

# EXPERIMENT-7

**QUESTION-1:** Write a C program that uses functions to perform the following operations:

- a. Reading a complex number.
- b. Writing a complex number.
- c. Addition and subtraction of two complex numbers

Note: represent complex number using a structure.

**CODE:**

```
#include <stdio.h>

struct Complex
{
    float real;
    float imag;
};

struct Complex readComplex()
{
    struct Complex c;
    printf("Enter real and imaginary parts: ");
    scanf("%f %f", &c.real, &c.imag);
    return c;
}

void printComplex(struct Complex c)
{
    printf("%.2f + %.2fi\n", c.real, c.imag);
}

struct Complex addComplex(struct Complex a, struct Complex b)
{
    struct Complex result;
    result.real = a.real + b.real;
```

```

result.imag = a.imag + b.imag;
return result;
}

struct Complex subComplex(struct Complex a, struct Complex b)
{
    struct Complex result;
    result.real = a.real - b.real;
    result.imag = a.imag - b.imag;
    return result;
}

int main()
{
    struct Complex num1, num2, sum, diff;

    printf("Enter first complex number:\n");
    num1 = readComplex();

    printf("Enter second complex number:\n");
    num2 = readComplex();

    sum = addComplex(num1, num2);
    diff = subComplex(num1, num2);

    printf("\nSum: ");
    printComplex(sum);

    printf("Difference: ");
    printComplex(diff);

    return 0;
}

```

**OUTPUT:**

**(a)** Enter first complex number:

Enter real and imaginary parts: 5

4==

Enter second complex number:

Enter real and imaginary parts: 6

7

Sum:  $11.00 + 11.00i$

Difference:  $-1.00 + -3.00i$

**(b)** Enter first complex number:

Enter real and imaginary parts: 0

0

Enter second complex number:

Enter real and imaginary parts: 0

0

Sum:  $0.00 + 0.00i$

Difference:  $0.00 + 0.00i$

**QUESTION-2:** Write a C program to compute the monthly pay of 100 employees using each employee's name, basic pay. The DA is computed as 52% of the basic pay. Gross-salary (basic pay + DA). Print the employees name and gross salary.

**CODE:**

```
#include <stdio.h>
struct employee
{
    char name[50];
    float basic_pay;
};
int main()
{
    int n,i;
    printf("enter no of employees:");
    if (scanf("%d", &n) != 1)
    {
        printf("invalid input");
        return 0;
    }
    struct employee employees[n];
    for(i = 0; i < n; i++)
    {
        printf("Enter name for employee %d: ", i + 1);
        if(scanf("%s", employees[i].name) !=1)
        {
            printf("invalid input");
            return 0;
        }
        printf("Enter basic pay for employee %d: ", i + 1);
        if (scanf("%f", &employees[i].basic_pay) !=1)
        {
            printf("invalid input");
            return 0;
        }
    }
    for(i = 0; i < n; i++)
```

```

{
float DA=0.52*employees[i].basic_pay;
float gross_salary=employees[i].basic_pay+DA;
printf("name: %s gross salary: %f\n", employees[i].name,gross_salary);
}
return 0;
}

```

## OUTPUT:

(a) enter no of employees:2

Enter name for employee 1: j h

Enter basic pay for employee 1: invalid input%

(b) enter no of employees:0

**QUESTION-3:**Create a Book structure containing book\_id, title, author name and price. Write a C program to pass a structure as a function argument and print the book details.

## CODE:

```

#include <stdio.h>
struct book
{
int book_id;
char title[50];
char author_name[50];
int price;
};
void print(struct book b)
{
printf("Book ID: %d\n", b.book_id);
printf("Title: %s\n", b.title);
printf("Author: %s\n", b.author_name);
printf("Price: %d\n", b.price);
}

```

```
}  
int main()  
{  
    struct book bk;  
    printf("enter book id:");  
    scanf("%s", &bk.book_id);  
    printf("enter title:");  
    scanf("%s", &bk.title);  
    printf("enter author name:");  
    scanf("%s", &bk.author_name);  
    printf("enter price:");  
    scanf("%s", &bk.price);  
    print(bk);  
    return 0;  
}
```

## OUTPUT:

enter book id:346

enter title:harry

enter author name:jkrowling

enter price:350

Book ID: 346

Title: harry

Author: jkrowling

Price: 350

**QUESTION-4:** Create a union containing 6 strings: name, home\_address, hostel\_address, city, state and zip. Write a C program to display your present address.

## CODE:

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

```
union Address
{
char name[50];
char home_address[100];
char hostel_address[100];
char city[50];
char state[50];
char zip[10];
};

int main()
{
union Address adr = { "Room 214, F BLOCK Hostel" };
printf("Present Address:\n%s\n", adr.hostel_address);
return 0;
}
```

**OUTPUT:** Present Address:

Room 214, F BLOCK Hostel