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

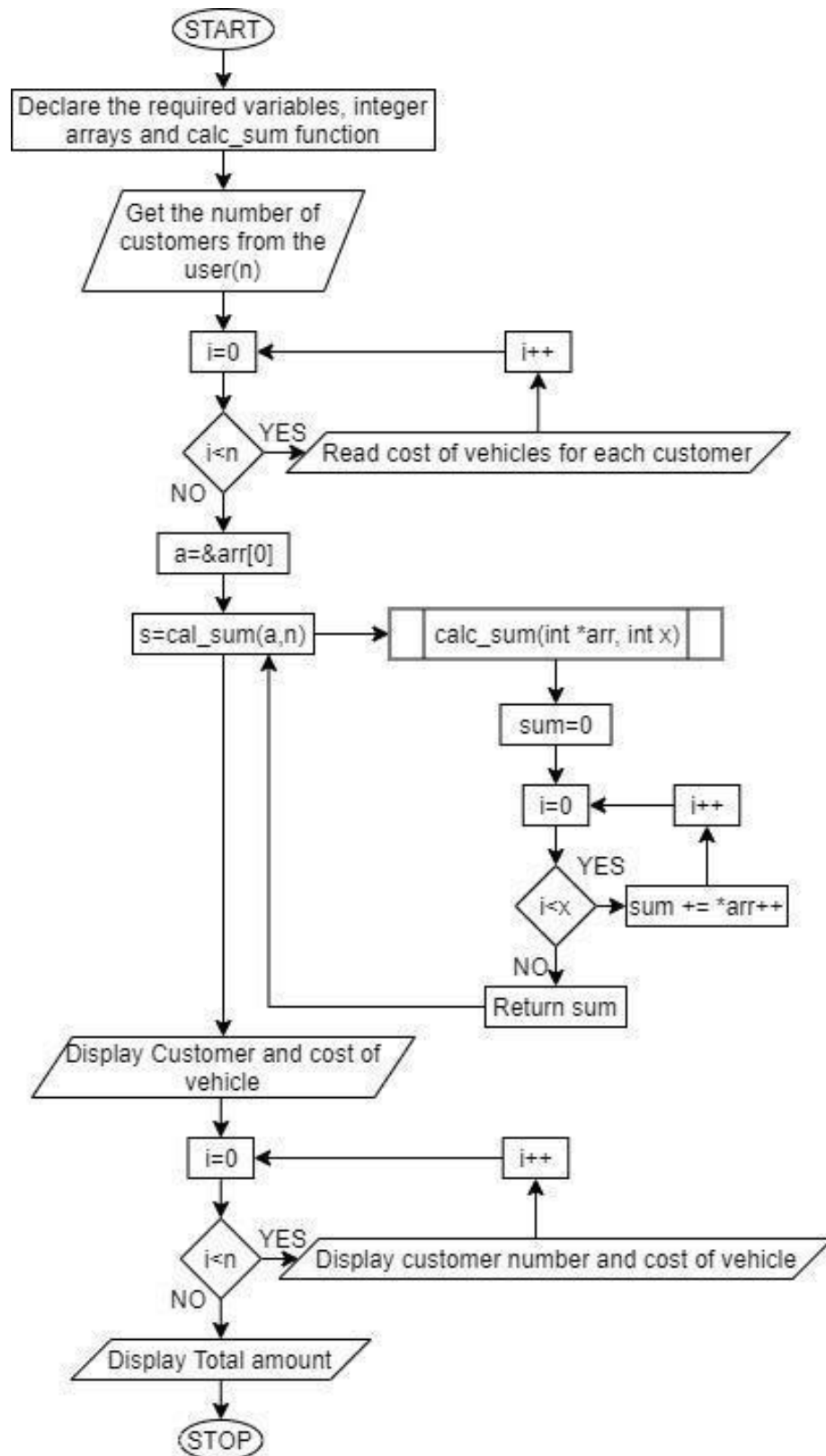Step 6: Call the function calc_sum with arguments as the reference variable and number of customers.

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
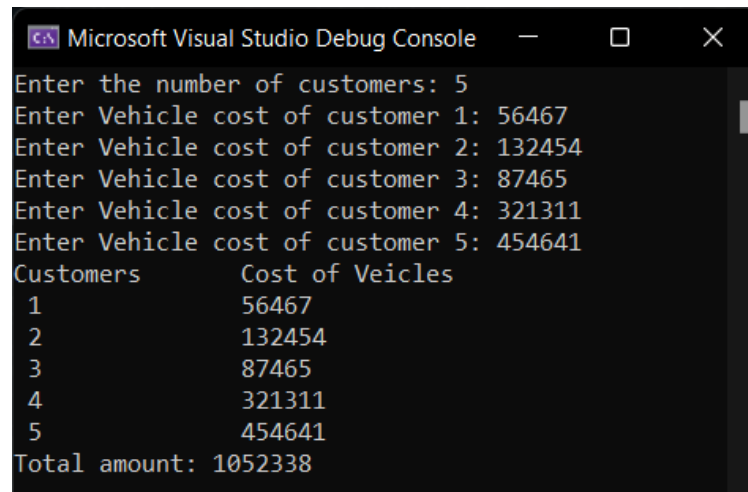
FLOWCHART:

```
                              ( 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:

```c
//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:

Microsoft Visual Studio Debug Console

```
Enter the number of customers: 5
Enter Vehicle cost of customer 1: 56467
Enter Vehicle cost of customer 2: 132454
Enter Vehicle cost of customer 3: 87465
Enter Vehicle cost of customer 4: 321311
Enter Vehicle cost of customer 5: 454641
Customers       Cost of Veicles
1                  56467
2                  132454
3                  87465
4                  321311
5                  454641
Total amount: 1052338
```