

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