PROJECT REPORT – C PROGRAMMING

TRAIN RESERVATION SYSTEM

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TTTK2053 – COMPUTING PARADIGM

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TRAIN RESERVATION SYSTEM

1. INTRODUCTION

Many people had used train as their main transportation to move from one place to another place. Usually student and people who work far from their hometown will use train as their transportation to go back to their hometown.

The project arrangement is complete and reliable which doesn't need the user to be trained in the use of this new system in which they will be used to help customer reserve ticket easily. Since the establishment of train station there is not any development that come across to establish the system into the new one that reduce the number of problems that the customer is facing. The old system's problem continuously occurring which led to the reduction of most of the people that are using the train service. In advance, the train reservation needs to be organized in a modern way that will suit the basic need of the train users and this will make many of the users to have less time wastage. Not only the users but the train officers will find it easier to organize their day-to-day activities in their office in a simpler way and easier so that people will not be complaining or having congestion when reserve a train ticket. By engaging in this system, it will make their work to be accurate and diligence and will reduce the number of complaining as far as the train company is concern. The program will be created with C Programming and software named Ubuntu as Linux emulator, Vim or Text Editor for C editor, GCC for C compiler. We also tried running in GDB website. It is working but not recommended because sometime the website server will down.

2. SYSTEM SPECIFICATION/FUNCTION MODULES

The programming language that will be used in coding this work is C programming language, which can be developed modules of program running, firstly the introduction of the program is displayed and then the main menu which is made up of:

NEW RESERVATION: this allows you to enter the information of new reservation

DELETE RESERVATION: this allow you to delete the existing reservation

EDIT RESERVATION: this allow you to edit the existing reservation

EXIT RESERVATION: this allow you to exit the system

3. PROGRAM (INPUT AND OUTPUT /OUTPUT) SPECIFICATIONS

No	ITEM NAME	DESCRIPTION	DATA TYPE	SIZE
1.	New Reservation	To store the new reservation	1. String 2. int 3. double	- 30 - 300 - 2 decimal places
2.	Delete Reservation	To delete the existing reservation chosen by the user	String	30
3.	Edit Reservation	To edit the existing reservation chosen by the user	1. String 2. int 3. double	- 30 - 300 - 2 decimal places
4.	Exit Reservation	To exit the system	Int	-300

4. SCREEN DESIGN

Main Screen

```
=------------------------------------------------------------=

<== TRAIN RESERVATION SYSTEM ==>

                    Main Menu

=----------------------------------------------------=

Enter [1] for NEW Reservation

Enter [2] for DELETE Reservation

Enter [3] for EDIT Reservation
Enter [4] for EXIT the system

Enter the number:
```

New Reservation

```
<==NEW RESERVATION==>

Reservation ID: AM12653

Enter your name:

 Choose your departing station:


Enter [0] for Johor Bahru

Enter [1] for Seremban

Enter [2] for Kuala Lumpur

Enter [3] for Ipoh

Enter [4] for Alor Setar

Enter the number:


Choose your destination station:


Enter [0] for Johor Bahru

Enter [1] for Seremban

Enter [2] for Kuala Lumpur

Enter [3] for Ipoh

Enter [4] for Alor Setar

Enter the number:


Enter your departure date (example: 13/05/2020):

Choose your departure time:

Enter [1] for 9:00 am

Enter [2] for 12:00pm
```

ID number will auto generate

```
Enter [3] for 3:00pm

Enter [4] for 6:00pm

Enter the number:

Number of seats:

Total price:
```

Delete Reservation

```
<==DELETE RESERVATION==>

Confirm to delete? [0 for NO / 1 for YES]

1


Delete Successful
```

Edit Reservation

```
<==EDIT RESERVATION==>


ID: tr2345
NAME: haziq
DEPARTURE PLACE: JohorBahru
DESTINATION PLACE: Ipoh
DATE: 12/2/2022
TIME: 3.00pm
TOTAL SEAT: 2
TOTAL PRICE(RM): 80.00
Choose which one to edit:


Enter [0] for name
Enter [1] for departure place
Enter [2] for destination place
Enter [3] for departure date
Enter [4] for departure time
Enter [5] for total seat
Enter [6] for done edit
Enter the number:
6
Confirm to save the edit? [0 for NO / 1 for YES]
```

Exit Reservation

```
==========================================
Thanks For Using Our Services
==========================================
```

5. PROCESSING & VALIDATION

a. Option

The acceptable entry for the choices is from 1 – 4. If entry is not within the range, then error message pops up” The number you enter isn't in the option. Please try again”.

b. New Reservation

They will be option to choose for departing place, destination place, and time. They all have option 0-4. If the option is out of the range, it will display” The number you enter isn't in the option. Please try again”.

c. Delete Reservation

It has option to choose which reservation id and confirm to delete. For which reservation id, it has option 0-5. For confirm to delete, it has option 0 & 1. If the option is out of the range, it will display” The number you enter isn't in the option. Please try again”.

d. Edit Reservation

They will be option to choose reservation id, which one to edit, departing place, destination place, time, and confirm to save the edit. For reservation id, it will have option 0-5. For which one to edit, it will have option 0-6. For departing place, destination place, and time, it will have option from 0-4. For confirm to save the edit, it will have option 0 & 1. If the option is out of the range, it will display" The number you enter isn't in the option. Please try again".

6. PSEUDOCODE FOR EACH MODULE

a. Main

```
FUNCTION main()
        SET moveCount to 1
        WHILE (num NOT EQUAL 4)
          DISPLAY "<==============================>"
          DISPLAY "<==TRAIN RESERVATION SYSTEM==>"
          DISPLAY "<==============================>"
          DISPLAY "Enter [1] for New Reservation"
          DISPLAY "Enter [2] for Delete Reservation"
          DISPLAY "Enter [3] for Edit Reservation"
          DISPLAY "Enter [4] for Exit the System"
          DISPLAY "Enter the number:"
          INPUT num
          IF (num EQUAL 1)
             APPEND c in c2
           IF (c>1)
             C=0
           END if
```

```
IF (c5 LESS THAN 1)
    DISPLAY "<== NEW RESERVATION ==>"
          DISPLAY "Reservation ID: id[c]"
          CALL enterName(c2)
          CALL chooseDepart(c2)
          CALL chooseDestination(c2)
          CALL departureDate(c2)
          CALL departureTime(c2)
          CALL seatNumber(c2)
          CALL sumPrice(c2)
          DISPLAY "Total price(RM): totalPrice[c]"
          APPEND c5 and 1 in c5 by using sum operation
  END if


  ELSE
        DISPLAY "Reservation is full"
        APPEND  0 in c2
  END else


END if
```

```
        ELSE if(num EQUAL 2)
            CALL deleteReservation()
        END else if


        ELSE if (num EQUAL 3)
            CALL editReservation()
        END else if


        ELSE if(num GREATER THAN 4 OR num LESS THAN 1)
            CALL displayError()
        END else if
    END while
    DISPLAY "======================================"
    DISPLAY "Thanks For Using Our Services"
    DISPLAY "======================================"


    INCREMENT moveCount
END function
```

b. Edit Reservation

```
FUNCTION editReservation()
```

```
DISPLAY "<== EDIT RESERVATION ==>”

DISPLAY "ID: id[c]"

DISPLAY "NAME: name[c2]"

DISPLAY "DEPARTURE PLACE: departure[c2]"

DISPLAY "DESTINATION PLACE: destination[c2]"

DISPLAY "DATE: date[c2]"

DISPLAY "TIME: timeChoose[c2]"

DISPLAY "TOTAL SEAT: totalSeat[c2]"

DISPLAY "TOTAL PRICE(RM): totalPrice[c2]"

DISPLAY "Choose which one to edit:"

DISPLAY "Enter [0] for name"

DISPLAY "Enter [1] for departure place"

DISPLAY "Enter [2] for destination place"

DISPLAY "Enter [3] for departure date"

DISPLAY "Enter [4] for departure time"

DISPLAY "Enter [5] for total seat"

DISPLAY "Enter [6] for done edit"

DISPLAY "Enter the number:"

INPUT c3

WHILE (c3 NOT EQUAL 6)

    IF (c3 EQUAL 0)
```

```
        CALL enterName(c2)
END if

ELSE if (c3 EQUAL 1)
        CALL chooseDepart(c2)
        CALL sumPrice(c2)
END else if

ELSE if (c3 EQUAL 2)
        CALL chooseDestination(c2)
        CALL sumPrice(c2)
END else if

ELSE if (c3 EQUAL 3)
        CALL departureDate(c2)
END else if

ELSE if (c3 EQUAL 4)
        CALL departureTime(c2)
END else if
```

```
ELSE if (c3 EQUAL 5)
    CALL seatNumber(c2)
    CALL sumPrice(c2)
END else if

ELSE if (c3 LESS THAN 0 OR c3 GREATER THAN 6)
    CALL displayError()
END else if

DISPLAY "ID: id[c2]"
DISPLAY "NAME: name[c2]"
DISPLAY "DEPARTURE PLACE: departure[c2]"
DISPLAY "DESTINATION PLACE: destination[c2]"
DISPLAY "DATE: date[c2]"
DISPLAY "TIME: timeChoose[c2]"
DISPLAY "TOTAL SEAT: totalSeat[c2]"
DISPLAY "TOTAL PRICE(RM): totalPrice[c2]"
DISPLAY "Choose which one to edit:"
DISPLAY "Enter [0] for name"
DISPLAY "Enter [1] for departure place"
DISPLAY "Enter [2] for destination place"
```

```
        DISPLAY "Enter [3] for departure date"

        DISPLAY "Enter [4] for departure time"

        DISPLAY "Enter [5] for total seat"

        DISPLAY "Enter [6] for done edit"

        DISPLAY "Enter the number:"

        INPUT c3


    END while


    ELSE if (c3 EQUAL 6)

            DISPLAY "Confirm to save the edit? [0 for NO / 1 for YES]"

            INPUT c4

            IF (c4 EQUAL 1)

                DISPLAY "Edit Successful"

            END if


            ELSE if(c4 EQUAL 0)

                CALL editReservation()

            END else if


            ELSE
```

```
                CALL displayError()
                CALL editReservation()
            END else


        END else if
END function
```

c. Delete Reservation

```
FUNCTION deleteReservation(){
    DISPLAY "<== DELETE RESERVATION ==>"
    DISPLAY "Confirm to delete? [0 for NO / 1 for YES]"
     INPUT c3
    IF (c3 EQUAL 1)
        STRINGCOPY name[c2] FROM ""
        STRINGCOPY departure[c2] FROM ""
        STRINGCOPY destination[c2] FROM ""
        STRINGCOPY date[c2] FROM ""
        STRINGCOPY timeChoose[c2] FROM ""
        APPEND 0 in totalSeat[c2]
        APPEND 0 in totalPrice[c2]
        APPEND 0 in totalPrice[c2]
        APPEND c and 1 in c using sum operation
```

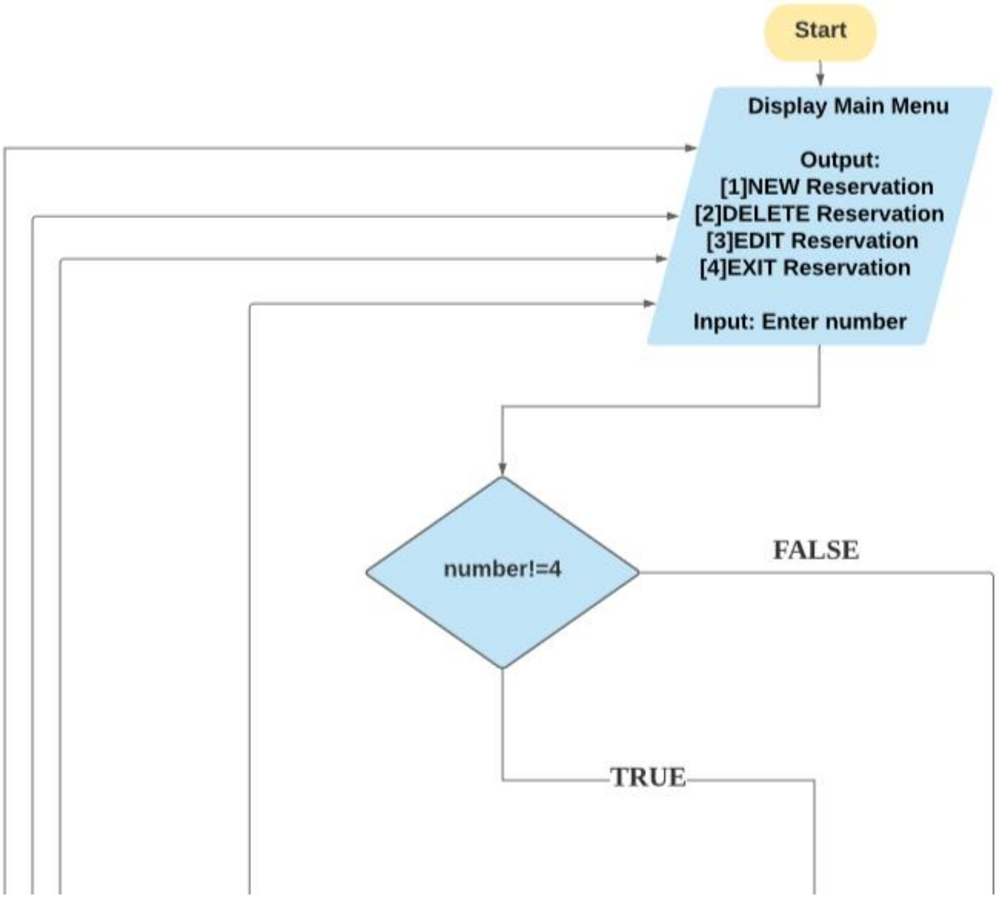
```
                APPEND 0 in c5

                DISPLAY "Delete Successful"

        END IF


        ELSE if (c3 EQUAL 0)

                CALL deleteReservation()

        END else if


        ELSE

                CALL displayError()

                CALL deleteReservation()

        END else

END function
```

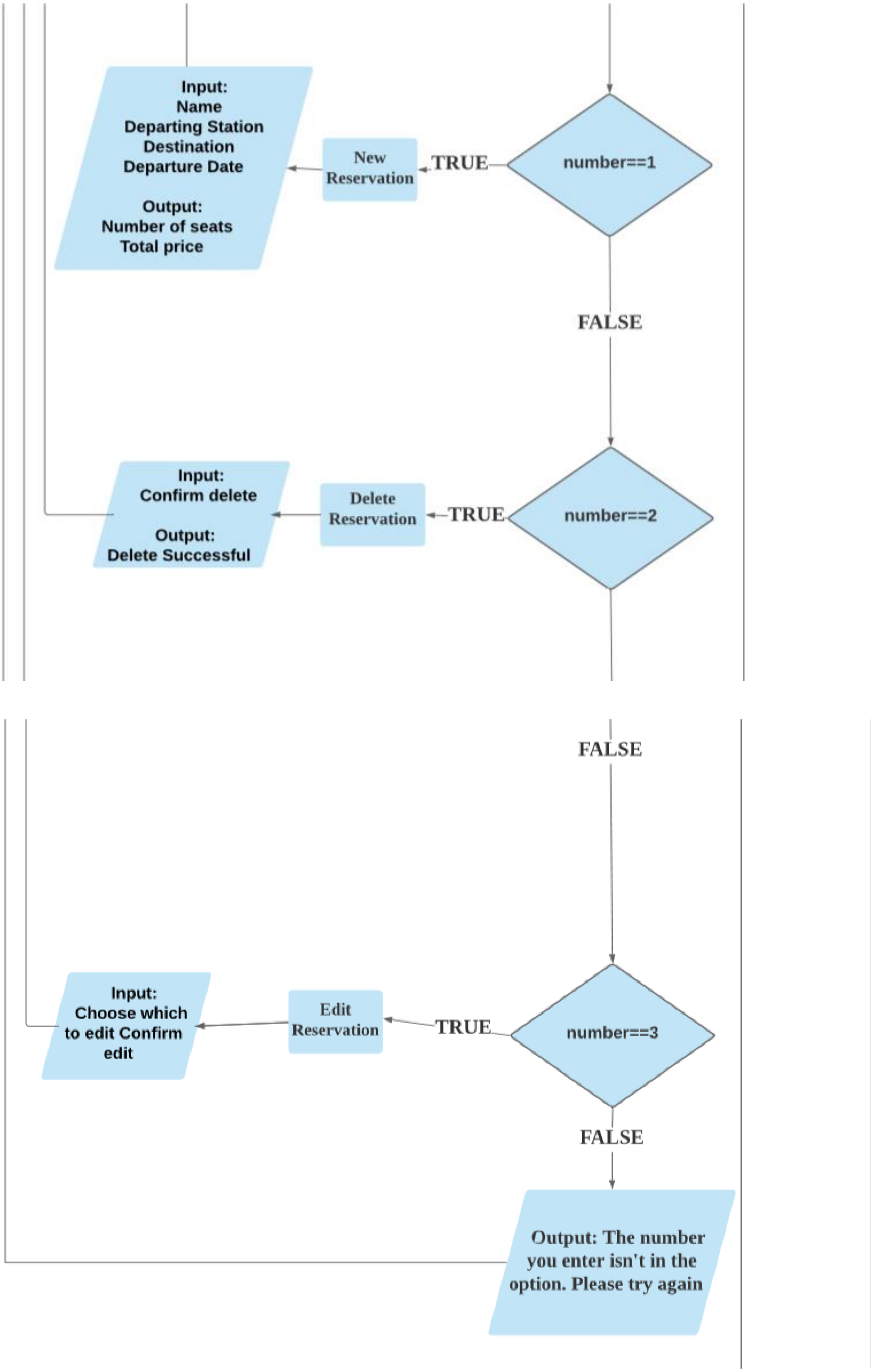
d. Additional function

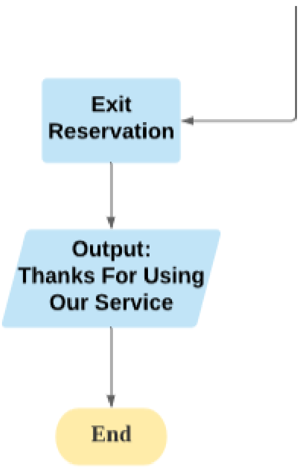
```
FUNCTION displayError()

                DISPLAY "The number you enter isn't in the option. Please try again"

END function


FUNCTION enterName(int c2)

        DISPLAY "Enter your first name only:"
        INPUT name[c2]
END function


FUNCTION chooseDepart(int c2)
        DISPLAY "Choose your departing station:"
        DISPLAY "Enter [0] for Johor Bahru"
        DISPLAY "Enter [1] for Seremban"
        DISPLAY "Enter [2] for Kuala Lumpur"
        DISPLAY "Enter [3] for Ipoh"
        DISPLAY "Enter [4] for Alor Setar"
        DISPLAY "Enter the number:"
        INPUT dpplace[c2]
        IF (dpplace[c2] EQUAL 0 OR dpplace[c2] EQUAL 1 OR dpplace[c2] EQUAL 2 OR dpplace[c2] EQUAL 3 OR dpplace[c2] EQUAL 4)
                DISPLAY "\n"
          END if


          ELSE
                CALL displayError()
                CALL chooseDepart(c2)
          END else
END function


FUNCTION chooseDestination(int c2)
        DISPLAY "Choose your destination station:"
         DISPLAY "Enter [0] for Johor Bahru"
        DISPLAY "Enter [1] for Seremban"
        DISPLAY "Enter [2] for Kuala Lumpur"
        DISPLAY "Enter [3] for Ipoh"
        DISPLAY "Enter [4] for Alor Setar"
        DISPLAY "Enter the number:"
         INPUT dsplace[c2]
          IF (dsplace[c2] EQUAL 0 OR dsplace[c2] EQUAL 1 OR dsplace[c2] EQUAL 2 OR
dsplace[c2] EQUAL 3 OR dsplace[c2] EQUAL 4)
                DISPLAY next line
          END if


          ELSE
                CALL displayError()
                CALL chooseDestination(c2)
          END else
END function


FUNCTION departureDate(int c2)
        DISPLAY "Enter your departure date(example 13/5/2021):"
         INPUT date[c2]
END function


FUNCTION departureTime(int c2)
        DISPLAY "Choose your departure time:"
         DISPLAY "Enter [0] for 9.00am"
        DISPLAY "Enter [1] for 12.00pm"
        DISPLAY "Enter [2] for 3.00pm"
        DISPLAY "Enter [3] for 6.00pm"
        DISPLAY "Enter [4] for 8.00pm"
        DISPLAY "Enter the number:"
         INPUT time[c2]
          STRINGCOPY timeChoose[c2] FROM times[time[c2]]
           IF (time[c2] EQUAL 0 OR time[c2] EQUAL 1 OR time[c2] EQUAL 2 OR time[c2]
EQUAL 3 OR time[c2] EQUAL 4)
                DISPLAY next line
```

```
        END if


        ELSE

                CALL displayError()

                 CALL departureTime(c2)

        END else


END function


FUNCTION seatNumber(int c2)

      DISPLAY "Number of seat:"

      INPUT totalSeat[c2]

 END FUNCTION


   FUNCTION sumPrice(int c2)

      IF ((dpplace[c2] EQUAL 0 AND dsplace[c2] EQUAL 1) OR (dpplace[c2] EQUAL 1 AND dsplace[c2] EQUAL2) OR (dpplace[c2] EQUAL 2 AND dsplace[c2] EQUAL 3) OR (dpplace[c2] EQUAL 3 AND dsplace[c2] EQUAL 4) OR (dpplace[c2] EQUAL 4 AND dsplace[c2] EQUAL 3) OR (dpplace[c2] EQUAL 3 AND dsplace[c2] EQUAL 2) OR (dpplace[c2] EQUAL 2 AND dsplace[c2] EQUAL 1) OR (dpplace[c2] EQUAL 1 AND dsplace[c2] EQUAL 0))

                    STRINGCOPY departure[c2] FROM place[dpplace[c2]]

                    STRINGCOPY destination[c2],place[dsplace[c2]]
                    APPEND totalSeat[c2] and 20 in totalPrice[c2] using multiply
            END if


            ELSE if ((dpplace[c2] EQUAL 0 AND dsplace[c2] EQUAL 2) OR (dpplace[c2] EQUAL 1 AND dsplace[c2] EQUAL 3) OR (dpplace[c2] EQUAL 2 AND dsplace[c2] EQUAL 4) OR (dpplace[c2] EQUAL 4 AND dsplace[c2] EQUAL 2) OR (dpplace[c2] EQUAL 3 AND dsplace[c2] EQUAL 1) OR (dpplace[c2] EQUAL 2 AND dsplace[c2] EQUAL 0))
                    STRINGCOPY departure[c2] FROM place[dpplace[c2]]
                    STRINGCOPY destination[c2],place[dsplace[c2]]
                    APPEND totalSeat[c2] and 30 in totalPrice[c2] using multiply
             END else if


             ELSE if ((dpplace[c2] EQUAL 0 AND dsplace[c2] EQUAL 3) OR (dpplace[c2] EQUAL 1 AND dsplace[c2] EQUAL 4) OR (dpplace[c2] EQUAL 4 AND dsplace[c2] EQUAL 2) OR (dpplace[c2] EQUAL 3 AND dsplace[c2] EQUAL 0))
                    STRINGCOPY departure[c2] FROM place[dpplace[c2]]
                    STRINGCOPY destination[c2],place[dsplace[c2]]
                    APPEND totalSeat[c2] and 40 in totalPrice[c2] using multiply
              END else if


             ELSE if ((dpplace[c2] EQUAL 0 AND dsplace[c2] EQUAL 4) OR (dpplace[c2] EQUAL 4 AND dsplace[c2] EQUAL 0))
                    STRINGCOPY departure[c2] FROM place[dpplace[c2]]
                    STRINGCOPY destination[c2],place[dsplace[c2]]

                    APPEND totalSeat[c2] and 50 in totalPrice[c2] using multiply

            END else if

    END function
```

7. FLOW CHARTFOR OVER ALL SYSTEM




Input:
Name
Departing Station
Destination
Departure Date
Output:
Number of seats
Total price
New Reservation
TRUE
number==1
FALSE
Input:
Confirm delete
Output:
Delete Successful
Delete Reservation
TRUE
number==2
FALSE
Input:
Choose which to edit Confirm edit
Edit Reservation
TRUE
number==3
FALSE
Output: The number you enter isn't in the option. Please try again


Exit Reservation
Output: Thanks For Using Our Service
End