

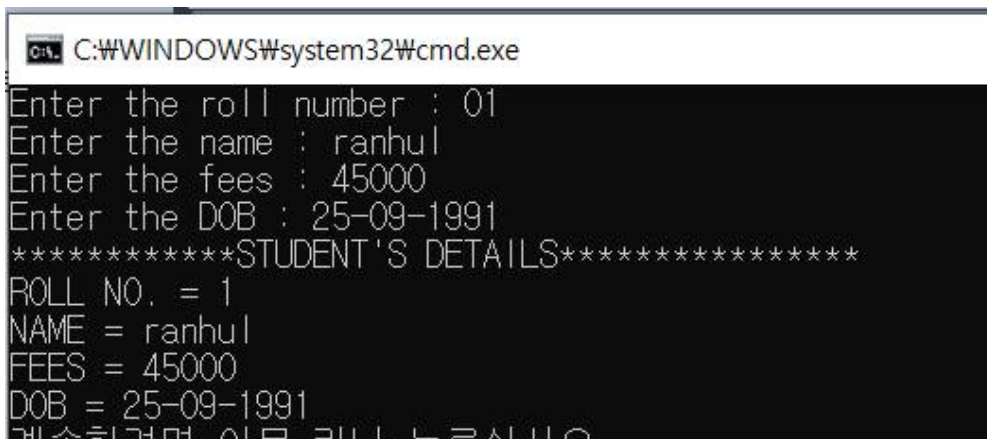
Programming Examples

1.

```
#include <stdio.h>
```

```
struct student{  
    int roll_number;  
    char name[20];  
    int fees;  
    char DOB[30];  
};
```

```
int main()  
{  
    struct student s1;  
  
    printf("Enter the roll number : ");  
    scanf("%d",&s1.roll_number);  
    printf("Enter the name : ");  
    scanf("%s",s1.name);  
    printf("Enter the fees : ");  
    scanf("%d",&s1.fees);  
    printf("Enter the DOB : ");  
    scanf("%s",s1.DOB);  
  
    printf("*****STUDENT'S DETAILS*****\n");  
    printf("ROLL NO. = %d\n",s1.roll_number);  
    printf("NAME = %s\n",s1.name);  
    printf("FEES = %d\n",s1.fees);  
    printf("DOB = %s\n",s1.DOB);  
}
```



```
C:\WINDOWS\system32\cmd.exe  
Enter the roll number : 01  
Enter the name : ranhul  
Enter the fees : 45000  
Enter the DOB : 25-09-1991  
*****STUDENT'S DETAILS*****  
ROLL NO. = 1  
NAME = ranhul  
FEES = 45000  
DOB = 25-09-1991  
계속하려면 아무 키나 누르십시오 . . .
```

2.

```
#include <stdio.h>
void print();
struct complex{
    int real;
    int image;
};
int main()
{
    int n;
    struct complex c1,c2;

    while(1)
    {
        print();
        printf("\n");
        printf("Enter your option\n");
        scanf("%d",&n);

        switch(n)
        {
            case 1:
                printf("Enter the real and imaginary parts of the first complex number\n");
                scanf("%d %d",&c1.real,&c1.image);
                printf("Enter the real and imaginary parts of the second complex number\n");
                scanf("%d %d",&c2.real,&c2.image);
                break;

            case 2:
                printf("The first complex number is : %d+%di\n",c1.real,c1.image);
                printf("The second complex number is : %d+%di\n",c2.real,c2.image);
                break;

            case 3:
                printf("The sum of two complex number is : %d+%di\n",c1.real+c2.real,c1.image+c2.image);
                break;

            case 4:
                printf("The sum of two subtract number is : %d+%di\n",c1.real-c2.real,c1.image-c2.image);
                break;

            case 5:
                return 0;
        }
    }
}
```

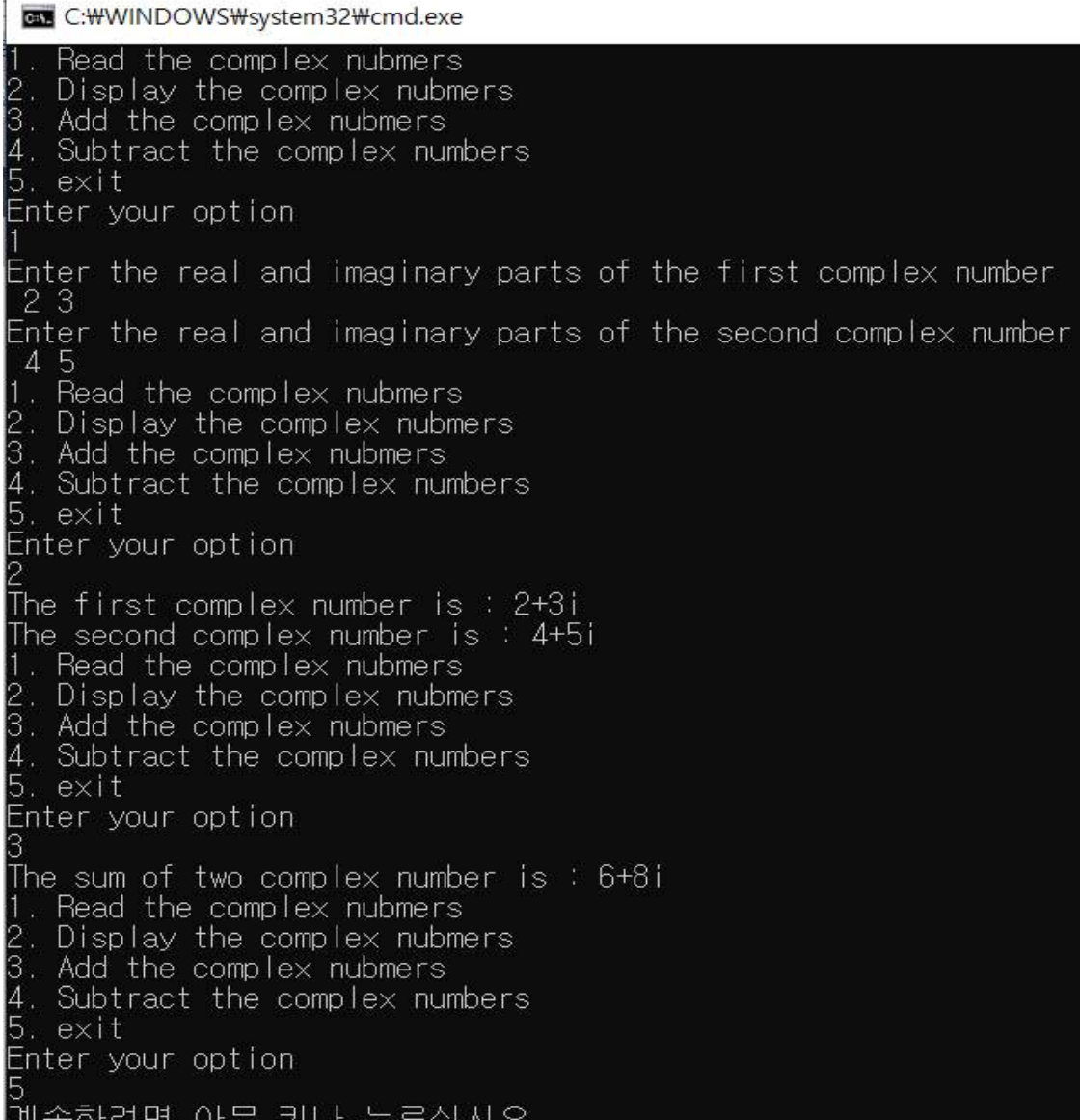
```

    }

}

void print()
{
    printf("1. Read the complex nubmers\n");
    printf("2. Display the complex nubmers\n");
    printf("3. Add the complex nubmers\n");
    printf("4. Subtract the complex numbers\n");
    printf("5. exit");
}

```



C:\WINDOWS\system32\cmd.exe

```

1. Read the complex nubmers
2. Display the complex nubmers
3. Add the complex nubmers
4. Subtract the complex numbers
5. exit
Enter your option
1
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
1. Read the complex nubmers
2. Display the complex nubmers
3. Add the complex nubmers
4. Subtract the complex numbers
5. exit
Enter your option
2
The first complex number is : 2+3i
The second complex number is : 4+5i
1. Read the complex nubmers
2. Display the complex nubmers
3. Add the complex nubmers
4. Subtract the complex numbers
5. exit
Enter your option
3
The sum of two complex number is : 6+8i
1. Read the complex nubmers
2. Display the complex nubmers
3. Add the complex nubmers
4. Subtract the complex numbers
5. exit
Enter your option
5
계속하려면 아무 키나 누르십시오

```

3.

```
#include <stdio.h>
```

```
struct DOB{  
    int year;  
    int month;  
    int day;  
};
```

```
struct student{  
  
    int roll_number;  
    char name[20];  
    int fees;  
    struct DOB d1 ;
```

```
};
```

```
int main ()
```

```
{
```

```
    struct student s1;  
    printf("Enter the roll nubmer : ");  
    scanf("%d",&s1.roll_number);  
    printf("Enter the name : ");  
    scanf("%s",s1.name);  
    printf("Enter the fees : ");  
    scanf("%d",&s1.fees);  
    printf("Enter the DOB : ");  
    scanf("%d %d %d",&s1.d1.day,&s1.d1.month,&s1.d1.year);  
  
    printf("\n");  
    printf("*****STUDENT'S DETAILS*****\n");  
    printf("ROLL No. = %d\n",s1.roll_number);  
    printf("NAME = %s\n",s1.name);  
    printf("FEES = %d\n",s1.fees);  
    printf("DOB = %d-%d-%d\n",s1.d1.day,s1.d1.month,s1.d1.year);
```

```
}
```

```
C:\WINDOWS\system32\cmd.exe
Enter the roll nubmer : 01
Enter the name : rahul
Enter the fees : 45000
Enter the DOB : 25 09 1991

*****STUDENT'S DETAILS*****
ROLL No. = 1
NAME = rahul
FEES = 45000
DOB = 25-9-1991
계속하려면 아무 키나 누르십시오 . . .
```

4.

```
#include <stdio.h>
void read_detail(struct student *p,int num);
void print_detail(struct student *p,int num);
struct student{
    int roll_nubmer;
    char name[15];
    int fee;
    char DOB[30];
};
int main()
{
    int num,i;
    int num_edit;
    struct student s1[50];
    printf("Enter the number of students");
    scanf("%d",&num);

    printf("\n");
    read_detail(s1,num);
    printf("\n");
    print_detail(s1,num);
    printf("\n");
    printf("Enter the student number whose record has to be deleted\n");
    scanf("%d",&num_edit);
    printf("Enter new roll number : ");
    scanf("%d",&s1[num_edit-1].roll_nubmer);
    fflush(stdin);
```

```

        printf("Enter the new name : ");
        gets(s1[num_edit-1].name);
        printf("Enter the new fees : ");
        scanf("%d",&s1[num_edit-1].fee);
        fflush(stdin);
        printf("Enter the new DOB : ");
        gets(s1[num_edit-1].DOB);

        printf("\n");
        print_detail(s1,num);
    }

```

```

void read_detail(struct student *p,int num)
{
    int i;
    for(i=0;i<num;i++)
    {
        printf("Enter the roll number : ");
        scanf("%d",&p[i].roll_nubmer);
        fflush(stdin);
        printf("Enter the name : ");
        gets(p[i].name);
        printf("Enter the fee : ");
        scanf("%d",&p[i].fee);
        fflush(stdin);
        printf("Enter the DOB : ");
        gets(p[i].DOB);
    }
}

```

```

void print_detail(struct student *p,int num)
{
    int i;
    for(i=0;i<num;i++)
    {
        printf("*****DETAILS OF STUDENT %d*****\n",i+1);
        printf("ROLL No.=%d\n",p[i].roll_nubmer);
        printf("NAME =%s\n",p[i].name);
        printf("FEES= %d\n",p[i].fee);
        printf("DOB = %s\n",p[i].DOB);
    }
}

```

}

}

C:\WINDOWS\system32\cmd.exe

Enter the number of students2

Enter the roll number : 1

Enter the name : kirti

Enter the fee : 5678

Enter the DOB : 9 9 91

Enter the roll number : 2

Enter the name : kangana

Enter the fee : 5678

Enter the DOB : 27 8 91

*****DETAILS OF STUDENT 1*****

ROLL No.=1

NAME =kirti

FEES= 5678

DOB = 9 9 91

*****DETAILS OF STUDENT 2*****

ROLL No.=2

NAME =kangana

FEES= 5678

DOB = 27 8 91

Enter the student number whose record has to be deleted

2

Enter new roll number : 2

Enter the new name : kangana khullar

Enter the new fees : 7000

Enter the new DOB : 27 8 92

*****DETAILS OF STUDENT 1*****

ROLL No.=1

NAME =kirti

FEES= 5678

DOB = 9 9 91

*****DETAILS OF STUDENT 2*****

ROLL No.=2

NAME =kangana khullar

FEES= 7000

DOB = 27 8 92

5.

```
#include <stdio.h>

void print();
struct distance add_distance(struct distance d1, struct distance d2);
struct distance sub_distance(struct distance d1, struct distance d2);
struct distance {
    int kms;
    int meters;
};

int main()
{
    int num;
    struct distance d1,d2,d3,d4;
    while(1)
    {
        print();
        printf("\n");
        printf("Enter your option\n");
        scanf("%d",&num);

        switch(num)
        {
            case 1:
                printf("Enter the first distance in kms and meters\n");
                scanf("%d %d",&d1.kms,&d1.meters);
                printf("Enter the second distance in kms and meters\n");
                scanf("%d %d",&d2.kms,&d2.meters);
                break;

            case 2:
                printf("The first distance is %dkm %dm\n",d1.kms,d1.meters);
                printf("The second distance is %dkm %dm\n",d2.kms,d2.meters);
                break;

            case 3:
                d3=add_distance(d1,d2);
                printf("The sum of two distances is : %dkm %dm\n",d3.kms,d3.meters);
                break;

            case 4:
                d4=sub_distance(d1,d2);
                printf("The difference between two distances is %dkm %dm\n",d4.kms,d4.meters);
                break;
```



```

        case 5:
            return 0;
        }
    }
}

void print()
{
    printf("*****Main Menu*****\n");
    printf("1. Read the distances\n");
    printf("2. Display the distance\n");
    printf("3. Add the distances\n");
    printf("4. subtract the distances\n");
    printf("5. Exit");
}

struct distance add_distance(struct distance d1, struct distance d2)
{
    struct distance sum;
    sum.meters=d1.meters+d2.meters;
    sum.kms=d1.kms+d2.kms;
    if(sum.meters>=1000)
    {
        sum.meters=sum.meters-1000;
        sum.kms=sum.kms+1;
    }
    return sum;
}

struct distance sub_distance(struct distance d1, struct distance d2)
{
    struct distance sub;
    if(d1.kms<d2.kms)
    {
        sub.kms=d2.kms-d1.kms;
        sub.meters=d2.meters-d1.meters;
    }
    else
    {
        sub.kms=d1.kms-d2.kms;
        sub.meters=d1.meters-d2.meters;
    }
    if(sub.meters<0)
    {

```

```

        sub.kms=sub.kms-1;
        sub.meters=sub.meters+1000;
    }

    return sub;
}

```

C:\WINDOWS\system32\cmd.exe

```

*****Main Menu*****
1. Read the distances
2. Display the distance
3. Add the distances
4. subtract the distances
5. Exit
Enter your option
1
Enter the fist distance in kms and meters
5 300
Enter the second distance in kms and meters
3 400
*****Main Menu*****
1. Read the distances
2. Display the distance
3. Add the distances
4. subtract the distances
5. Exit
Enter your option
2
The fist distance is 5km 300m
The second distance is 3km 400m
*****Main Menu*****
1. Read the distances
2. Display the distance
3. Add the distances
4. subtract the distances
5. Exit
Enter your option
3
The sum of two distances is : 8km 700m
*****Main Menu*****
1. Read the distances
2. Display the distance
3. Add the distances
4. subtract the distances
5. Exit
Enter your option
5

```

6.

```
#include <stdio.h>
```

```
struct student {
```

```
    int roll_number;
```

```
    char name[20];
```

```
    char course[20];
```

```
    int fees;
```

```
};
```

```
int main()
```

```
{
```

```
    struct student s1,*p1;
```

```
    p1=&s1;
```

```
    printf("Enter the details of the student\n");
```

```
    printf("Enter the Roll number = ");
```

```
    scanf("%d",&p1->roll_number);
```

```
    printf("Enter the Name = ");
```

```
    scanf("%s",&p1->name);
```

```
    printf("Enter the course = ");
```

```
    scanf("%s",&p1->course);
```

```
    printf("Enter the Fees = ");
```

```
    scanf("%d",&p1->fees);
```

```
    printf("DETAILS OF THE STUDENT\n");
```

```
    printf("ROLL NUMBER = %d\n",p1->roll_number);
```

```
    printf("NAME = %s\n",p1->name);
```

```
    printf("COURSE = %s\n",p1->course);
```

```
    printf("FEES = %d\n",p1->fees);
```

```
}
```

```
Enter the details of the student
Enter the Roll number = 02
Enter the Name = aditya
Enter the course = MCA
Enter the Fees = 60000
DETAILS OF THE STUDENT
ROLL NUMBER = 2
NAME = aditya
COURSE = MCA
FEES = 60000
```

7.

```
#include <stdio.h>
#include <stdlib.h>
struct student {

    int roll_number;
    char name[20];
    char course[20];
    int fees;
};
int main()
{
    struct student *p1[10];
    int num,i;
    printf("Enter the number of students : ");
    scanf("%d",&num);

    for(i=0;i<num;i++)
    {
        p1[i]=(struct student*)malloc(sizeof(struct student));
        printf("Enter the data for student %d\n",i+1);
        printf("ROLL NO. : ");
        scanf("%d",&p1[i]->roll_number);
        printf("NAME : ");
        scanf("%s",&p1[i]->name);
        printf("COURSE : ");
        scanf("%s",&p1[i]->course);
        printf("FEES : ");
        scanf("%d",&p1[i]->fees);
    }
    printf("DETAILS OF STUDENTS\n");
    for(i=0;i<num;i++)
    {
        printf("ROLL NO. = %d\n",p1[i]->roll_number);
        printf("NAME = %s\n",p1[i]->name);
        printf("COURSE = %s\n", p1[i]->course);
        printf("FEES = %d\n",p1[i]->fees);
    }
}
```

```
C:\WINDOWS\system32\cmd.exe
Enter the number of students : 1
Enter the data for student 1
ROLL NO. : 01
NAME : Rahul
COURSE : BCA
FEES : 45000
DETAILS OF STUDENTS
ROLL NO. = 1
NAME = Rahul
COURSE = BCA
FEES = 45000
계속하려면 아무 키나 누르십시오 . . .
```

8.

```
#include <stdio.h>
```

```
#include <stdlib.h>
```

```
void print(struct student *p1);
```

```
void read (struct student *p1);
```

```
struct student {
```

```
    int roll_number;
```

```
    char name[20];
```

```
    char course[20];
```

```
    int fees;
```

```
};
```

```
int main()
```

```
{
```

```
    struct student *p1;
```

```
    int num,i;
```

```
    p1=(struct student*)malloc(sizeof(struct student));
```

```
    read(p1);
```

```
    printf("DETAILS OF STUDENTS\n");
```

```
    print(p1);
```

```
}
```

```
void read(struct student *p1)
```

```
{
```

```
    printf("Enter the data for student\n");
```

```
    printf("ROLL NO. : ");
```

```
    scanf("%d",&p1->roll_number);
```

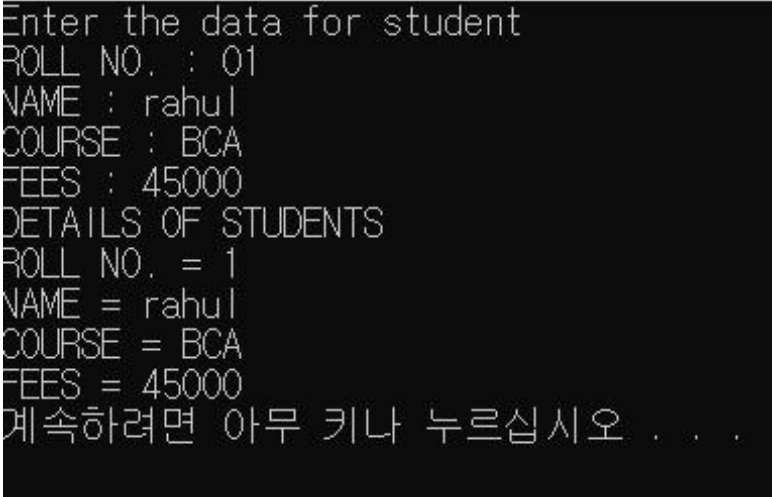
```

        printf("NAME : ");
        scanf("%s",&p1->name);
        printf("COURSE : ");
        scanf("%s",&p1->course);
        printf("FEES : ");
        scanf("%d",&p1->fees);
    }
    void print(struct student *p1)
    {

        printf("ROLL NO. = %d\n",p1->roll_number);
        printf("NAME = %s\n",p1->name);
        printf("COURSE = %s\n", p1->course);
        printf("FEES = %d\n",p1->fees);

    }

```



```

Enter the data for student
ROLL NO. : 01
NAME : rahul
COURSE : BCA
FEES : 45000
DETAILS OF STUDENTS
ROLL NO. = 1
NAME = rahul
COURSE = BCA
FEES = 45000
계속하려면 아무 키나 누르십시오 . . .

```

Programming Exercises

1.

```
struct name{
    char first_name[10];
    char middle_name[10];
    char last_name[10];
};
struct dob{
    char day[10];
    char month[10];
    char year[10];
};
struct marks{
    int eng;
    int math;
    int computer_sc;
};
struct student {

    int roll_number;
    struct name n1;
    char sex[8];
    struct dob d1;
    struct marks m1;
};
```

2.

```
#include <stdio.h>
#include <string.h>
struct mark{
    int math;
    int eng;
    int sci;
};

struct student{

    char name[10];
    struct mark m1;

};
```

```

int main()
{
    int i=0,n;
    char name[8];
    struct student s1[5];
    printf("number of students : ");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("Enter the details of students\n");
        printf("Name = : ");
        scanf("%s",s1[i].name);
        printf("Marks = ");
        scanf("%d %d %d",&s1[i].m1.math,&s1[i].m1.eng,&s1[i].m1.sci);
    }
    printf("Please enter the name of the student who wants the information");
    scanf("%s",name);

    for(i=0;i<n;i++)
    {
        if(strcmp(s1[i].name,name)==0)
        {
            printf("%s\n",s1[i].name);
            printf("math=%d",s1[i].m1.math);
            printf("eng=%d",s1[i].m1.eng);
            printf("sci=%d\n",s1[i].m1.sci);
        }
    }
    printf("\n");
    printf("name of the students who have secured less than 40% : \n");

    printf("\n");
    for(i=0;i<n;i++)
    {
        if(s1[i].m1.math<40 || s1[i].m1.eng<40|| s1[i].m1.sci<40)
        {
            printf("%s",s1[i].name);
        }
    }
}

```



```
C:\WINDOWS\system32\cmd.exe
number of students : 3
Enter the details of students
Name = : amy
Marks = 78 87 68
Enter the details of students
Name = : cox
Marks = 23 67 9
Enter the details of students
Name = : bill
Marks = 98 68 67
Please enter the name of the student who wants the information bill
bill
math=98 eng=68 sci=67

name of the students who have secured less than 40:
cox계속하려면 아무 키나 누르십시오 . . .
```

3.

```
#include <stdio.h>
#include <string.h>
struct mark{
    int math;
    int eng;
    int sci;
};

struct student{

    char name[10];
    struct mark m1;

};

int main()
{
    int i=0,n;
    int sum=0,sum_1=0,sum_2=0,sum_3=0,sum_total=0;
    char name[8];
    struct student s1[5];
    printf("number of students : ");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("Enter the details of students\n");
```

```

printf("Name = : ");
scanf("%s",s1[i].name);
printf("Marks = ");
scanf("%d %d %d",&s1[i].m1.math,&s1[i].m1.eng,&s1[i].m1.sci);
}

for(i=0;i<n;i++)
{
    sum=0;
    sum=sum+s1[i].m1.eng+s1[i].m1.math+s1[i].m1.sci;
    sum_total=sum_total+s1[i].m1.eng+s1[i].m1.math+s1[i].m1.sci;
    printf("average score of %s= %lf\n",s1[i].name,sum/(double)n);
}

for(i=0;i<n;i++)
{
    sum_1=sum_1+s1[i].m1.math;
    sum_2=sum_2+s1[i].m1.eng;
    sum_3=sum_3+s1[i].m1.sci;
}

printf("average of math class = %lf\n",sum_1/(double)n);
printf("average of english class =%lf\n", sum_2/(double)n);
printf("average of science class =%lf\n", sum_3/(double)n);
printf("average of all the student's marks = %lf\n",sum_total/(((double)n*3));

printf("\n");
}

```

```

C:\WINDOWS\system32\cmd.exe
number of students : 2
Enter the details of students
Name = : bill
Marks = 49 34 23
Enter the details of students
Name = : cox
Marks = 39 58 43
average score of bill= 53.000000
average score of cox= 70.000000
average of math class = 44.000000
average of english class =46.000000
average of science class =33.000000
average of all the student's marks = 41.000000

```

4.

```
#include <stdio.h>

struct name{
    char first_name[10];
    char middle_name[10];
    char last_name[10];
};

struct dob{
    char day[10];
    char month[10];
    char year[10];
};

struct marks{
    int eng;
    int math;
    int computer_sc;
};

struct student {

    int roll_number;
    struct name n1;
    char sex[8];
    struct dob d1;
    struct marks m1;
};


int main()
{
    struct student s1[5];
    int num,i;
    printf("Enter the number of students : ");
    scanf("%d",&num);
    for(i=0;i<num;i++)
    {
        printf("Enter the student's date of birth  \n");
        printf("Enter the year : ");
        scanf(" %s" , s1[i].d1.year);
        printf("Enter the month : ");
        scanf(" %s" , s1[i].d1.month);
        printf("Enter the day : ");
        scanf(" %s" , s1[i].d1.day);
    }
}
```

```

        for(i=0;i<num;i++)
            printf("%s-%s-%s\n",s1[i].d1.year,s1[i].d1.month,s1[i].d1.day);
    }

```

```

C:\WINDOWS\system32\cmd.exe
Enter the number of students : 2
Enter the student's date of birth
Enter the year : 1997
Enter the month : 05
Enter the day : 22
Enter the student's date of birth
Enter the year : 2000
Enter the month : 03
Enter the day : 03
1997-05-22
2000-03-03
계속하려면 아무 키나 누르십시오 . . .

```

5.

```
#include <stdio.h>
```

```

struct find{
    int a;
    int b;
    int c;
};

```

```

int main()
{
    struct find f1;
    int smallest;
    printf("Enter the number : ");
    scanf("%d",&f1.a);
    printf("Enter the number : ");
    scanf("%d",&f1.b);
    printf("Enter the number : ");

```

```

scanf("%d",&f1.c);

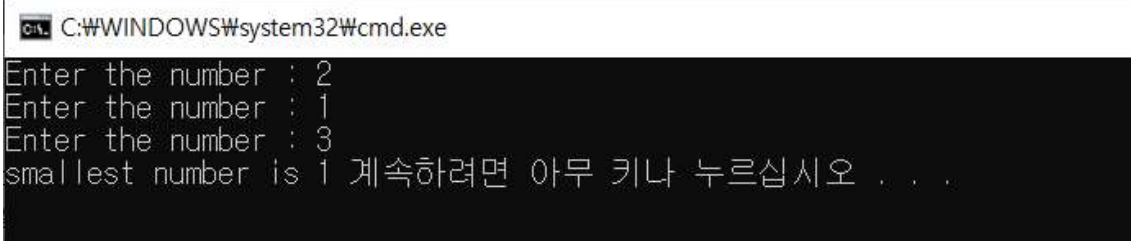
smallest=f1.a;
if(f1.a>f1.b)
{
    if(f1.b<f1.c)smallest=f1.b;
    else smallest=f1.c;

}
if(f1.a>f1.c)
{
    if(f1.c>f1.b)smallest=f1.b;
    else f1.c;
}
if(f1.b>f1.c)
{
    if(f1.a>f1.c)
        smallest=f1.c;
}

printf("smallest number is %d ", smallest);

}

```



```

C:\WINDOWS\system32\cmd.exe
Enter the number : 2
Enter the number : 1
Enter the number : 3
smallest number is 1 계속하려면 아무 키나 누르십시오 . . .

```

6.

```

#include <stdio.h>
#include <math.h>

```

```

struct distance{
    int a;
    int b;
};

```

```

int main()
{
    struct distance d1,d2;
    int a,b;
    double c;
    printf("Enter the number : ");
    scanf("%d %d",&d1.a,&d1.b);
    printf("Enter the number : ");
    scanf("%d %d",&d2.a,&d2.b);

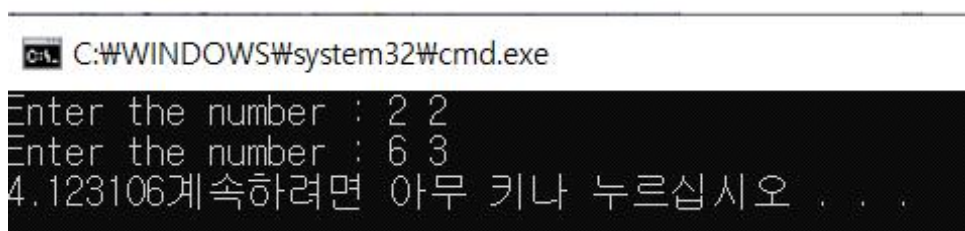
    a = d2.a - d1.a;
    b = d2.b - d1.b;

    c = sqrt((a * a) + (b * b));

    printf("%lf",c);

}

```



```

C:\WINDOWS\system32\cmd.exe
Enter the number : 2 2
Enter the number : 6 3
4.123106계속하려면 아무 키나 누르십시오 . . .

```

```

7.
#include <stdio.h>
void print();
struct emp
{
    int emp_no;
    char name[20];
    int fee;
};

int main()
{

```

```

struct emp e1[5];
int num,opt,i;
int emp_num,emp_num1;
while(1)
{
    print();
    printf("Enter the number: ");
    scanf("%d",&opt);

    switch(opt)
    {
        case 1:
            printf("Enter the number of employee : ");
            scanf("%d",&num);
            printf("\n");
            for(i=0;i<num;i++)
            {
                printf("Enter the employee number :");
                scanf("%d",&e1[i].emp_no);
                printf("Enter the name :");
                scanf("%s",e1[i].name);
                printf("Enter the fee :");
                scanf("%d",&e1[i].fee);
                printf("\n");
            }
            break;
        case 2:
            printf("Enter the emp number that you want to search : ");
            scanf("%d",&emp_num);
            for(i=0;i<num;i++)
            {
                if(emp_num==e1[i].emp_no)
                {
                    printf("The employee number is %d\n",e1[i].emp_no);
                    printf("The employee's name is %s\n",e1[i].name);
                    printf("The employee's fee is %d\n",e1[i].fee);
                }
            }
            break;
        case 3:
            printf("Enter the emp number that you want to edit : ");
            scanf("%d",&emp_num1);

```

```

        for(i=0;i<num;i++)
        {

            if(emp_num1==e1[i].emp_no)
            {

                printf("Edit the details\n");
                printf("Enter the employee number :");
                scanf("%d",&e1[i].emp_no);
                printf("Enter the name :");
                scanf("%s",e1[i].name);
                printf("Enter the fee :");
                scanf("%d",&e1[i].fee);

            }

        }
        break;

    case 4:
        return 0;

    }

}

void print()
{
    printf("*****\n");
    printf("1. Enter the details of employee\n");
    printf("2. Display the details of employee\n");
    printf("3. Edit the details of employee\n");
    printf("4. Exit\n");
}

```



```

*****
1. Enter the details of employee
2. Display the details of employee
3. Edit the details of employee
4. Exit
Enter the number: 1
Enter the number of employee : 2

Enter the employee number :320
Enter the name :cox
Enter the fee :43000

Enter the employee number :430
Enter the name :billy
Enter the fee :23999

*****
1. Enter the details of employee
2. Display the details of employee
3. Edit the details of employee
4. Exit
Enter the number: 2
Enter the emp number that you want to search : 320
The employee number is 320
The employee's name is cox
The employee's fee is 43000

*****
1. Enter the details of employee
2. Display the details of employee
3. Edit the details of employee
4. Exit
Enter the number: 3
Enter the emp number that you want to edit : 320
Edit the details
Enter the employee number :320
Enter the name :cox
Enter the fee :45000

*****
1. Enter the details of employee
2. Display the details of employee
3. Edit the details of employee
4. Exit
Enter the number: 2
Enter the emp number that you want to search : 320
The employee number is 320
The employee's name is cox
The employee's fee is 45000

*****
1. Enter the details of employee
2. Display the details of employee
3. Edit the details of employee
4. Exit
Enter the number: 4
계속하려면 아무 키나 누르십시오 . . .

```

8.

```
#include <stdio.h>

struct height add(struct height h1, struct height h2);
struct height sub(struct height h1, struct height h2);
struct height{

    int km;
    int m;
};

int main()
{
    struct height h1,h2,h3,h4;
    printf("Enter the height : ");
    scanf("%d' %d'",&h1.km,&h1.m);
    printf("Enter the height : ");
    scanf("%d' %d'",&h2.km,&h2.m);

    h3=add(h1,h2);
    h4=sub(h1,h2);

    printf("add of height = %d'%d'\n",h3.km,h3.m);
    printf("subtract of height = %d'%d'\n",h4.km,h4.m);
}

struct height add(struct height h1, struct height h2)
{
    struct height h3;
    h3.km=h1.km+h2.km;
    h3.m=h1.m+h2.m;
    if(h3.m>=1000)
    {
        h3.m=h3.m-1000;
        h3.km=h3.km+1;
    }
    return h3;
}

struct height sub(struct height h1, struct height h2)
{
    struct height h4;
    if(h1.km>h2.km)
```

```

    {
        h4.m=h1.m-h2.m;
        h4.km=h1.km-h2.km;

    }
    else
    {
        h4.m=h2.m-h1.m;
        h4.km=h2.km-h1.km;
    }
    if(h4.m<0)
    {
        h4.km=h4.km-1;
        h4.m=h4.m+1000;
    }
    return h4;
}

```

C:\WINDOWS\system32\cmd.exe

```

Enter the height : 6'2''
Enter the height : 5'3''
add of height = 11'5''
subtract of height = 0'999''
계속하려면 아무 키나 누르십시오 . . .

```

9.

```

#include <stdio.h>

struct time add(struct time t1, struct time t2);
struct time sub(struct time t1, struct time t2);
struct time{

    int hour;
    int minute;
    int second;
};

int main()
{
    struct time t1,t2,t3,t4;
    printf("Enter the time : ");
    scanf("%d %d %d",&t1.hour,&t1.minute,&t1.second);
    printf("Enter the time : ");
    scanf("%d %d %d",&t2.hour,&t2.minute,&t2.second);

```

```

t3=add(t1,t2);
t4=sub(t1,t2);

printf("add of height = %dhrs %dmin %dsec \n",t3.hour,t3.minute,t3.second);
printf("subtract of height = %dhrs %dmin %dsec \n",t4.hour,t4.minute,t4.second);
}

```

```

struct time add(struct time t1, struct time t2)
{
    struct time t3;
    t3.hour=t1.hour+t2.hour;
    t3.minute=t1.minute+t2.minute;
    t3.second=t1.second+t2.second;
    if(t3.minute>=60)
    {
        t3.minute=t3.minute-60;
        t3.hour=t3.hour+1;
    }
    if(t3.second>=60)
    {
        t3.second=t3.second-60;
        t3.minute=t3.minute+1;
    }
    return t3;
}

```

```

struct time sub(struct time t1, struct time t2)
{
    struct time t4;
    if(t1.hour>t2.hour)
    {
        t4.hour=t1.hour-t2.hour;
        t4.minute=t1.minute-t2.minute;
        t4.second=t1.second-t2.second;
    }
    else
    {
        t4.hour=t2.hour-t1.hour;
        t4.minute=t2.minute-t1.minute;
        t4.second=t2.second-t1.second;
    }
    if(t4.second<0)

```

```

    {
        t4.second=t4.second+60;
        t4.minute=t4.minute-1;
    }
    if(t4.minute<0)
    {
        t4.minute=t4.minute+60;
        t4.hour=t4.hour-1;
    }
    return t4;
}

```

```

C:\WINDOWS\system32\cmd.exe
Enter the time : 10 20 50
Enter the time : 5 30 40
add of height = 15hrs 51min 30sec
subtract of height = 4hrs 50min 10sec
계속하려면 아무 키나 누르십시오 . . .

```

10.

```

#include <stdio.h>

struct leap_year
{
    int year;
};

int main()
{
    struct leap_year y1;
    printf("Enter the year : ");
    scanf("%d",&y1.year);
    if((((y1.year%4==0)&&(y1.year%100!=0))||((y1.year%400==0)))
        printf("leap year");
    else
        printf("Not leap year");
}

```

```

C:\WINDOWS\system32\cmd.exe
Enter the year : 2020
leap year계속하려면 아무 키나 누르십시오 . . .

```

11.

```
#include <stdio.h>
```

```
void print(struct emp *p1);
```

```
struct emp
```

```
{
```

```
    int emp_no;
```

```
    char name[10];
```

```
    int fee;
```

```
};
```

```
int main()
```

```
{
```

```
    struct emp e1,*p1;
```

```
    p1=&e1;
```

```
    printf("Enter the emp number :");
```

```
    scanf("%d",&p1->emp_no);
```

```
    printf("Enter the name :");
```

```
    scanf("%s",p1->name);
```

```
    printf("Enter the fee :");
```

```
    scanf("%d",&p1->fee);
```

```
    print(p1);
```

```
}
```

```
void print(struct emp *p1)
```

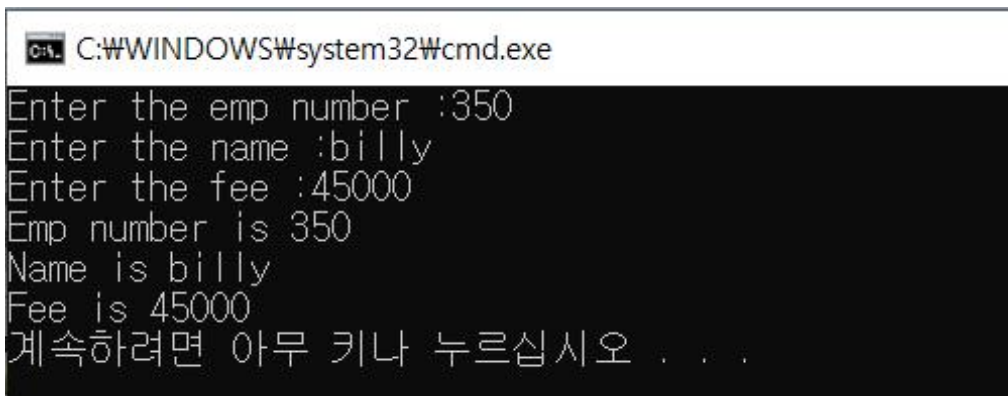
```
{
```

```
    printf("Emp number is %d\n",p1->emp_no);
```

```
    printf("Name is %s\n",p1->name);
```

```
    printf("Fee is %d\n",p1->fee);
```

```
}
```



```
C:\WINDOWS\system32\cmd.exe
Enter the emp number :350
Enter the name :billy
Enter the fee :45000
Emp number is 350
Name is billy
Fee is 45000
계속하려면 아무 키나 누르십시오 . . .
```

12.

```
#include <stdio.h>
void print(struct emp e1[], int num);
struct name
{
    char first_name[10];
    char mid_name[10];
    char last_name[10];
};
struct add
{
    char area[10];
    char city[10];
    char state[10];
};
struct emp{
    int emp_id;
    struct name n1;
    struct add ad;
    int age;
    int salary;
    char designation[10];
};
int main()
{
    int num,i;
    struct emp e1[10];
    printf("Enter the nubmer of employee : ");
    scanf("%d",&num);
    for(i=0;i<num;i++)
    {
        printf("Enter the details of employee\n");
        printf("Enter the emp id : ");
        scanf("%d",&e1[i].emp_id);
        printf("Enter the first middle last name : ");
        scanf("%s %s %s",e1[i].n1.first_name,e1[i].n1.mid_name,e1[i].n1.last_name);
        printf("Enter the state city area : ");
        scanf("%s %s %s",e1[i].ad.state,e1[i].ad.city,e1[i].ad.area);
        printf("Enter the age : ");
        scanf("%d",&e1[i].age);
        printf("Enter the salary : ");
        scanf("%d",&e1[i].salary);
        printf("Enter the designation : ");
```

```

        scanf("%s",e1[i].designation);
        printf("\n");
    }

    print(e1,num);
}

void print(struct emp e1[], int num)
{
    int i;
    for(i=0;i<num;i++)
    {
        printf("Details of employee\n");
        printf("Emp id : %d\n",e1[i].emp_id);
        printf("Name : %s %s %s\n",e1[i].n1.first_name,e1[i].n1.mid_name,e1[i].n1.last_name);
        printf("address : %s %s %s\n",e1[i].ad.state,e1[i].ad.city,e1[i].ad.area);
        printf("age : %d\n",e1[i].age);
        printf("salary : %d\n",e1[i].salary);
        printf("designation : %s\n",e1[i].designation);
        printf("\n");
    }
}

```



```
C:\WINDOWS\system32\cmd.exe

Enter the nubmer of employee : 2
Enter the details of employee
Enter the emp id : 234
Enter the first middle last name : lee dong joon
Enter the state city area : korea seoul gangnam
Enter the age : 24
Enter the salary : 45000
Enter the designation : seniorpro

Enter the details of employee
Enter the emp id : 432
Enter the first middle last name : lee jong ho
Enter the state city area : korea seoul gangnam
Enter the age : 50
Enter the salary : 100000
Enter the designation : ceo

Details of employee
Emp id : 234
Name : lee dong joon
address : korea seoul gangnam
age : 24
salary : 45000
designation : seniorpro

Details of employee
Emp id : 432
Name : lee jong ho
address : korea seoul gangnam
age : 50
salary : 100000
designation : ceo

계속하려면 아무 키나 누르십시오 . . .
```

13.

```
#include <stdio.h>
void read(struct cor* p1);
void valid(struct cor c1);
struct cor
{
```

```

        int year;
        int month;
        int day;
};

int main()
{
    struct cor c1,*p1;
    p1=&c1;
    read(p1);
    valid(c1);
}

void read(struct cor* p1)
{
    printf("Enter the year : ");
    scanf("%d",&p1->year);
    printf("Enter the month : ");
    scanf("%d",&p1->month);
    printf("Enter the day : ");
    scanf("%d",&p1->day);
}

void valid(struct cor c1)
{
    if(c1.month==1 || c1.month==3 || c1.month==5 || c1.month==7 || c1.month==8 ||
c1.month==10 || c1.month==12)
    {
        if(c1.day>=1 && c1.day<=31)
            printf("valid");
        else
            printf("not valid");
    }
    if(c1.month==2 || c1.month==4 || c1.month==6 ||c1.month==9 || c1.month==11)
    {
        if(c1.month==2)
        {
            if(((c1.year%4==0)&&(c1.year%100!=0))||(c1.year%400==0))
            {
                if(c1.day>=1 && c1.day<=29)
                {
                    printf("valid");
                }
            }
        }
    }
}

```

```

else
{
    printf("not valid");
}
}
else
{
    if((c1.day>=1 && c1.day<=28))
    {
        printf("valid");
    }
    else
    {
        printf("not valid");
    }
}
}
if(c1.month==4 || c1.month==6 || c1.month==9 || c1.month==11)
{
    if(c1.day>=1 && c1.day<=30)printf("valid");
    else printf("not valid");
}
}
}
}

```

```

C:\WINDOWS\system32\cmd.exe
Enter the year : 2010
Enter the month : 2
Enter the day : 29
not valid계속하려면 아무 키나 누르십시오 . . .

Enter the year : 2007
Enter the month : 06
Enter the day : 31
not valid계속하려면 아무 키나 누르십시오 . . .

Enter the year : 2020
Enter the month : 04
Enter the day : 16
valid계속하려면 아무 키나 누르십시오 . . .

```

```

#include <stdio.h>
void read(struct cor* p1);
void valid(struct cor c1);
void increment(struct cor* p1);
struct cor
{
    int year;
    int month;
    int day;
};
int main()
{
    struct cor c1,*p1;
    p1=&c1;
    read(p1);
    increment(p1);
    valid(c1);
}

void read(struct cor* p1)
{
    printf("Enter the year : ");
    scanf("%d",&p1->year);
    printf("Enter the month : ");
    scanf("%d",&p1->month);
    printf("Enter the day : ");
    scanf("%d",&p1->day);
}

void increment(struct cor* p1)
{
    p1->day=p1->day+1;
    printf("increment date is %d-%d-%d\n",p1->year,p1->month,p1->day);
}

void valid(struct cor c1)
{
    if(c1.month==1 || c1.month==3 || c1.month==5 || c1.month==7 || c1.month==8 ||
c1.month==10 || c1.month==12)
    {
        if(c1.day>=1 && c1.day<=31)
            printf("valid");
        else

```

```

        printf("not valid");
    }
    if(c1.month==2 || c1.month==4 || c1.month==6 ||c1.month==9 || c1.month==11)
    {
        if(c1.month==2)
        {
            if(((c1.year%4==0)&&(c1.year%100!=0))||(c1.year%400==0))
            {
                if(c1.day>=1 && c1.day<=29)
                {
                    printf("valid");
                }
                else
                {
                    printf("not valid");
                }
            }
        }
        else
        {
            if((c1.day>=1 && c1.day<=28))
            {
                printf("valid");
            }
            else
            {
                printf("not valid");
            }
        }
    }
    if(c1.month==4 || c1.month==6 ||c1.month==9 || c1.month==11)
    {
        if(c1.day>=1 && c1.day<=30)printf("valid");
        else printf("not valid");
    }
}

}

```

```
C:\WINDOWS\system32\cmd.exe
Enter the year : 2020
Enter the month : 2
Enter the day : 29
increment date is 2020-2-30
not valid계속하려면 아무 키나 누르십시오 . . .
```

15.

```
#include <stdio.h>
void read(struct cor* p1);
void valid(struct cor c1);
void increment(struct cor* p1);
struct cor
{
    int year;
    int month;
    int day;
};
int main()
{
    struct cor c1,*p1;
    p1=&c1;
    read(p1);
    increment(p1);
    valid(c1);
}

void read(struct cor* p1)
{
    printf("Enter the year : ");
    scanf("%d",&p1->year);
    printf("Enter the month : ");
    scanf("%d",&p1->month);
    printf("Enter the day : ");
    scanf("%d",&p1->day);
}

void increment(struct cor* p1)
{
    int num;

    printf("enter the number of days you want to increase : ");
```

```

scanf("%d",&num);
p1->day=p1->day+num;
printf("increment date : %d-%d-%d\n",p1->year,p1->month,p1->day);
}
void valid(struct cor c1)
{
    if(c1.month==1 || c1.month==3 || c1.month==5 || c1.month==7 || c1.month==8 ||
c1.month==10 || c1.month==12)
    {
        if(c1.day>=1 && c1.day<=31)
            printf("valid");
        else
            printf("not valid");
    }
    if(c1.month==2 || c1.month==4 || c1.month==6 ||c1.month==9 || c1.month==11)
    {
        if(c1.month==2)
        {
            if(((c1.year%4==0)&&(c1.year%100!=0))||(c1.year%400==0))
            {
                if(c1.day>=1 && c1.day<=29)
                {
                    printf("valid");
                }
                else
                {
                    printf("not valid");
                }
            }
        }
        else
        {
            if((c1.day>=1 && c1.day<=28))
            {
                printf("valid");
            }
            else
            {
                printf("not valid");
            }
        }
    }
}

```

```

        }
    }
    if(c1.month==4 || c1.month==6 || c1.month==9 || c1.month==11)
    {
        if(c1.day>=1 && c1.day<=30)printf("valid");
        else printf("not valid");
    }
}
}

```

```

C:\WINDOWS\system32\cmd.exe
Enter the year : 2020
Enter the month : 4
Enter the day : 20
enter the number of days you want to increase : 3
increment date : 2020-4-23
valid계속하려면 아무 키나 누르십시오 . . .

```

16.

```

#include <stdio.h>
struct vector scale(struct vector p3);
struct vector add(struct vector *p1, struct vector *p2);
void read(struct vector *p1);
void print(struct vector p1);
struct vector
{
    int x;
    int y;
    int z;
};
int main()
{
    struct vector v1,v2,v3,v4,*p1,*p2;
    p1=&v1;
    p2=&v2;
    printf("Enter the value of vector1\n");
    read(p1);
    printf("Enter the value of vector2\n");
    read(p2);
    printf("vector 1\n");
}

```



```

        print(v1);
        printf("vector 2\n");
        print(v2);
        v3=add(p1,p2);
        printf("add of vector 1 and vector 2\n");
        print(v3);
        v4=scale(v3);
        printf("scale 10 of add vector\n");
        print(v4);
    }

void read(struct vector *p1)
{
    printf("enter x : ");
    scanf("%d",&p1->x);
    printf("enter y : ");
    scanf("%d",&p1->y);
    printf("enter z : ");
    scanf("%d",&p1->z);
    printf("\n");
}

void print(struct vector p1)
{
    printf("x=%d\n",p1.x);
    printf("y=%d\n",p1.y);
    printf("z=%d\n",p1.z);
    printf("\n");
}

struct vector add(struct vector *p1, struct vector *p2)
{
    struct vector v3;
    v3.x=p1->x+p2->x;
    v3.y=p1->y+p2->y;
    v3.z=p1->z+p2->z;
    return v3;
}

struct vector scale(struct vector p3)
{
    struct vector v4;
    v4.x=p3.x*10;
    v4.y=p3.y*10;

```

```

        v4.z=p3.z*10;
        return v4;
}

```

```

Enter the value of vector1
enter x : 1
enter y : 2
enter z : 3

Enter the value of vector2
enter x : 1
enter y : 2
enter z : 3

vector 1
x=1
y=2
z=3

vector 2
x=1
y=2
z=3

add of vector 1 and vector 2
x=2
y=4
z=6

scale 10 of add vector
x=20
y=40
z=60

계속하려면 아무 키나 누르십시오 . . .

```

17.

```

#include <stdio.h>
struct hotel
{
    char name[10];
    char address[30];
    char grade;
}

```

```

        int num_room;
        int charge;
};
void print(struct hotel h[],int num);
void print_2(struct hotel h[],int num);
int main()
{
    int num,i;
    struct hotel h[5];
    printf("number of hotes : ");
    scanf("%d",&num);
    for(i=0;i<num;i++)
    {
        printf("Enter the details of hotel\n");
        printf("Enter name : ");
        scanf("%s",&h[i].name);
        fflush(stdin);
        printf("Enter the address : ");
        gets(h[i].address);
        printf("Enter the grade : ");
        scanf("%c",&h[i].grade);
        printf("Enter the number of rooms : ");
        scanf("%d",&h[i].num_room);
        printf("Enter the charge of room : ");
        scanf("%d",&h[i].charge);
        printf("\n");
    }
    printf("Classification by grade\n");
    print(h,num);
    printf("\n");
    printf("Hotels cost less than 60000\n");
    print_2(h,num);
}

void print(struct hotel h[],int num)
{
    int i;
    for(i=0;i<num;i++)
    {
        if(h[i].grade=='a')
        {

```

```

        printf("hotel %s is grade a\n",h[i].name);
    }

    else if(h[i].grade=='b')
    {

        printf("hotel %s is grade b\n",h[i].name);
    }
    else
    {

        printf("hotel %s\n is grade c",h[i].name);
    }

    }
}

void print_2(struct hotel h[],int num)
{
    int i;
    for(i=0;i<num;i++)
    {
        if(h[i].charge<60000)
        {
            printf("hotel %s\n",h[i].name);
        }
    }
}

```

```
C:\WINDOWS\system32\cmd.exe
number of hotes : 2
Enter the details of hotel
Enter name : silla
Enter the address : seoul korea
Enter the grade : a
Enter the number of rooms : 40
Enter the charge of room : 38000

Enter the details of hotel
Enter name : hyat
Enter the address : seoul korea
Enter the grade : b
Enter the number of rooms : 50
Enter the charge of room : 70000

Classification by grade
hotel silla is grade a
hotel hyat is grade b

Hotels cost less than 60000
hotel silla
계속하려면 아무 키나 누르십시오 . . .
```

18.

```
#include <stdio.h>
struct a
{
    int x;
    char y;
    double z;
};

union b
{
    int x;
    char y;
    double z;
};

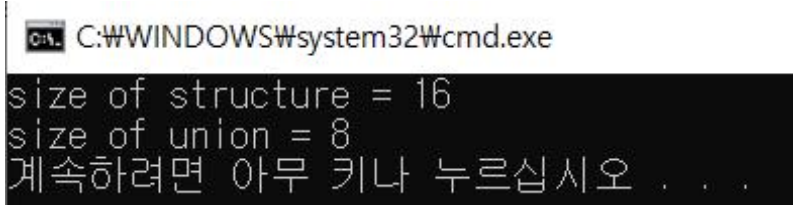
int main()
{
    struct a a1;
```

```

    union b b1;
    printf("size of structure = %d\n",sizeof(a1));
    printf("size of union = %d\n",sizeof(b1));
}

```

/* 구조체의 크기는 구조체 멤버변수의 사이즈의 모든 크기를 더한 것이지만, 공용체의 경우에는 멤버중 가장 큰 사이즈를 공용체 전체의 크기로 한다.*/



```

C:\WINDOWS\system32\cmd.exe
size of structure = 16
size of union = 8
계속하려면 아무 키나 누르십시오 . . .

```

19.

```
#include <stdio.h>
```

```
struct time
```

```
{
```

```
    int hr;
```

```
    int min;
```

```
    int sec;
```

```
};
```

```
int main()
```

```
{
```

```
    struct time start_time;
```

```
    struct time end_time;
```

```
    printf("Enter the start_time : ");
```

```
    scanf("%d %d %d",&start_time.hr,&start_time.min,&start_time.sec);
```

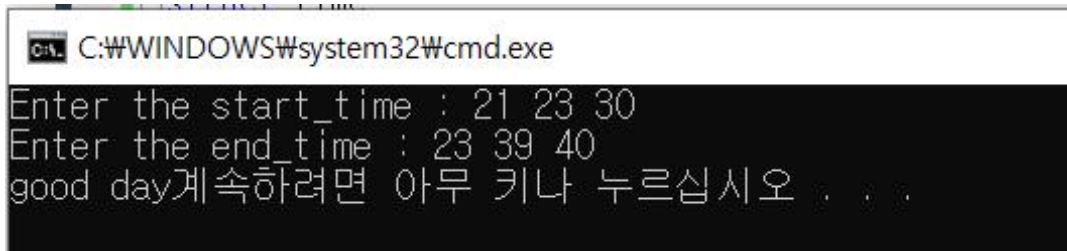
```
    printf("Enter the end_time : ");
```

```
    scanf("%d %d %d",&end_time.hr,&end_time.min,&end_time.sec);
```

```
    if((start_time.hr<end_time.hr)      ||      (start_time.min<end_time.min)      ||
(start_time.sec<end_time.sec))
```

```
        printf("good day");
```

```
}
```



```

C:\WINDOWS\system32\cmd.exe
Enter the start_time : 21 23 30
Enter the end_time : 23 39 40
good day계속하려면 아무 키나 누르십시오 . . .

```

20.

```
#include <stdio.h>
```

```
struct frac
```

```

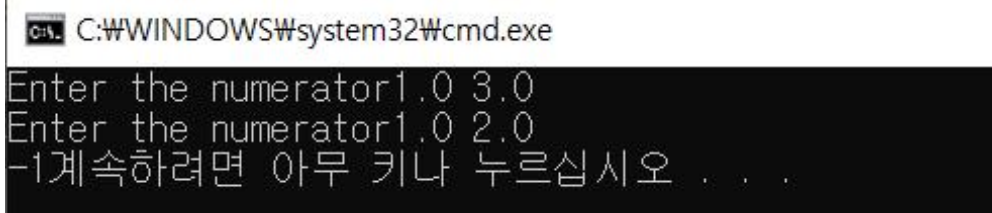
{
    double numerator;
    double denominator;
};
int compare(struct frac f1, struct frac f2);
int main()
{
    struct frac f1,f2;
    printf("Enter the numerator");
    scanf("%lf %lf",&f1.numerator,&f1.denominator);
    printf("Enter the denominator");
    scanf("%lf %lf",&f2.numerator,&f2.denominator);

    printf("%d",compare(f1,f2));

}

int compare(struct frac f1, struct frac f2)
{
    if((f1.numerator/f1.denominator)<(f2.numerator/f2.denominator))
    {
        return -1;
    }
    else if((f1.numerator/f1.denominator)>(f2.numerator/f2.denominator))
    {
        return 1;
    }
    else
        return 0;
}

```



```

C:\WINDOWS\system32\cmd.exe
Enter the numerator1.0 3.0
Enter the denominator1.0 2.0
-1계속하려면 아무 키나 누르십시오 . . .

```

21.

```

#include <stdio.h>
void check(struct qua *p1);
struct qua
{
    int x;

```

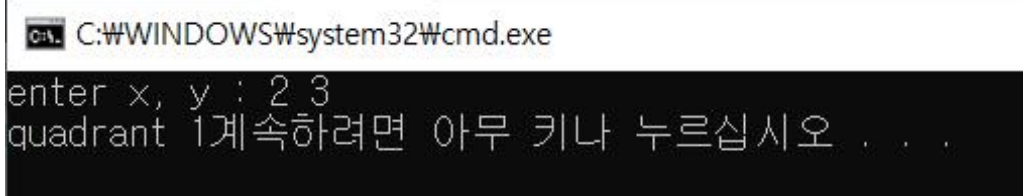
```

        int y;
};
int main()
{
    struct qua q1,*p1;
    p1=&q1;

    printf("enter x, y : ");
    scanf("%d %d",&q1.x,&q1.y);
    check(p1);
}

void check(struct qua *p1)
{
    if((p1->x)>0)
    {
        if((p1->y)>0)
            printf("quadrant 1");
        else
            printf("quadrant 4");
    }
    if((p1->x)<0)
    {
        if((p1->y)>0)
            printf("quadrant 2");
        else
            printf("quadrant 3");
    }
}

```

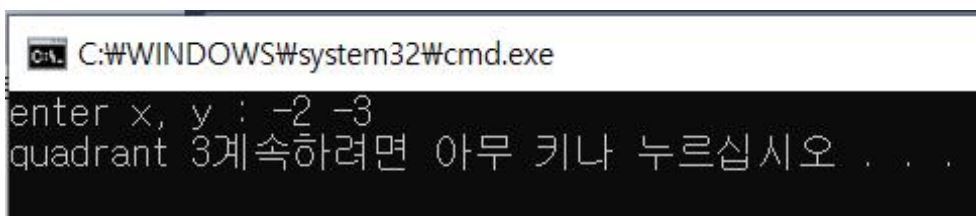


C:\WINDOWS\system32\cmd.exe

```

enter x, y : 2 3
quadrant 1계속하려면 아무 키나 누르십시오 . . .

```



C:\WINDOWS\system32\cmd.exe

```

enter x, y : -2 -3
quadrant 3계속하려면 아무 키나 누르십시오 . . .

```

22.

```

#include <stdio.h>
#include <string.h>

```



```

void cal(struct area *a1);

struct area
{
    union
    {
        double rectangle;
        double triangle;
        double circle;
    };
    char a[10];
    double x;
    double y;
};

int main()
{
    struct area a1;
    printf("Enter the figure : ");
    scanf("%s",a1.a);
    cal(&a1);
}

void cal(struct area *a1)
{
    if(strcmp(a1->a,"circle")==0)
    {
        printf("Enter the componetns : ");
        scanf("%lf",&a1->x);
        a1->circle=(a1->x) * (a1->x) * 3.14;
        printf("Area of circle is %.1lf",a1->circle);
    }
    if(strcmp(a1->a,"rectangle")==0)
    {
        printf("Enter the components : ");
        scanf("%lf %lf",&a1->x,&a1->y);
        a1->rectangle=(a1->x) *(a1->y);
        printf("Area of rectangle is %.1lf",a1->rectangle);
    }
    if(strcmp(a1->a,"triangle")==0)
    {
        printf("Enter the components : ");
        scanf("%lf %lf",&a1->x,&a1->y);
        a1->triangle=(a1->x)*(a1->y)*0.5;
    }
}

```

```
        printf("Area of triangle is %.1lf",a1->triangle);  
    }  
}
```

```
C:\> C:₩INDOWSWsystem32₩cmd.exe  
Enter the figure : rectangle  
Enter the components : 2.0 2.0  
Area of rectangle is 4.0계속하려면 아무 키나 누르십시오 . . .
```

```
C:\> C:₩INDOWSWsystem32₩cmd.exe  
Enter the figure : circle  
Enter the componetns : 2.0  
Area of circle is 12.6계속하려면 아무 키나 누르십시오 . . .
```

```
C:\> C:₩INDOWSWsystem32₩cmd.exe  
Enter the figure : triangle  
Enter the components : 2.0 3.0  
Area of triangle is 3.0계속하려면 아무 키나 누르십시오 . . .
```