Assignment-4


```c
        // Accept input from the user
        printf("Enter Employee ID: ");
        scanf("%d", &emp.id);

        printf("Enter Employee Name: ");
        scanf("%s", emp.name);

        printf("Enter Employee Designation: ");
        scanf("%s", emp.designation);

        printf("Enter Employee Department: ");
        scanf("%s", emp.department);

        printf("Enter Employee Salary: ");
        scanf("%f", &emp.salary);

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

        return 0;
}
```

Console output:
```
Enter Employee ID: 549
Enter Employee Name: Ravi
Enter Employee Designation: manager
Enter Employee Department: CSE
Enter Employee Salary: 45000

Employee ID: 549
Employee Name: Ravi
Employee Designation: manager
Employee Department: CSE
Employee Salary: 45000.00
Process returned 0 (0x0)   execution time : 63.137 s
Press any key to continue.
```
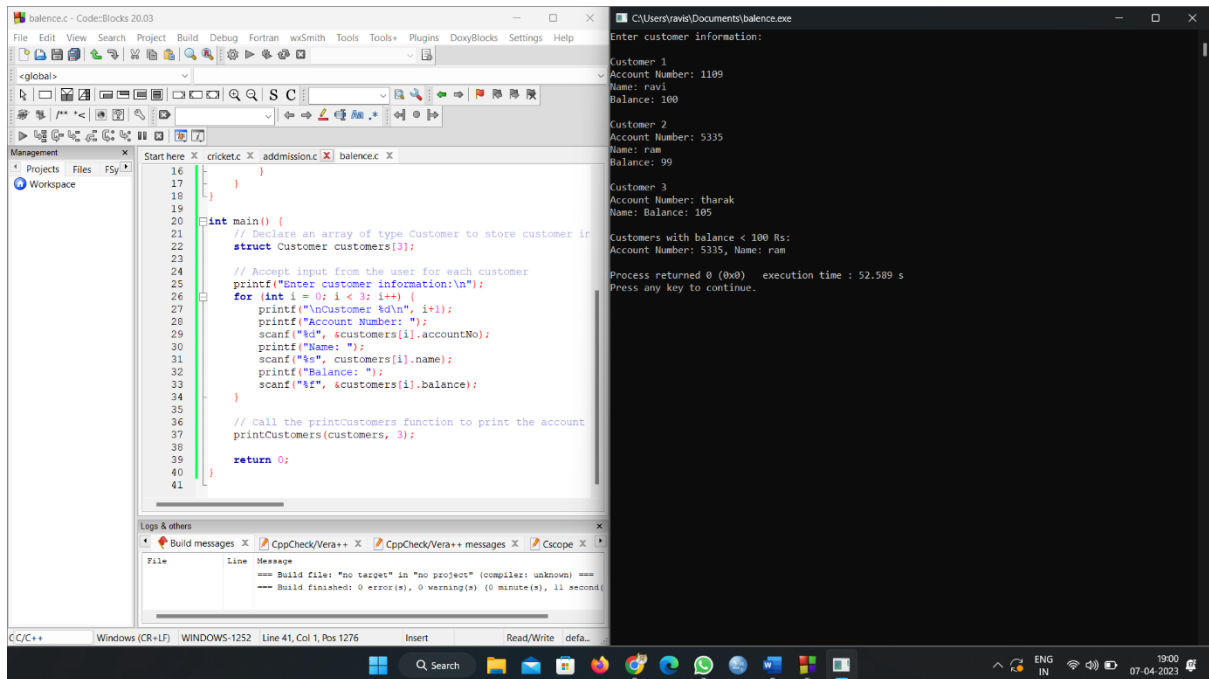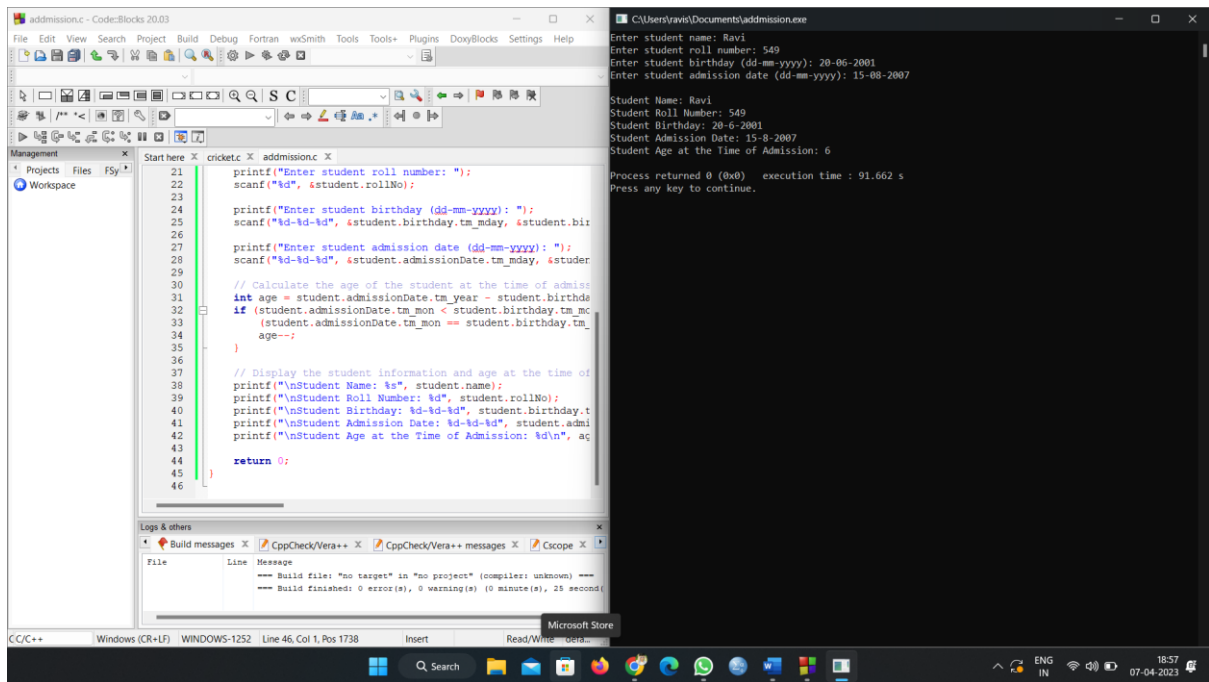


```c
int main() {
    // Declare an array of type Batting to store batting info
    struct Batting players[11];

    // Accept input from the user for each player
    printf("Enter batting information for 11 players:\n");
    for (int i = 0; i < 11; i++) {
        printf("\nPlayer %d\n", i+1);
        printf("Name: ");
        scanf("%s", players[i].name);
        printf("Runs: ");
        scanf("%d", &players[i].runs);
    }

    // Calculate the total runs scored by the team
    int totalRuns = 0;
    for (int i = 0; i < 11; i++) {
        totalRuns += players[i].runs;
    }

    // Display the total runs scored by the team
    printf("\nTotal runs scored by the team: %d\n", totalRuns);

    return 0;
}
```

Console output:
```
Runs: 85

Player 6
Name: hardik
Runs: 45

Player 7
Name: jaddu
Runs: 20

Player 8
Name: sundhar
Runs: 35

Player 9
Name: shami
Runs: 15

Player 10
Name: siraj
Runs: 6

Player 11
Name: sing
Runs: 6

Total runs scored by the team: 468

Process returned 0 (0x0)   execution time : 130.963 s
Press any key to continue.
```

Start here | cricket.c | addmission.c

```c
21        printf("Enter student roll number: ");
22        scanf("%d", &student.rollNo);
23
24        printf("Enter student birthday (dd-mm-yyyy): ");
25        scanf("%d-%d-%d", &student.birthday.tm_mday, &student.bir
26
27        printf("Enter student admission date (dd-mm-yyyy): ");
28        scanf("%d-%d-%d", &student.admissionDate.tm_mday, &studen
29
30        // Calculate the age of the student at the time of admiss
31        int age = student.admissionDate.tm_year - student.birthda
32        if (student.admissionDate.tm_mon < student.birthday.tm_mo
33            (student.admissionDate.tm_mon == student.birthday.tm_
34            age--;
35        }
36
37        // Display the student information and age at the time of
38        printf("\nStudent Name: %s", student.name);
39        printf("\nStudent Roll Number: %d", student.rollNo);
40        printf("\nStudent Birthday: %d-%d-%d", student.birthday.t
41        printf("\nStudent Admission Date: %d-%d-%d", student.admi
42        printf("\nStudent Age at the Time of Admission: %d\n", ag
43
44        return 0;
45    }
46
```

Logs & others

Build messages | CppCheck/Vera++ | CppCheck/Vera++ messages | Cscope

File   Line   Message
               === Build file: "no target" in "no project" (compiler: unknown) ===
               === Build finished: 0 error(s), 0 warning(s) (0 minute(s), 25 second(

C/C++   Windows (CR+LF)   WINDOWS-1252   Line 46, Col 1, Pos 1738   Insert   Read/Write   defa...

C:\Users\ravis\Documents\addmission.exe

```
Enter student name: Ravi
Enter student roll number: 549
Enter student birthday (dd-mm-yyyy): 20-06-2001
Enter student admission date (dd-mm-yyyy): 15-08-2007

Student Name: Ravi
Student Roll Number: 549
Student Birthday: 20-6-2001
Student Admission Date: 15-8-2007
Student Age at the Time of Admission: 6

Process returned 0 (0x0)   execution time : 91.662 s
Press any key to continue.
```

ENG IN   18:57 07-04-2023

<global>

Start here | cricket.c | addmission.c | balence.c

```c
16            }
17        }
18    }
19
20    int main() {
21        // Declare an array of type Customer to store customer in
22        struct Customer customers[3];
23
24        // Accept input from the user for each customer
25        printf("Enter customer information:\n");
26        for (int i = 0; i < 3; i++) {
27            printf("\nCustomer %d\n", i+1);
28            printf("Account Number: ");
29            scanf("%d", &customers[i].accountNo);
30            printf("Name: ");
31            scanf("%s", customers[i].name);
32            printf("Balance: ");
33            scanf("%f", &customers[i].balance);
34        }
35
36        // Call the printCustomers function to print the account
37        printCustomers(customers, 3);
38
39        return 0;
40    }
41
```

Logs & others

Build messages | CppCheck/Vera++ | CppCheck/Vera++ messages | Cscope

File   Line   Message
               === Build file: "no target" in "no project" (compiler: unknown) ===
               === Build finished: 0 error(s), 0 warning(s) (0 minute(s), 11 second(

C/C++   Windows (CR+LF)   WINDOWS-1252   Line 41, Col 1, Pos 1276   Insert   Read/Write   defa...

C:\Users\ravis\Documents\balence.exe

```
Enter customer information:

Customer 1
Account Number: 1109
Name: ravi
Balance: 100

Customer 2
Account Number: 5335
Name: ram
Balance: 99

Customer 3
Account Number: tharak
Name: Balance: 105

Customers with balance < 100 Rs:
Account Number: 5335, Name: ram

Process returned 0 (0x0)   execution time : 52.589 s
Press any key to continue.
```

ENG IN   19:00 07-04-2023

Console output (left, Word document):

```
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
```

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.

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.

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.

Console output (right, employee.exe):

```
Enter the number of employees: 549

Enter employee details:

Employee 1
Employee Number: 101
Employee Name: ravi
Employee Salary: 45000

Employee 2
Employee Number: 187
Employee Name: ram
Employee Salary: 50000

Employee 3
Employee Number: 335
Employee Name: naveen
Employee Salary: 35000

Employee 4
Employee Number: 400
Employee Name: tharak
Employee Salary: 30000

Employee 5
Employee Number: 206
Employee Name: harish
Employee Salary: 40000

Employee 6
Employee Number: 117
Employee Name: rithik
Employee Salary: 15000

Employee 7
Employee Number: 445
Employee Name: bharath
Employee Salary: 25000

Employee 8
Employee Number: 678
Employee Name: hghgj
Employee Salary: 8760

Employee 9
Employee Number: 665
Employee Name: sai
Employee Salary: 60000
```


Code::Blocks editor (work.c):

```c
71          printf("5. Exit\n");
72          printf("Enter your choice: ");
73          scanf("%d", &choice);
74          getchar(); // consume the newline character left in t
75          switch (choice) {
76              case 1:
77                  add_book();
78                  break;
79              case 2:
80                  display_books();
81                  break;
82              case 3:
83                  list_author_books();
84                  break;
85              case 4:
86                  count_books();
87                  break;
88              case 5:
89                  printf("Goodbye!\n");
90                  break;
91              default:
92                  printf("Invalid choice.\n");
93          }
94      } while (choice != 5);
95      return 0;
96  }
```

Build messages:

```
File        Line  Message
            === Build file: "no target" in "no project" (compiler: unknown) ===
            === Build finished: 0 error(s), 0 warning(s) (0 minute(s), 9 second(s
```

Console output (right, work.exe):

```
Menu:
1. Add book details
2. Display book details
3. List all books of given author
4. List the count of books in the library
5. Exit
Enter your choice: 1
Enter book title: 4
Enter author name: ravi
Enter year of publication: 2007
Enter price: 650
Book added to library.

Menu:
1. Add book details
2. Display book details
3. List all books of given author
4. List the count of books in the library
5. Exit
Enter your choice:
```

record.c — Code::Blocks 20.03

```c
32          scanf("%d", &num_students);
33      struct student students[num_students];
34      for (int i = 0; i < num_students; i++) {
35          printf("Enter details for student %d:\n", i + 1);
36          printf("Roll number: ");
37          scanf("%d", &students[i].roll_no);
38          getchar(); // consume the newline character left in t
39          printf("Name: ");
40          fgets(students[i].stud_name, 50, stdin);
41          printf("Mark 1: ");
42          scanf("%f", &students[i].mark1);
43          printf("Mark 2: ");
44          scanf("%f", &students[i].mark2);
45          printf("Mark 3: ");
46          scanf("%f", &students[i].mark3);
47          calculate_marks(&students[i]);
48      }
49      sort_records(students, num_students);
50      printf("\nRoll No.\tName\t\tTotal Marks\tAverage Marks\n"
51      printf("-----------------------------------------------
52      for (int i = 0; i < num_students; i++) {
53          printf("%d\t\t%s\t\t%.2f\t\t%.2f\n", students[i].roll
54      }
55      return 0;
56  }
57
```

Console — C:\Users\ravis\Documents\record.exe

```
Enter the number of students: 2
Enter details for student 1:
Roll number: 549
Name: ravi
Mark 1: 70
Mark 2: 90
Mark 3: 100
Enter details for student 2:
Roll number: 187
Name: ram
Mark 1: 2
Mark 2: 3
Mark 3: 4

Roll No.        Name            Total Marks     Average Marks
-----------------------------------------------------------
549             ravi
                260.00          86.67
187             ram
                9.00            3.00

Process returned 0 (0x0)   execution time : 29.391 s
Press any key to continue.
```

declare.c — Code::Blocks 20.03

```c
1   #include <stdio.h>
2
3   union Data {
4       int i;
5       float f;
6   };
7
8   int main() {
9       union Data data;
10      char choice;
11      printf("Enter a value of your choice (i for integer, f for
12      scanf("%c", &choice);
13      if (choice == 'i') {
14          printf("Enter an integer value: ");
15          scanf("%d", &data.i);
16          printf("You entered the integer value: %d\n", data.i);
17      } else if (choice == 'f') {
18          printf("Enter a float value: ");
19          scanf("%f", &data.f);
20          printf("You entered the float value: %.2f\n", data.f);
21      } else {
22          printf("Invalid choice!\n");
23      }
24      return 0;
25  }
26
```

Console — C:\Users\ravis\Documents\declare.exe

```
Enter a value of your choice (i for integer, f for float): 2
Invalid choice!

Process returned 0 (0x0)   execution time : 7.126 s
Press any key to continue.
```

First program (define.c):

```c
#include <stdio.h>

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

int main() {
    union student s;
    printf("Enter the student's name: ");
    fgets(s.name, 50, stdin);
    printf("Enter the student's GPA: ");
    scanf("%f", &s.gpa);
    printf("Student's name: %s\n", s.name);
    printf("Student's GPA: %.2f\n", s.gpa);
    return 0;
}
```

Terminal output (define.exe):

```
Enter the student's name: ravi
Enter the student's GPA: 9.0
Student's name:
Student's GPA: 9.00

Process returned 0 (0x0)   execution time : 9.219 s
Press any key to continue.
```

Second program (def.c):

```c
        float length;
        float width;
    } rectangle;
};

int main() {
    union shape s;
    char choice;
    printf("Enter the shape you want to calculate (c for circ
    scanf("%c", &choice);
    if (choice == 'c') {
        printf("Enter the radius of the circle: ");
        scanf("%f", &s.radius);
        float area = PI * s.radius * s.radius;
        printf("Area of the circle: %.2f\n", area);
    } else if (choice == 'r') {
        printf("Enter the length and width of the rectangle:
        scanf("%f %f", &s.rectangle.length, &s.rectangle.widt
        float area = s.rectangle.length * s.rectangle.width;
        printf("Area of the rectangle: %.2f\n", area);
    } else {
        printf("Invalid choice!\n");
    }
    return 0;
}
```

Terminal output (def.exe):

```
Enter the shape you want to calculate (c for circle, r for rectangle): circle
Enter the radius of the circle: Area of the circle: 0.00

Process returned 0 (0x0)   execution time : 23.671 s
Press any key to continue.
```