf("Type of Glove : Latex\n");

         Price= Quantity\*130;

         }

     else if(Glove\_Code =='N')

         {

            printf("Type of Glove : Nitrile\n");

         Price= Quantity\*185;

         }

    else

         {

            printf("Type of Glove : Vinyl\n");

         Price= Quantity\*220;

         }

     }//End If

            printf("Price : RM%.2f", Price); //Price

            Total\_Quantity = Total\_Quantity+ Quantity;

            Total\_Price = Total\_Price+ Price;

            printf("\nTotal Price : RM%.2f",Total\_Price); //Total\_Price

            printf("\nAnymore order (1= Yes/ 0= No)? : ");

            scanf("%d", &Control); //Control

}

while (Control!=0); //End Do While

printf("===========================================================\n");

printf("Enter Country Code (T= Thailand, I= Indonesia, P= Philippines) : ");//Enter Country Code

scanf(" %c", &Country\_Code);//Country\_Code

{

if (Country\_Code == 'T')

   {

     if (Total\_Quantity<200)

            Shipping\_Fee = 75;

            else if (Total\_Quantity<400)

            Shipping\_Fee = 105;

    else if (Total\_Quantity<600)

            Shipping\_Fee = 135;

     else

            Shipping\_Fee = 150;

   }//End If

   Else

{

     if (Total\_Quantity<200)

       Shipping\_Fee = 90;

     else if (Total\_Quantity<400)

           Shipping\_Fee = 120;

     else if (Total\_Quantity<600)

           Shipping\_Fee = 150;

      else

        Shipping\_Fee = 180;

   }//End IF

}//End IF

Total\_Payment = Total\_Price + Shipping\_Fee;

printf("\nTotal Quantity : %d",Total\_Quantity); //Total Quantity

printf("\nShipping Fee : RM%.2f",Shipping\_Fee); //Shipping\_Fee

printf("\n===========================================================\n");

printf("\nTotal Payment: RM%.2f ",Total\_Payment); //Total Payment

return 0;

}

**Output:**

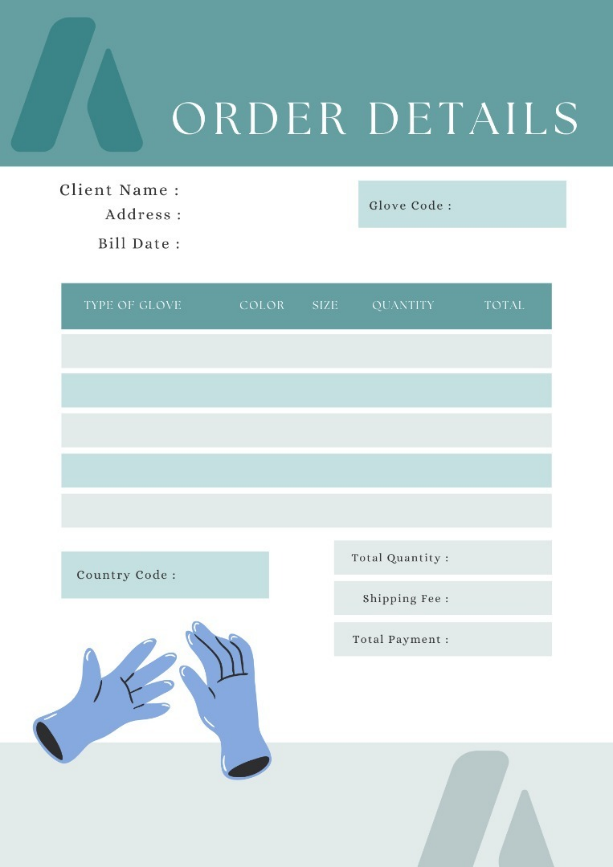
A screenshot of a computer

Description automatically generated

1. **INTERFACE PROTOTYPE**

Text, letter

Description automatically generatedGraphical user interface, text, website

Description automatically generated

1. **WORK DISTRIBUTION**

**Text

Description automatically generated**

1. **REPORTING ON MEET UP**

**10/12/2021 2.30p.m.**

This is our first meeting. At the beginning, we were double confirming again our selected topic which is Kementrian perdagangan antarabangsa dan industri. Then we discussed about what is the most suitable case study and think for some time. We decided each of the group member to create one case study depend on our creativity and we will select the best one with everyone agree in next meeting. Then, we go through briefly our whole task of assignment from case study to reporting meet up. Then we try to distribute the work after this.

**13/12/2021 11.00a.m.**

This day is our discussion about deciding the case study. First, we would present each of our brainstorm ideas by sharing the screen and choosing the calculations, the ideal one to be the case study in the project. After we are discussing and deciding the case study that we use in the project, we would separate the task which is ‘EARLY ANALYSIS OF CASE STUDY (Heuristic or Algorithmic with explanation)’ that is the six steps in problem-solving among the four of us. As the result, we decide on the two parts of this task, which is ‘a,b and c’ handled by Tan Chek Cheng and Wong Zi Ming meanwhile ‘d, e, and f’ handled by Ken Fong Ka Kin and Tean Jin He.

**19/12/2021 14.00p.m.**

This week, we are discussing how to create a table to easily understand the analysis study that we choose and provide the statement that the lecturer gave to process PAC, IPO and IC. And we learn about the type of gloves, the colour of gloves, size of gloves to do the calculation of packaging and delivery fee for export to other countries. This can be mentioned about the way that we need to do after the future time.

**14/1/2022 2.30pm**

This week, we are discussing about the flowchart without module, TAN Chek Cheng showed us the details of flowchart and explained to us every step will went through. Then followed by test run of flowchart to test the functionality of flowchart whether it worked or not.Then Chek Cheng continued his part by explaining the desk checking. He showed us the complete table of desk checking and checked one by one with algorithm without module for every line at the same time. Then we confused about how many test data should we have, and we decided to ask the lecturer.

**14/1/2022 3.00p.m.**

At the same day, we are also discussing the coupling diagram. After Wong Zi Ming had explained his coupling diagram, there was a problem in the last step which is not enough space to combine all modules in one page. Then, we give a solution which tries to change the page from portrait to landscape. After this, Wong Zi Ming continued to explain the data dictionary. The data dictionary his share looks perfect, we all agree with him.

**25/1/2022 7p.m.**

This is our last meeting; we combine all the slide and report. Then we continue by finalizing the report. Once again, we go through all the part of our report from case study until reporting meet up. In case of any small detail problem or something we did not add in, we straight to do correction of report. We ensure everything is ready for submit and discuss together that lead by Zi Ming (Leader).

**Link of meeting folder:** <https://drive.google.com/drive/folders/1E_IbwKGq4Y4I0cTVgLWoXxgdjvj-pBpw>