```c
#include <stdio.h>

struct Employee {
    int id;
    char name[50];
    char designation[50];
    char department[50];
    float salary;
};

int main() {
    struct Employee emp;

    printf("Enter employee details:\n");
    printf("ID: ");
    scanf("%d", &emp.id);
    printf("Name: ");
    scanf("%s", emp.name);
    printf("Designation: ");
    scanf("%s", emp.designation);
    printf("Department: ");
    scanf("%s", emp.department);
    printf("Salary: ");
    scanf("%f", &emp.salary);

    printf("\nEmployee details:\n");
    printf("ID: %d\n", emp.id);
    printf("Name: %s\n", emp.name);
    printf("Designation: %s\n", emp.designation);
    printf("Department: %s\n", emp.department);
    printf("Salary: %.2f\n", emp.salary);
```

1.assi 4.cpp

C:\Users\91961\Documents\1.

```
Enter employee details:
ID: 2222
Name: sai
Designation: manager
Department: manager
Salary: 20000

Employee details:
ID: 2222
Name: sai
Designation: manager
Department: manager
Salary: 20000.00

-----------------------------------
Process exited after 35.68 seconds with return value 0
Press any key to continue . . .
```

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TDM-GCC 9.2.0 32-bit Profiling

(globals)

2.assi 4.cpp

```c
1   #include <stdio.h>
2   #include <string.h>
3
4   #define MAX_PLAYERS 11
5
6   struct Player {
7       char name[20];
8       int runs;
9   };
10
11  int main() {
12      struct Player team[MAX_PLAYERS];
13      int num_players, total_runs = 0;
14
15      printf("Enter the number of players in the team (maximum %d): ", MAX_PLAYERS);
16      scanf("%d", &num_players);
17
18      for (int i = 0; i < num_players; i++) {
19          printf("Enter the name of player %d: ", i+1);
20          scanf("%s", team[i].name);
21          printf("Enter the runs scored by player %d: ", i+1);
22          scanf("%d", &team[i].runs);
23
24          total_runs += team[i].runs;
25      }
26
27      printf("\nBatting information of the cricket team:\n");
28      for (int i = 0; i < num_players; i++) {
29          printf("Player %d: %s\tRuns scored: %d\n", i+1, team[i].name, team[i].runs);
30      }
31
32      printf("Total runs scored by the team: %d\n", total_runs);
33
34      return 0;
35  }
```

Resources Compile Log Debug Find Results Console Close

```
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\91961\Documents\2.assi 4.exe
- Output Size: 375.84375 KiB
- Compilation Time: 0.42s
```

C:\Users\91961\Documents\2.

```
Enter the number of players in the team (maximum 11): 11
Enter the name of player 1: virat
Enter the runs scored by player 1: 50
Enter the name of player 2: dhoni
Enter the runs scored by player 2: 45
Enter the name of player 3: yuvaraj
Enter the runs scored by player 3: 50
Enter the name of player 4: rahit
Enter the runs scored by player 4: 45
Enter the name of player 5: ashwin
Enter the runs scored by player 5: 25
Enter the name of player 6: raina
Enter the runs scored by player 6: 36
Enter the name of player 7: gauram
Enter the runs scored by player 7: 20
Enter the name of player 8: jadeja
Enter the runs scored by player 8: 10
Enter the name of player 9: dhawan
Enter the runs scored by player 9: 49
Enter the name of player 10: rahane
Enter the runs scored by player 10: 23
Enter the name of player 11: rahul
Enter the runs scored by player 11: 15

Batting information of the cricket team:
Player 1: virat Runs scored: 50
Player 2: dhoni Runs scored: 45
Player 3: yuvaraj        Runs scored: 50
Player 4: rahit Runs scored: 45
Player 5: ashwin         Runs scored: 25
Player 6: raina Runs scored: 36
Player 7: gauram         Runs scored: 20
Player 8: jadeja         Runs scored: 10
Player 9: dhawan         Runs scored: 49
Player 10: rahane        Runs scored: 23
Player 11: rahul         Runs scored: 15
Total runs scored by the team: 368
---------------------------------
```

3.asssss4.cpp

```c
1   #include <stdio.h>
2   #include <stdlib.h>
3   #include <time.h>
4
5   struct student {
6       char name[50];
7       int roll_no;
8       int birth_day;
9       int birth_month;
10      int birth_year;
11      int admission_day;
12      int admission_month;
13      int admission_year;
14  };
15
16  int calculate_age(int birth_year, int birth_month, int birth_day, int admission_year, int admission_month, int admission_day) {
17      int age = admission_year - birth_year;
18      if (admission_month < birth_month || (admission_month == birth_month && admission_day < birth_day)) {
19          age--;
20      }
21      return age;
22  }
23
24  int main() {
25      struct student s;
26      printf("Enter student name: ");
27      scanf("%s", s.name);
28      printf("Enter student roll number: ");
29      scanf("%d", &s.roll_no);
30      printf("Enter student birthday (dd mm yyyy): ");
31      scanf("%d %d %d", &s.birth_day, &s.birth_month, &s.birth_year);
32      printf("Enter student admission date (dd mm yyyy): ");
33      scanf("%d %d %d", &s.admission_day, &s.admission_month, &s.admission_year);
34
35      int age = calculate_age(s.birth_year, s.birth_month, s.birth_day, s.admission_year, s.admission_month, s.admission_day);
36      printf("%s's age at the time of admission was %d\n", s.name, age);
37
38      return 0;
39  }
```

```
C:\Users\91961\Documents\3.

Enter student name: sapna
Enter student roll number: 1
Enter student birthday (dd mm yyyy): 5-9-1988
Enter student admission date (dd mm yyyy): 25-1-2017
sapna's age at the time of admission was -29

------------------------------------
Process exited after 58.41 seconds with return value 0
Press any key to continue . . .
```

```
4.assi 4.cpp   ×

 1    #include <stdio.h>
 2
 3 ⊟ struct customer {
 4        int account_no;
 5        char name[50];
 6        float balance;
 7   };
 8
 9    void print_low_balance_customers(struct customer cust[], int n);
10
11 ⊟ int main() {
12        struct customer cust[3];
13        int i;
14 ⊟     for (i = 0; i < 3; i++) {
15            printf("Enter customer %d details:\n", i + 1);
16            printf("Account no.: ");
17            scanf("%d", &cust[i].account_no);
18            printf("Name: ");
19            scanf("%s", cust[i].name);
20            printf("Balance: ");
21            scanf("%f", &cust[i].balance);
22        }
23
24        print_low_balance_customers(cust, 3);
25
26        return 0;
27   }
28
29 ⊟ void print_low_balance_customers(struct customer cust[], int n) {
30        int i;
31        printf("Customers with balance less than Rs. 100:\n");
32 ⊟     for (i = 0; i < n; i++) {
33 ⊟         if (cust[i].balance < 100) {
34                printf("%d\t%s\n", cust[i].account_no, cust[i].name);
35            }
36        }
37   }
```

```
C:\Users\91961\Documents\4.   ×    +   ∨        —    □    ×

Enter customer 1 details:
Account no.: 1109
Name: roshan
Balance: 89
Enter customer 2 details:
Account no.: 3012
Name: prajakta
Balance: 550
Enter customer 3 details:
Account no.: 591998
Name: sapna
Balance: 78
Customers with balance less than Rs. 100:
1109      roshan
591998    sapna

------------------------------------
Process exited after 295.9 seconds with return value 0
Press any key to continue . . . |
```

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

#define MAX_EMPLOYEES 100

struct Employee {
    int eno;
    char ename[50];
    float salary;
};

int main() {
    int n, i, maxIndex;
    float maxSalary;
    struct Employee employees[MAX_EMPLOYEES];

    printf("Enter the number of employees: ");
    scanf("%d", &n);

    // Accept details of all employees
    for (i = 0; i < n; i++) {
        printf("Enter details of employee %d:\n", i+1);
        printf("Employee number: ");
        scanf("%d", &employees[i].eno);
        printf("Employee name: ");
        scanf("%s", employees[i].ename);
        printf("Employee salary: ");
        scanf("%f", &employees[i].salary);
    }

    // Find the employee with the highest salary
    maxIndex = 0;
    maxSalary = employees[0].salary;
    for (i = 1; i < n; i++) {
        if (employees[i].salary > maxSalary) {
            maxIndex = i;
            maxSalary = employees[i].salary;
        }
    }

    // Display the details of the employee with the highest salary
    printf("Details of employee with highest salary:\n");
    printf("Employee number: %d\n", employees[maxIndex].eno);
    printf("Employee name: %s\n", employees[maxIndex].ename);
    printf("Employee salary: %.2f\n", employees[maxIndex].salary);

    return 0;
}
```

```
Enter the number of employees: 3
Enter details of employee 1:
Employee number: 101
Employee name: sapna
Employee salary: 36000
Enter details of employee 2:
Employee number: 102
Employee name: prajakta
Employee salary: 32000
Enter details of employee 3:
Employee number: 103
Employee name: roshan
Employee salary: 42000
Details of employee with highest salary:
Employee number: 103
Employee name: roshan
Employee salary: 42000.00

------------------------------------
Process exited after 128.2 seconds with return value 0
Press any key to continue . . .
```

```cpp
6assi 4.cpp                 X
  1     #include <stdio.h>
  2     #include <string.h>
  3
  4     #define MAX_BOOKS 100
  5
  6  ⊟  struct book {
  7         char title[50];
  8         char author[50];
  9         int year;
 10  └  };
 11
 12     struct book library[MAX_BOOKS];
 13     int num_books = 0;
 14
 15  ⊟  void add_book() {
 16  ⊟      if (num_books >= MAX_BOOKS) {
 17             printf("Error: library is full\n");
 18             return;
 19  ⊢      }
 20         printf("Enter title: ");
 21         scanf("%s", library[num_books].title);
 22         printf("Enter author: ");
 23         scanf("%s", library[num_books].author);
 24         printf("Enter year: ");
 25         scanf("%d", &library[num_books].year);
 26         num_books++;
 27         printf("Book added to library\n");
 28  └  }
 29
 30  ⊟  void display_book(struct book b) {
 31         printf("Title: %s\n", b.title);
 32         printf("Author: %s\n", b.author);
 33         printf("Year: %d\n", b.year);
 34  └  }
 35
 36  ⊟  void display_books() {
 37  ⊟      if (num_books == 0) {
 38             printf("No books in library\n");
 39             return;
 40  ⊢      }
 41  ⊟      for (int i = 0; i < num_books; i++) {
 42             display_book(library[i]);
 43  ⊢      }
 44  └  }
 45
 46  ⊟  void list_books_by_author() {
```

Resources 🔧 Compile Log 📋 Debug 📄 Find Results 🏠 Console 💾 Close

```
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\91961\Documents\6assi 4.exe
- Output Size: 377.2529296875 KiB
```

```
Menu:
1. Add book
2. Display all books
3. List books by author
4. List book count
5. Exit
Enter choice: 1
Enter title: c programing
Enter author: Enter year: manas ghosh 1989
Book added to library

Menu:
1. Add book
2. Display all books
3. List books by author
4. List book count
5. Exit
Enter choice: Enter title: Enter author: Ent
er year: Book added to library

Menu:
1. Add book
2. Display all books
3. List books by author
4. List book count
5. Exit
Enter choice: |
```

```cpp
46  void list_books_by_author() {
47      char author[50];
48      printf("Enter author: ");
49      scanf("%s", author);
50      int count = 0;
51      for (int i = 0; i < num_books; i++) {
52          if (strcmp(library[i].author, author) == 0) {
53              display_book(library[i]);
54              count++;
55          }
56      }
57      if (count == 0) {
58          printf("No books by %s in library\n", author);
59      }
60  }
61
62  void list_book_count() {
63      printf("Number of books in library: %d\n", num_books);
64  }
65
66  int main() {
67      int choice;
68      while (1) {
69          printf("\nMenu:\n");
70          printf("1. Add book\n");
71          printf("2. Display all books\n");
72          printf("3. List books by author\n");
73          printf("4. List book count\n");
74          printf("5. Exit\n");
75          printf("Enter choice: ");
76          scanf("%d", &choice);
77          switch (choice) {
78              case 1:
79                  add_book();
80                  break;
81              case 2:
82                  display_books();
83                  break;
84              case 3:
85                  list_books_by_author();
86                  break;
87              case 4:
88                  list_book_count();
89                  break;
90              case 5:
91                  printf("Exiting program\n");
```

Resources | Compile Log | Debug | Find Results | Console | Close

```
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\91961\Documents\6assi 4.exe
- Output Size: 377.2529296875 KiB
- Compilation Time: 0.28s
```

C:\Users\91961\Docun

```
Menu:
1. Add book
2. Display all books
3. List books by author
4. List book count
5. Exit
Enter choice: 1
Enter title: c programing
Enter author: Enter year: manas ghosh 1989
Book added to library

Menu:
1. Add book
2. Display all books
3. List books by author
4. List book count
5. Exit
Enter choice: Enter title: Enter author: Ent
er year: Book added to library

Menu:
1. Add book
2. Display all books
3. List books by author
4. List book count
5. Exit
Enter choice:
```

```
54          count++;
55        }
56      }
57      if (count == 0) {
58        printf("No books by %s in library\n", author);
59      }
60    }
61
62    void list_book_count() {
63      printf("Number of books in library: %d\n", num_books);
64    }
65
66    int main() {
67      int choice;
68      while (1) {
69        printf("\nMenu:\n");
70        printf("1. Add book\n");
71        printf("2. Display all books\n");
72        printf("3. List books by author\n");
73        printf("4. List book count\n");
74        printf("5. Exit\n");
75        printf("Enter choice: ");
76        scanf("%d", &choice);
77        switch (choice) {
78          case 1:
79            add_book();
80            break;
81          case 2:
82            display_books();
83            break;
84          case 3:
85            list_books_by_author();
86            break;
87          case 4:
88            list_book_count();
89            break;
90          case 5:
91            printf("Exiting program\n");
92            return 0;
93          default:
94            printf("Invalid choice\n");
95            break;
96        }
97      }
98      return 0;
99    }
```
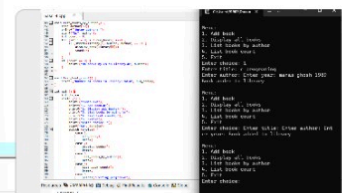
Resources 🔲 Compile Log 🔲 Debug 🔍 Find Results 🔲 Console 💾 Close

- Errors: 0

```
Menu:
1. Add book
2. Display all books
3. List books by author
4. List book count
5. Exit
Enter choice: 1
Enter title: c programing
Enter author: Enter year: manas ghosh 1989
Book added to library

Menu:
1. Add book
2. Display all books
3. List books by author
4. List book count
5. Exit
Enter choice: Enter title: Enter author: Ent
er year: Book added to library

Menu:
1. Add book
2. Display all books
3. List books by author
4. List book count
5. Exit
Enter choice:
```

C:\Users\91961\Docun ✕

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

#define MAX_STUDENTS 100

// Structure definition
struct Student {
    int roll_no;
    char stud_name[50];
    float mark1, mark2, mark3, total_marks, avg_marks;
};

// Function to sort the students in descending order of marks
void sort_students(struct Student students[], int n) {
    int i, j;
    struct Student temp;

    for (i = 0; i < n; i++) {
        for (j = i + 1; j < n; j++) {
            if (students[j].total_marks > students[i].total_marks) {
                temp = students[i];
                students[i] = students[j];
                students[j] = temp;
            }
        }
    }
}

int main() {
    struct Student students[MAX_STUDENTS];
    int n, i;

    printf("Enter the number of students: ");
    scanf("%d", &n);

    // Reading the details of all students
    for (i = 0; i < n; i++) {
        printf("Enter details of student %d:\n", i + 1);
        printf("Roll No: ");
        scanf("%d", &students[i].roll_no);
        printf("Name: ");
        scanf("%s", students[i].stud_name);
        printf("Mark 1: ");
        scanf("%f", &students[i].mark1);
        printf("Mark 2: ");
        scanf("%f", &students[i].mark2);
```

```
Enter the number of students: 1
Enter details of student 1:
Roll No: 101
Name: sapna
Mark 1: 50
Mark 2: 69
Mark 3: 76

Details of all students in descending order of marks:
Roll No: 101
Name: sapna
Mark 1: 50.00
Mark 2: 69.00
Mark 3: 76.00
Total Marks: 195.00
Average Marks: 65.00


---------------------------------
Process exited after 34.25 seconds with return value 0
Press any key to continue . . .
```

Resources | Compile Log | Debug | Find Results | Console | Close

- Errors: 0
- Warnings: 0

```
26         }
27     }
28
29 ⊟ int main() {
30         struct Student students[MAX_STUDENTS];
31         int n, i;
32
33         printf("Enter the number of students: ");
34         scanf("%d", &n);
35
36         // Reading the details of all students
37 ⊟     for (i = 0; i < n; i++) {
38             printf("Enter details of student %d:\n", i + 1);
39             printf("Roll No: ");
40             scanf("%d", &students[i].roll_no);
41             printf("Name: ");
42             scanf("%s", students[i].stud_name);
43             printf("Mark 1: ");
44             scanf("%f", &students[i].mark1);
45             printf("Mark 2: ");
46             scanf("%f", &students[i].mark2);
47             printf("Mark 3: ");
48             scanf("%f", &students[i].mark3);
49
50             // Calculating total marks and average marks
51             students[i].total_marks = students[i].mark1 + students[i].mark2 + students[i].mark3;
52             students[i].avg_marks = students[i].total_marks / 3.0;
53         }
54
55         // Sorting the students in descending order of marks
56         sort_students(students, n);
57
58         // Printing the details of all students in descending order of marks
59         printf("\nDetails of all students in descending order of marks:\n");
60 ⊟     for (i = 0; i < n; i++) {
61             printf("Roll No: %d\n", students[i].roll_no);
62             printf("Name: %s\n", students[i].stud_name);
63             printf("Mark 1: %.2f\n", students[i].mark1);
64             printf("Mark 2: %.2f\n", students[i].mark2);
65             printf("Mark 3: %.2f\n", students[i].mark3);
66             printf("Total Marks: %.2f\n", students[i].total_marks);
67             printf("Average Marks: %.2f\n\n", students[i].avg_marks);
68         }
69
70         return 0;
71     }
```

Console output:

```
Enter the number of students: 1
Enter details of student 1:
Roll No: 101
Name: sapna
Mark 1: 50
Mark 2: 69
Mark 3: 76

Details of all students in descending order of marks:
Roll No: 101
Name: sapna
Mark 1: 50.00
Mark 2: 69.00
Mark 3: 76.00
Total Marks: 195.00
Average Marks: 65.00

--------------------------------
Process exited after 34.25 seconds with return value 0
Press any key to continue . . .
```
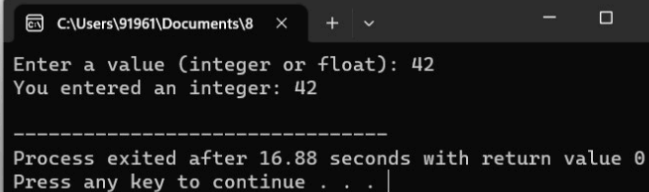
Resources   Compile Log   Debug   Find Results   Console   Close

```
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\91961\Documents\7 assi 4.exe
- Output Size: 377.4248046875 KiB
- Compilation Time: 0.36s
```

7 assi 4.cpp

```cpp
#include <stdio.h>

union Data {
    int i;
    float f;
};

int main() {
    union Data data;

    printf("Enter a value (integer or float): ");
    if (scanf("%d", &data.i) == 1) {
        printf("You entered an integer: %d\n", data.i);
    } else if (scanf("%f", &data.f) == 1) {
        printf("You entered a float: %f\n", data.f);
    } else {
        printf("Invalid input\n");
    }

    return 0;
}
```
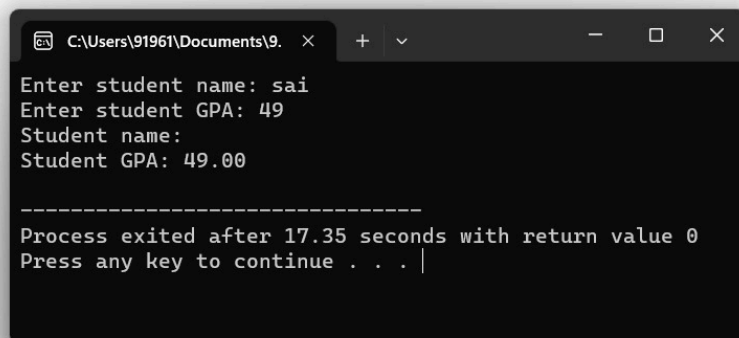
```
C:\Users\91961\Documents\8        ×        +  ∨                    —    □    ×

Enter a value (integer or float): 42
You entered an integer: 42

-----------------------------------
Process exited after 16.88 seconds with return value 0
Press any key to continue . . . |
```

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

union student {
    char name[50];
    float gpa;
};

int main() {
    union student s;

    printf("Enter student name: ");
    fgets(s.name, 50, stdin);

    printf("Enter student GPA: ");
    scanf("%f", &s.gpa);

    printf("Student name: %s\n", s.name);
    printf("Student GPA: %.2f\n", s.gpa);

    return 0;
}
```

```
Enter student name: sai
Enter student GPA: 49
Student name:
Student GPA: 49.00

------------------------------------
Process exited after 17.35 seconds with return value 0
Press any key to continue . . .
```

10.assi 4.cpp ×

```c
#include <stdio.h>

union Shape {
    float radius;   // radius of a circle
    struct {
        float length;
        float width;
    } rectangle;    // length and width of a rectangle
};

int main() {
    union Shape shape;
    char shape_type;

    printf("Enter the type of shape you want to calculate (C for circle, R for rectangle): ");
    scanf("%c", &shape_type);

    if (shape_type == 'C' || shape_type == 'c') {
        printf("Enter the radius of the circle: ");
        scanf("%f", &shape.radius);
        printf("The area of the circle is: %.2f", 3.14 * shape.radius * shape.radius);
    } else if (shape_type == 'R' || shape_type == 'r') {
        printf("Enter the length of the rectangle: ");
        scanf("%f", &shape.rectangle.length);
        printf("Enter the width of the rectangle: ");
        scanf("%f", &shape.rectangle.width);
        printf("The area of the rectangle is: %.2f", shape.rectangle.length * shape.rectangle.width);
    } else {
        printf("Invalid shape type entered. Please enter C for circle or R for rectangle.");
    }

    return 0;
}
```

```
C:\Users\91961\Documents\10

Enter the type of shape you want to calculate (C for circle, R for rectangle): r
Enter the length of the rectangle: 56
Enter the width of the rectangle: 89
The area of the rectangle is: 4984.00
-----------------------------------
Process exited after 24.25 seconds with return value 0
Press any key to continue . . .
```