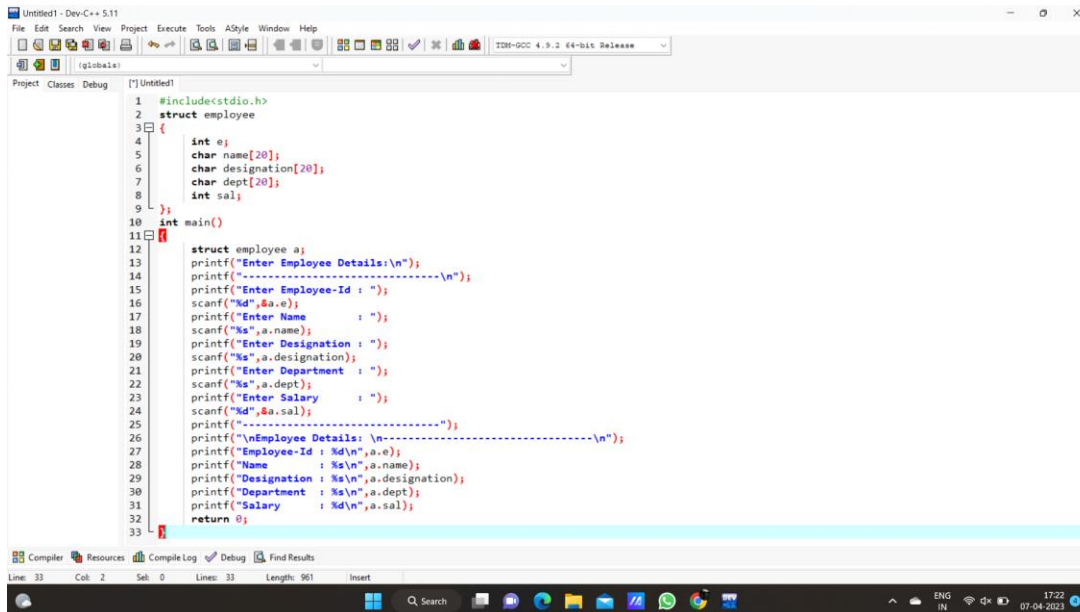


CSA02 C Programming Assignment 4

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1. Write C program to accept the details of employee and display them using structure. Details consist of Employee ID, Name, Designation, Department, and Salary.

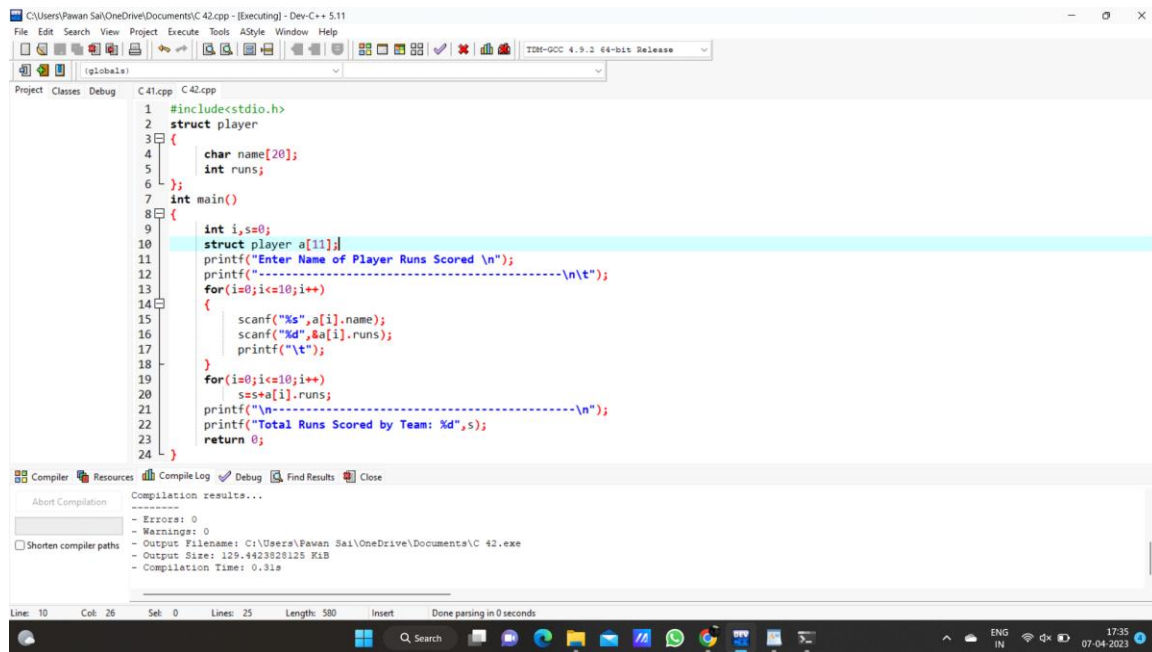


```
1 #include<stdio.h>
2 struct employee
3 {
4     int e;
5     char name[20];
6     char designation[20];
7     char dept[20];
8     int sal;
9 };
10 int main()
11 {
12     struct employee a;
13     printf("Enter Employee Details:\n");
14     printf("-----\n");
15     printf("Enter Employee-Id : ");
16     scanf("%d",&a.e);
17     printf("Enter Name : ");
18     scanf("%s",&a.name);
19     printf("Enter Designation : ");
20     scanf("%s",&a.designation);
21     printf("Enter Department : ");
22     scanf("%s",&a.dept);
23     printf("Enter Salary : ");
24     scanf("%d",&a.sal);
25     printf("-----\n");
26     printf("\nEmployee Details: \n-----\n");
27     printf("Employee-Id : %d\n",a.e);
28     printf("Name : %s\n",a.name);
29     printf("Designation : %s\n",a.designation);
30     printf("Department : %s\n",a.dept);
31     printf("Salary : %d\n",a.sal);
32     return 0;
33 }
```

```
Enter Employee Details:
-----
Enter Employee-Id : 276
Enter Name : parth
Enter Designation : manager
Enter Department : production
Enter Salary : 30000
-----
Employee Details:
-----
Employee-Id : 276
Name : parth
Designation : manager
Department : production
Salary : 30000
-----
Process exited after 58.54 seconds with return value 0
Press any key to continue . . .
```

2. Write C program to accept batting information of cricket team using structure. It contains

player name and runs scored by player. Calculate total runs scored by cricket team.

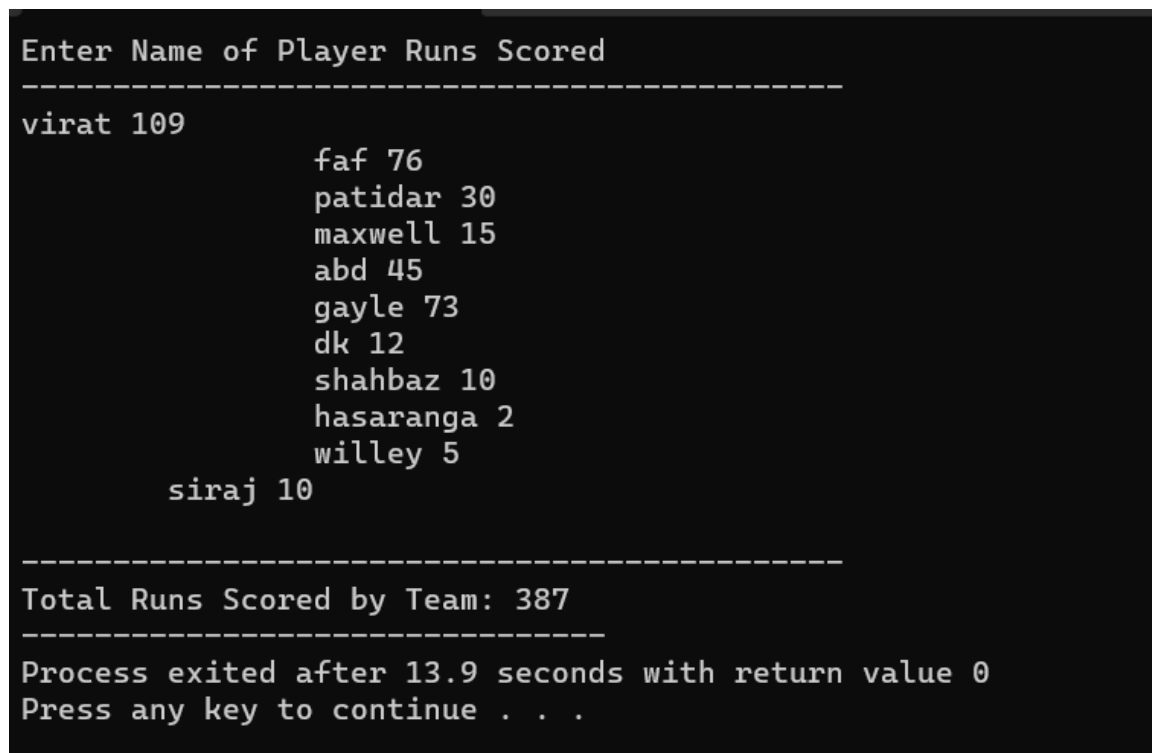


The screenshot shows a C++ IDE with a file named C42.cpp. The code defines a struct 'player' with 'char name[20]' and 'int runs'. In the 'main' function, it uses a loop to input names and runs for 11 players, then calculates and prints the total runs. The compiler output at the bottom shows 0 errors and 0 warnings.

```
1 #include<stdio.h>
2 struct player
3 {
4     char name[20];
5     int runs;
6 };
7 int main()
8 {
9     int i,s=0;
10    struct player a[11];
11    printf("Enter Name of Player Runs Scored \n");
12    printf("-----\n");
13    for(i=0;i<=10;i++)
14    {
15        scanf("%s",a[i].name);
16        scanf("%d",&a[i].runs);
17        printf("\n");
18    }
19    for(i=0;i<=10;i++)
20        s=s+a[i].runs;
21    printf("-----\n");
22    printf("Total Runs Scored by Team: %d",s);
23    return 0;
24 }
```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\Pawan Sai\OneDrive\Documents\C 42.exe
- Output Size: 129.4423828125 KiB
- Compilation Time: 0.31s

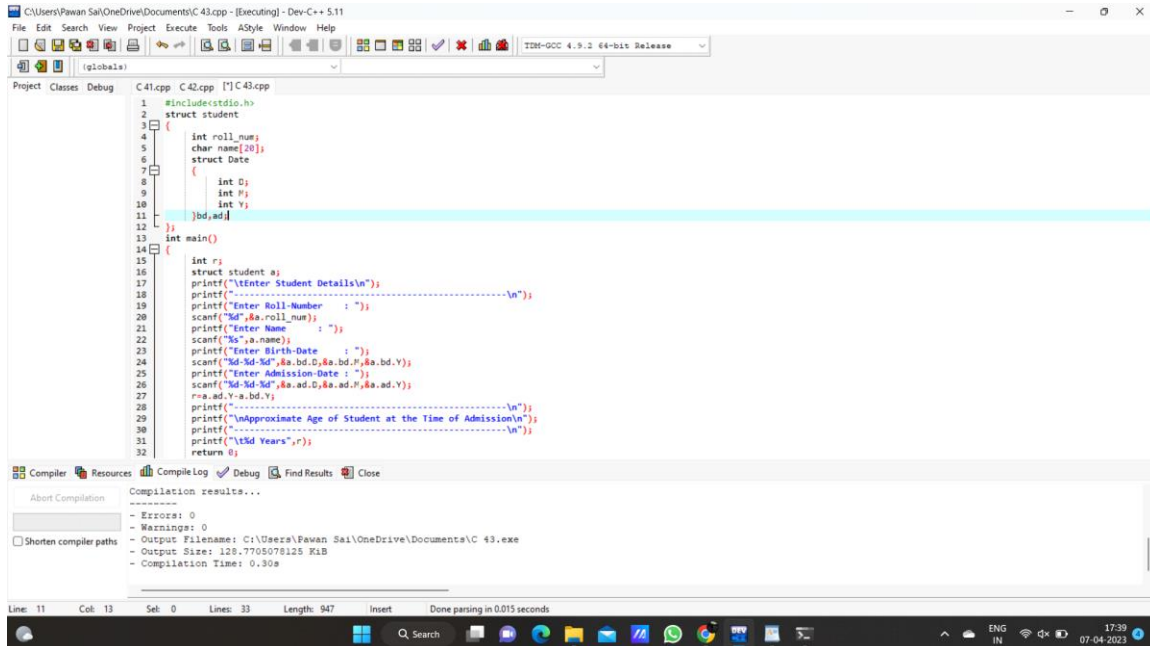


The terminal shows the program's output. It prompts for player names and runs, which are entered as 'virat 109', 'faf 76', 'patidar 30', 'maxwell 15', 'abd 45', 'gayle 73', 'dk 12', 'shahbaz 10', 'hasaranga 2', 'willey 5', and 'siraj 10'. The final output is 'Total Runs Scored by Team: 387' followed by a message that the process exited after 13.9 seconds.

```
Enter Name of Player Runs Scored
-----
virat 109
    faf 76
    patidar 30
    maxwell 15
    abd 45
    gayle 73
    dk 12
    shahbaz 10
    hasaranga 2
    willey 5
    siraj 10
-----
Total Runs Scored by Team: 387
-----
Process exited after 13.9 seconds with return value 0
Press any key to continue . . .
```

3. C program to read information of student. It contains Name, Roll number, Birthday,

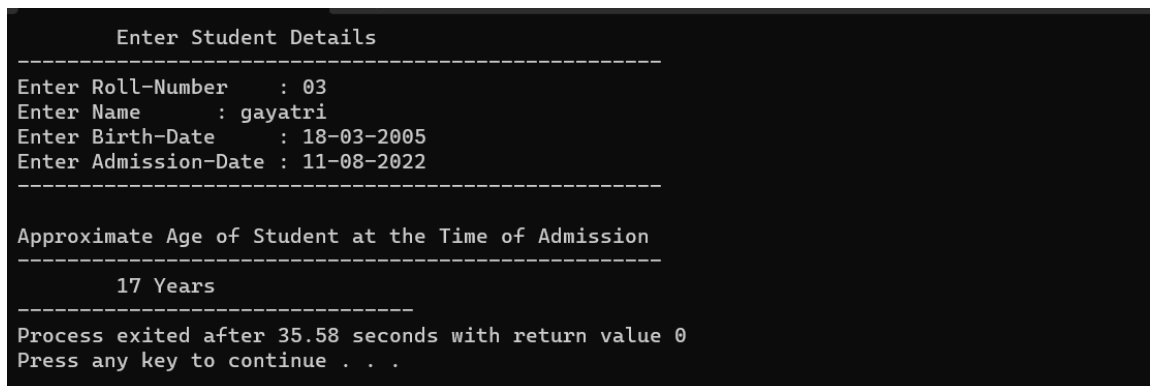
admission date. Calculate age of student at the time of admission.



```
1 #include<stdio.h>
2 struct student
3 {
4     int roll_num;
5     char name[20];
6     struct Date
7     {
8         int D;
9         int M;
10        int Y;
11    }bd,ad;
12 }
13
14 int main()
15 {
16     struct student s;
17     printf("\nEnter Student Details\n");
18     printf("-----\n");
19     printf("Enter Roll-Number : ");
20     scanf("%d",&s.roll_num);
21     printf("Enter Name : ");
22     scanf("%s",&s.name);
23     printf("Enter Birth-Date : ");
24     scanf("%d-%d-%d",&s.bd.D,&s.bd.M,&s.bd.Y);
25     printf("Enter Admission-Date : ");
26     scanf("%d-%d-%d",&s.ad.D,&s.ad.M,&s.ad.Y);
27     r=s.ad.Y-s.bd.Y;
28     printf("-----\n");
29     printf("Approximate Age of Student at the Time of Admission\n");
30     printf("-----\n");
31     printf("%d Years",r);
32     return 0;
33 }
```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\Pawan Sai\OneDrive\Documents\C 43.exe
- Output Size: 128.7705078125 KiB
- Compilation Time: 0.308



```
Enter Student Details
-----
Enter Roll-Number : 03
Enter Name : gayatri
Enter Birth-Date : 18-03-2005
Enter Admission-Date : 11-08-2022
-----

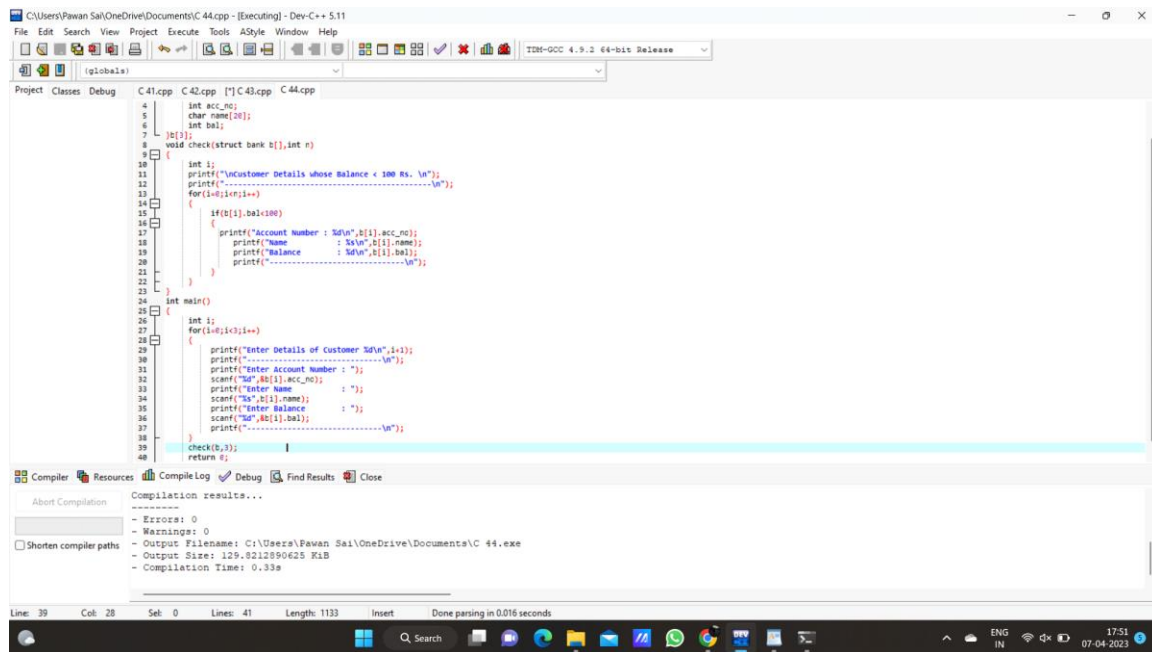
Approximate Age of Student at the Time of Admission
-----

17 Years
-----

Process exited after 35.58 seconds with return value 0
Press any key to continue . . .
```

4. Write a 'C' program to accept customer details such as: Account_no, Name, Balance using structure. Assume 3 customers in the bank. Write a function to print the account no. and name of each customer

whose balance < 100 Rs.



```
4 int acc_no;
5 char name[20];
6 int bal;
7 }b[3];
8 void check(struct bank b[],int n)
9 {
10     int i;
11     printf("\nCustomer Details whose Balance < 100 Rs. \n");
12     printf("-----\n");
13     for(i=0;i<n;i++)
14     {
15         if(b[i].bal<100)
16         {
17             printf("Account Number : %d\n",b[i].acc_no);
18             printf("Name : %s\n",b[i].name);
19             printf("Balance : %d\n",b[i].bal);
20             printf("-----\n");
21         }
22     }
23 }
24 int main()
25 {
26     int i;
27     for(i=0;i<3;i++)
28     {
29         printf("Enter Details of Customer %d\n",i+1);
30         printf("-----\n");
31         printf("Enter Account Number : ");
32         scanf("%d",&b[i].acc_no);
33         printf("Enter Name : ");
34         scanf("%s",&b[i].name);
35         printf("Enter Balance : ");
36         scanf("%d",&b[i].bal);
37         printf("-----\n");
38     }
39     check(b,3);
40     return 0;
41 }
```

Compilation results...

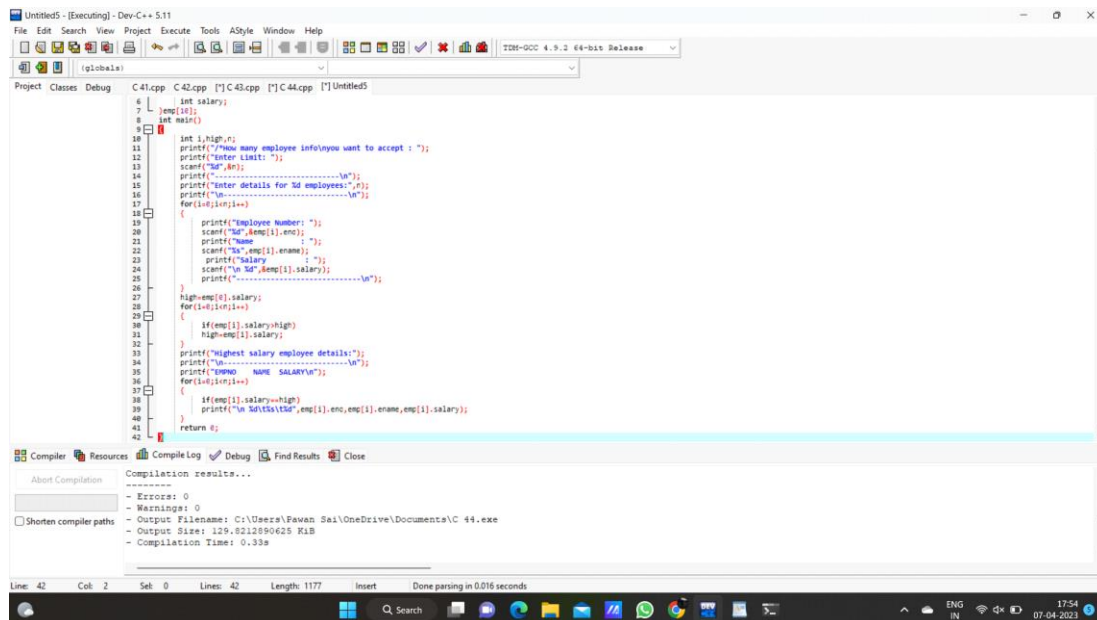
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\Pawan Sai\OneDrive\Documents\C 44.exe
- Output Size: 129.021890625 Kib
- Compilation Time: 0.33s

```
Enter Details of Customer 1
-----
Enter Account Number : 1109
Enter Name : Roshan
Enter Balance : 89
-----
Enter Details of Customer 2
-----
Enter Account Number : 3012
Enter Name : prajakta
Enter Balance : 550
-----
Enter Details of Customer 3
-----
Enter Account Number : 59198
Enter Name : sapna
Enter Balance : 78
-----
```

Customer Details whose Balance < 100 Rs.

```
-----
Account Number : 1109
Name : Roshan
Balance : 89
-----
Account Number : 59198
Name : sapna
Balance : 78
-----
```

5. Write a C program to accept details of 'n' employee (eno, ename, salary) and display the details of employee having highest salary. Use array of structure.



```

1  int salary;
2  emp[10];
3  int main()
4  {
5      int i, high=0;
6      printf("How many employee info you want to accept : ");
7      printf("Enter Limit: ");
8      scanf("%d", &n);
9      printf("Enter details for %d employees:", n);
10     printf("No-----\n");
11     for(i=0; i<n; i++)
12     {
13         printf("Employee Number: ");
14         scanf("%d", &emp[i].eno);
15         printf("Name : ");
16         scanf("%s", emp[i].ename);
17         printf("Salary : ");
18         scanf("%d", &emp[i].salary);
19         printf("-----\n");
20     }
21     high=emp[0].salary;
22     for(i=0; i<n; i++)
23     {
24         if(emp[i].salary>high)
25             high=emp[i].salary;
26     }
27     printf("Highest salary employee details:");
28     printf("No-----\n");
29     printf("EMPNO    NAME    SALARY\n");
30     for(i=0; i<n; i++)
31     {
32         if(emp[i].salary==high)
33             printf("%d\t%s\t%d", emp[i].eno, emp[i].ename, emp[i].salary);
34     }
35     return 0;
36 }

```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\Pawan Sai\OneDrive\Documents\C 44.exe
- Output Size: 129,821,289,625 KiB
- Compilation Time: 0.33s

```

/*How many employee info
you want to accept : Enter Limit: 2
-----
Enter details for 2 employees:
-----
Employee Number: 101
Name           : sapna
Salary         : 36000
-----
Employee Number: 102
Name           : prajakta
Salary         : 32000
-----
Highest salary employee details:
-----
EMPNO    NAME    SALARY
-----
101      sapna   36000
-----
Process exited after 73.66 seconds with return value 0
Press any key to continue . . .

```

6. Write a menu driven program in 'C' which shows the working of library. The menu option should be

- i) Add book details.
- ii) Display book details.
- iii) List all books of given author.
- iv) List the count of books in the library.
- v) Exit.

```
C:\Users\Pawan Sa\OneDrive\Documents\C 46.cpp - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
(globa1a)
Project Classes Debug C 41.cpp C 42.cpp [*] C 43.cpp [*] C 44.cpp C 45.cpp C 46.cpp
1 #include<stdio.h>
2 #include<stdlib.h>
3 #include<string.h>
4 struct book
5 {
6     int b_no;
7     char b_name[40];
8     char b_author[40];
9     int no_pages;
10 };
11 int main()
12 {
13     struct book b[20];
14     int ch,n,i,count = 0;
15     char temp[40];
16     do
17     {
18         printf("\n\n*****\n");
19         printf("PRESS 1 TO ADD BOOK DETAILS.");
20         printf("PRESS 2 TO DISPLAY BOOK DETAILS.");
21         printf("PRESS 3 TO DISPLAY BOOK OF GIVEN AUTHOR.");
22         printf("PRESS 4 TO COUNT NUMBER OF BOOKS.");
23         printf("PRESS 5 TO EXIT.");
24         printf("\n\n*****\n");
25         printf("Enter Your Choice: ");
26         scanf("%d",&ch);
27         switch(ch)
28         {
29             case 1:
30                 printf("How Many Records You want to Add: ");
31                 scanf("%d",&n);
32                 printf("\n\n*****\n");
33                 printf("Add Details of %d Book\n",n);
34                 printf("\n\n*****\n");
35                 for(i = 0 ; i < n ; i++)
36                 {
37                     printf("Enter Book No. : ");
38                     scanf("%d",&b[i].b_no);
39                     printf("Book Name : ");
40                     scanf("%s",b[i].b_name);
41                     printf("Enter author Name : ");
42                     scanf("%s",b[i].b_author);
43                     printf("Enter No. of Pages : ");
44                     scanf("%d",&b[i].no_pages);
45                     printf("\n\n*****\n");
46                 }
47                 break;
48             case 2:
49                 printf("\n\n\t\tDetails of All Book");
50                 printf("\n\n*****\n");
51                 printf("Book No. Book Name\t Author Name\t No. of Pages");
52                 printf("\n\n*****\n");
53                 for(i = 0 ; i < n ; i++)
54                 {
55                     printf("\n\t\t\t %d\t %s\t %s\t %d",b[i].b_no,b[i].b_name,b[i].b_author,b[i].no_pages);
56                 }
57                 printf("\n\n");
58                 break;
59             case 3:
60                 printf("Enter Author Name: ");
61                 scanf("%s",temp);
62                 printf("\n\n*****\n");
63                 for(i = 0 ; i < n ; i++)
64                 {
65                     if(strcmp(b[i].b_author,temp) == 0)
66                     {
67                         printf("\n\t\t\t %d\t %s",b[i].b_no,b[i].b_name);
68                     }
69                 }
70                 break;
71             case 4:
72                 for(i = 0 ; i < n ; i++)
73                 {
74                     count++;
75                 }
76                 printf("\nTotal Number of Books in Library : %d\n",count);
77                 printf("\n\n*****\n");
78                 break;
79             case 5:
80                 exit(0);
81         }
82     }
83     while(ch != 5);
84     return 0;
85 }
```

```

-----
PRESS 1.TO ADD BOOK DETAILS.
PRESS 2.TO DISPLAY BOOK DETAILS.
PRESS 3.TO DISPLAY BOOK OF GIVEN AUTHOR.
PRESS 4.TO COUNT NUMBER OF BOOKS.
PRESS 5.TO EXIT.
-----

```

Enter Your Choice: 1

How Many Records You Want to Add: 1

Add Details of 1 Book

```

-----
Enter Book No.      : 1002
Book Name           : c programming
Enter Author Name   : Enter No. of Pages : manas
-----

```

7. Write a 'C' Program to create a structure of student having fields roll_no, stud_name, mark1, mark2, mark3. Calculate total marks and average marks. Arrange the records in descending order of marks.

```

1 #include<stdio.h>
2 struct student
3 {
4     int rno;
5     char name[20];
6     int marks[3];
7     int total;
8     float avg;
9 }stud[2];
10
11 int main()
12 {
13     int i,j;
14     struct student s;
15     for(i=0;i<2;i++)
16     {
17         printf("Enter Record for Student-%d \n",i+1);
18         printf("Enter Roll No. : ");
19         scanf("%d",&stud[i].rno);
20         printf("Enter Name : ");
21         scanf("%s",stud[i].name);
22         stud[i].total=0;
23         for(j=0;j<3;j++)
24         {
25             printf("Enter Marks of Subject %d : ",j+1);
26             scanf("%d",&stud[i].marks[j]);
27             stud[i].total+=stud[i].marks[j];
28             stud[i].avg=stud[i].total/3.0;
29         }
30         printf("\n-----\n");
31     }
32     for(i=0;i<2;i++)
33     {
34         for(j=i+1;j<2;j++)
35         {
36             if(stud[i].total<stud[j].total)
37             {
38                 s=stud[i];
39                 stud[i]=stud[j];
40                 stud[j]=s;
41             }
42         }
43     }
44     printf("Records in Descending Order.\n (According to Total-Marks)");
45     printf("\n-----\n");
46     printf("\n ROLLNO NAME TOTAL-MARKS AVG\n");
47     for(i=0;i<2;i++)
48     {
49         printf("\n %d\t %s\t %d\t %.2f",stud[i].rno,stud[i].name,stud[i].total,stud[i].avg);
50     }
51     return 0;
52 }

```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

```

-----
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\Pawan Sai\OneDrive\Documents\C 47.exe
- Output Size: 129.7880859375 KiB
- Compilation Time: 0.27s

```

Line: 52 Col: 2

Enter Record for Student-1

Enter Roll-No. : 101
Enter Name : sapna
Enter Marks of Subject 1 : 50
Enter Marks of Subject 2 : 69
Enter Marks of Subject 3 : 76

Enter Record for Student-2

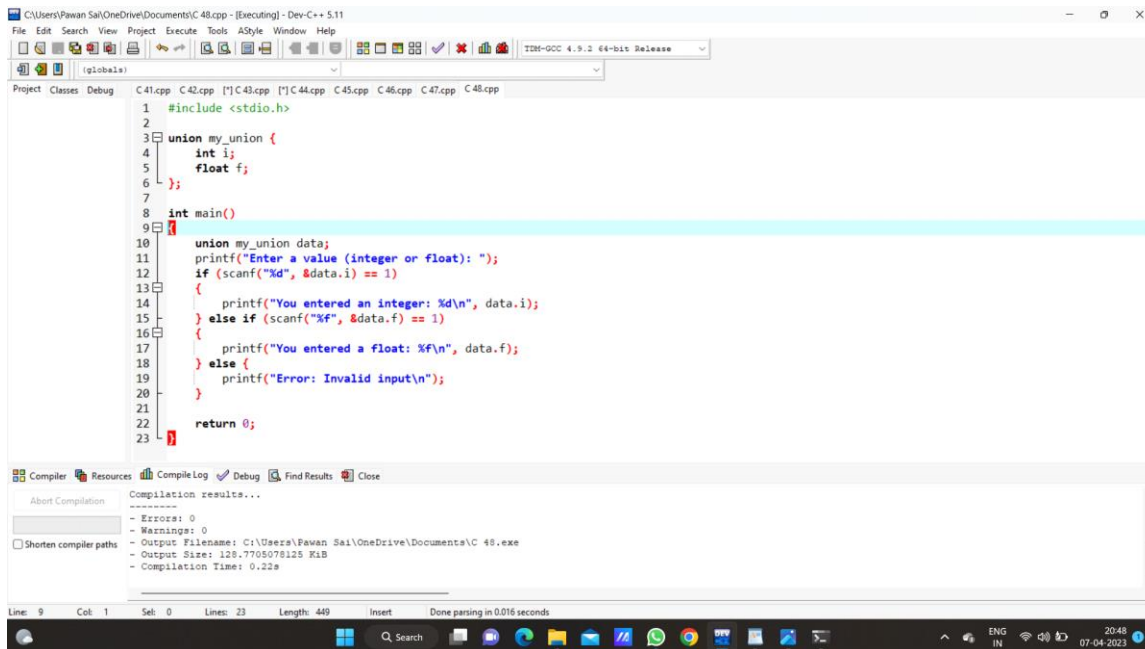
Enter Roll-No. : 102
Enter Name : roshan
Enter Marks of Subject 1 : 65
Enter Marks of Subject 2 : 75
Enter Marks of Subject 3 : 82

Records in Descending Order.
(According to Total-Marks)

ROLLNO	NAME	TOTAL-MARKS	AVG
102	roshan	222	74.00
101	sapna	195	65.00

Process exited after 281.2 seconds with return value 0
Press any key to continue . . .

8. Write a program that declares a union variable data that can store an integer or a float value. Prompt the user to enter a value of their choice and store it in the appropriate member of the union. Then, print the value that was entered.



```
1 #include <stdio.h>
2
3 union my_union {
4     int i;
5     float f;
6 };
7
8 int main()
9 {
10     union my_union data;
11     printf("Enter a value (integer or float): ");
12     if (scanf("%d", &data.i) == 1)
13     {
14         printf("You entered an integer: %d\n", data.i);
15     } else if (scanf("%f", &data.f) == 1)
16     {
17         printf("You entered a float: %f\n", data.f);
18     } else {
19         printf("Error: Invalid input\n");
20     }
21     return 0;
22 }
```

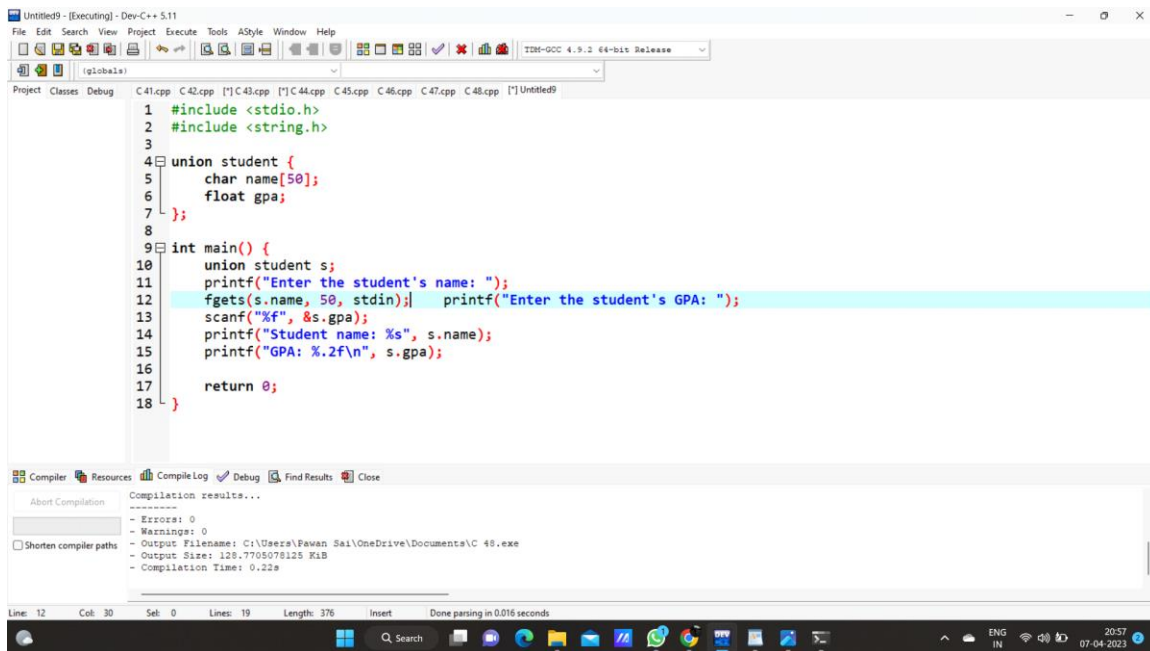
Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\Pawan Sai\OneDrive\Documents\C 48.exe
- Output Size: 128.7705078125 KiB
- Compilation Time: 0.22s

```
Enter a value (integer or float): 52
You entered an integer: 52
```

```
-----
Process exited after 5.02 seconds with return value 0
Press any key to continue . . .
```

9. Create a program that defines a union student that can store a student's name (up to 50 characters) and their GPA. Prompt the user to enter the student's name and GPA, and store them in the union. Then, print the student's name and GPA.



```
1 #include <stdio.h>
2 #include <string.h>
3
4 union student {
5     char name[50];
6     float gpa;
7 };
8
9 int main() {
10     union student s;
11     printf("Enter the student's name: ");
12     fgets(s.name, 50, stdin);| printf("Enter the student's GPA: ");
13     scanf("%f", &s.gpa);
14     printf("Student name: %s", s.name);
15     printf("GPA: %.2f\n", s.gpa);
16
17     return 0;
18 }
```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

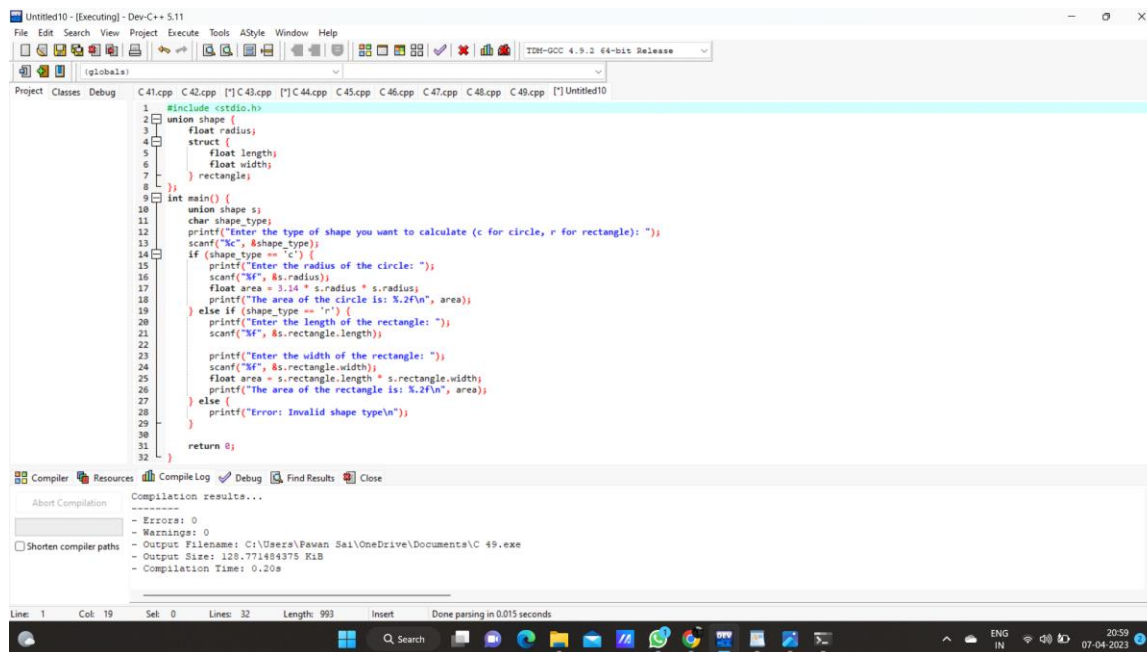
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\Fawan Sai\OneDrive\Documents\C 48.exe
- Output Size: 128.7705078125 KiB
- Compilation Time: 0.22s

Line: 12 Col: 30 Sel: 0 Lines: 19 Length: 376 Insert Done parsing in 0.016 seconds

```
Enter the student's name: Pavan sai
Enter the student's GPA: 8.7
Student name: 33
An sai
GPA: 8.70

-----
Process exited after 20.29 seconds with return value 0
Press any key to continue . . .
```

10. Write a program that defines a union shape that can store a circle's radius or a rectangle's length and width. Prompt the user to enter the type of shape they want to calculate (circle or rectangle), and then prompt them to enter the appropriate dimensions. Calculate and print the area of the shape they entered.



```
1 #include <stdio.h>
2 union shape {
3     float radius;
4     struct {
5         float length;
6         float width;
7     } rectangle;
8 };
9
10 int main() {
11     union shape s;
12     char shape_type;
13     printf("Enter the type of shape you want to calculate (c for circle, r for rectangle): ");
14     scanf("%c", &shape_type);
15     if (shape_type == 'c') {
16         printf("Enter the radius of the circle: ");
17         scanf("%f", &s.radius);
18         float area = 3.14 * s.radius * s.radius;
19         printf("The area of the circle is: %.2f\n", area);
20     } else if (shape_type == 'r') {
21         printf("Enter the length of the rectangle: ");
22         scanf("%f", &s.rectangle.length);
23         printf("Enter the width of the rectangle: ");
24         scanf("%f", &s.rectangle.width);
25         float area = s.rectangle.length * s.rectangle.width;
26         printf("The area of the rectangle is: %.2f\n", area);
27     } else {
28         printf("Error: Invalid shape type\n");
29     }
30     return 0;
31 }
```

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\Fawan Sai\OneDrive\Documents\C 49.exe
- Output Size: 128.771484375 KiB
- Compilation Time: 0.20s

```
Enter the type of shape you want to calculate (c for circle, r for rectangle): c
Enter the radius of the circle: 5
The area of the circle is: 78.50
```

```
-----
Process exited after 7.634 seconds with return value 0
Press any key to continue . . .
```

```
Enter the type of shape you want to calculate (c for circle, r for rectangle): r
Enter the length of the rectangle: 15
Enter the width of the rectangle: 18
The area of the rectangle is: 270.00
```

```
-----
Process exited after 13.06 seconds with return value 0
Press any key to continue . . .
```