

1) Problem 1:

Makefile.mk

```
1  a.exe: client.o server.o
2  |      gcc -o a.exe client.o server.o
3  client.o : client.c server.h
4  |      gcc -c client.c
5  server.o : server.c server.h
6  |      gcc -c server.c
7
```

Client.c

```
1  #include<stdio.h>
2  #include "server.h"
3  int main()
4  {
5      struct date a,b;
6      printf("Enter date1:");
7      scanf("%d/%d/%d",&a.day,&a.month,&a.year);
8      printf("Enter date2:");
9      scanf("%d/%d/%d",&b.day,&b.month,&b.year);
10     compare(a,b);
11     return 0;
12 }
```

Server.c

```
#include<stdio.h>
#include "server.h"
void compare(struct date a,struct date b)
{
    if(a.day==b.day && a.month==b.month && a.year==b.year)
        printf("%d/%d/%d and %d/%d/%d are equal\n",a.day,a.month,a.year,b.day,b.month,b.year);
    else if (a.year > b.year || a.year == b.year && a.month > b.month || a.year == a.year && a.month == b.month && a.day > b.day)
        printf("%d/%d/%d is greater than %d/%d/%d\n",a.day,a.month,a.year,b.day,b.month,b.year);
    else
        printf("%d/%d/%d is lesser than %d/%d/%d\n",a.day,a.month,a.year,b.day,b.month,b.year);
}
```

Server.h

```
1  struct date
2  {
3      int day,month,year;
4  };
5  void compare(struct date a,struct date b);
```

Output

```
Microsoft Windows [Version 10.0.18362.720]
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C:\Users\Sumukh Raju Bhat>cd ..
C:\Users>cd ..
C:\>cd cs lab
C:\cs lab>cd week 11
C:\cs lab\week 11>cd w11_1
C:\cs lab\week 11\w11_1>make
gcc -c server.c
gcc -o a.exe client.o server.o
C:\cs lab\week 11\w11_1>a
Enter date1:11/12/2020
Enter date2:11/12/2020
11/12/2020 and 11/12/2020 are equal
C:\cs lab\week 11\w11_1>a
Enter date1:11/12/2020
Enter date2:1/1/2021
11/12/2020 is lesser than 1/1/2021
C:\cs lab\week 11\w11_1>a
Enter date1:11/12/2020
Enter date2:11/9/2020
11/12/2020 is greater than 11/9/2020
C:\cs lab\week 11\w11_1>a
Enter date1:11/12/2020
Enter date2:12/12/2020
11/12/2020 is lesser than 12/12/2020
C:\cs lab\week 11\w11_1>a
Enter date1:11/12/2020
Enter date2:01/01/2001
11/12/2020 is greater than 1/1/2001
C:\cs lab\week 11\w11_1>a
Enter date1:15/12/2001
Enter date2:15/12/2002
15/12/2001 is lesser than 15/12/2002
C:\cs lab\week 11\w11_1>
```

2)Problem 2:

Makefile.mk

```
1 a.exe: client.o server.o
2 | gcc -o a.exe client.o server.o
3 client.o : client.c server.h
4 | gcc -c client.c
5 server.o : server.c server.h
6 | gcc -c server.c
7
```

Client.c

```
C client.c
1 #include<stdio.h>
2 #include "server.h"
3 int main()
4 {
5     struct student a[100];
6     int n;
7     printf("Enter number of students:");
8     scanf("%d",&n);
9     input(&a,n);
10    output(&a,n);
11    return 0;
12 }
```

Server.h

```
1 struct student
2 {
3     int srn,phym,mathm,mechm,ecem,pswcm;
4     char name[100];
5 };
6 void input(struct student *a,int n);
7 void output(struct student *a,int n);
```

Server.c

```
#include<stdio.h>
#include "server.h"
void input(struct student *a,int n)
{
    for(int i=0;i<n;i++)
    {
        printf("Input student-%d details:\n",i+1);
        printf("Enter student SRN:");
        scanf("%d",&a[i].srn);
        printf("Enter student name:");
        scanf("%s",a[i].name);
        printf("Enter physics marks:");
        scanf("%d",&a[i].phym);
        printf("Enter math marks:");
        scanf("%d",&a[i].mathm);
        printf("Enter electronics marks:");
        scanf("%d",&a[i].ecem);
        printf("Enter problem solving with c marks:");
        scanf("%d",&a[i].pswcm);
        printf("Enter mechanics marks:");
        scanf("%d",&a[i].mechm);
        printf("-----\n");
    }
}
```

```
void output(struct student *a,int n)
{
    float avg;
    for(int i=0;i<n;i++)
    {
        printf("Student-%d details:\n",i+1);
        printf("Student SRN:%d\n",a[i].srn);
        printf("Student name:%s\n",a[i].name);
        printf("Physics marks:%d\n",a[i].phym);
        printf("Math marks:%d\n",a[i].mathm);
        printf("Electronics marks:%d\n",a[i].ecem);
        printf("Problem solving with c marks:%d\n",a[i].pswcm);
        printf("Mechanics marks:%d\n",a[i].mechm);
        printf("Total marks:%d\n",a[i].phym+a[i].mathm+a[i].ecem+a[i].pswcm+a[i].mechm);
        avg=(a[i].phym+a[i].mathm+a[i].ecem+a[i].pswcm+a[i].mechm)/5.0;
        printf("Average marks:%.2f\n",avg);
        if(avg>=85 && avg<=100)
            printf("Division:FIRST CLASS WITH DISTINCTION\n");
        else if(avg>=60 && avg<=84)
            printf("Division:FIRST CLASS\n");
        else if(avg>=50 && avg<=59)
            printf("Division:SECOND CLASS\n");
        else if(avg>=40 && avg<=49)
            printf("Division:THIRD CLASS\n");
        else
            printf("Division:FAIL\n");
        if(avg>=40)
            printf("RESULT:PASS\n");
        else
            printf("Result:FAIL\n");
        printf("-----\n");
    }
}
```

Output

```
C:\cs lab\week 11\w11_2>make
gcc -c server.c
gcc -o a.exe client.o server.o

C:\cs lab\week 11\w11_2>a
Enter number of students:2
Input student-1 details:
Enter student SRN:191
Enter student name:raj
Enter physics marks:91
Enter math marks:89
Enter electronics marks:65
Enter problem solving with c marks:98
Enter mechanics marks:97
-----
Input student-2 details:
Enter student SRN:192
Enter student name:sam
Enter physics marks:25
Enter math marks:36
Enter electronics marks:54
Enter problem solving with c marks:12
Enter mechanics marks:38
-----
Student-1 details:
Student SRN:191
Student name:raj
Physics marks:91
Math marks:89
Electronics marks:65
Problem solving with c marks:98
Mechanics marks:97
Total marks:440
Average marks:88.00
Division:FIRST CLASS WITH DISTINCTION
RESULT:PASS
-----
Student-2 details:
Student SRN:192
Student name:sam
Physics marks:25
Math marks:36
Electronics marks:54
Problem solving with c marks:12
Mechanics marks:38
Total marks:165
Average marks:33.00
Division:FAIL
Result:FAIL
-----
```

3) Problem 3:

Makefile.mk

```
1  a.exe: client.o server.o
2  |      gcc -o a.exe client.o server.o
3  client.o : client.c server.h
4  |      gcc -c client.c
5  server.o : server.c server.h
6  |      gcc -c server.c
7
```

Client.c

```
#include<stdio.h>
#include "server.h"
int main()
{
    struct meas d1,d2;
    printf("Enter distance 1:\n");
    printf("In Feet:");
    scanf("%d",&d1.f);
    printf("In inches:");
    scanf("%d",&d1.i);
    printf("Enter distance 2:\n");
    printf("In Feet:");
    scanf("%d",&d2.f);
    printf("In inches:");
    scanf("%d",&d2.i);
    add(d1,d2);
    return 0;
}
```

Server.h

```
1  struct meas
2  {
3      int f;
4      int i;
5  };
6  void add(struct meas d1,struct meas d2);
```

Server.c

```
1  #include<stdio.h>
2  #include "server.h"
3  void add(struct meas d1,struct meas d2)
4  {
5      int total=d1.f*12+d2.f*12+d1.i+d2.i;
6      int ft=total/12;
7      int it=total%12;
8      printf("Total in feet=%d and in inches=%d\n",ft,it);
9  }
10
```

Output

```
Command Prompt
C:\cs lab\week 11\w11_2>cd ..
C:\cs lab\week 11>cd w11_3
C:\cs lab\week 11\w11_3>make
gcc -c client.c
gcc -c server.c
gcc -o a.exe client.o server.o
C:\cs lab\week 11\w11_3>a
Enter distance 1:
In Feet:7
In inches:4
Enter distance 2:
In Feet:8
In inches:5
Total in feet=15 and in inches=9
C:\cs lab\week 11\w11_3>make
gcc -c client.c
gcc -o a.exe client.o server.o
C:\cs lab\week 11\w11_3>a
Enter distance 1:
In Feet:7
In inches:4
Enter distance 2:
In Feet:8
In inches:5
Total in feet=15 and in inches=9
C:\cs lab\week 11\w11_3>a
Enter distance 1:
In Feet:5
In inches:12
Enter distance 2:
In Feet:6
In inches:5
Total in feet=12 and in inches=5
C:\cs lab\week 11\w11_3>_
```

4)Practice_1:

Makefile.mk

```
1 a.exe: client.o server.o
2 | gcc -o a.exe client.o server.o
3 client.o : client.c server.h
4 | gcc -c client.c
5 server.o : server.c server.h
6 | gcc -c server.c
7
```

Client.c

```
1 #include<stdio.h>
2 #include "server.h"
3 int main()
4 {
5     struct items a[100];
6     int n;
7     printf("Enter total number of items:");
8     scanf("%d",&n);
9     input(&a,n);
10    output(&a,n);
11    return 0;
12 }
```

Server.h

```
1 struct items
2 {
3     int quantity,unit_price,tot_cost;
4 };
5 void input(struct items *a,int n);
6 void output(struct items *a,int n);
```

Server.c

```

#include<stdio.h>
#include "server.h"
void input(struct items *a,int n)
{
    for(int i=0;i<n;i++)
    {
        printf("Input item-%d details:\n",i+1);
        printf("Enter item quantity:");
        scanf("%d",&a[i].quantity);
        printf("Enter item unit price:");
        scanf("%d",&a[i].unit_price);
        printf("-----\n");
    }
}
void output(struct items *a,int n)
{
    int total,sum=0;
    for(int i=0;i<n;i++)
    {
        a[i].tot_cost=a[i].quantity*a[i].unit_price;
        printf("Item-%d details:\n",i+1);
        printf("Item quantity:%d\n",a[i].quantity);
        printf("Item unit price:%d\n",a[i].unit_price);
        printf("Item total cost:%d\n",a[i].tot_cost);
        printf("-----\n");
        sum=sum+a[i].tot_cost;
    }
    printf("Total bill amount:%d\n",sum);
}

```

Output

```

C:\cs lab\week 11\w11.practice_1>a
Enter total number of items:5
Input item-1 details:
Enter item quantity:2
Enter item unit price:50
-----
Input item-2 details:
Enter item quantity:3
Enter item unit price:5
-----
Input item-3 details:
Enter item quantity:10
Enter item unit price:50
-----
Input item-4 details:
Enter item quantity:40
Enter item unit price:8
-----
Input item-5 details:
Enter item quantity:1
Enter item unit price:2550
-----
Item-1 details:
Item quantity:2
Item unit price:50
Item total cost:100
-----
Item-2 details:
Item quantity:3
Item unit price:5
Item total cost:15
-----
Item-3 details:
Item quantity:10
Item unit price:50
Item total cost:500
-----
Item-4 details:
Item quantity:40
Item unit price:8
Item total cost:320
-----
Item-5 details:
Item quantity:1
Item unit price:2550
Item total cost:2550
-----
Total bill amount:3485

```

5)Practice_2:

Makefile.mk

```

1  a.exe: client.o server.o
2  |   gcc -o a.exe client.o server.o
3  client.o : client.c server.h
4  |   gcc -c client.c
5  server.o : server.c server.h
6  |   gcc -c server.c
7

```

Client.c

```

1  #include<stdio.h>
2  #include "server.h"
3  int main()
4  {
5      struct complex z1,z2;
6      printf("Enter complex number 1:");
7      scanf("%d+%di",&z1.real,&z1.img);
8      printf("Enter complex number 2:");
9      scanf("%d+%di",&z2.real,&z2.img);
10     add(z1,z2);
11     sub(z1,z2);
12     mul(z1,z2);
13     return 0;
14 }

```

Server.h

```

1  struct complex
2  {
3      int real,img;
4  };
5  void add(struct complex z1,struct complex z2);
6  void sub(struct complex z1,struct complex z2);
7  void mul(struct complex z1,struct complex z2);

```

Server.c

```

1  #include<stdio.h>
2  #include "server.h"
3  void add(struct complex z1,struct complex z2)
4  {
5      if(z1.img+z2.img>=0)
6          printf("Z1+Z2=%d+%di\n",z1.real+z2.real,z1.img+z2.img);
7      else
8      {
9          printf("Z1+Z2=%d%i\n",z1.real+z2.real,z1.img+z2.img);
10     }
11 }
12
13 void sub(struct complex z1,struct complex z2)
14 {
15     if(z1.img-z2.img>=0)
16         printf("Z1-Z2=%d + %di\n",z1.real-z2.real,z1.img-z2.img);
17     else
18     {
19         printf("Z1-Z2=%d%i\n",z1.real-z2.real,z1.img-z2.img);
20     }
21 }
22
23 void mul(struct complex z1,struct complex z2)
24 {
25     if(z1.img*z2.real+z2.img*z1.img>=0)
26         printf("Z1*Z2=%d+%di\n",z1.real*z2.real-z1.img*z2.img,z2.img*z1.real+z2.real*z1.img);
27     else
28     {
29         printf("Z1*Z2=%d%i\n",z1.real*z2.real-z1.img*z2.img,z2.img*z1.real+z2.real*z1.img);
30     }
31 }
32
33

```

Output

```
C:\cs lab\week 11\w11_practice_2>make
gcc -c server.c
gcc -o a.exe client.o server.o
```

```
C:\cs lab\week 11\w11_practice_2>a
Enter complex number 1:5+6i
Enter complex number 2:8+65i
Z1+Z2=13+71i
Z1-Z2=-3-59i
Z1*Z2=-350+373i
```