1.

```c
#include<stdio.h>
struct Student{
  char name[100];
  int age;
  int TLmarks;
};

int main() {
  struct Student arr[2];
  int sum=0;
  float average;
  printf("Enter details of two Students.\n");
    for(int i=0; i<2; i++) {
    printf("\nInsert details of Student %d.\n",i+1);
    printf("Enter Student Name : ");
    fgets(arr[i].name,sizeof(arr[i].name),stdin);
    printf("Enter Student Age : ");
    scanf("%d",&arr[i].age);
    printf("Enter Total Marks : ");
    scanf("%d",&arr[i].TLmarks);
    getchar();
    }
    for(int i=0; i<2; i++) {
    printf("\nDetails of Student %d :\n",i+1);
    printf("Name : %s",arr[i].name);
    printf("Age : %d\n",arr[i].age);
    printf("Total Marks : %d\n",arr[i].TLmarks);
    }
    for(int i=0; i<2 ;i++) {
    sum += arr[i].TLmarks;
    }
    average = sum/2;
    printf("Average of Total Marks of two Students is : %f\n",average);
}
```

OUTPUT:-

```
Enter details of two Students.

Insert details of Student 1.
Enter Student Name : Abhinaya
Enter Student Age : 17
Enter Total Marks : 90

Insert details of Student 2.
Enter Student Name : Chandana
Enter Student Age : 18
Enter Total Marks : 98

Details of Student 1 :
Name : Abhinaya
Age : 17
Total Marks : 90

Details of Student 2 :
Name : Chandana
Age : 18
Total Marks : 98
Average of Total Marks of two Students is : 94.000000
```

2.

```c
#include <stdio.h>
struct Car {
    int carID;
    char model[50];
    float rentalRate;
};

int main() {
    struct Car cars[3];
    int i,days;
    float totalCost;
    printf("Enter details for 3 cars:\n");
    for (i = 0; i < 3; i++) {
        printf("\nCar %d:\n", i + 1);
        printf("Enter Car ID: ");
        scanf("%d", &cars[i].carID);
        printf("Enter Car Model: ");
        scanf("%s", cars[i].model);
        printf("Enter Rental Rate per Day: ");
        scanf("%f", &cars[i].rentalRate);
    }
    printf("\nEnter the number of days to calculate the total rental cost: ");
    scanf("%d", &days);
    printf("\nDetails of Cars and Rental Costs:\n");
    for (i = 0; i < 3; i++) {
        totalCost = cars[i].rentalRate * days;
        printf("\nCar %d:\n", i + 1);
        printf("Car ID: %d\n", cars[i].carID);
        printf("Car Model: %s\n", cars[i].model);
        printf("Rental Rate per Day: %.2f\n", cars[i].rentalRate);
        printf("Total Rental Cost for %d days: %.2f\n", days, totalCost);
    }
    return 0;
}
```

OUTPUT:-

```
Enter details for 3 cars:

Car 1:
Enter Car ID: 123
Enter Car Model: Tata
Enter Rental Rate per Day: 20

Car 2:
Enter Car ID: 345
Enter Car Model: Honda
Enter Rental Rate per Day: 30

Car 3:
Enter Car ID: 678
Enter Car Model: Ford
Enter Rental Rate per Day: 40

Enter the number of days to calculate the total rental cost: 10

Details of Cars and Rental Costs:

Car 1:
Car ID: 123
Car Model: Tata
Rental Rate per Day: 20.00
Total Rental Cost for 10 days: 200.00

Car 2:
Car ID: 345
Car Model: Honda
Rental Rate per Day: 30.00
Total Rental Cost for 10 days: 300.00

Car 3:
Car ID: 678
Car Model: Ford
Rental Rate per Day: 40.00
Total Rental Cost for 10 days: 400.00
```

3.With Output:-

```c
#include <stdio.h>
struct Complex {
    float real;
    float imag;
};
int main() {
    struct Complex n1, n2, sum, product;
    printf("\nEnter the real and imaginary parts of the first complex number: ");
    scanf("%f %f", &n1.real, &n1.imag);

    printf("\nEnter the real and imaginary parts of the second complex number: ");
    scanf("%f %f", &n2.real, &n2.imag);
    sum.real = n1.real + n2.real;
    sum.imag = n1.imag + n2.imag;

    product.real = (n1.real * n2.real) - (n1.imag * n2.imag);
    product.imag = (n1.real * n2.imag) + (n1.imag * n2.real);
    printf("\nSum of the complex numbers: %.2f + %.2fi\n", sum.real, sum.imag);
    printf("Product of the complex numbers: %.2f + %.2fi\n", product.real, product.imag);
    return 0;
}
```

PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS

```
PS C:\Users\abhin\OneDrive\Desktop\C programs\.vscode\.vscode\output> cd 'c:\Users\abhin\OneDrive\Desktop\C programs\.vscode\.vscode
PS C:\Users\abhin\OneDrive\Desktop\C programs\.vscode\.vscode\output\output> & .\'structcomplexadd.exe'

Enter the real and imaginary parts of the first complex number: 2 3

Enter the real and imaginary parts of the second complex number: 4 5

Sum of the complex numbers: 6.00 + 8.00i
Product of the complex numbers: -7.00 + 22.00i
```

4.

```c
#include <stdio.h>
#include <stdlib.h>
struct Employee {
    int id;
    char name[50];
    float salary;
};

int main() {
    int n, i;
    printf("Enter the number of employees: ");
    scanf("%d", &n);
    struct Employee *employees = (struct Employee*)malloc(n * sizeof(struct Employee));
    if (employees == NULL) {
        printf("Memory allocation failed!\n");
        return 1;
    }
    for (i = 0; i < n; i++) {
        printf("\nEnter details for employee %d:\n", i + 1);
        printf("ID: ");
        scanf("%d", &employees[i].id);
        printf("Name: ");
        scanf(" %s", employees[i].name);
        printf("Salary: ");
        scanf("%f", &employees[i].salary);
    }
    printf("\nEmployee Details:\n");
    for (i = 0; i < n; i++) {
        printf("\nEmployee %d:\n", i + 1);
        printf("ID: %d\n", employees[i].id);
        printf("Name: %s\n", employees[i].name);
        printf("Salary: %.2f\n", employees[i].salary);
    }
    free(employees);
    return 0;
}
```

OUTPUT:-

```
Enter the number of employees: 3

Enter details for employee 1:
ID: 123
Name: ABC
Salary: 4000

Enter details for employee 2:
ID: 456
Name: XYZ
Salary: 5000

Enter details for employee 3:
ID: 789
Name: PQR
Salary: 6000

Employee Details:

Employee 1:
ID: 123
Name: ABC
Salary: 4000.00

Employee 2:
ID: 456
Name: XYZ
Salary: 5000.00

Employee 3:
ID: 789
Name: PQR
Salary: 6000.00
```