Report submitted to the SASTRA deemed to be university

as the requirement of the course

EIE303: VIRTUAL INSTRUMENTATION

TITLE:

FOOD ORDERING SYSTEM

Submitted by

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<u>Bonafide Certificate</u>

This is to certify that the project report titled "**FOOD ORDERING SYSTEM**" submitted as the requirements for the award of the degree of B.Tech. Electronics and Instrumentation Engineering to the SASTRA Deemed to be University, is a Bona-fide record of the work done By **KALKI S** (Reg.No.126006056) during the 5th semester of the academic year 2024-25 in the **School of Electrical and Electronics Engineering,** under my supervision. This project report has not formed the basis for the award of any degree, diploma, associate ship, fellowship or other similar title to any candidate of any University.

Signature of Project Supervisor :

 Name with Affiliation:

Date   :

Project Viva-voce held on _____

Examiner 1   Examiner 2

Declaration

I declare that the project report titled "**FOOD ORDERING SYSTEM**"

submitted by me is an original work done by me under the guidance of **Dr.**

Jeyadheepan K, **Assistant Professor Research, School of Electrical and**

Electronics Engineering, **SASTRA Deemed to be University** during the 5th

semester of the academic year 2024-25, in the **School of Electrical and**

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materials from other sources, I have given due credit and cited them in the text

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Signature of the candidate(s)   :

Name of the candidate(s)   : KALKI S

Date   :

<u>Acknowledgements</u>

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I am thankful to the guidance given by other supervisors, the panels in the project presentation that has aided me in improving my presentation skills and my parents for their constant support throughout the completion of my project.

<u>ABSTRACT</u>

This report represents a thorough detail examination of food ordering system using Labview and its application in real time processing. It mainly focuses on the design, interface, functionality, operation and implementation in real time. This food ordering system makes the user to order the foods easily and the integration with LabVIEW make them order food and also debug the system easily on their own.

The food ordering system developed using LabVIEW integrates a user-friendly interface with the front panel of the LabVIEW, providing a seamless experience for both the customer and the hotel staff. This system is made so helpful so that not only the staffs but also the customers can also place their orders on their own. It also provides a better communication between the staffs and the customers by, when customers place their orders, it is transmitted to the kitchen and a confirmation message will be sent by the chefs which make this system more updated every second.

This real time notification system, order management, minimizes delays and enhances customer satisfaction and user-friendly experience.

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INTRODUCTION

LABVIEW BASED FOOD ORDERING SYSTEM

The food ordering system accessing for years is too dependent on hotel staffs as it need man power for work. The staffs have to look for the customers order individually or as a group which cause many delays and miscommunication between the staffs and the customers. Addressing these issues a food ordering system with a user-friendly interface and a real time Notifications helps the customers to track their orders.

This project FOOD ORDERING SYSTEM USING LABVIEW integrated with an Arduino microcontroller to facilitate real time Notifications. This system allows customers to place their order directly or through the hotel staffs, while kitchen staffs receive and confirms orders. Upon confirmation the system sends an immediate notification back to the customer providing reassurance that their order has been acknowledged and is being prepared.

LabVIEW is a powerful programming interface for such an application for such an application because of its graphical programming interface, which is accessible to users who may not have extensive coding experience. It supports hardware integration, including ARDUINO allowing seamless real time communication between the kitchen and the customer interface. This setup allows the entire ordering and notification system to happen efficiently and by minimising delays.

IMPORTANCE

 In the developing world, waiting for the food will become more stress and it will be replaced by this system by accurate order and the timely communication. This system ensures the customer satisfaction by minimising the risk of errors, enhancing transparency and ensures the customers are informed of their order status. And this ordering system can be widely used in many sectors not only for food but also for any shopping minimising the human based customer and staff interaction.

RESTAURANTS AND CAFES

Improves order accuracy and enhances customer experience by real time interactions.

HOTEL ROOM SERVICES

Allows guests to order directly from their rooms helps in streamline room service orders.

HEALTHCARE FACILITIES

Ensures patients having their meals without staining themselves and helps staffs to look after them.

EVENT MANAGEMENT AND CATERING SERVICES

Helps staffs to coordinate multiple orders.

AIM OF THE PROJECT

The aim of the project is to create a user-friendly interface without any external source as LabVIEW providing a such interface with its front panel minimising an external interface for its operation.as LabVIEW is the graphical programming it can be easily understood by everyone. It also satisfied many issues which are still longing in many ordering platforms. It became the main aim of this project.

ENHANCES CUSTOMER EXPERIENCE:

Real time order confirmation status.

IMPOROVES TECHNICAL OPERATIONS:

It reducing communication errors and the delays to make orders really enhances the customer interaction with the system.

INCREASE FLEXIBLITY:

Easy adjustments and updates in the menu, pricing or process based on the customer needs.

FRONT PANEL

FOODIES STALL

QUANTITY	ITEM	PRICE
1	PIZZA	CLICK TO ORDER	100

QUANTITY 2	ITEM 2	PRICE 2
1	BURGER	CLICK TO ORDER	200

QUANTITY 3	ITEM 3	PRICE 3
1	FRENCH FRIES	CLICK TO ORDER	150

QUANTITY4	ITEM 4	PRICE 4
1	CHICKEN WINGS	CLICK TO ORDER	250

QUANTITY 5	ITEM 5	PRICE 5
1	CHICKEN LEGS	CLICK TO ORDER	225

QUANTITY 6	ITEM 6	PRICE 6
1	COKE	CLICK TO ORDER	50

QUANTITY 7	ITEM 7	PRICE 7
1	B.L CHICKEN	CLICK TO ORDER	350

QUANTITY 8	ITEM 8	PRICE 8
1	BRIYANI	CLICK TO ORDER	380

QUANTITY 9	ITEM 9	PRICE 9
1	SANWICH	CLICK TO ORDER	180

QUANTITY 10	ITEM 10	PRICE 10
1	COFFEE	CLICK TO ORDER	25

FRONT PANEL

FRONT PANEL

In front panel, user-friendly interface is created with the help of

- Numeric controls

- Numeric Indicators

- Boolean controls

- String controls

- Cluster indicator

- String indicators

- Confirm Button

NUMERIC CONTROLS:

Numeric controls are given to fix the quantity of the food and its given for each food items. And its initial value is set as 1 because the possible value of ordering a food must be 1. So the initial value is set and the value can be increased as customer's wish.

NUMERIC INDICATORS:

Numeric indicators are set to display the price of the food item. Each food item has a unique price and it can be changed as per the menu.

BOOLEAN CONTROLS:

The Boolean value is used to select the food item since Boolean has only two logics: HIGH and LOW. The value HIGH means the food is selected and the value LOW means the food is not selected.

STRING INDICATORS:

String indicators are used to display the name of the food item enables the user to select their desired food easily. It acts as a display purpose and it can also be change according to their daily menus.

CLUSTER INDICATOR:

The cluster indicator is used to display the selected food item as the ordering process is done once. It will show the selected food items and it will retain its default value at the start of every order.

CONFIRM BUTTON:

The confirm button is to submit the order and to reinitialise the order again. Once the confirm button is clicked by the user, the order will be confirmed. A pop up message will appear.

BLOCK DIAGRAM
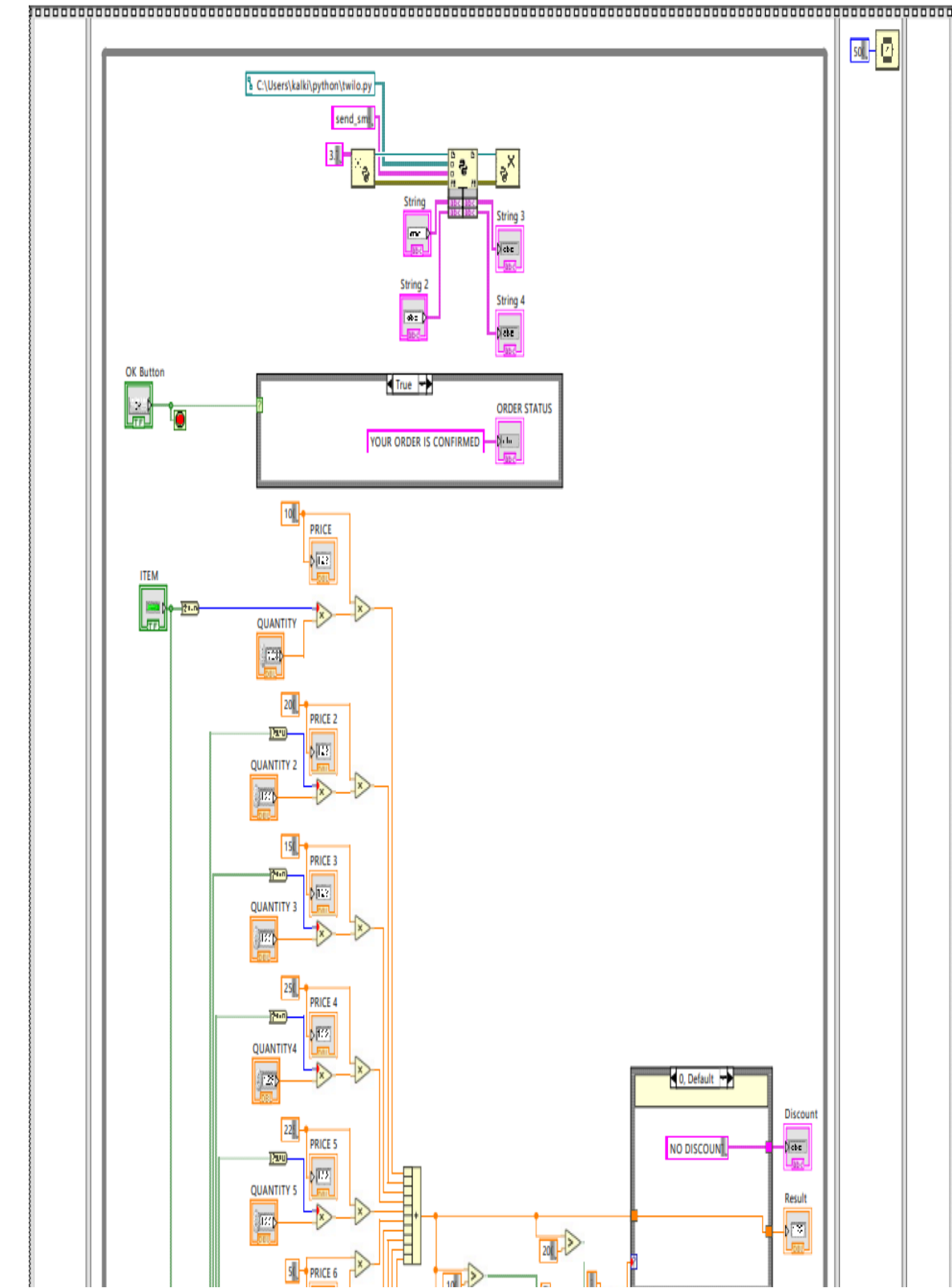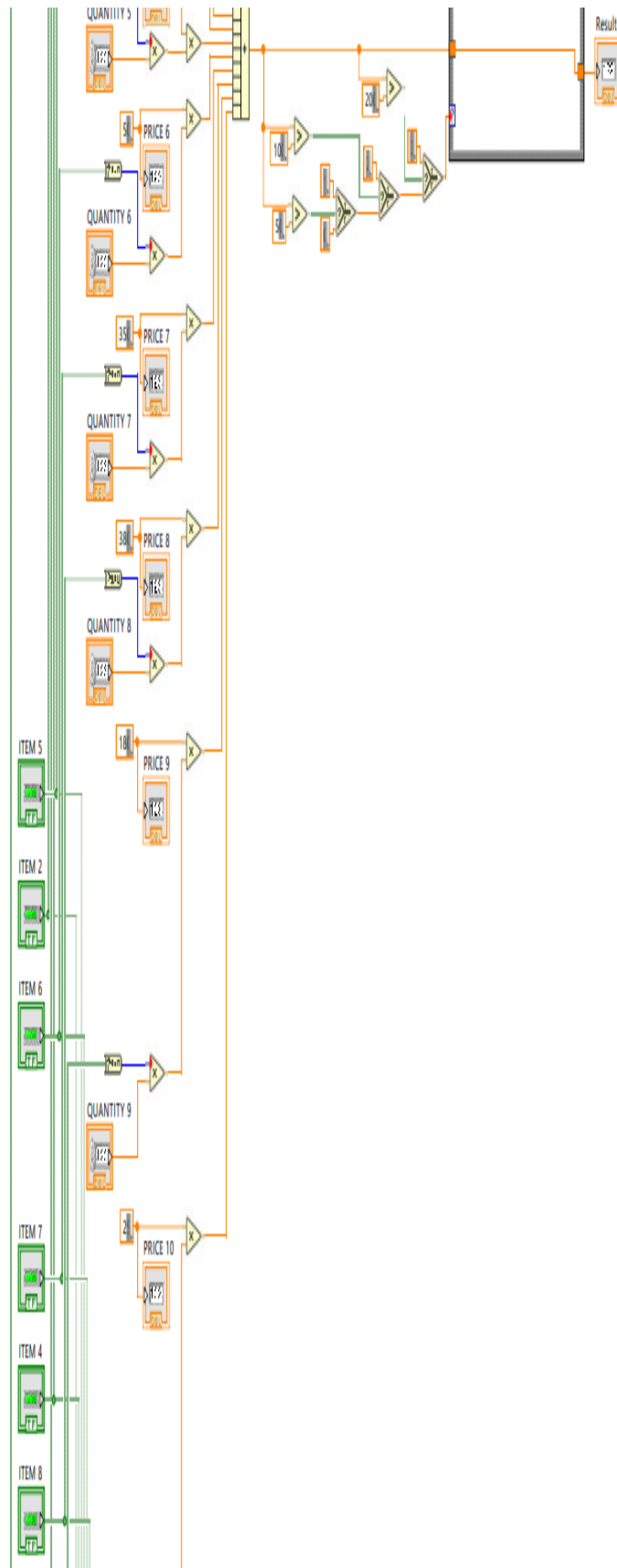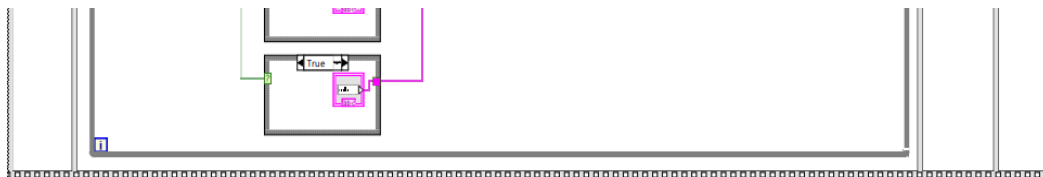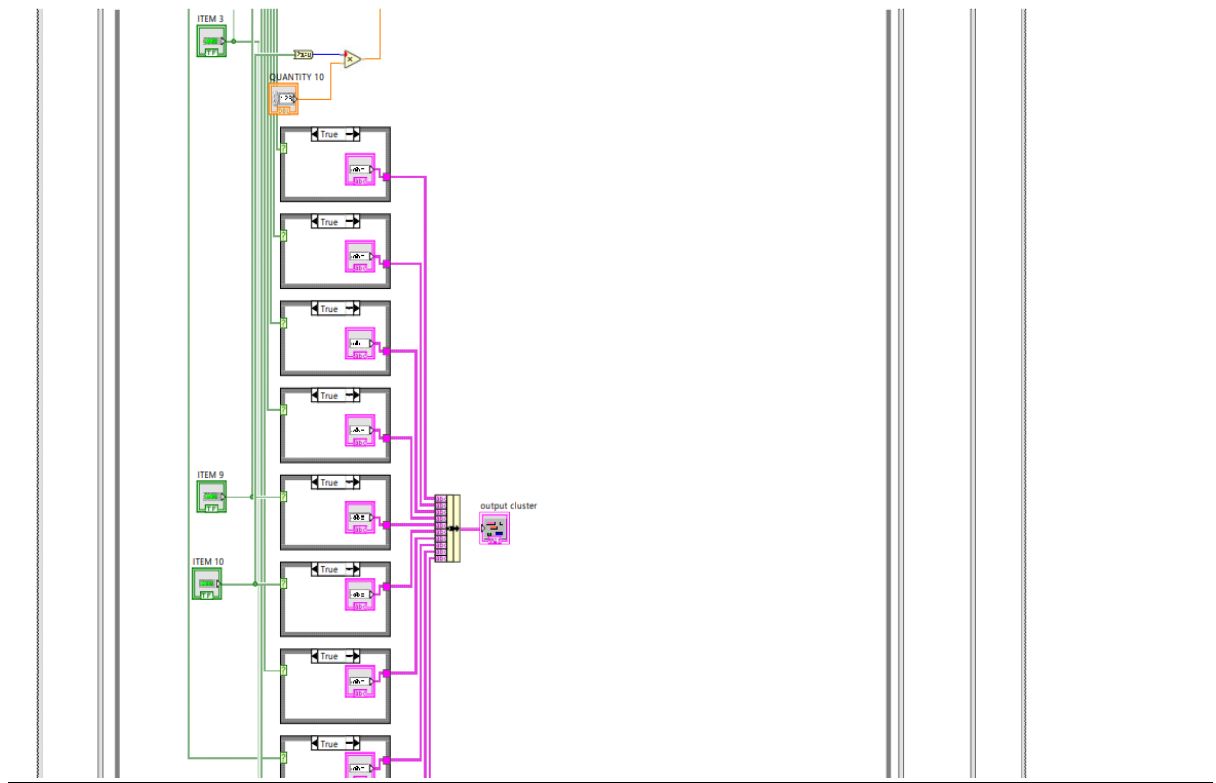
BLOCK DIAGRAM

The block diagram acts as a backend logic for LabVIEW and it decides the logic behind every program.

The backend part has many modules

- Price calculation

- Discount Calculation

- Sequential Programming

- Selected foods

- Delay generation

- Writing python file for message

- Message pop up

PRICE CALCULATION:

The price of each food is calculated by multiplying the quantity with the price amount using arithmetic operators. The price amounts are given as a constant to the price controls. And all the individual prices are combined to get the overall bill amount. A compound arithmetic is used to calculate the combined price of all the food items. The binary control to select food item exhibits value of high, low which is converted to (0,1) using the bool to(0,1)function.
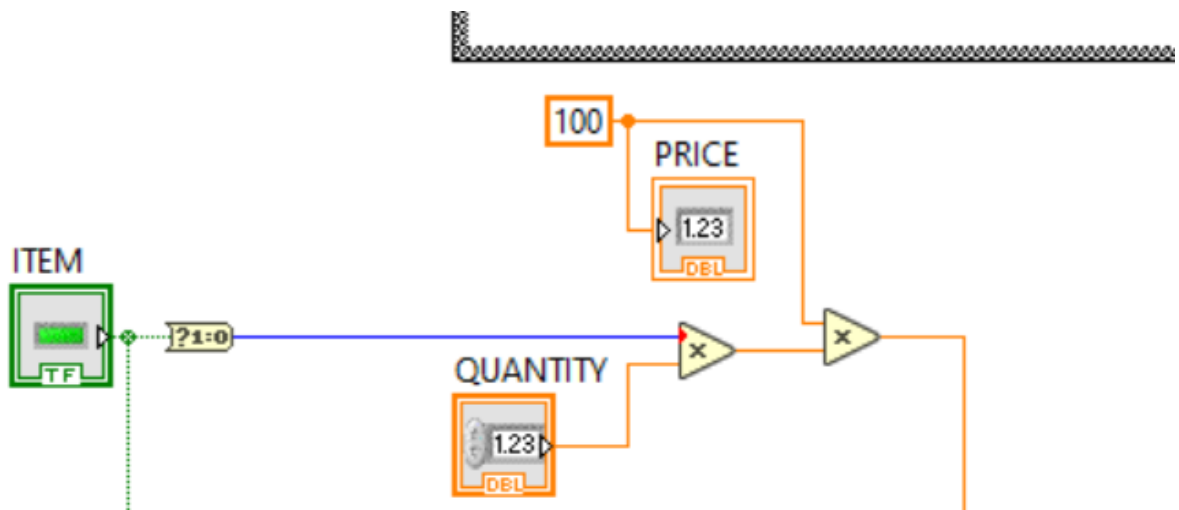
DISCOUNT CALCULATION:

  Discount calculations are done using the case structure. When the Bill amount reaches

different values, based on the threshold discounts, the discounts can be allotted. It is done by

the select function from the comparison.
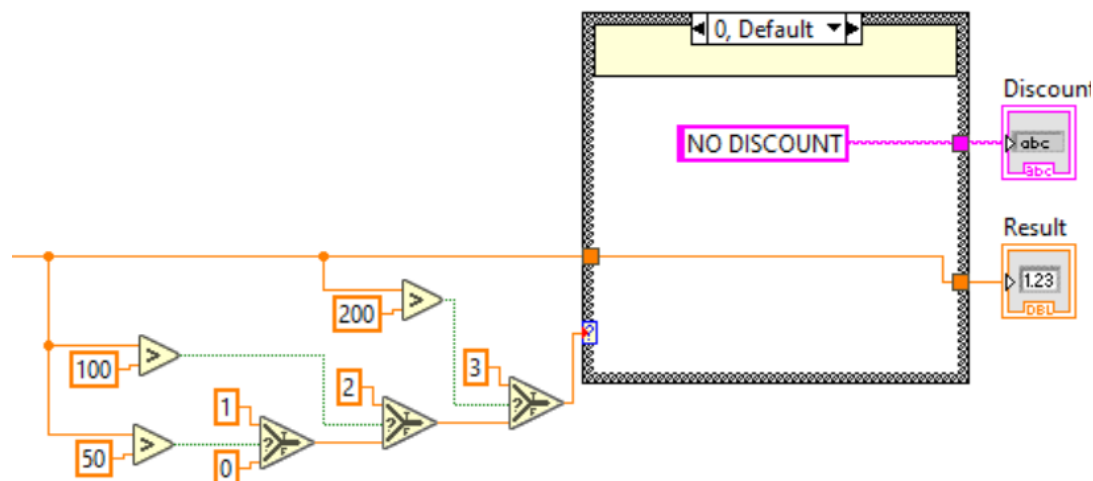
SEQUENTIAL PROGRAMMING:

To run the program sequentially flag sequence structure is used. And to make orders continuously all the codes are enclosed within the while loop which makes the program run continuously until the required condition is met.
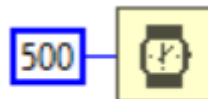
SELECTED FOODS:

To make visible the selected foods, a case structure is used for every single food item which is based on logic, if a food is selected it will be appear on the front panel.
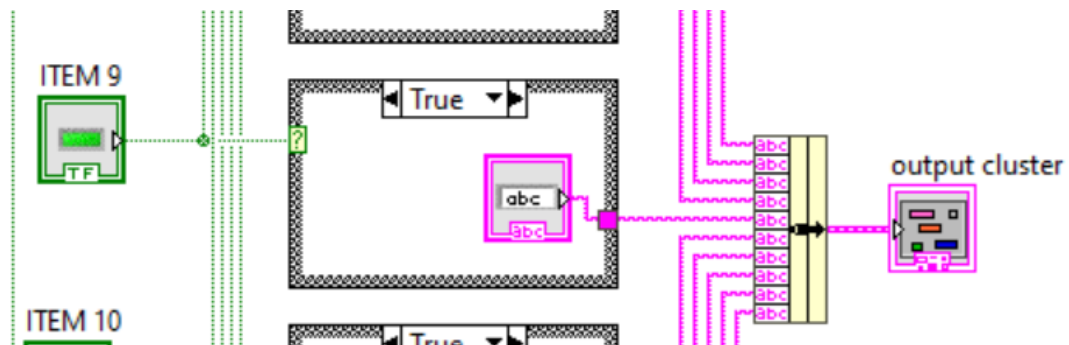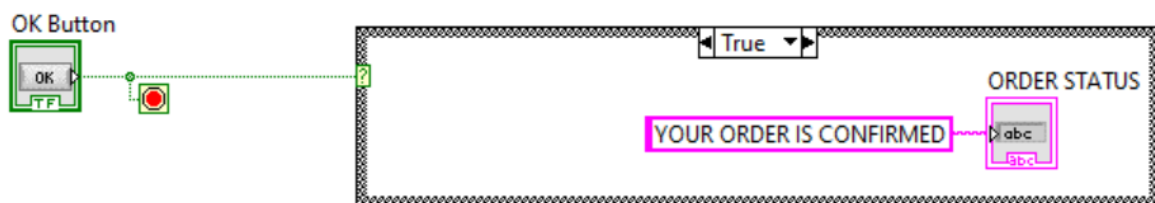

DELAY GENERATION:

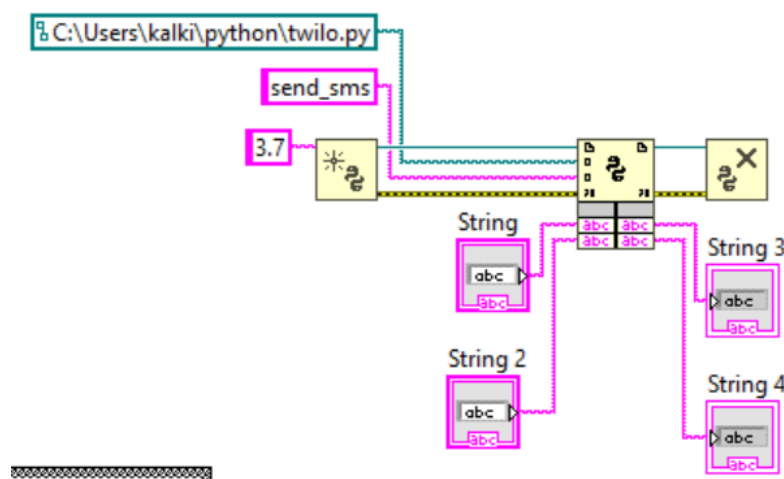To give a little delay between orders a delay of 500 milliseconds is generated.

MESSAGE POP UPS:

Once the submit button is pressed, it should pop up a message that order is confirmed. It is done by using a case structure.

WRITING PYTHON FOR MESSAGE(OPTIONAL):

If we have to send a message from an external resource to the customer, it can be done by using calling a python code. Th python code will also call a external source for message transfer called "twilio".

RESULT

QUANTITY	ITEM		PRICE	QUANTITY 6	ITEM 6		PRICE 6
1	PIZZA	CLICK TO ORDER	100	1	COKE	CLICK TO ORDER	50
QUANTITY 2	ITEM 2		PRICE 2	QUANTITY 7	ITEM 7		PRICE 7
1	BURGER	CLICK TO ORDER	200	1	B.L CHICKEN	CLICK TO ORDER	350
QUANTITY 3	ITEM 3		PRICE 3	QUANTITY 8	ITEM 8		PRICE 8
3	FRENCH FRIES	CLICK TO CANCEL	150	1	BRIYANI	CLICK TO ORDER	380
QUANTITY4	ITEM 4		PRICE 4	QUANTITY 9	ITEM 9		PRICE 9
1	CHICKEN WINGS	CLICK TO CANCEL	250	2	SANWICH	CLICK TO CANCEL	180
QUANTITY 5	ITEM 5		PRICE 5	QUANTITY 10	ITEM 10		PRICE 10
1	CHICKEN LEGS	CLICK TO CANCEL	225	1	COFFEE	CLICK TO ORDER	25

LabVIEW™ Evaluation Software
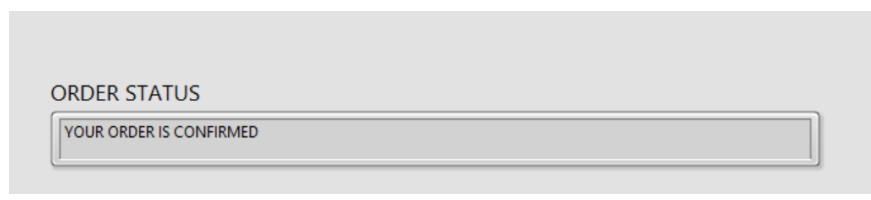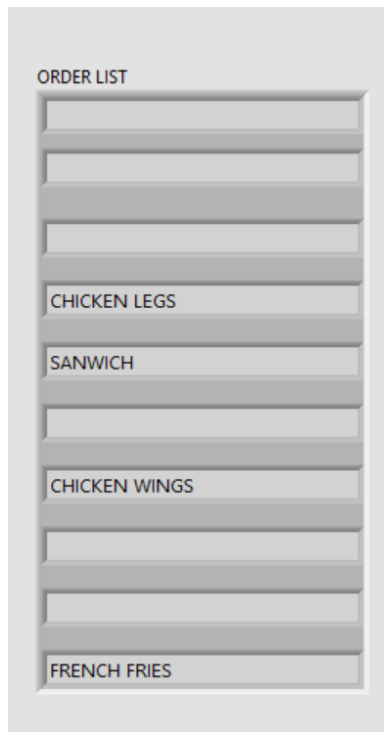
Evaluation

OK

CONFIRM

Result

1156.5

Discount

10%

Thus, a food ordering system is designed efficiently with user-friendly interface and satisfies all the conditions.

REFERENCES:

1. https://youtu.be/g4dPw5mpGkI?si=AgwnaJPR_J0euvc7