```
/*Write a program in C to display Semester Grade Point Average (SGPA). Input will be stored in
array of structure
Name-Parimal Kiran Muley
Roll No-588(E3)*/
#include <stdio.h>
struct SGPA      //declaring structure
{
        char coursename[100];
        int course_credits;
        int earned_credits;
        int grade_points;
        int points_secured;
};
int main() //main function
{
        struct SGPA sem_course[6];
        int i, sum_of_points_secured=0, sum_of_course_credits=0;
        float final_grade;
        printf("Enter the semester course details\n");
        for(i=0;i<6;i++) //declaring for loop
{
        printf("Enter course name\n");
        scanf("%s", sem_course[i].coursename); //scanning course name
        printf("Enter the course credits\n");
        scanf("%d",&sem_course[i].course_credits); //scanning the credits entered by the user
        printf("Enter the earned credits\n");
        scanf("%d",&sem_course[i].earned_credits);
        printf("Enter grade points\n");
        scanf("%d",&sem_course[i].grade_points);  //taking the grades from the user
```

```
        }
        printf("calculate points secured by multiplying earned credits with grade points\n");
        for(i=0;i<6;i++)
        {

        sem_course[i].points_secured=sem_course[i].earned_credits*sem_course[i].grade_points;
        }
                for(i=0;i<6;i++)   // running for loop
               sum_of_points_secured+=sem_course[i].points_secured;
                printf("Total Points secured=%d\n",sum_of_points_secured);
                printf("Calculating sum of course credits\n");  //sum of course credits
                for(i=0;i<6;i++)
                {
                        sum_of_course_credits+=sem_course[i].course_credits;
                }
                        printf("Total course credits=%d\n",sum_of_course_credits);
                        final_grade=sum_of_points_secured/(float)sum_of_course_credits;
                        printf("SGPA is %f\n", final_grade);
        return 0;
}

/* Output-Enter the semester course details
Enter course name
maths
Enter the course credits
4
Enter the earned credits
2
Enter grade points
```

55

Enter course name

science

Enter the course credits

4

Enter the earned credits

4

Enter grade points

99

Enter course name

biology

Enter the course credits

2

Enter the earned credits

2

Enter grade points

90

Enter course name

mechanics

Enter the course credits

4

Enter the earned credits

4

Enter grade points

90

Enter course name

german

Enter the course credits

2

Enter the earned credits

2

Enter grade points

99

Enter course name

english

Enter the course credits

3

Enter the earned credits

2

Enter grade points

78

calculate points secured by multiplying earned credits with grade points

Total Points secured=1400

Calculating sum of course credits

Total course credits=19

SGPA is 73.684212

Process exited after 792.2 seconds with return value 0

Press any key to continue . . .*/

Part 2

```
/*

  Write a program in C to demonstrate the concept of union
  Name- Parimal Kiran Muley
  roll No-588(E3)

 */
#include <stdio.h>

void main()
{
   union number   //using union for demonstration
   {
      int  n1;
      float n2;
   };
   union number x;

   printf("Enter the value of n1: ");  //asking value of n1
   scanf("%d", &x.n1);  //scanning value of n1
   printf("Value of n1 = %d", x.n1);  //printing value of n1
   printf("\nEnter the value of n2: ");  //asking value of n2
   scanf("%f", &x.n2);  //scanning value of n2
   printf("Value of n2 = %f\n", x.n2)} //printing value of n2
```

```
 /* Output-
    Enter the value of n1: 22
Value of n1 = 22
Enter the value of n2: 43
Value of n2 = 43.000000

--------------------------------
Process exited after 7.409 seconds with return value 24
Press any key to continue . . .*/
```