CHRIST

(DEEMED TO BE UNIVERSITY)

BANGALORE · INDIA

DEPARTMENT OF

COMPUTER SCIENCE AND ENGINEERING

Computer Programming

(CS134P)

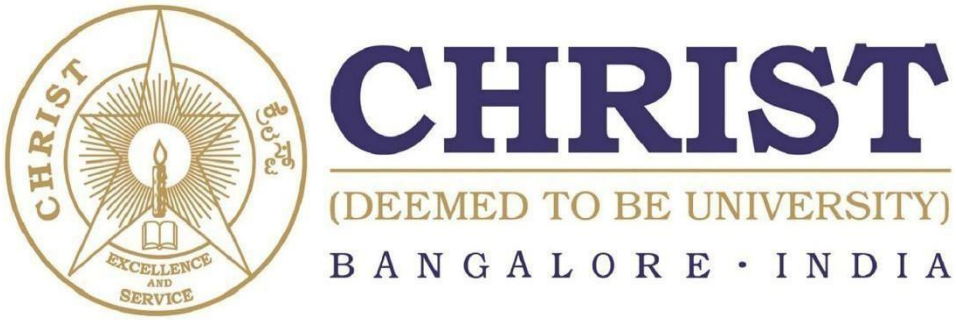
B. Tech Degree- CHEMISTRY CYCLE

School of Engineering and Technology,

CHRIST (Deemed to be University),

Kumbalagodu, Bengaluru-560 074

December 2021



Certificate

This is to certify that ..... has successfully completed the record work for Computer Programming –CS134P in partial fulfillment for the award of Bachelor of Technology in during the year 2021-2022.

Dr. K. Balachandran

HEAD OF DEPARTMENT **FACULTY- IN CHARGE**

EXAMINER 1:

EXAMINER 2:

Name :

Register No. :

Examination Center :

Date of Examination :

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Ex. No: 1 **Date: 30-08-2021**

SEQUENTIAL PROGRAMMING

PROBLEM GIVEN:

Write a program to store the information related to the name of the vehicle, cost of vehicle, variant of the vehicle, color, # of vehicles available, booking period, Name of the customers booked the vehicle, booking id.

ALGORITHM:

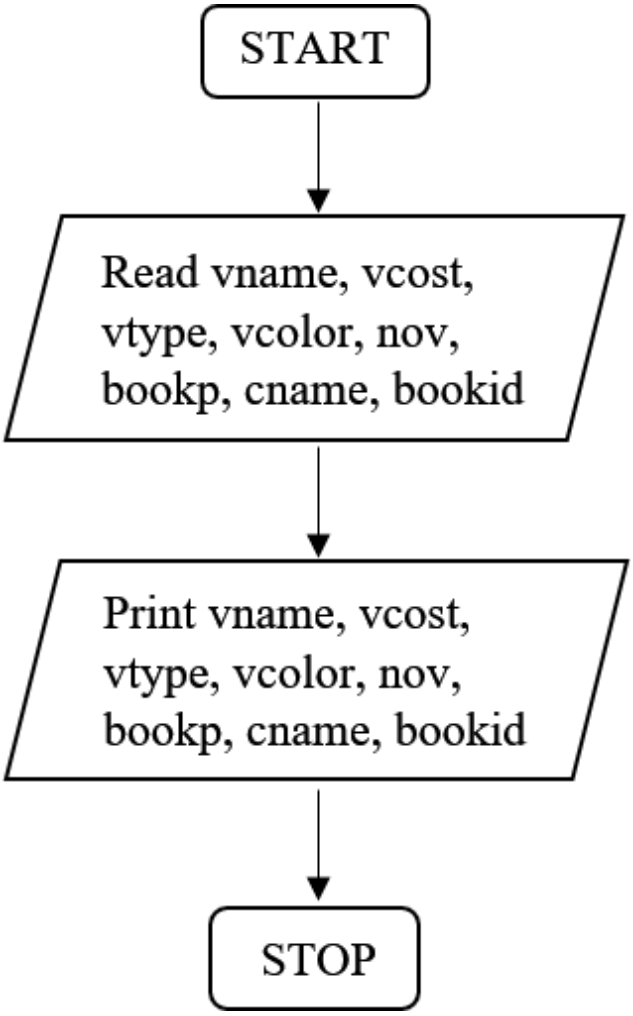
Step-1: START

Step-2: Read vname, vcost, vtype, vcolor, nov, bookp, cname and bookid.

Step-3: Display vname, vcost, vtype, vcolor, nov, bookp, cname and bookid.

Step-4: STOP

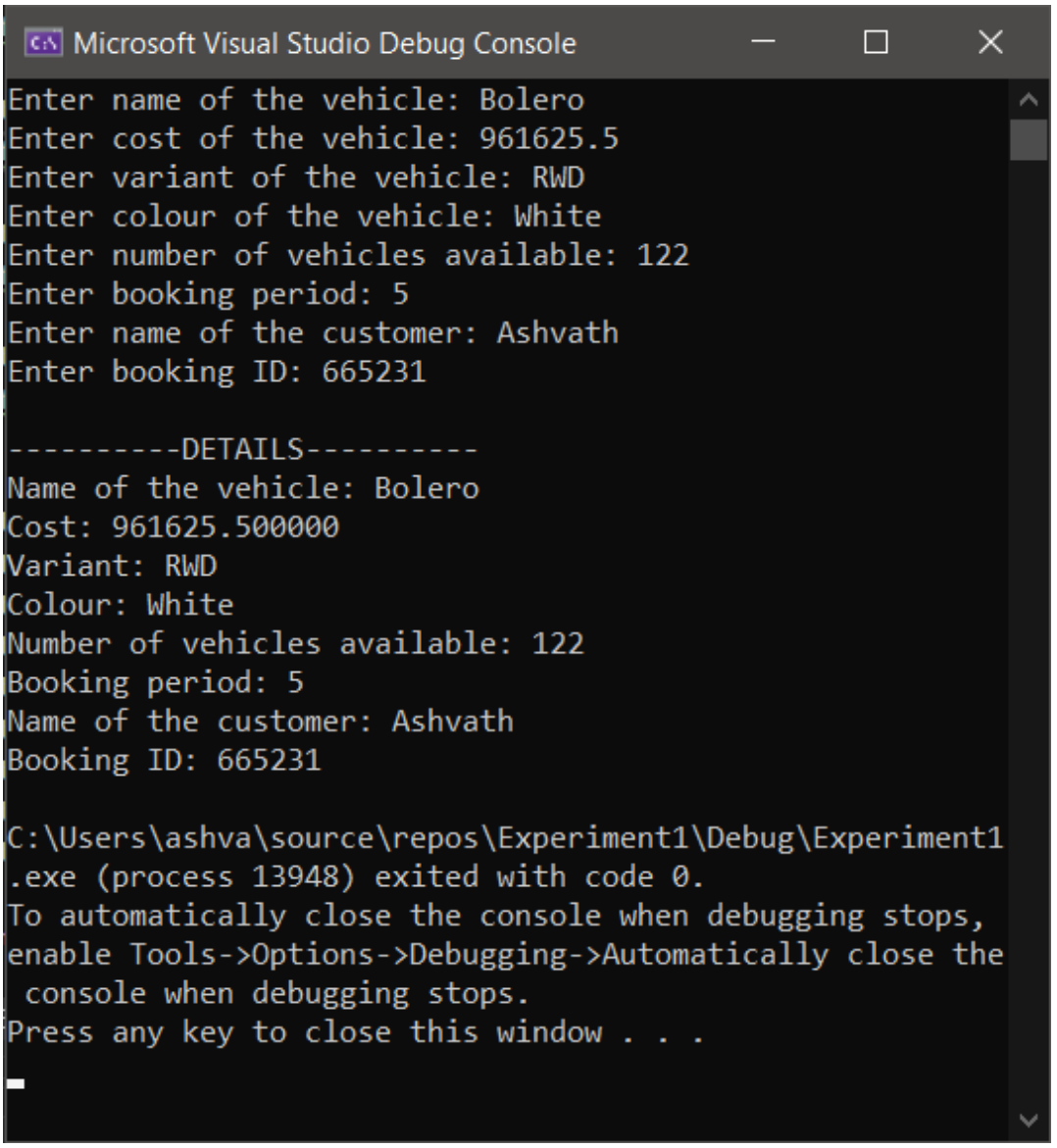
FLOWCHART:



PROGRAM:

```
#include <stdio.h>

void main() {

        char vname[20];
        float vcost;
        char vtype[20];
        char
        vcolor[10];
        int nov;
        int bookp;
        char
        cname[20]; int
        bookid;

        printf("Enter name of the vehicle: ");
        scanf("%s", &vname);

        printf("Enter cost of the vehicle: ");
        scanf("%f", &vcost);

        printf("Enter variant of the vehicle: ");
        scanf("%s", &vtype);

        printf("Enter colour of the vehicle: ");
        scanf("%s", &vcolor);

        printf("Enter number of vehicles available: ");
        scanf("%d", &nov);

        printf("Enter booking period: ");
        scanf("%d", &bookp);

        printf("Enter name of the customer: ");
        scanf("%s", &cname);

        printf("Enter booking ID: ");
        scanf("%d", &bookid);

        printf("\n----------DETAILS ----------\n");
        printf("Name of the vehicle: %s\n",
        vname); printf("Cost: %f\n", vcost);
        printf("Variant: %s\n", vtype);
        printf("Colour: %s\n", vcolor);
        printf("Number of vehicles available: %d\n",
        nov); printf("Booking period: %d\n", bookp);
        printf("Name of the customer: %s\n", cname);
        printf("Booking ID: %d\n", bookid);
}
```

OUTPUT:


Microsoft Visual Studio Debug Console
Enter name of the vehicle: Bolero
Enter cost of the vehicle: 961625.5
Enter variant of the vehicle: RWD
Enter colour of the vehicle: White
Enter number of vehicles available: 122
Enter booking period: 5
Enter name of the customer: Ashvath
Enter booking ID: 665231
----------DETAILS----------
Name of the vehicle: Bolero
Cost: 961625.500000
Variant: RWD
Colour: White
Number of vehicles available: 122
Booking period: 5
Name of the customer: Ashvath
Booking ID: 665231
C:\Users\ashva\source\repos\Experiment1\Debug\Experiment1
.exe (process 13948) exited with code 0.
To automatically close the console when debugging stops,
enable Tools->Options->Debugging->Automatically close the
console when debugging stops.
Press any key to close this window . . .

Ex.No : 2 **Date: 06-09-2021**

TERNARY OPERATOR AND IF-ELSE STATEMENT

PROBLEM GIVEN:

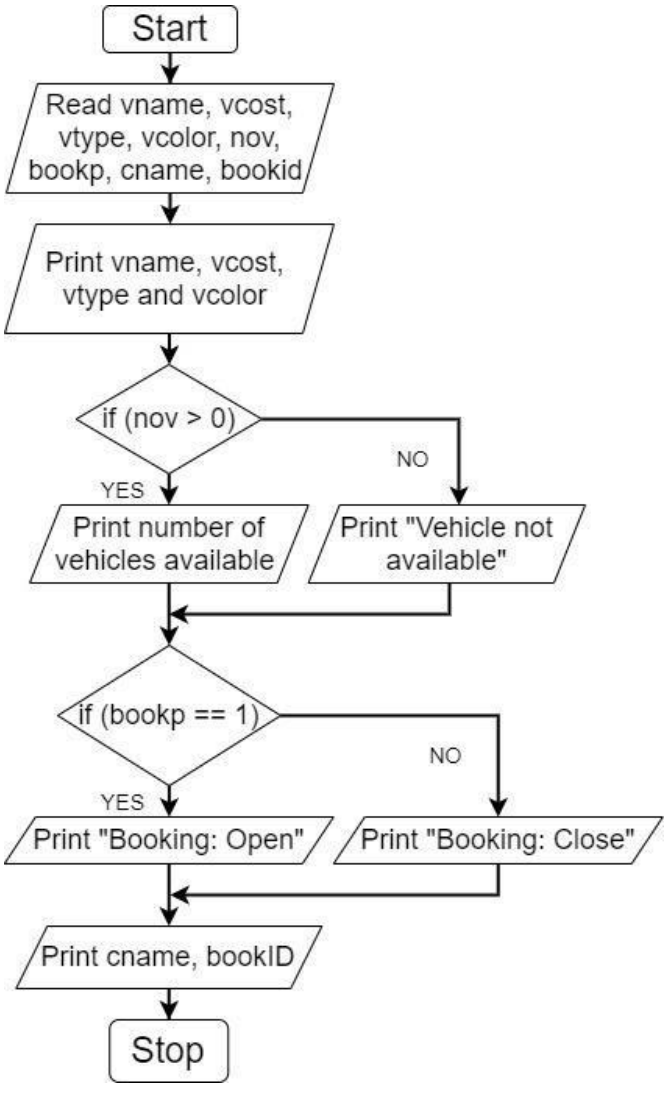
Extend your previous program and implement the ternary operator and if-else. Choose your own conditions for the given problem.

ALGORITHM:

Step 1: Start
Step 2: Read vname, vcost, vtype, vcolor, nov, bookp, cname and bookid.
Step 3: Print vname, vcost, vtype and vcolor.
Step 4: if (nov > 0)
Print number of vehicles available.
else
Print ("Vehicle not available")

Step 5: if (bookp == 1)
Print ("Booking: Open")
else
Print ("Booking: Close")
Step 6: Print cname and bookid.
Step 7: Stop

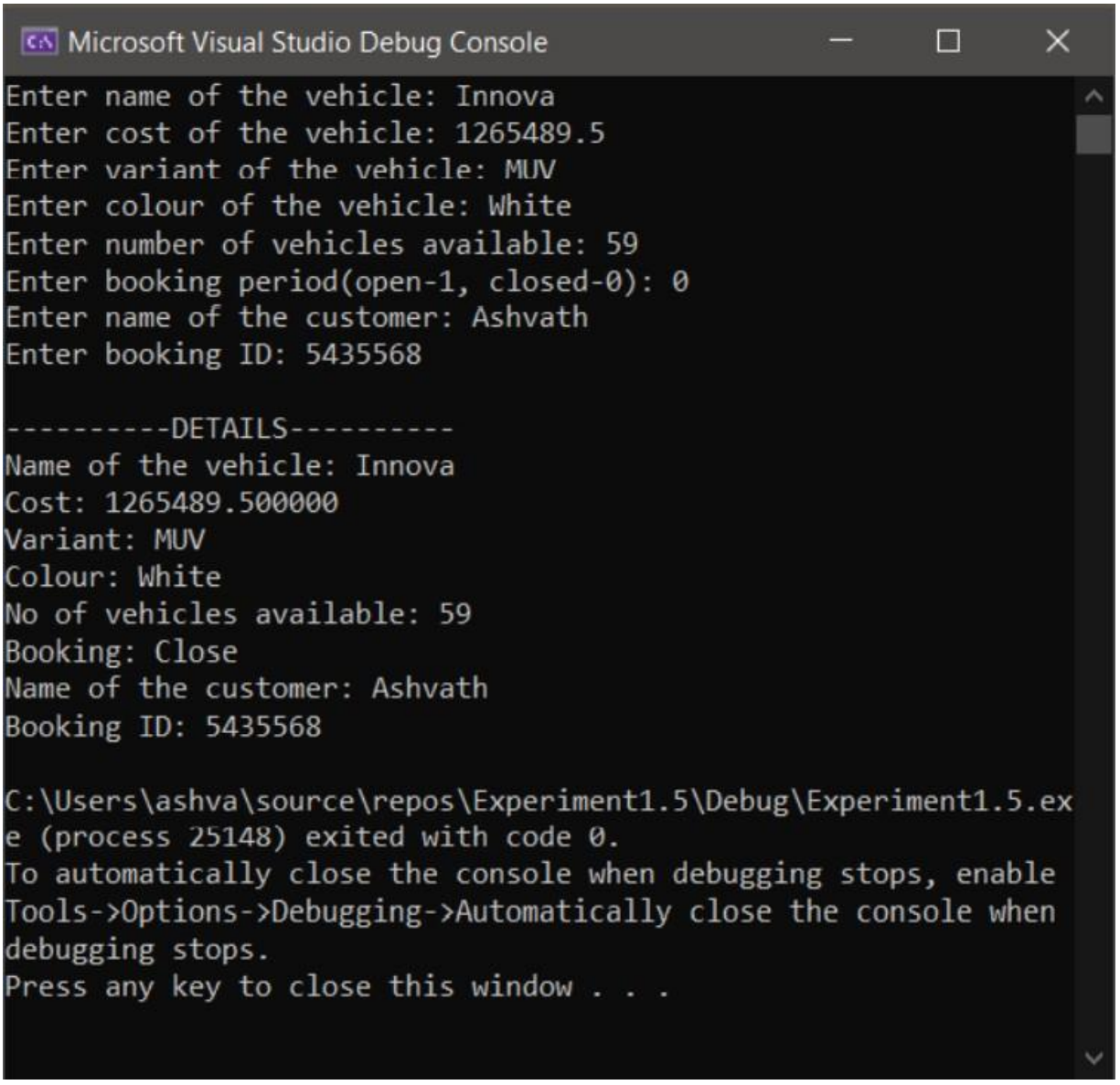
FLOWCHART:



PROGRAM:

```
#include <stdio.h>

void main() {
    char vname[20];
    float vcost;
    char vtype[10];
    char
    vcolor[10]; int
    nov;
    int bookp;
    char cname[20];
    int bookid;

    printf("Enter name of the vehicle: ");
    scanf("%s", &vname);
    printf("Enter cost of the vehicle: ");
    scanf("%f", &vcost);
    printf("Enter variant of the vehicle: ");
    scanf("%s", &vtype);
    printf("Enter colour of the vehicle: ");
    scanf("%s", &vcolor);
    printf("Enter number of vehicles available:
    "); scanf("%d", &nov);
    printf("Enter booking period(open-1, closed-0): ");
    scanf("%d", &bookp);
    printf("Enter name of the customer: ");
    scanf("%s", &cname);
    printf("Enter booking ID:
    "); scanf("%d", &bookid);

    printf("\n----------DETAILS ----------\n");
    printf("Name of the vehicle: %s\n",
    vname); printf("Cost: %f\n", vcost);
    printf("Variant: %s\n", vtype);
    printf("Colour: %s\n", vcolor);

    (nov > 0) ? printf("No of vehicles available: %d\n", nov)
        : printf("Vehicle not available\n");

    if (bookp == 1) {
        printf("Booking:
        Open\n");
    }
    else {
        printf("Booking: Close\n");
    }

    printf("Name of the customer: %s\n", cname);
    printf("Booking ID: %d\n", bookid);
}
```

OUTPUT:


Microsoft Visual Studio Debug Console
Enter name of the vehicle: Innova
Enter cost of the vehicle: 1265489.5
Enter variant of the vehicle: MUV
Enter colour of the vehicle: White
Enter number of vehicles available: 59
Enter booking period(open-1, closed-0): 0
Enter name of the customer: Ashvath
Enter booking ID: 5435568
----------DETAILS----------
Name of the vehicle: Innova
Cost: 1265489.500000
Variant: MUV
Colour: White
No of vehicles available: 59
Booking: Close
Name of the customer: Ashvath
Booking ID: 5435568
C:\Users\ashva\source\repos\Experiment1.5\Debug\Experiment1.5.exe (process 25148) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .

Ex. No: 2a **Date: 13-09-2021**

DECISION MAKING USING ELSE IF LADDER

PROBLEM GIVEN:

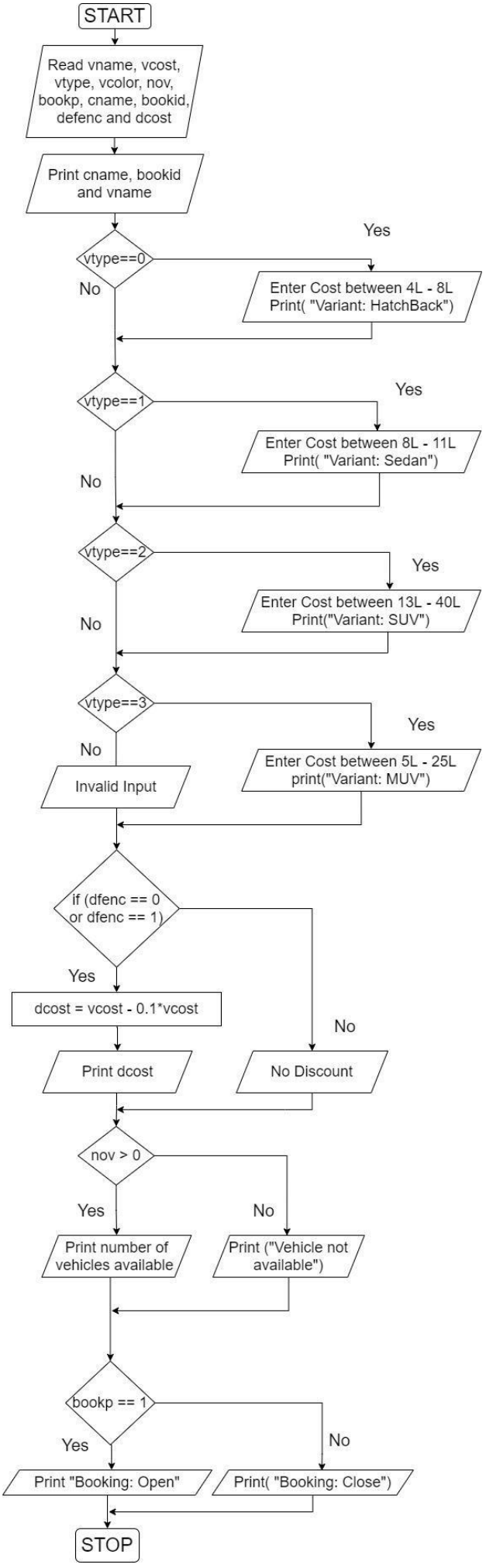
Write a program to generate an invoice for the vehicle. 1. Depending on the variant of the vehicle the user selects the rates should vary. 2. If the person works for the defense or is ex-defense 10% discount is applicable.

ALGORITHM:

Step 1: Start
Step 2: Read vname, vtype, vcost, vcolor, nov, bookp, cname, bookid, defenc and dcost.
Step 3: Print cname, bookid, and vname.
Step 4: if (vtype == 0)
Print (“Enter cost of the Hatchback (4L - 8L): ”)
else if (vtype == 1)
Print (“Enter cost of the Sedan (8L - 11L): ”)
else if (vtype == 2)
Print (“Enter cost of the SUV (13L - 40L): ”)
else if (vtype == 3)
Print (“Enter cost of the MUV (5L - 25L): ”)
else
Print ("Invalid Input!!")
Step 5: if (vtype == 0)
Print (“Variant: Hatchback”)
else if (vtype == 1)
Print (“Variant: Sedan”)
else if (vtype == 2)
Print (“Variant: SUV”)
else if (vtype == 3)
Print (“Variant: MUV”)
else
Print ("Invalid Input!!")
Step 6: Print vcolor.
Step 7: if (dfenc == 0 || dfenc == 1)
dcost = vcost - (vcost * 0.1f)
Print dcost
else
Print vcost
Step 8: if (nov > 0)
Print number of vehicles available
else
Print (“Vehicle not available”)

Step 9: if (bookp == 1)
Print (“Booking: Open”)
else
Print (“Booking: Close”)
Step 10: Stop

FLOWCHART:

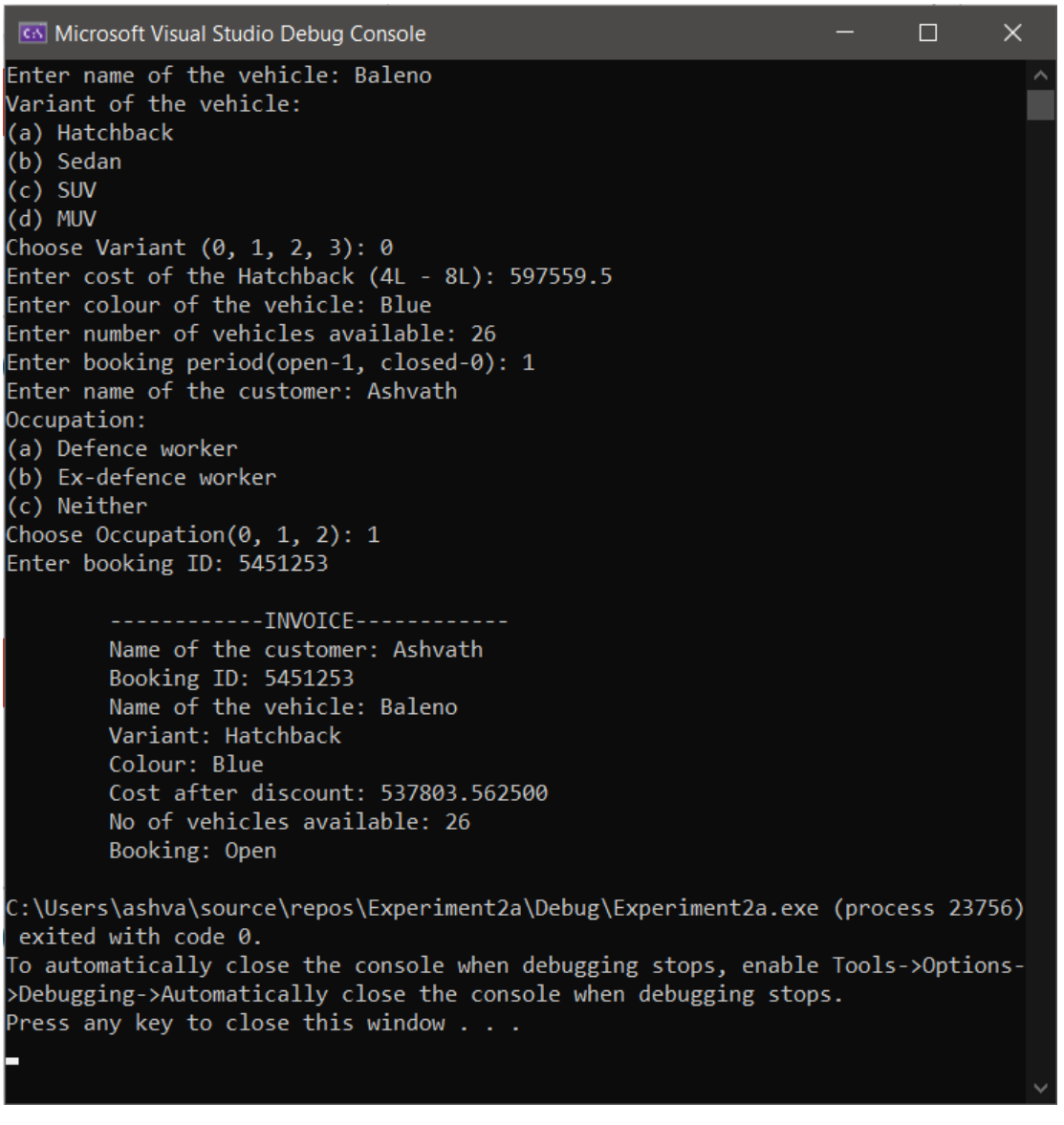

START
Read vname, vcost, vtype, vcolor, nov, bookp, cname, bookid, defenc and dcost
Print cname, bookid and vname
vtype==0
Yes
Enter Cost between 4L - 8L
Print("Variant: HatchBack")
No
vtype==1
Yes
Enter Cost between 8L - 11L
Print("Variant: Sedan")
No
vtype==2
Yes
Enter Cost between 13L - 40L
Print("Variant: SUV")
No
vtype==3
Yes
Enter Cost between 5L - 25L
print("Variant: MUV")
No
Invalid Input
if (dfenc == 0 or dfenc == 1)
Yes
dcost = vcost - 0.1*vcost
Print dcost
No
No Discount
nov > 0
Yes
Print number of vehicles available
No
Print ("Vehicle not available")
bookp == 1
Yes
Print "Booking: Open"
No
Print("Booking: Close")
STOP

PROGRAM:

```
//Automobile Management-Ex.2a
#include <stdio.h>
enum variants { Hatchback, Sedan, SUV, MUV };
enum defence { defence, exdefence };
int main() {
    //Get the details of the car and customer
    char vname[20], vcolor[10], cname[20];
    enum variants vtype;
    enum defence dfenc;
    float vcost, dcost;
    int nov, bookp, bookid;
    //Get the details from user
    printf("Enter name of the vehicle: ");
    scanf("%s", &vname);
    printf("Variant of the vehicle:\n(a) Hatchback\n(b) Sedan\n(c) SUV\n(d) MUV\n");
    printf("Choose Variant (0, 1, 2, 3): ");
    scanf("%d", &vtype);
    //Check the type of vehicle for cost of the vehicle
    if (vtype == 0) {
        printf("Enter cost of the Hatchback (4L - 8L): ");
        scanf("%f", &vcost);
    }
    else if (vtype == 1) {
        printf("Enter cost of the Sedan (8L - 11L): ");
        scanf("%f", &vcost);
    }
    else if (vtype == 2) {
        printf("Enter cost of the SUV (13L - 40L): ");
        scanf("%f", &vcost);
    }
    else if (vtype == 3) {
        printf("Enter cost of the MUV (5L - 25L): ");
        scanf("%f", &vcost);
    }
    else {
        printf("Invalid Input!!\n");
    }
    printf("Enter colour of the vehicle: ");
    scanf("%s", &vcolor);
    printf("Enter number of vehicles available: ");
    scanf("%d", &nov);
    printf("Enter booking period(open-1, closed-0): ");
    scanf("%d", &bookp);
    printf("Enter name of the customer: ");
    scanf("%s", &cname);
    printf("Occupation:\n");
    printf("(a) Defence worker\n(b) Ex-defence worker\n(c) Neither\n");
    printf("Choose Occupation(0, 1, 2): ");
    scanf("%d", &dfenc);
    printf("Enter booking ID: ");
    scanf("%d", &bookid);
    //Print Invoice
    printf("\n\t----------INVOICE ----------\n");
    printf("\tName of the customer: %s\n", cname);
    printf("\tBooking ID: %d\n", bookid);
    printf("\tName of the vehicle: %s\n", vname);
    //Check the type of vehicle for Invoice
    if (vtype == 0) {
        printf("\tVariant: Hatchback\n");
    }
    else if (vtype == 1) {
        printf("\tVariant: Sedan\n");
    }
    else if (vtype == 2) {
        printf("\tVariant: SUV\n");
    }
```

```
    else if (vtype == 3) {
        printf("\tVariant: MUV\n");
    }
    else {
        printf("\tInvalid Input!!\n");
    }
    printf("\tColour: %s\n", vcolor);
    //Check occupation for discount
    if (dfenc == 0 || dfenc == 1) {
        dcost = vcost - (vcost * 0.1f);
        printf("\tCost after discount: %f\n", dcost);
    }
    else {
        printf("\tCost: %f\n", vcost);
    }
    //Check the number of vehicles available
    (nov > 0) ? printf("\tNo of vehicles available: %d\n", nov)
        : printf("\tVehicle not available\n");
    //Check booking period
    if (bookp == 1) {
        printf("\tBooking: Open\n");
    }
    else {
        printf("\tBooking: Close\n");
    }
    return 0;
}
```

OUTPUT:



Ex. No: 2b **Date: 13-09-2021**

DECISION MAKING USING SWITCH CASE

PROBLEM GIVEN:

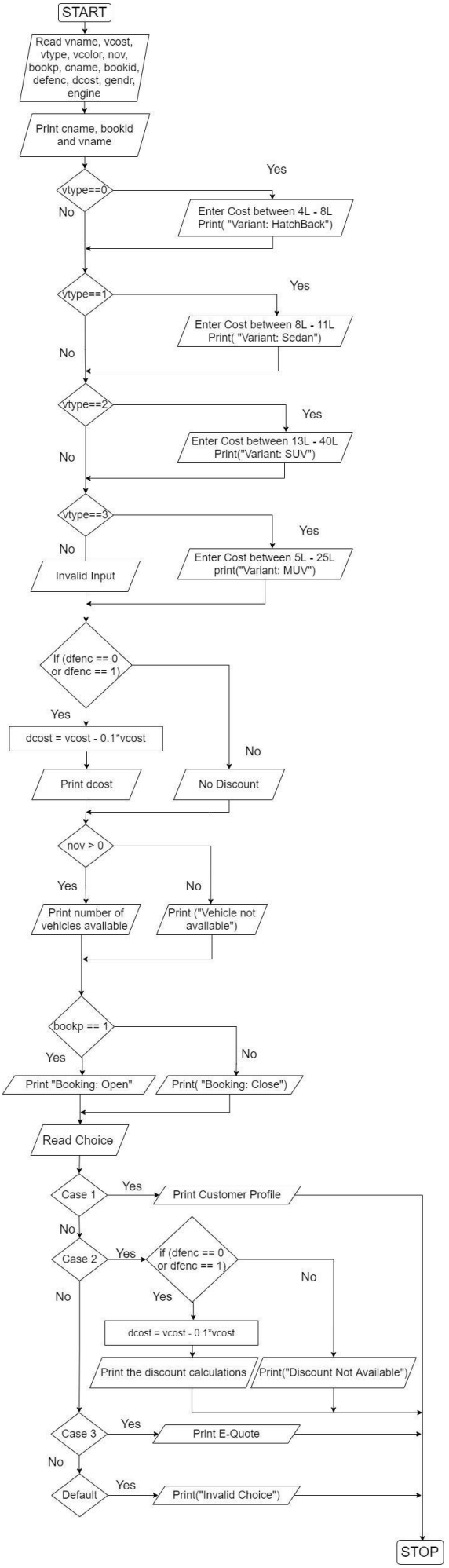
Write a program to display a menu to the Customer using a switch case for the following - 1. Customer Profile 2. Discount calculation. 3. e-quote. Extend the previous program to implement the program.

ALGORITHM:

Step 1: Start
Step 2: Read vname, vtype, vcost, vcolor, nov, bookp, cname, bookid, defenc, engine, dcost, and gendr
Step 3: Print cname, bookid, and vname.
Step 4: if (vtype == 0)
Print (“Enter cost of the Hatchback (4L - 8L): ”)
else if (vtype == 1)
Print (“Enter cost of the Sedan (8L - 11L): ”)
else if (vtype == 2)
Print (“Enter cost of the SUV (13L - 40L): ”)
else if (vtype == 3)
Print (“Enter cost of the MUV (5L - 25L): ”)
else
Print ("Invalid Input!!")
Step 5: if (vtype == 0)
Print (“Variant: Hatchback”)
else if (vtype == 1)
Print (“Variant: Sedan”)
else if (vtype == 2)
Print (“Variant: SUV”)
else if (vtype == 3)
Print (“Variant: MUV”)
else
Print ("Invalid Input!!")
Step 6: Print vcolor.
Step 7: if (dfenc == 0 || dfenc == 1)
dcost = vcost - (vcost * 0.1f)
Print dcost
else
Print vcost
Step 8: if (nov > 0)
Print number of vehicles available
else
Print (“Vehicle not available”)

Step 9: if (bookp == 1)
Print (“Booking: Open”)
else
Print (“Booking: Close”)
Step 10: Read choice
Step 11: Switch(choice)
case 1:
Print the customer profile
case 2:
if (dfenc == 0 or dfenc == 1)
Print the discount calculation
else
Print ("Discount Not Available")
case 3:
Print E-Quote
default:
Print ("Invalid Choice")
Step 12: Stop

FLOWCHART:


START
Read vname, vcost, vtype, vcolor, nov, bookp, cname, bookid, defenc, dcost, gendr, engine
Print cname, bookid and vname
vtype==0
Yes
Enter Cost between 4L - 8L
Print("Variant: HatchBack")
No
vtype==1
Yes
Enter Cost between 8L - 11L
Print("Variant: Sedan")
No
vtype==2
Yes
Enter Cost between 13L - 40L
Print("Variant: SUV")
No
vtype==3
Yes
Enter Cost between 5L - 25L
print("Variant: MUV")
No
Invalid Input
if (dfenc == 0 or dfenc == 1)
Yes
dcost = vcost - 0.1*vcost
Print dcost
No
No Discount
nov > 0
Yes
Print number of vehicles available
No
Print ("Vehicle not available")
bookp == 1
Yes
Print "Booking: Open"
No
Print("Booking: Close")
Read Choice
Case 1
Yes
Print Customer Profile
No
Case 2
Yes
if (dfenc == 0 or dfenc == 1)
No
Yes
dcost = vcost - 0.1*vcost
Print the discount calculations
Print("Discount Not Available")
No
Case 3
Yes
Print E-Quote
No
Default
Yes
Print("Invalid Choice")
STOP

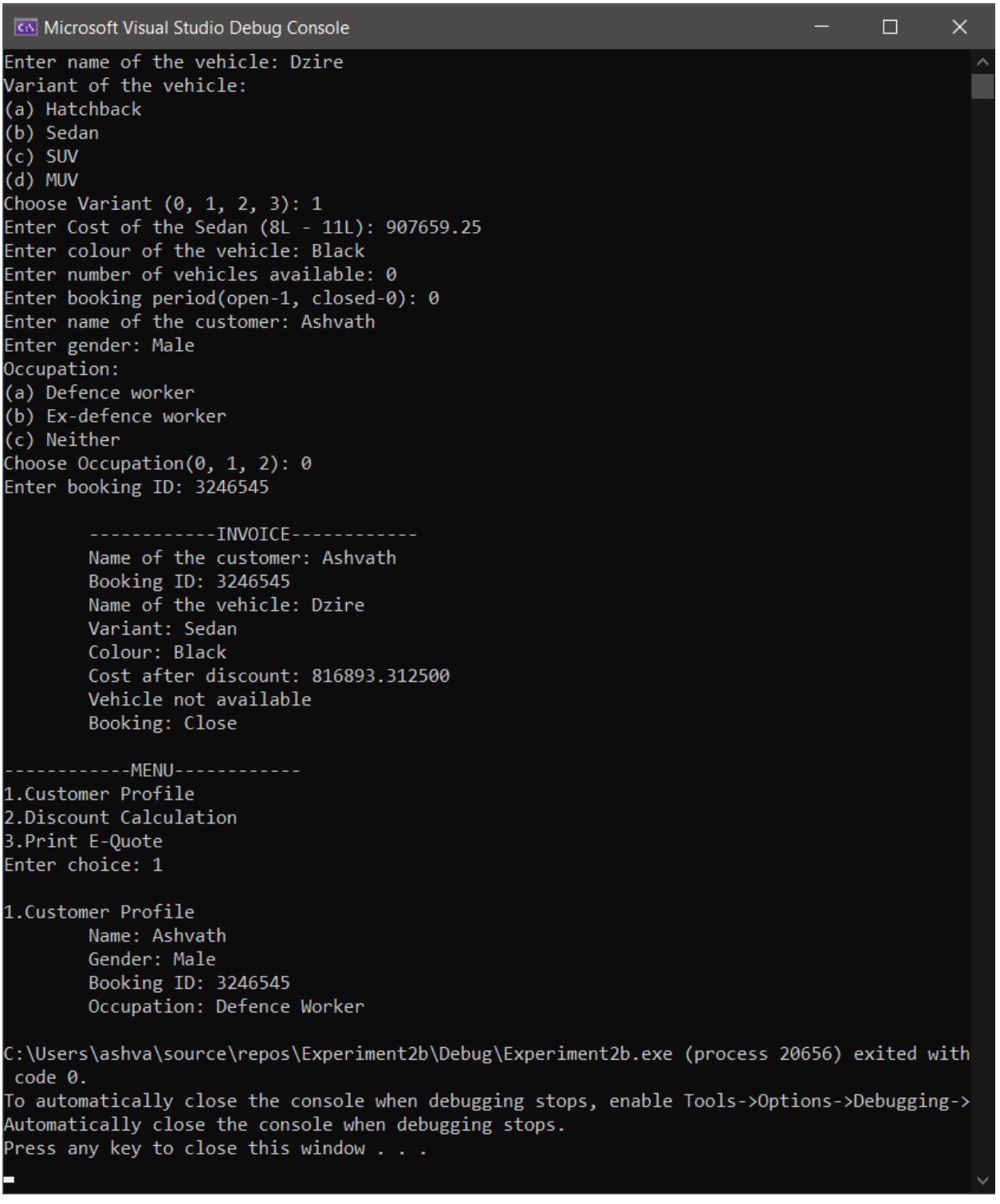
PROGRAM:

```
//Automobile Management-Ex.2b
#include <stdio.h>
enum variants { Hatchback, Sedan, SUV, MUV };
enum defence { defence, exdefence };
int main() {
    //Get the details of the car and customer
    char vname[20], vcolor[10], cname[20], gendr[20], engine[20];
    enum variants vtype;
    enum defence dfenc;
    float vcost, dcost;
    int nov, bookp, bookid, choice;
    //Get the details from the user
    printf("Enter name of the vehicle: ");
    scanf("%s", &vname);
    printf("Variant of the vehicle:\n(a) Hatchback\n(b) Sedan\n(c) SUV\n(d) MUV\n");
    printf("Choose Variant (0, 1, 2, 3): ");
    scanf("%d", &vtype);
    //Check the type of vehicle for cost of the vehicle
    if (vtype == 0) {
        printf("Enter Cost of the Hatchback (4L - 8L): ");
        scanf("%f", &vcost);
    }
    else if (vtype == 1) {
        printf("Enter Cost of the Sedan (8L - 11L): ");
        scanf("%f", &vcost);
    }
    else if (vtype == 2) {
        printf("Enter Cost of the SUV (13L - 40L): ");
        scanf("%f", &vcost);
    }
    else if (vtype == 3) {
        printf("Enter Cost of the MUV (5L - 25L): ");
        scanf("%f", &vcost);
    }
    else {
        printf("Invalid Input!!\n");
    }
    printf("Enter colour of the vehicle: ");
    scanf("%s", &vcolor);
    printf("Enter number of vehicles available: ");
    scanf("%d", &nov);
    printf("Enter booking period(open-1, closed-0): ");
    scanf("%d", &bookp);
    printf("Enter name of the customer: ");
    scanf("%s", &cname);
    printf("Enter gender: ");
    scanf("%s", &gendr);
    printf("Occupation:\n");
    printf("(a) Defence worker\n(b) Ex-defence worker\n(c) Neither\n");
    printf("Choose Occupation(0, 1, 2): ");
    scanf("%d", &dfenc);
    printf("Enter booking ID: ");
    scanf("%d", &bookid);
    //Print Invoice
    printf("\n\t-----------INVOICE ----------\n");
    printf("\tName of the customer: %s\n", cname);
    printf("\tBooking ID: %d\n", bookid);
    printf("\tName of the vehicle: %s\n", vname);
    //Check the type of vehicle for Invoice
    if (vtype == 0) {
        printf("\tVariant: Hatchback\n");
    }
    else if (vtype == 1) {
        printf("\tVariant: Sedan\n");
```

```
}
else if (vtype == 2) {
    printf("\tVariant: SUV\n");
}
else if (vtype == 3) {
    printf("\tVariant: MUV\n");
}
else {
    printf("\tInvalid Input!!\n");
}
printf("\tColour: %s\n", vcolor);
//Check occupation for discount
if (dfenc == 0 || dfenc == 1) {
    dcost = vcost - (vcost * 0.1f);
    printf("\tCost after discount: %f\n", dcost);
}
else {
    printf("\tCost: %f\n", vcost);
}
//Check the number of vehicles available
(nov > 0) ? printf("\tNo of vehicles available: %d\n", nov)
    : printf("\tVehicle not available\n");
//Check booking period
if (bookp == 1) {
    printf("\tBooking: Open\n");
}
else {
    printf("\tBooking: Close\n");
}
//Print Menu
printf("\n--------------------MENU--------------------\n");
printf("1.Customer Profile\n2.Discount Calculation\n3.Print E-Quote\n");
printf("Enter choice: ");
scanf("%d", &choice);
switch (choice) {
case 1:
    //Print Customer Details
    printf("\n1.Customer Profile\n");
    printf("\tName: %s\n", cname);
    printf("\tGender: %s\n", gendr);
    printf("\tBooking ID: %d\n", bookid);
    if (dfenc == 0) {
        printf("\tOccupation: Defence Worker\n");
    }
    else if (dfenc == 1) {
        printf("\tOccupation: Ex-Defence Worker\n");
    }
    else {
        printf("\tAbout: Buyer\n");
    }
    break;
case 2:
    //Print Discount Details
    printf("\n2.Discount Calculation\n");
    if (dfenc == 0 || dfenc == 1) {
        printf("\tTotal Cost: %f\n", vcost);
        printf("\tDiscount Amount: %f\n", vcost * 0.1f);
        dcost = vcost - (vcost * 0.1f);
        printf("\tCost after discount: %f\n", dcost);
    }
    else {
        printf("\tDiscount not available.\n");
        printf(" \tCost of the vehicle: %f\n", vcost);
    }
    break;
case 3:
    //Print E-Quote
```

```
        printf("\n3.E-Quote\n");
        printf("\tManufacturer of Engine: ");
        scanf("%s", &engine);
        printf("\n\tPart Name: Engine\n\tCost: 80000\n\tManufacturer: %s\n\n", engine);
        printf("\tPart Name: Brake system\n\tCost: 30000\n\tManufacturer: India Brakes
LTD.\n\n");
        printf("\tPart Name: Chasis\n\tCost: 120000\n\tManufacturer: Krit Chasis
Pvt.LTD\n");
        break;
    default:
        printf("\nInvalid choice\n");
        exit(0);
    }
    return 0;
          }
```

OUTPUT:



Ex. No: 3 **Date: 20-09-2021**

LOOPING

PROBLEM GIVEN:

Write a program to include an Exit Option by the user. The menu should be displayed, only if the user selects option 4. Exit should the loop run. Use do-while to implement the same. Extend the previous program to implement the program.

ALGORITHM:

Step 1: Start

Step 2: Read vname, vcolor, nov, bookp, cname, bookid, defenc, dcost, gendr and engine.

Step 3: Print cname, bookid, and vname.

Step 4: Read vtype (Hatchback, Sedan, SUV, MUV) and vcost with respect to the vtype.

Step 5: Print vtype and vcost.

Step 6: Print vcolor.

Step 7: Check if the customer is working in defense or an ex-defense person. If yes, apply 10% discount, else, do not apply 10% discount.

Step 8: Check if the number of vehicles is greater than 0. If yes, print the number of vehicles available, else, print "Vehicle not available".

Step 9: Check if the booking period is open. If yes, print "Booking: Open", else, print "Booking: Close".

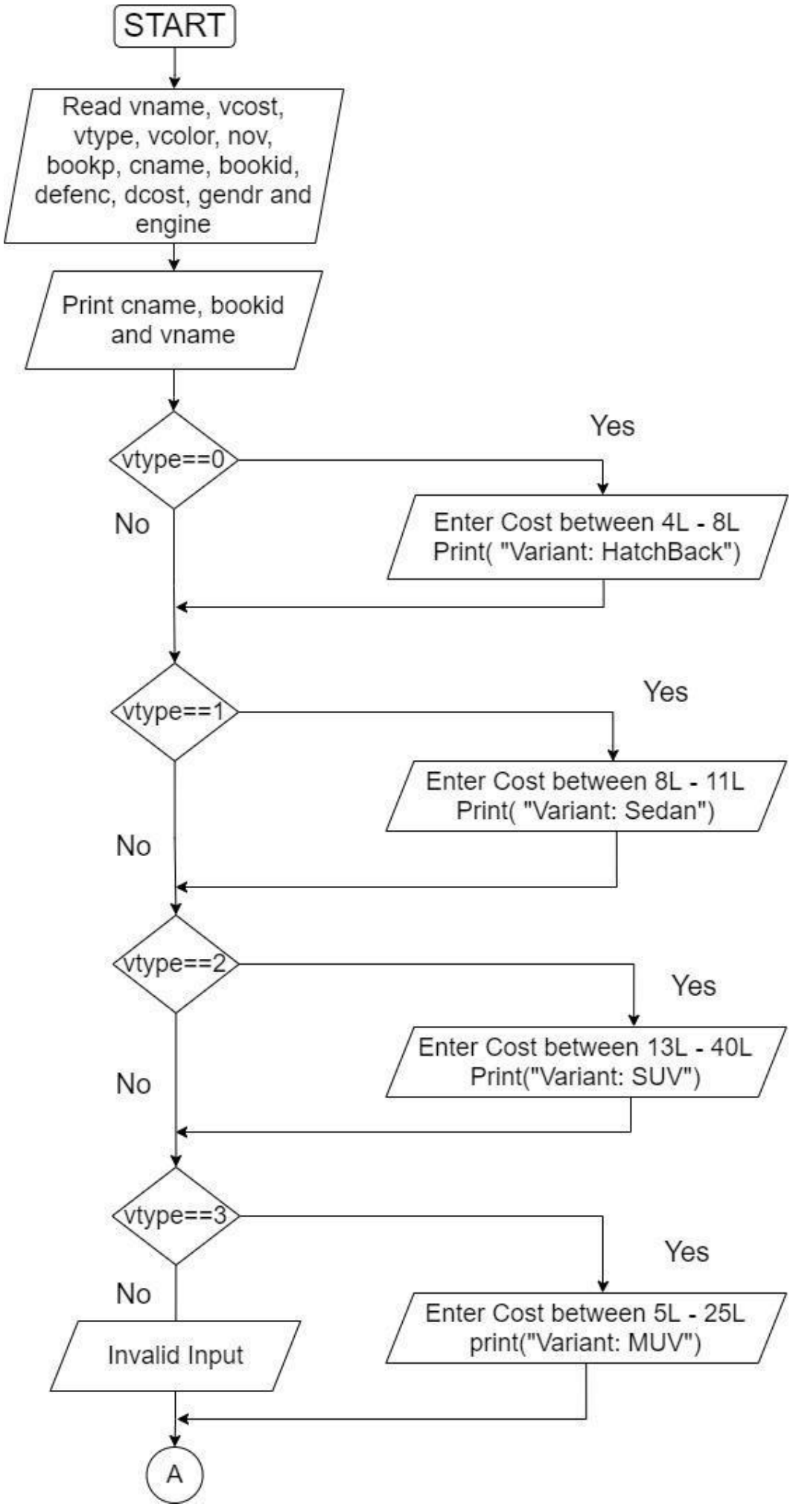
Step 10: Implement a do while loop in the following switch case statement:

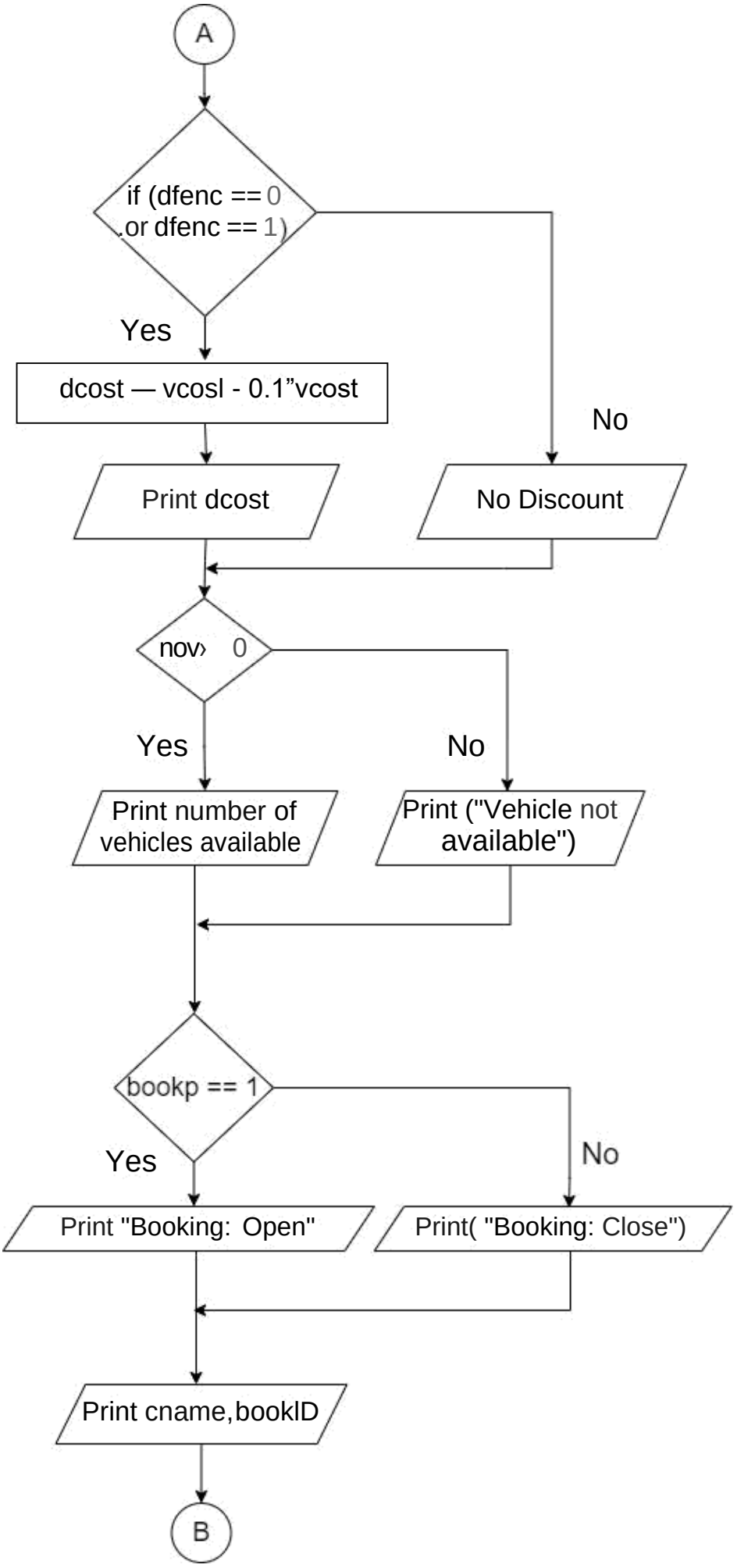
Case 1: Print Customer Profile
Case 2: Print Discount Calculation
Case 3: Print E-Quote
Case 4: Exit

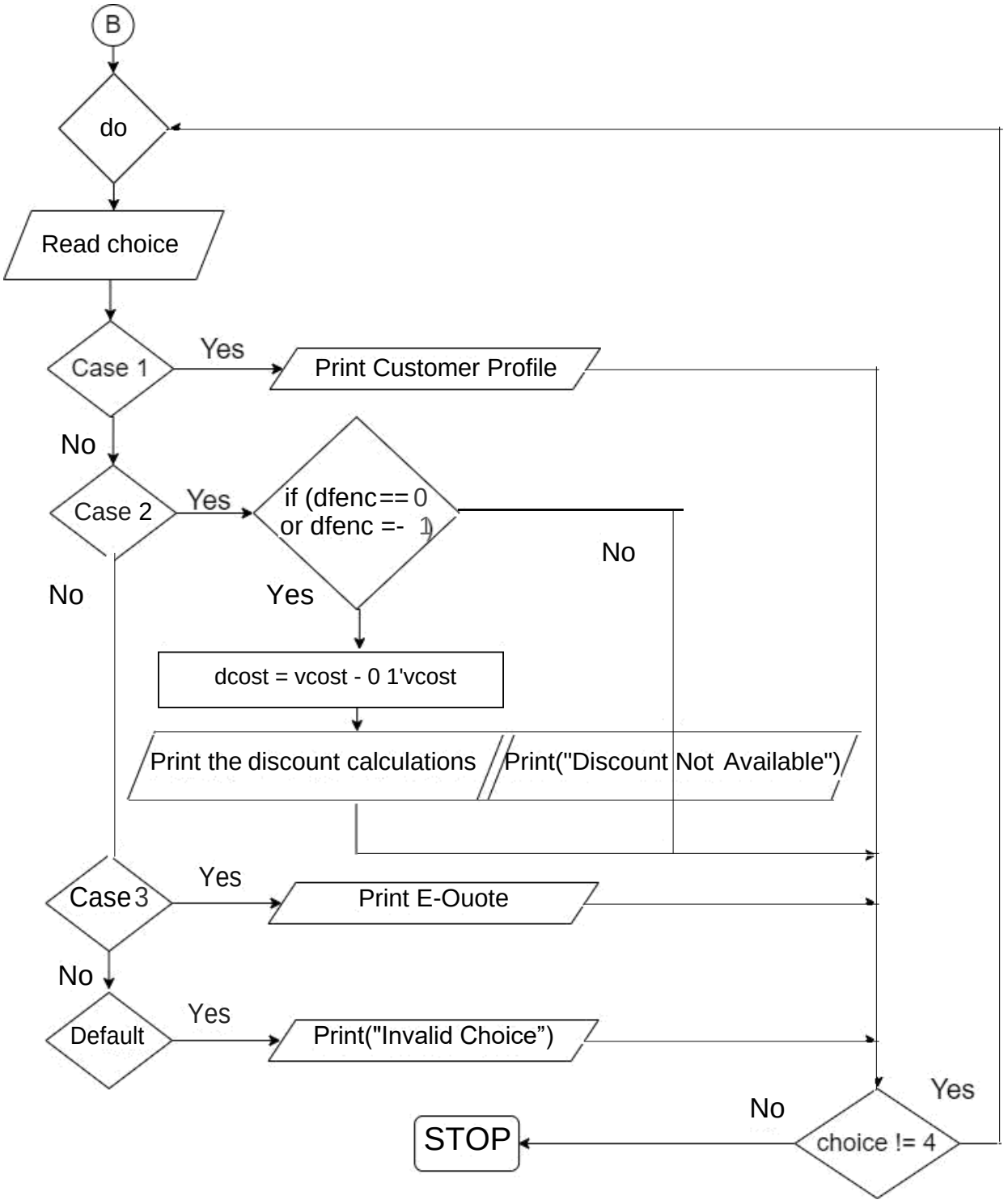
Step 11: Read choice and perform its respective case. The loop continues until the choice is not equal to 4.

Step 12: Stop

FLOWCHART:


START
Read vname, vcost, vtype, vcolor, nov, bookp, cname, bookid, defenc, dcost, gendr and engine
Print cname, bookid and vname
vtype==0
Yes
Enter Cost between 4L - 8L
Print("Variant: HatchBack")
No
vtype==1
Yes
Enter Cost between 8L - 11L
Print("Variant: Sedan")
No
vtype==2
Yes
Enter Cost between 13L - 40L
Print("Variant: SUV")
No
vtype==3
Yes
Enter Cost between 5L - 25L
print("Variant: MUV")
No
Invalid Input
A


A
if (dfenc == 0
.or dfenc == 1)
Yes
dcost — vcosl - 0.1”vcost
No
Print dcost
No Discount
nov› 0
Yes
No
Print number of vehicles available
Print ("Vehicle not available")
bookp == 1
Yes
No
Print "Booking: Open"
Print("Booking: Close")
Print cname,booklD
B


B
do
Read choice
Case 1
Yes
Print Customer Profile
No
Case 2
Yes
if (dfenc== 0
or dfenc =- 1)
No
No
Yes
dcost = vcost - 0 1'vcost
Print the discount calculations
Print("Discount Not Available")
Case 3
Yes
Print E-Ouote
No
Default
Yes
Print("Invalid Choice")
Yes
No
choice != 4
STOP

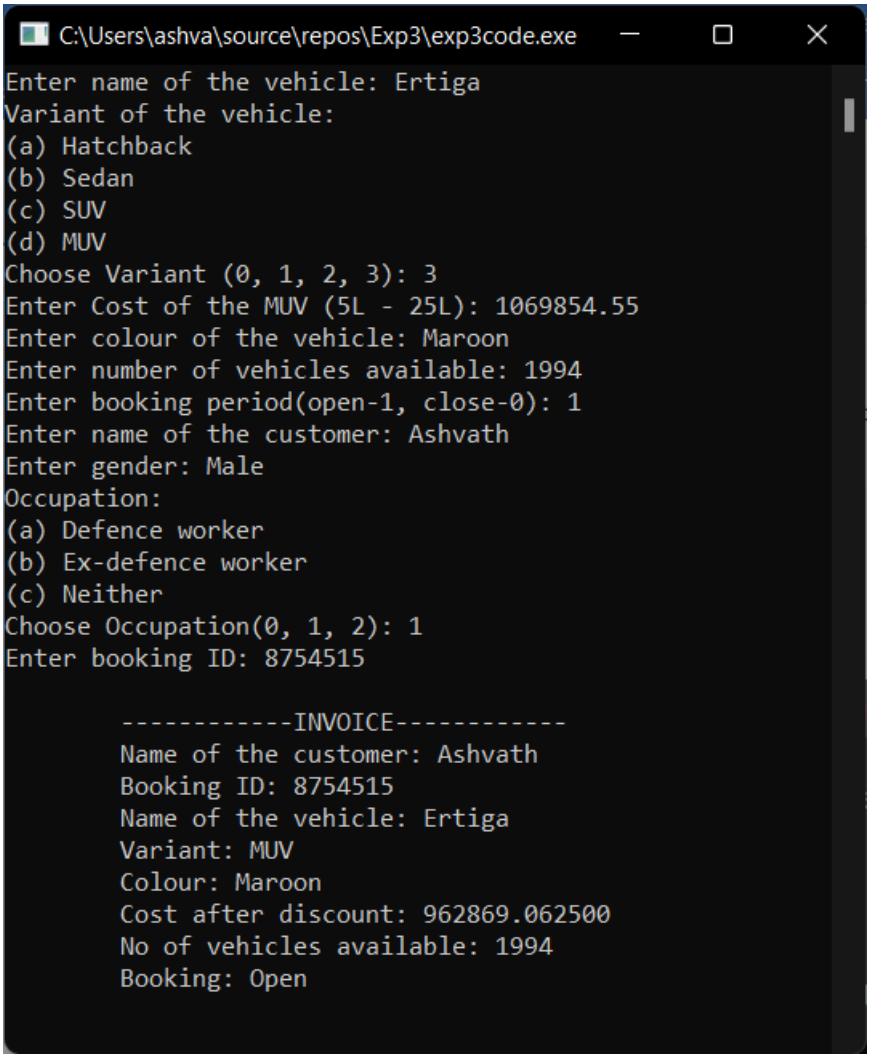
PROGRAM:

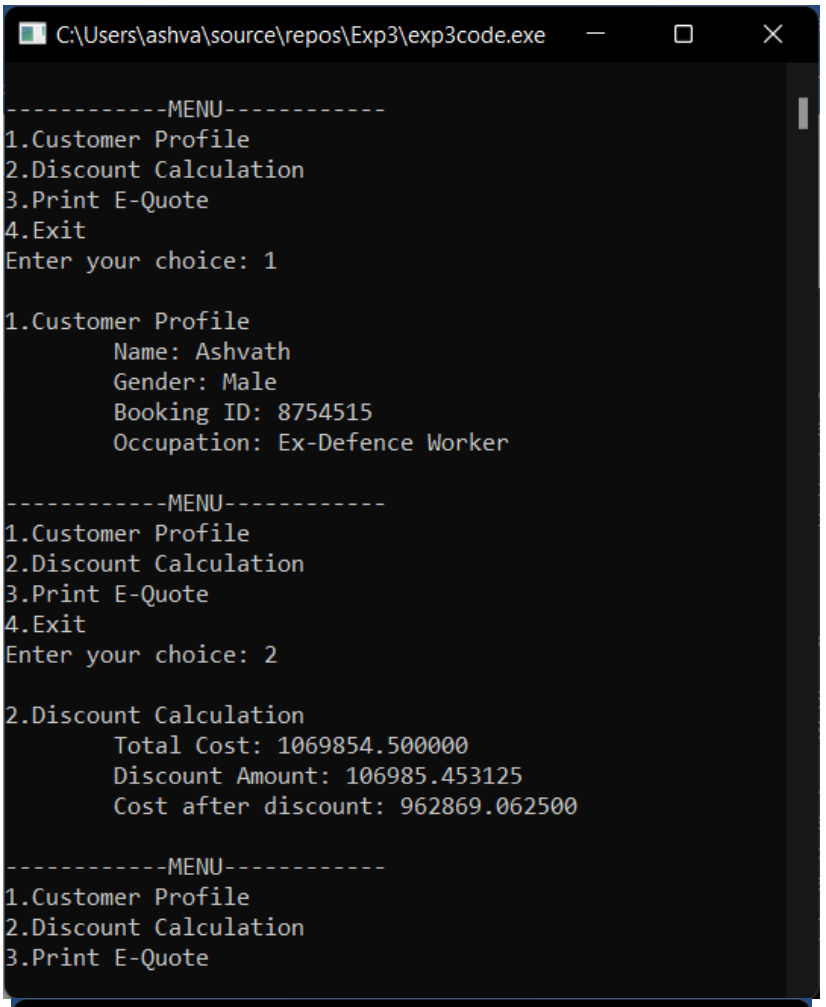
```
//Automobile Management-Ex.3
#include <stdio.h>
enum variants { Hatchback, Sedan, SUV, MUV };
enum defence { defence, exdefence };
int main() {
    //Get the details of the car and customer
    char vname[20], vcolor[10], cname[20], gendr[20], engine[20];
    enum variants vtype;
    enum defence dfenc;
    float vcost, dcost;
    int nov, bookp, bookid, choice;
    //Get the details from the user
    printf("Enter name of the vehicle: ");
    scanf("%s", &vname);
    printf("Variant of the vehicle:\n(a) Hatchback\n(b) Sedan\n(c) SUV\n(d) MUV\n");
    printf("Choose Variant (0, 1, 2, 3): ");
    scanf("%d", &vtype);
    //Check the type of vehicle for cost of the vehicle
    if (vtype == 0) {
        printf("Enter Cost of the Hatchback (4L - 8L): ");
        scanf("%f", &vcost);
    }
    else if (vtype == 1) {
        printf("Enter Cost of the Sedan (8L - 11L): ");
        scanf("%f", &vcost);
    }
    else if (vtype == 2) {
        printf("Enter Cost of the SUV (13L - 40L): ");
        scanf("%f", &vcost);
    }
    else if (vtype == 3) {
        printf("Enter Cost of the MUV (5L - 25L): ");
        scanf("%f", &vcost);
    }
    else {
        printf("Invalid Input!!\n");
    }
    printf("Enter colour of the vehicle: ");
    scanf("%s", &vcolor);
    printf("Enter number of vehicles available: ");
    scanf("%d", &nov);
    printf("Enter booking period(open-1, close-0): ");
    scanf("%d", &bookp);
    printf("Enter name of the customer: ");
    scanf("%s", &cname);
    printf("Enter gender: ");
    scanf("%s", &gendr);
    printf("Occupation:\n");
    printf("(a) Defence worker\n(b) Ex-defence worker\n(c) Neither\n");
    printf("Choose Occupation(0, 1, 2): ");
    scanf("%d", &dfenc);
    printf("Enter booking ID: ");
    scanf("%d", &bookid);
    //Print Invoice
    printf("\n\t-----------INVOICE ----------\n");
    printf("\tName of the customer: %s\n", cname);
    printf("\tBooking ID: %d\n", bookid);
    printf("\tName of the vehicle: %s\n", vname);
    //Check the type of vehicle for Invoice
    if (vtype == 0) {
        printf("\tVariant: Hatchback\n");
    }
    else if (vtype == 1) {
        printf("\tVariant: Sedan\n");
```

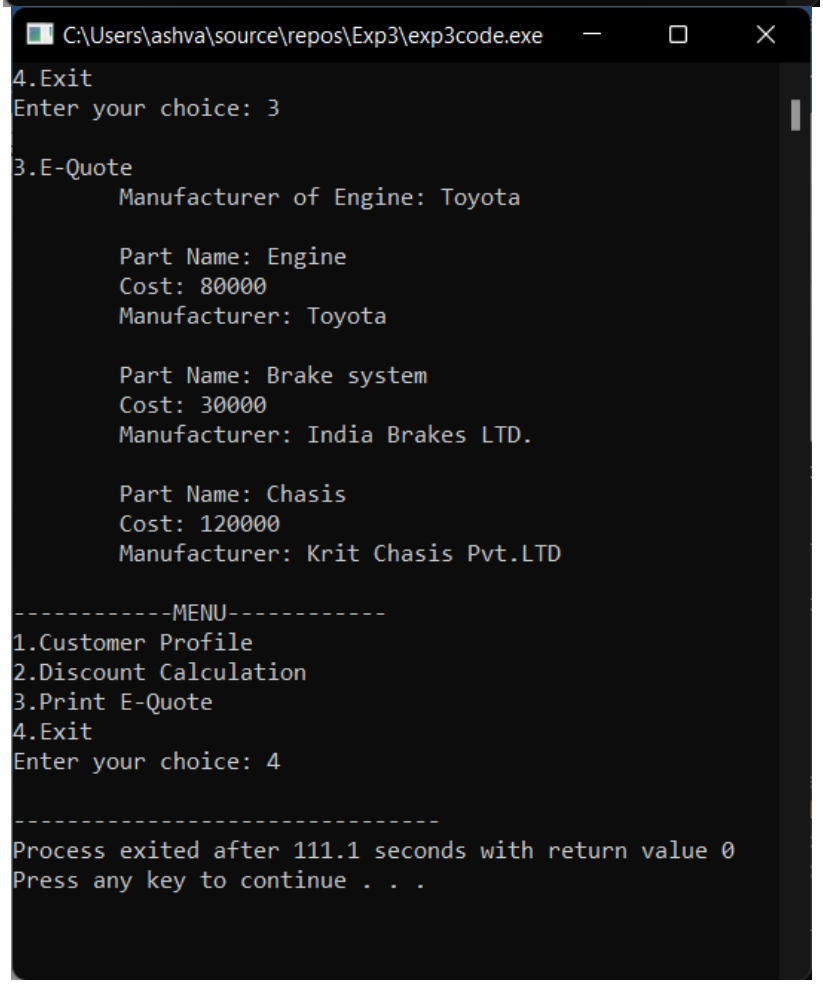
```
    }
    else if (vtype == 2) {
        printf("\tVariant: SUV\n");
    }
    else if (vtype == 3) {
        printf("\tVariant: MUV\n");
    }
    else {
        printf("\tInvalid Input!!\n");
    }
    printf("\tColour: %s\n", vcolor);
    //Check occupation for discount
    if (dfenc == 0 || dfenc == 1) {
        dcost = vcost - (vcost * 0.1f);
        printf("\tCost after discount: %f\n", dcost);
    }
    else {
        printf("\tCost: %f\n", vcost);
    }
    //Check the number of vehicles available
    (nov > 0) ? printf("\tNo of vehicles available: %d\n", nov)
        : printf("\tVehicle not available\n");
    //Check booking period
    if (bookp == 1) {
        printf("\tBooking: Open\n");
    }
    else {
        printf("\tBooking: Close\n");
    }
    //Print Menu
    do
    {
        printf("\n--------------------MENU--------------------\n");
        printf("1.Customer Profile\n2.Discount Calculation\n3.Print E-
Quote\n4.Exit\n");
        printf("Enter your choice: ");
        scanf("%d", &choice);
        switch (choice) {
        case 1:
            //Print Customer Details
            printf("\n1.Customer Profile\n");
            printf("\tName: %s\n", cname);
            printf("\tGender: %s\n", gendr);
            printf("\tBooking ID: %d\n", bookid);
            if (dfenc == 0) {
                printf("\tOccupation: Defence Worker\n");
            }
            else if (dfenc == 1) {
                printf("\tOccupation: Ex-Defence Worker\n");
            }
            else {
                printf("\tAbout: Buyer\n");
            }
            break;
        case 2:
            //Print Discount Details
            printf("\n2.Discount Calculation\n");
            if (dfenc == 0 || dfenc == 1) {
                printf("\tTotal Cost: %f\n", vcost);
                printf("\tDiscount Amount: %f\n", vcost * 0.1f);
                dcost = vcost - (vcost * 0.1f);
                printf("\tCost after discount: %f\n", dcost);
            }
            else {
                printf("\tDiscount not available.\n");
                printf(" \tCost of the vehicle: %f\n", vcost);
            }
```

```
            break;
        case 3:
            //Print E-Quote
            printf("\n3.E-Quote\n");
            printf("\tManufacturer of Engine: ");
            scanf("%s", &engine);
            printf("\n\tPart Name: Engine\n\tCost: 80000\n\tManufacturer: %s\n\n",
engine);
            printf("\tPart Name: Brake system\n\tCost: 30000\n\tManufacturer: India
Brakes LTD.\n\n");
            printf("\tPart Name: Chasis\n\tCost: 120000\n\tManufacturer: Krit Chasis
Pvt.LTD\n");
            break;
        case 4:
            break;
        default:
            printf("\nInvalid choice\n");
            exit(0);
        }
    } while (choice != 4);
    return 0;
}
```

OUTPUT:




C:\Users\ashva\source\repos\Exp3\exp3code.exe
------------MENU------------
1.Customer Profile
2.Discount Calculation
3.Print E-Quote
4.Exit
Enter your choice: 1
1.Customer Profile
Name: Ashvath
Gender: Male
Booking ID: 8754515
Occupation: Ex-Defence Worker
------------MENU------------
1.Customer Profile
2.Discount Calculation
3.Print E-Quote
4.Exit
Enter your choice: 2
2.Discount Calculation
Total Cost: 1069854.500000
Discount Amount: 106985.453125
Cost after discount: 962869.062500
------------MENU------------
1.Customer Profile
2.Discount Calculation
3.Print E-Quote


C:\Users\ashva\source\repos\Exp3\exp3code.exe
4.Exit
Enter your choice: 3
3.E-Quote
Manufacturer of Engine: Toyota
Part Name: Engine
Cost: 80000
Manufacturer: Toyota
Part Name: Brake system
Cost: 30000
Manufacturer: India Brakes LTD.
Part Name: Chasis
Cost: 120000
Manufacturer: Krit Chasis Pvt.LTD
------------MENU------------
1.Customer Profile
2.Discount Calculation
3.Print E-Quote
4.Exit
Enter your choice: 4

Process exited after 111.1 seconds with return value 0
Press any key to continue . . .

Ex. No: 4 **Date: 27-09-2021**

NESTED LOOPING

PROBLEM GIVEN:

Write a program in C to display the following pattern
10 9 8 7
6 5 4
3 2
1

ALGORITHM:

Step 1: Start

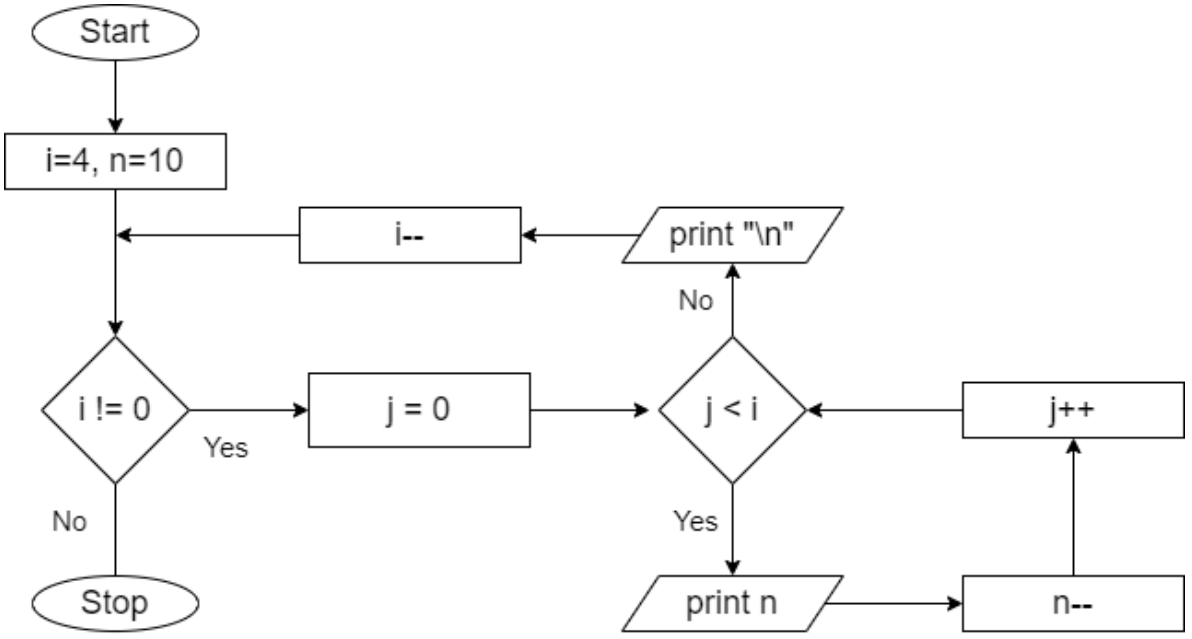
Step 2: Initialize i=4, j, and n=10.

Step 3: Introduce an outer for loop, where it checks if i is not equal to 0. If yes, let j=0, else, End the program.

Step 4: Introduce an inner for loop where it checks if j is less than i. If yes, print n, post-decrement n and post-increment j, else, print “\n” and post-decrement i.

Step 5: Stop

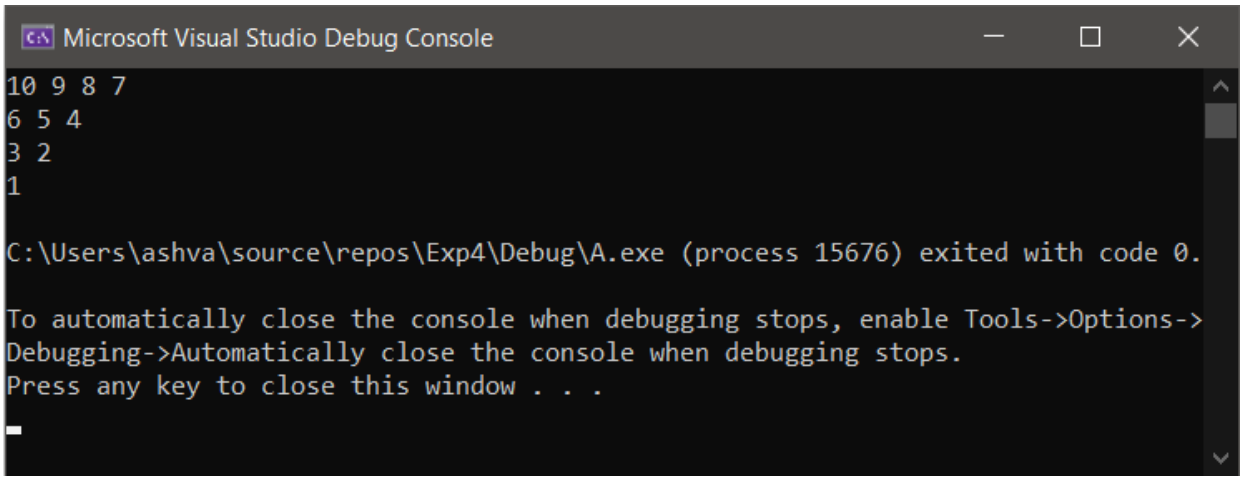
FLOWCHART:



PROGRAM:

```
//Exp 4 - Nested Looping
#include <stdio.h>
int main()
{
    int n, i, j;
    n = 10;
    for (i = 4; i != 0; i--) {
        for (j = 0; j < i; j++) {
            printf("%d ", n);
            n--;
        }
        printf("\n");
    }
  }
```

OUTPUT:



Ex. No: 5 **Date: 04-10-2021**

1D ARRAYS

PROBLEM GIVEN:

Write a program to store the data of customers and search for a given costumer by name or number and display details of customer.

ALGORITHM:

Step 1: Start

Step 2: Declare i, j, fst, lst, mid, n, search, cid[100] and t.

Step 3: Read number of customers and Customer IDs.

Step 4: Introduce an outer for-loop, where i=0, it checks if i is lesser than n. If yes, let j=i+1, else, exit the loop.

Step 5: Introduce an inner for loop where it checks if j is less than n. If yes, check if cid[j]<cid[i] and post-increment j, else, post-increment i and repeat the outer for-loop.

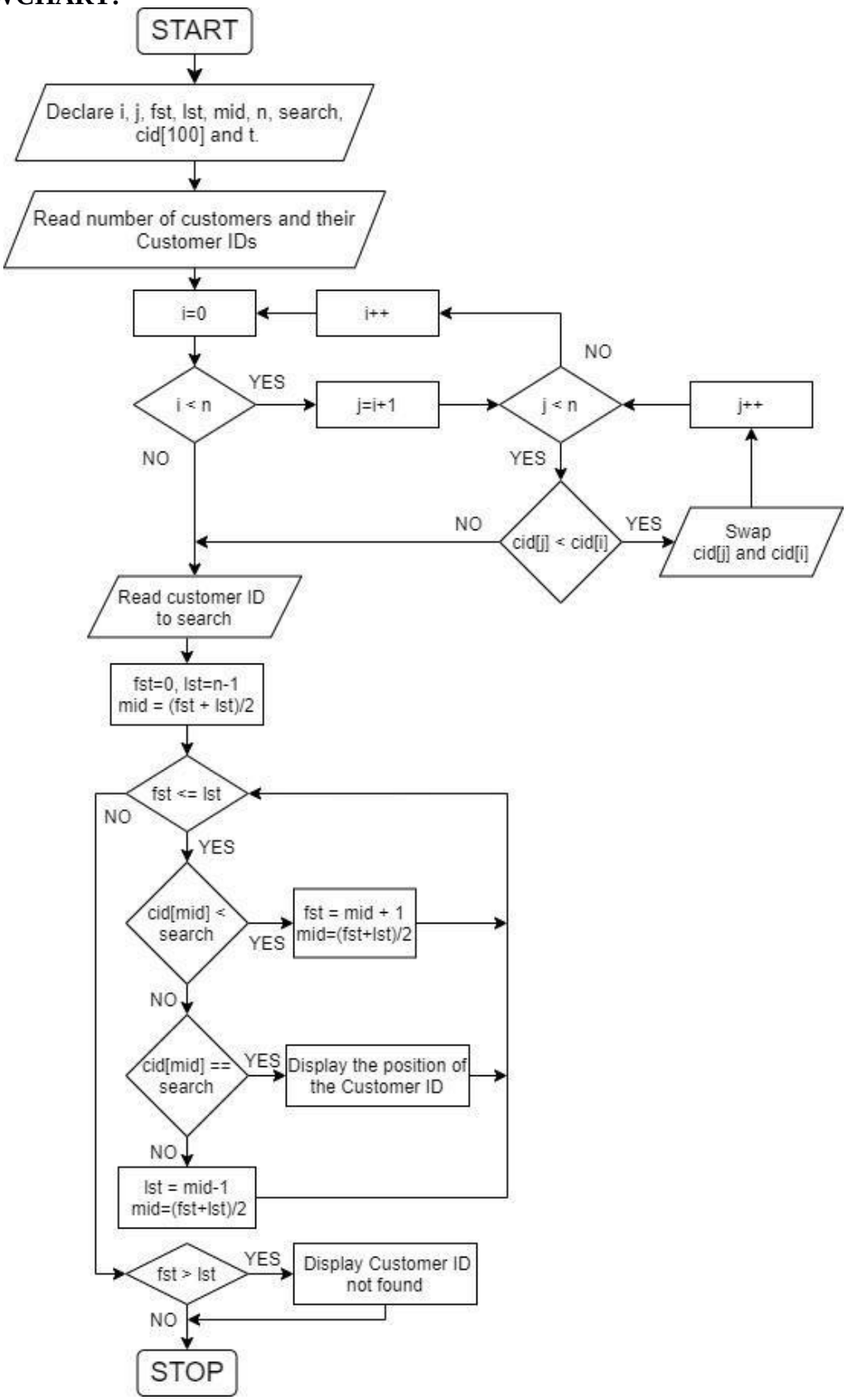
Step 6: If cid[j]<cid[i], then t = cid[i], cid[i] = cid[j] and cid[j] = t. Else, Exit the loop.

Step 7: Read Customer ID to be searched and let fst=0, lst=n-1 and mid =(fst+lst)/2.

Step 8: Introduce a while loop that continues if fst<=lst. In the loop, Check if cid[mid] is less than search. If yes, fst=mid+1 and mid=(fst+lst)/2, else, Check if cid[mid] is equal to search. If yes, Display the position of the Customer ID, else, lst=mid-1 and mid=(fst+lst)/2.

Step 9: Check if fst > lst. If yes, Display Customer ID not found.

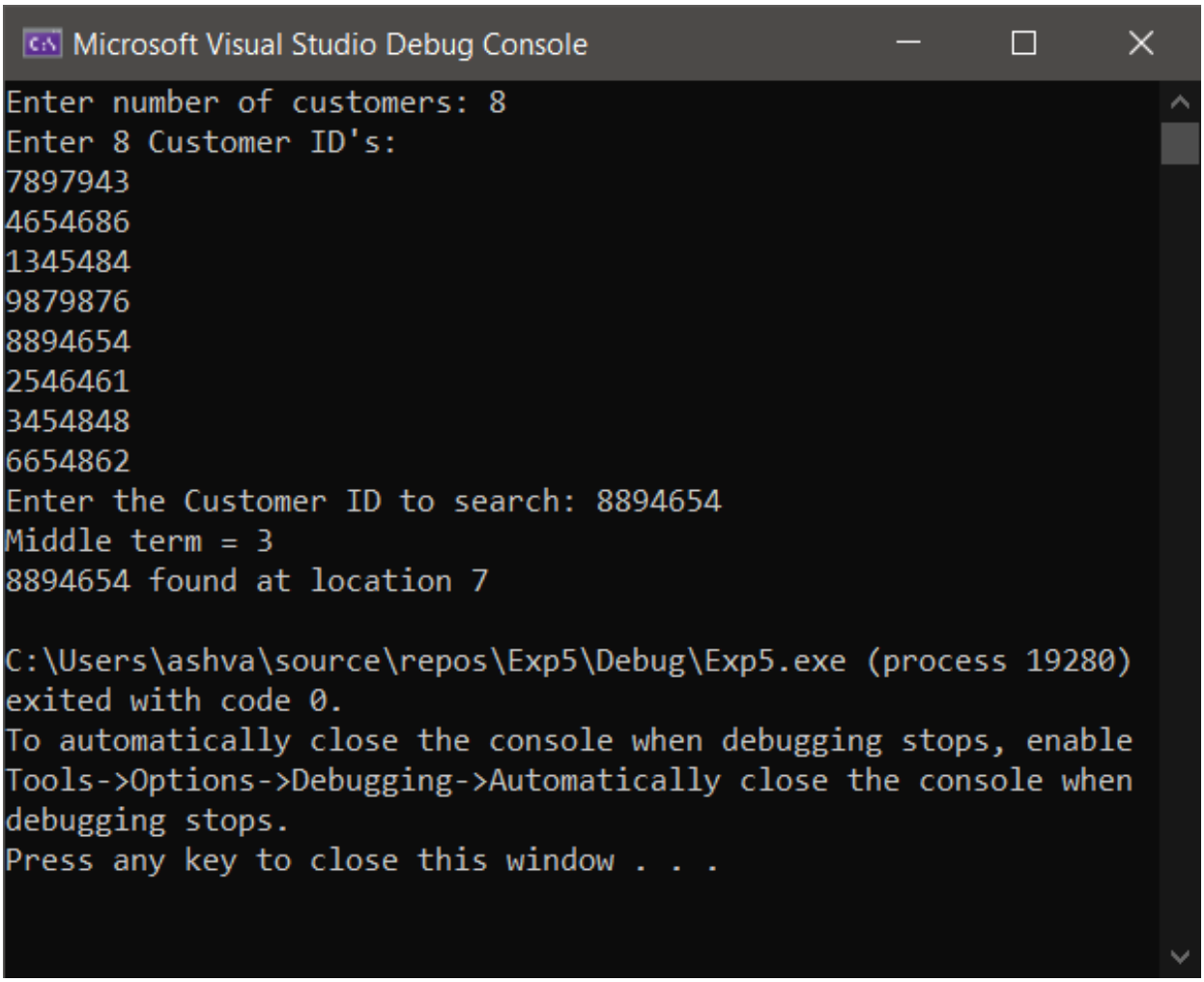
FLOWCHART:


START
Declare i, j, fst, lst, mid, n, search, cid[100] and t.
Read number of customers and their Customer IDs
i=0
i++
i < n
YES
j=i+1
j < n
NO
j++
NO
YES
cid[j] < cid[i]
NO
YES
Swap cid[j] and cid[i]
Read customer ID to search
fst=0, lst=n-1
mid = (fst + lst)/2
fst <= lst
NO
YES
cid[mid] < search
YES
fst = mid + 1
mid=(fst+lst)/2
NO
cid[mid] == search
YES
Display the position of the Customer ID
NO
lst = mid-1
mid=(fst+lst)/2
fst > lst
YES
Display Customer ID not found
NO
STOP

PROGRAM:

```
//Exp 5 – 1D Arrays
#include <stdio.h>
int main()
{
    int i, j, fst, lst, mid, n, search, cid[100], t;
    //Input values
    printf("Enter number of customers: ");
    scanf("%d", &n);
    printf("Enter %d Customer ID's:\n", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &cid[i]);
    }
    //Binary Sort
    for (i = 0; i < n; i++) {
        for (j = i + 1; j < n; j++) {
            if (cid[j] < cid[i]) {
                t = cid[i];
                cid[i] = cid[j];
                cid[j] = t;
            }
        }
    }
    //Binary Search
    printf("Enter the Customer ID to search: ");
    scanf("%d", &search);
    fst = 0;
    lst = n - 1;
    mid = (fst + lst) / 2;
    printf("Middle term = %d\n", mid);
    while (fst <= lst) {
        if (cid[mid] < search) {
            fst = mid + 1;
        }
        else if (cid[mid] == search) {
            printf("%d found at location %d\n", search, mid + 1);
            break;
        }
        else {
            lst = mid - 1;
        }
        mid = (fst + lst) / 2;
    }
    if (fst > lst) {
        printf("%d not found\n", search);
    }
    return 0;
}
```

OUTPUT:


Microsoft Visual Studio Debug Console
Enter number of customers: 8
Enter 8 Customer ID's:
7897943
4654686
1345484
9879876
8894654
2546461
3454848
6654862
Enter the Customer ID to search: 8894654
Middle term = 3
8894654 found at location 7
C:\Users\ashva\source\repos\Exp5\Debug\Exp5.exe (process 19280) exited with code 0.
To automatically close the console when debugging stops, enable Tools->Options->Debugging->Automatically close the console when debugging stops.
Press any key to close this window . . .

Ex. No: 6 **Date: 01-11-2021**

2D ARRAYS

PROBLEM GIVEN:

Write a program to multiply 2 matrices and print the result matrix. Then print the even and odd elements of the result array

ALGORITHM:

Step 1: Start

Step 2: Declare the variables a[10][10], b[10][10], ab[10][10], eve[100], od[100], integer r, c, i, j, k, e, o.

Step 3: Read r and c.

Step 4: Introduce a for-loop for entering elements in the matrix A.

Step 4: Introduce a for-loop for entering elements in the matrix B.

Step 5: Introduce a for-loop for multiplying matrix A and matrix B.

Step 6: Introduce a for-loop for printing the product AB.

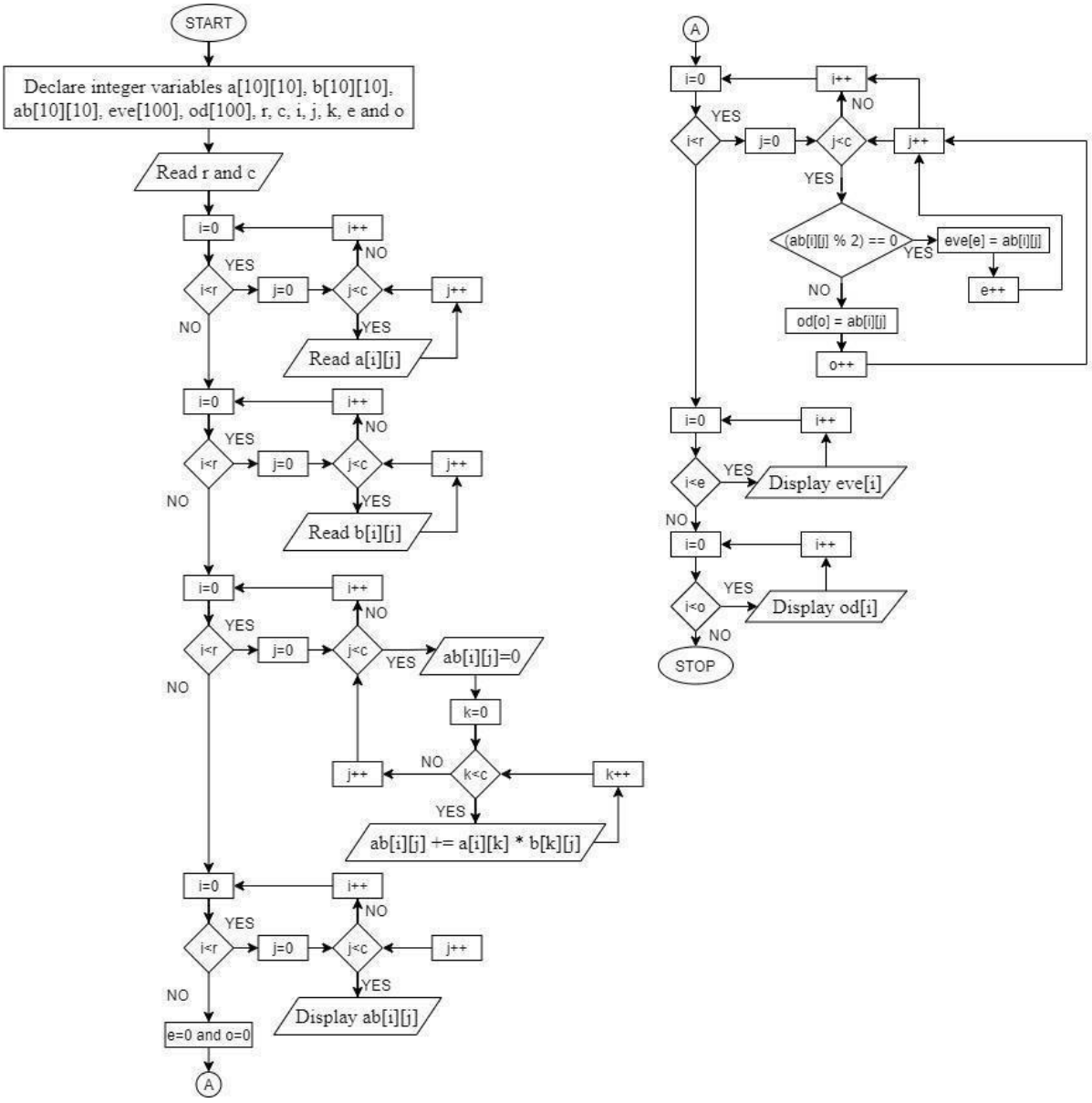
Step 7: Let e=0 and o=0.

Step 8: Introduce a for-loop for checking whether the elements of the product AB are even or odd.

Step 9: Introduce a for-loop for printing the even numbers and odd numbers.

Step 10: Stop

FLOWCHART:

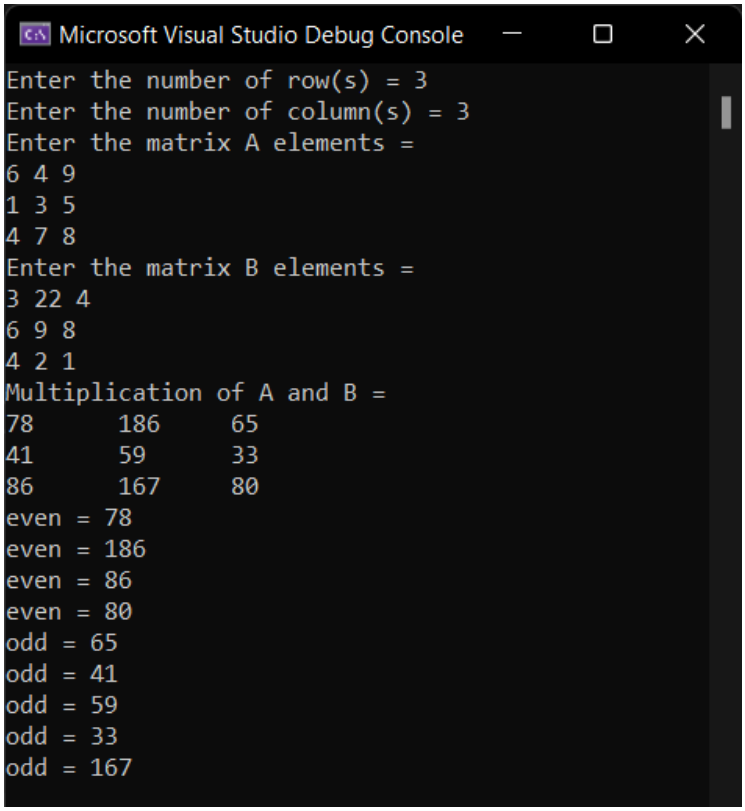

START
Declare integer variables a[10][10], b[10][10], ab[10][10], eve[100], od[100], r, c, i, j, k, e and o
Read r and c
i=0
i++
i<r
YES
NO
j=0
j<c
j++
Read a[i][j]
Read b[i][j]
ab[i][j]=0
k=0
k<c
k++
ab[i][j] += a[i][k] * b[k][j]
Display ab[i][j]
e=0 and o=0
A
(ab[i][j] % 2) == 0
eve[e] = ab[i][j]
e++
od[o] = ab[i][j]
o++
i<e
Display eve[i]
i<o
Display od[i]
STOP

PROGRAM:

```
#include<stdio.h>
int main() {
   int a[10][10], b[10][10], ab[10][10], eve[100], od[100], r, c, i, j, k, e, o;
   printf("Enter the number of row(s) = ");
   scanf("%d", &r);
   printf("Enter the number of column(s) = ");
   scanf("%d", &c);
   //reading elements of matrix A
   printf("Enter the matrix A elements = \n");
   for (i = 0; i < r; i++) {
      for (j = 0; j < c; j++) {
         scanf("%d", &a[i][j]);
      }
   }
   //reading elements of matrix B
   printf("Enter the matrix B elements = \n");
   for (i = 0; i < r; i++) {
      for (j = 0; j < c; j++) {
         scanf("%d", &b[i][j]);
      }
   }
   //multiplying A and B
   printf("Multiplication of A and B = \n");
   for (i = 0; i < r; i++) {
      for (j = 0; j < c; j++) {
         ab[i][j] = 0;
         for (k = 0; k < c; k++) {
            ab[i][j] += a[i][k] * b[k][j];
         }
      }
   }
   //printing matrix AB
   for (i = 0; i < r; i++) {
      for (j = 0; j < c; j++) {
         printf("%d\t", ab[i][j]);
      }
      printf("\n");
   }
   //finding odd and even elements in matrix AB
   e = 0;
   o = 0;
   for (int i = 0; i < r; ++i) {
      for (int j = 0; j < c; ++j) {
         if ((ab[i][j] % 2) == 0) {
            eve[e] = ab[i][j];
            e++;
```

```
            }
            else {
                od[o] = ab[i][j];
                o++;
            }
        }
    }
    //printing odd and even elements
    for (i = 0; i < e; i++)
        printf("even = %d\n", eve[i]);
    for (i = 0; i < o; i++)
        printf("odd = %d\n", od[i]);
    return 0;
}
```

OUTPUT:



Ex. No: 7 **Date: 08-11-2021**

USER DEFINED FUNCTIONS

PROBLEM GIVEN:

Write a program to implement user defined functions to implement the following functionality 1. Read details 2. BILL Calculation 3. print details

ALGORITHM:

Step 1: Start

Step 2: Declare functions for 1. Read details, 2. Bill Calculation and 3. Print Details.

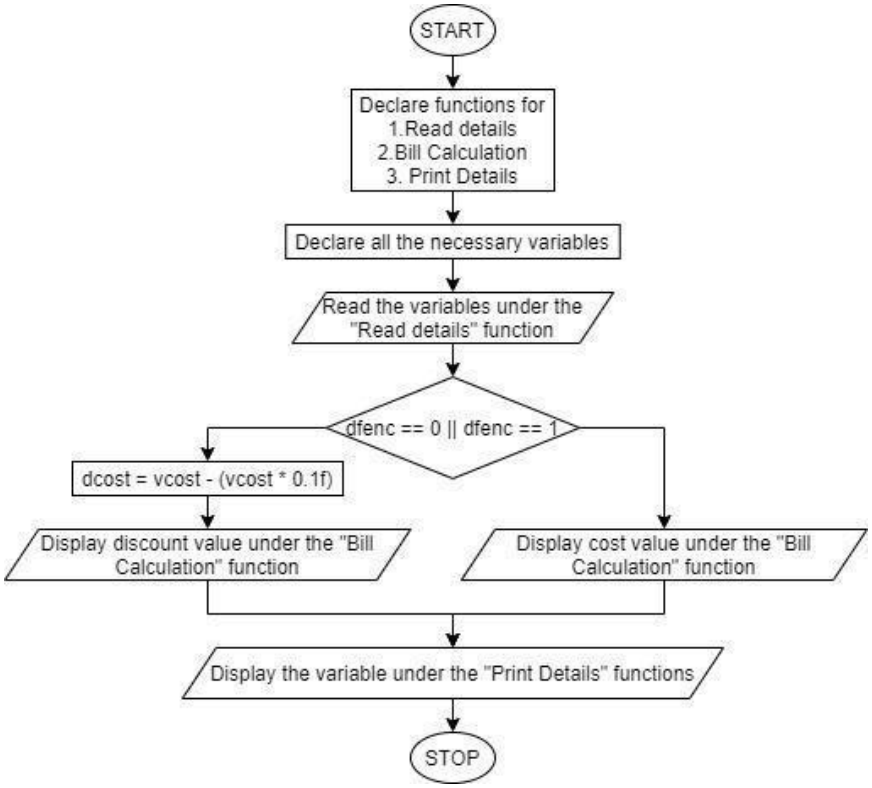
Step 3: Declare all the necessary variables

Step 4: Read the variables under the "Read details" function

Step 5: If dfenc == 0 || dfenc == 1, dcost = vcost - (vcost * 0.1f) and Display discount value under the "Bill Calculation" function, else Display cost value under the "Bill Calculation" function

Step 6: Display the variable under the "Print Details" functions Step 7: Stop

FLOWCHART:



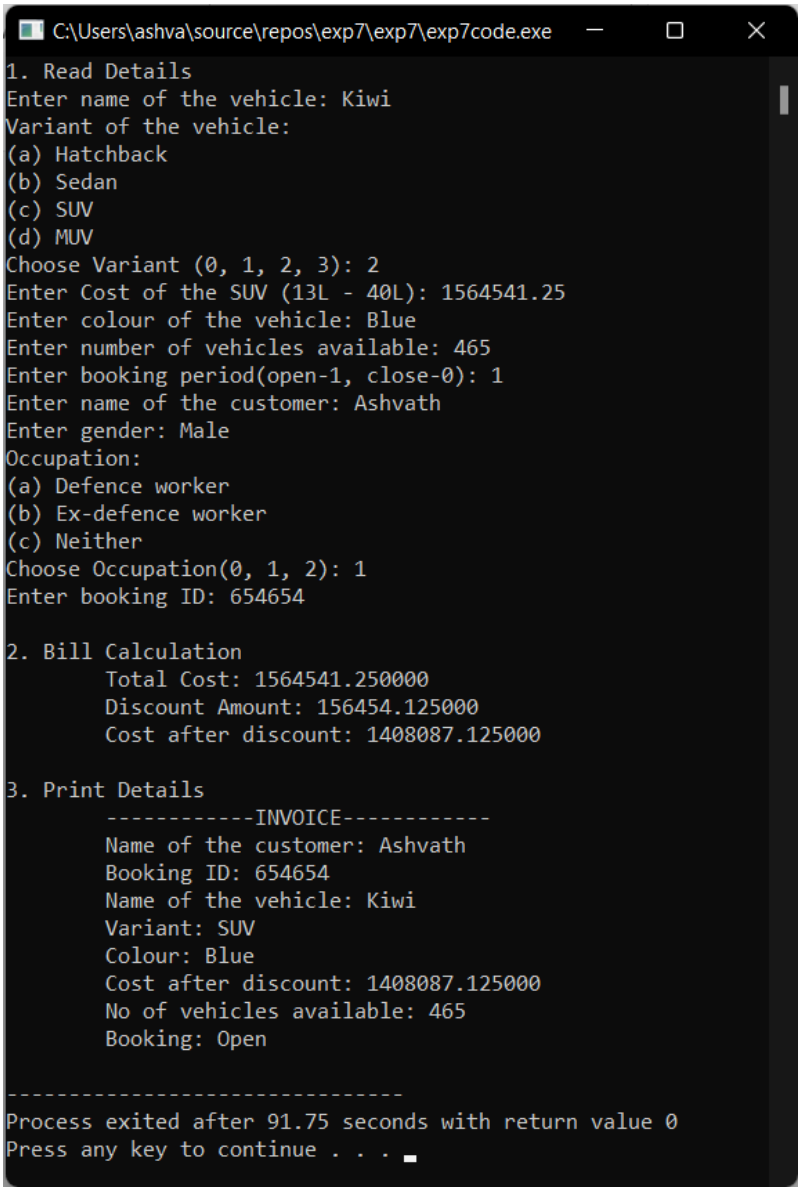
PROGRAM:

```
#include <stdio.h>

enum variants { Hatchback, Sedan, SUV, MUV };
enum defence { defence, exdefence };

void readinfo();
void billcalc();
void printinfo();

//Get the details of the car and customer
char vname[20], vcolor[10], cname[20], gendr[20], engine[20];
enum variants vtype;
enum defence dfenc;
float vcost, dcost;
int nov, bookp, bookid, choice;

void readinfo()
{
   printf("1. Read Details\n");
   printf("Enter name of the vehicle: ");
   scanf("%s", &vname);
   printf("Variant of the vehicle:\n(a) Hatchback\n(b) Sedan\n(c) SUV\n(d) MUV\n");
   printf("Choose Variant (0, 1, 2, 3): ");
   scanf("%d", &vtype);
   //Check the type of vehicle for cost of the vehicle
   if (vtype == 0) {
      printf("Enter Cost of the Hatchback (4L - 8L): ");
      scanf("%f", &vcost);
   }
   else if (vtype == 1) {
      printf("Enter Cost of the Sedan (8L - 11L): ");
      scanf("%f", &vcost);
   }
   else if (vtype == 2) {
      printf("Enter Cost of the SUV (13L - 40L): ");
      scanf("%f", &vcost);
   }
   else if (vtype == 3) {
      printf("Enter Cost of the MUV (5L - 25L): ");
      scanf("%f", &vcost);
   }
```

```
    else {
        printf("Invalid Input!!\n");
    }
    printf("Enter colour of the vehicle: ");
    scanf("%s", &vcolor);
    printf("Enter number of vehicles available: ");
    scanf("%d", &nov);
    printf("Enter booking period(open-1, close-0): ");
    scanf("%d", &bookp);
    printf("Enter name of the customer: ");
    scanf("%s", &cname);
    printf("Enter gender: ");
    scanf("%s", &gendr);
    printf("Occupation:\n");
    printf("(a) Defence worker\n(b) Ex-defence worker\n(c) Neither\n");
    printf("Choose Occupation(0, 1, 2): ");
    scanf("%d", &dfenc);
    printf("Enter booking ID: ");
    scanf("%d", &bookid);
}

void billcalc()
{
    printf("\n2. Bill Calculation\n");
    if (dfenc == 0 || dfenc == 1) {
        printf("\tTotal Cost: %f\n", vcost);
        printf("\tDiscount Amount: %f\n", vcost * 0.1f);
        dcost = vcost - (vcost * 0.1f);
        printf("\tCost after discount: %f\n", dcost);
    }
    else {
        printf("\tDiscount not available.\n");
        printf(" \tCost of the vehicle: %f\n", vcost);
    }
}

void printinfo()
{
    printf("\n3. Print Details");
    //Print Invoice
    printf("\n\t----------INVOICE----------\n");
    printf("\tName of the customer: %s\n", cname);
    printf("\tBooking ID: %d\n", bookid);
    printf("\tName of the vehicle: %s\n", vname);
```

```
    //Check the type of vehicle for Invoice
    if (vtype == 0) {
        printf("\tVariant: Hatchback\n");
    }
    else if (vtype == 1) {
        printf("\tVariant: Sedan\n");
    }
    else if (vtype == 2) {
        printf("\tVariant: SUV\n");
    }
    else if (vtype == 3) {
        printf("\tVariant: MUV\n");
    }
    else {
        printf("\tInvalid Input!!\n");
    }
    printf("\tColour: %s\n", vcolor);
    //Check occupation for discount
    if (dfenc == 0 || dfenc == 1) {
        dcost = vcost - (vcost * 0.1f);
        printf("\tCost after discount: %f\n", dcost);
    }
    else {
        printf("\tCost: %f\n", vcost);
    }
    //Check the number of vehicles available
    (nov > 0) ? printf("\tNo of vehicles available: %d\n", nov)
        : printf("\tVehicle not available\n");
    //Check booking period
    if (bookp == 1) {
        printf("\tBooking: Open\n");
    }
    else {
        printf("\tBooking: Close\n");
    }
}

int main()
{
    readinfo();
    billcalc();
    printinfo();
}
```

OUTPUT:


C:\Users\ashva\source\repos\exp7\exp7\exp7code.exe
1. Read Details
Enter name of the vehicle: Kiwi
Variant of the vehicle:
(a) Hatchback
(b) Sedan
(c) SUV
(d) MUV
Choose Variant (0, 1, 2, 3): 2
Enter Cost of the SUV (13L - 40L): 1564541.25
Enter colour of the vehicle: Blue
Enter number of vehicles available: 465
Enter booking period(open-1, close-0): 1
Enter name of the customer: Ashvath
Enter gender: Male
Occupation:
(a) Defence worker
(b) Ex-defence worker
(c) Neither
Choose Occupation(0, 1, 2): 1
Enter booking ID: 654654
2. Bill Calculation
Total Cost: 1564541.250000
Discount Amount: 156454.125000
Cost after discount: 1408087.125000
3. Print Details
------------INVOICE------------
Name of the customer: Ashvath
Booking ID: 654654
Name of the vehicle: Kiwi
Variant: SUV
Colour: Blue
Cost after discount: 1408087.125000
No of vehicles available: 465
Booking: Open
Process exited after 91.75 seconds with return value 0
Press any key to continue . . .

Ex. No: 7b **Date: 15-11-2021**

RECURSIVE FUNCTIONS

PROBLEM GIVEN:

Write a program to find factorial of a number using recursive functions.

ALGORITHM:

Step 1: Start

Step 2: Declare all the required variables and function fact(int). Step 3:

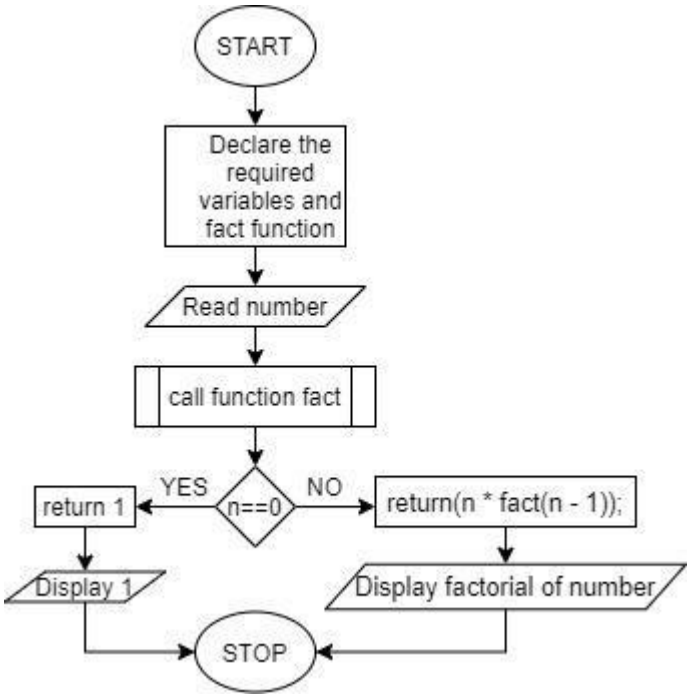
Get number from the user.

Step 4: Call the function fact(n) with arguments as the reference variable. Step 5:

Check if n==0. If true, return 1. Else return (n * fact (n - 1).

Step 6: Display the factorial of the number.

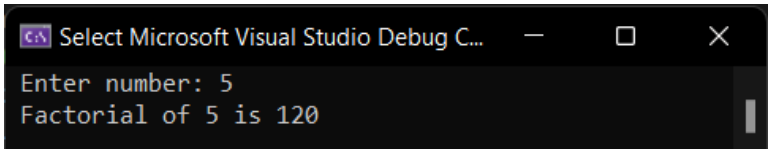
FLOWCHART:



PROGRAM:

```
//EXP-7b
//WAP in C to find Factorial of a number using recursive functions
#include<stdio.h>
//Declare function fact(int)
int fact(int);
void main()
{
   //Declare variables
   int x, n;
   //Read number
   printf(" Enter number: ");
   scanf("%d", &n);
   //Call function fact(int n) and store return value in variable x
   x = fact(n);
   //Display the result
   printf(" Factorial of %d is %d\n", n, x);
}
//fact(int n) function
int fact(int n)
{
   //Check if number is zero
   if (n == 0)
      //Return 1 if yes
      return(1);
   return(n * fact(n - 1));
}
```

OUTPUT:



Ex. No: 8 **Date: 15-11-2021**

POINTERS

PROBLEM GIVEN:

Write a program to read n number of Customer_ids and cost of vehicle purchased (for each customer) into an array. Calculate the total amount received by the Automobile showroom and display the same in the form of Accounts Balance Sheet. Implement the same using pointers.

ALGORITHM:

Step 1: Start

Step 2: Declare the required variables, integer arrays and calc_sum function Step 3: Get

the number of customers from the user(n)

Step 4: Introduce a for loop and then get the vehicle cost of each customer and store it in an array

Step 5: Reference the first element in the array into a pointer variable

Step 6: Call the function calc_sum with arguments as the reference variable and number of customers.

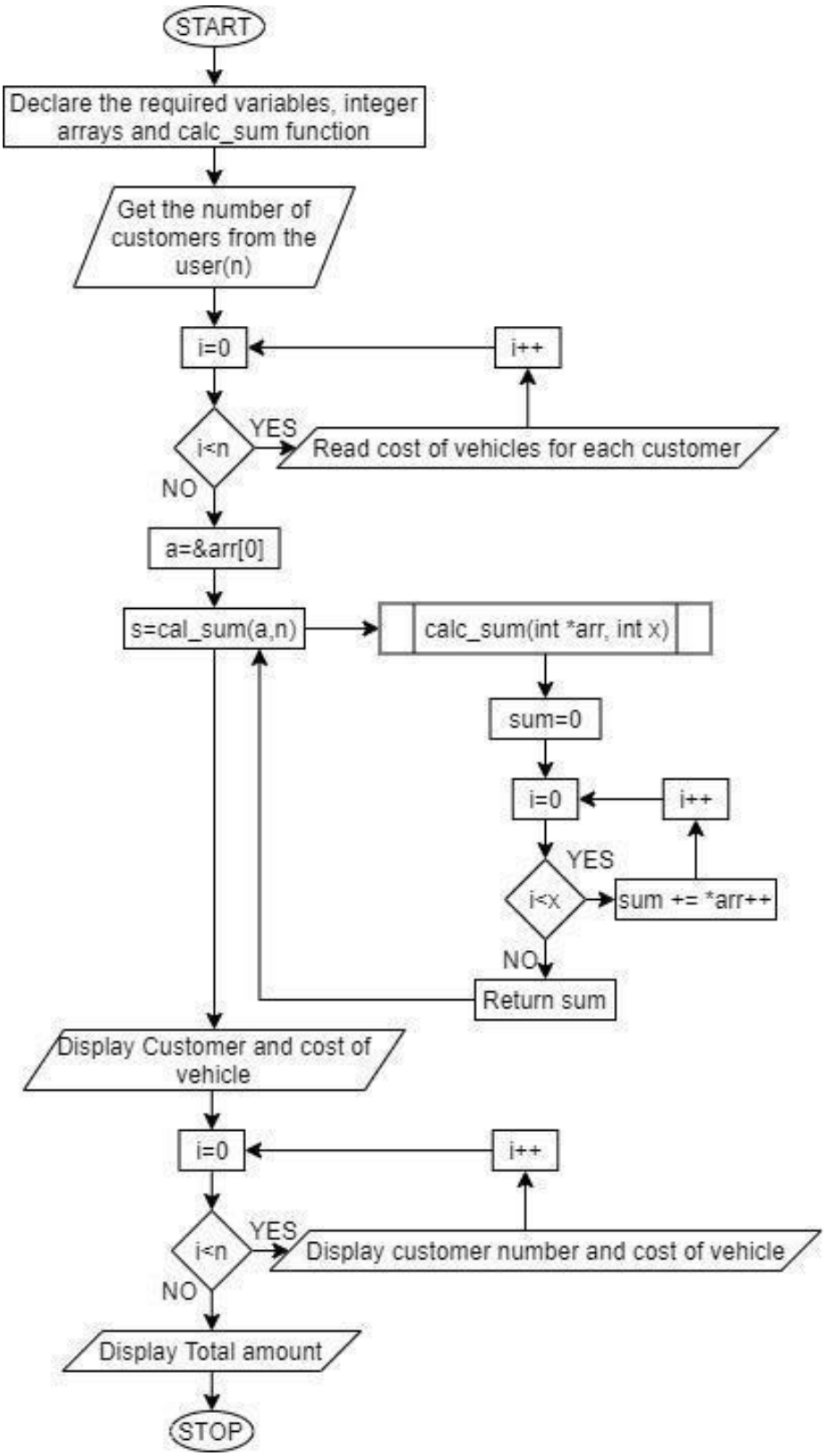
Step 7: Initialize sum to 0

Step 8: Introduce a loop to dereference the element in the array and increment the reference variable

Step 9: Return the sum to the main function

Step 10: Display the number of customers, cost of vehicles and total amount

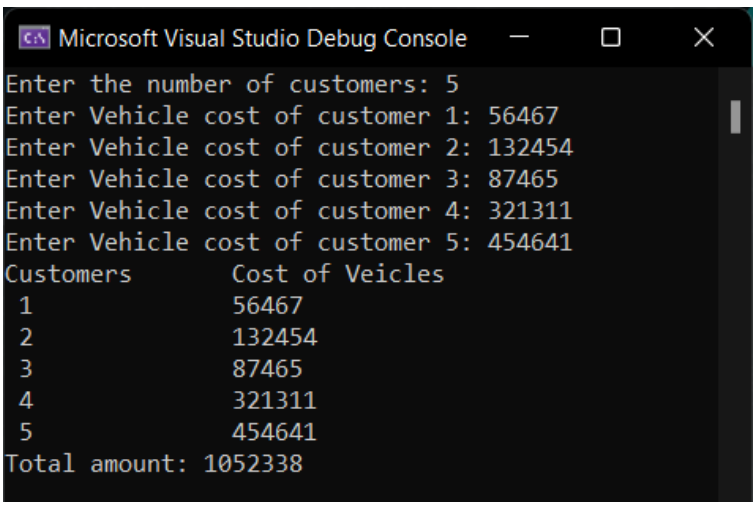
FLOWCHART:


START
Declare the required variables, integer arrays and calc_sum function
Get the number of customers from the user(n)
i=0
i++
i<n
YES
Read cost of vehicles for each customer
NO
a=&arr[0]
s=cal_sum(a,n)
calc_sum(int *arr, int x)
sum=0
i=0
i++
i<x
YES
sum += *arr++
NO
Return sum
Display Customer and cost of vehicle
i=0
i++
i<n
YES
Display customer number and cost of vehicle
NO
Display Total amount
STOP

PROGRAM:

```
//EXP-8_Pointers
#include <stdio.h>
int calc_sum(int* arr, int x) {
    int sum = 0;
    // printf("%d %d", *(arr+3), x);
    for (int i = 0; i < x; i++) {
        sum += *arr++;
    }
    return sum;
}
int main()
{
    int n, i, j, arr[10], * a, s;
    printf("Enter the number of customers: ");
    scanf("%d", &n);

    for (i = 0; i < n; i++) {
        printf("Enter Vehicle cost of customer %d: ", i + 1);
        scanf("%d", &arr[i]);
    }
    a = &arr[0];
    s = calc_sum(a, n);
    printf("Customers\tCost of Veicles\n");
    for (i = 0; i < n; i++) {
        printf(" %d\t\t%d\n", i + 1, arr[i]);
    }
    printf("Total amount: %d\n", s);
    return 0;
}
```

OUTPUT:



Ex. No: 8b **Date: 29-11-2021**

RETURNING AN ARRAY AS ARGUMENT

PROBLEM GIVEN:

Write a C program to implement the following:

1. Define a function get_details. Get two arrays from the users - The first one contains the roll number and the second array contains their corresponding marks.
2. In the same function, Find the marks that are above 70. return the corresponding register numbers from array1 using pointers to main.
3. In main(), arrange the register numbers in ascending order.

ALGORITHM:

Step 1: Start

Step 2: Declare necessary variables and function get_details.

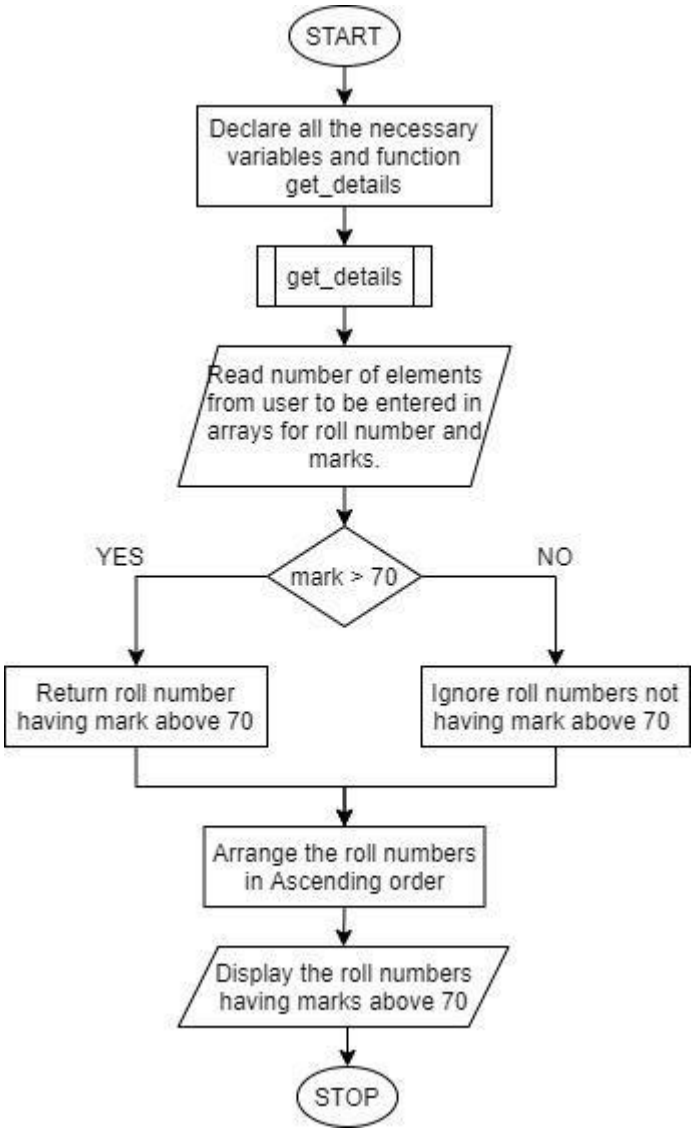
Step 3: Read number of elements from user to be entered in arrays for roll number and marks.

Step 4: Check if the marks are above 70. Those roll numbers having marks above 70 are returned to main function using pointers.

Step 5: In main function, arrange the roll numbers in ascending order. Step 6: Print all

necessary outputs

FLOWCHART:



PROGRAM:

```
#include <stdio.h>

typedef int* pnt;
int len;
int roll[50];
int mark[50];
int roll_70[50];
int mark_70[50];
int ind_70 = 0;
pnt n = &len;
pnt r = &roll;
pnt m = &mark;
pnt r_70 = &roll_70;
pnt m_70 = &mark_70;

void get_details()
```

```
{
   printf("Enter the number of roll numbers to be entered:\n");
   scanf("%d", n);

   printf("Enter the roll numbers with their respective marks:\n");
   for (int i = 0; i < *n; i++)
   {
      scanf("%d %d", r++, m++);
      if (mark[i] >= 70)
      {
         roll_70[ind_70] = roll[i];
         mark_70[ind_70] = mark[i];
         ind_70++;
      }
   }
}

void main()
{
   get_details();
   int temp;

   for (int i = 0; i < ind_70; i++)
   {
      for (int j = 0; j < ind_70 - 1; j++)
      {
         if (roll_70[j] > roll_70[j + 1])
         {
            temp = roll_70[j];
            roll_70[j] = roll_70[j + 1];
            roll_70[j + 1] = temp;
            temp = mark_70[j];
            mark_70[j] = mark_70[j + 1];
            mark_70[j + 1] = temp;
         }
      }
   }

   for (int i = 0; i < ind_70; i++)
      printf("Roll number: %d\tMarks: %d\n", roll_70[i], mark_70[i]);
}
```

OUTPUT: