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

DECISION MAKING USING ELSE IF LADDER

PROBLEM GIVEN:

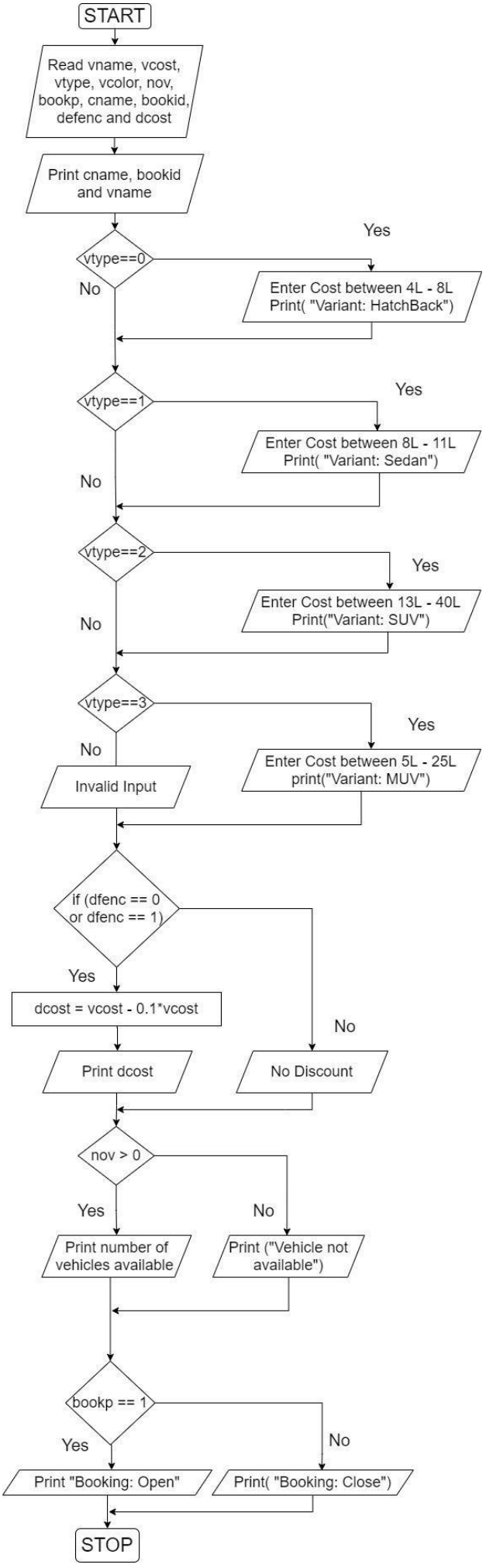
Write a program to generate an invoice for the vehicle. 1. Depending on the variant of the vehicle the user selects the rates should vary. 2. If the person works for the defense or is ex-defense 10% discount is applicable.

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:

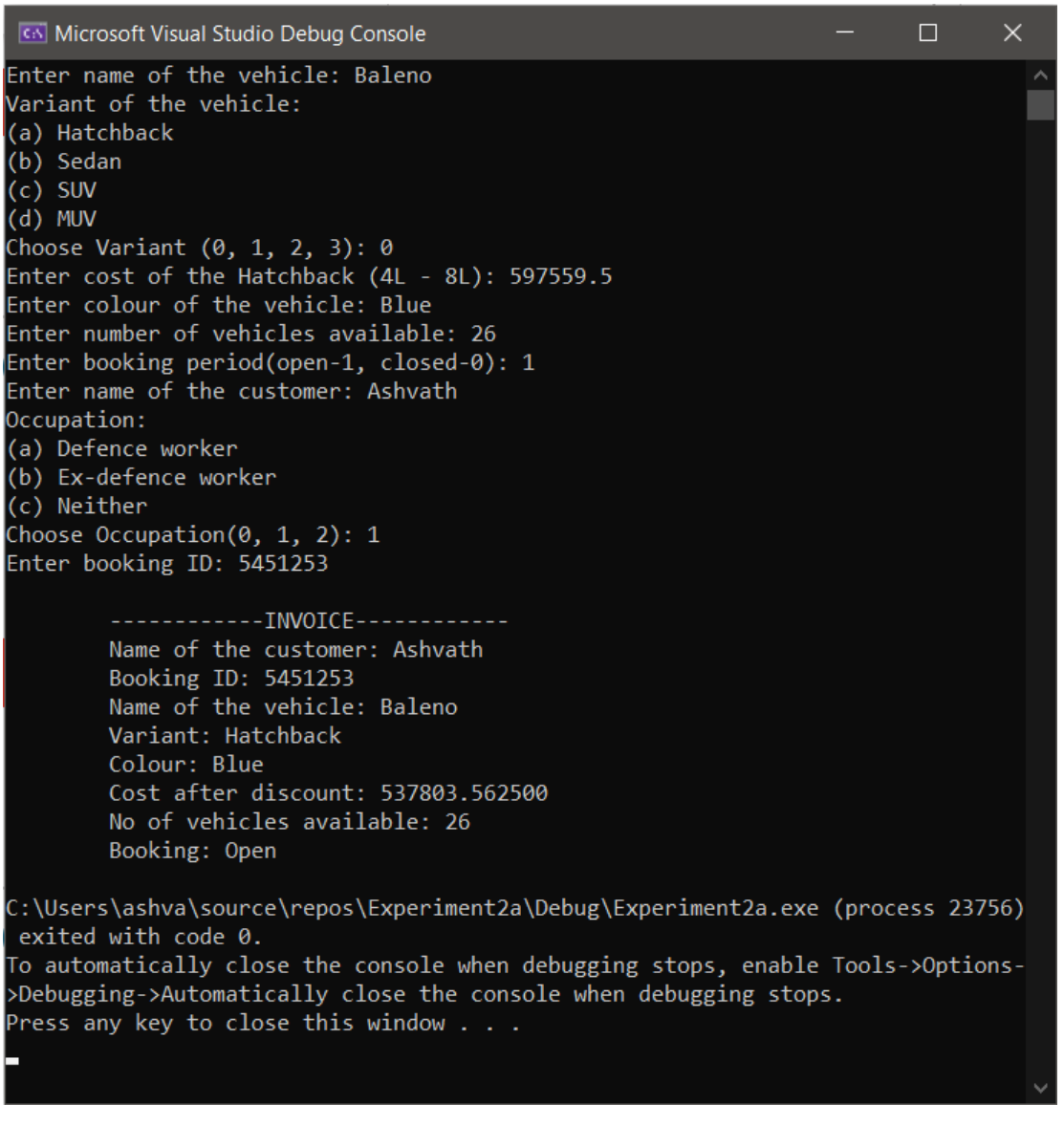

START
Read vname, vcost, vtype, vcolor, nov, bookp, cname, bookid, defenc and dcost
Print cname, bookid and vname
vtype==0
Yes
Enter Cost between 4L - 8L
Print("Variant: HatchBack")
No
vtype==1
Yes
Enter Cost between 8L - 11L
Print("Variant: Sedan")
No
vtype==2
Yes
Enter Cost between 13L - 40L
Print("Variant: 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:

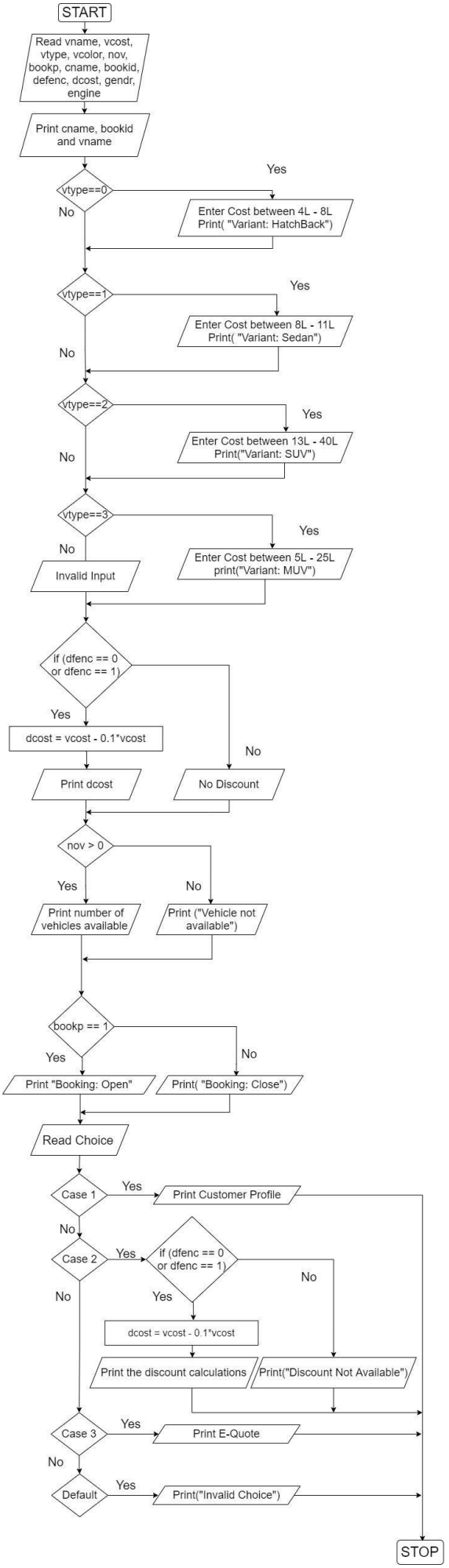
Write a program to display a menu to the Customer using a switch case for the following - 1. Customer Profile 2. Discount calculation. 3. e-quote. Extend the previous program to implement the program.

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: