



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal, Hyderabad – 500 043

LABORATORY WORK SHEET

Date: 25/09/22

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Exp No: 08 Experiment Name: STRUCTURES AND UNIONS

DAY TO DAY EVALUATION:

	Preparation	Algorithm	Source Code	Program Execution	Viva	Total
		Performance in the Lab	Calculations and Graphs	Results and Error Analysis		
Max. Marks	4	4	4	4	4	20
Obtained	4	4	4	4	3	19

Signature of Lab I/C

START WRITING FROM HERE:

- a. Write a C program that uses functions to perform the following operations:
- 1] Reading a complex number.
 - 2] Writing a complex number
 - 3] Addition & subtraction of two complex numbers.
- NOTE: Represent complex number using a structure
- ```
#include <stdio.h>
#include <string.h>
struct complex {
 int r, i;
};
c1, c2, c3;
void add (struct complex c1, struct complex c2);
void sub (struct complex c1, struct complex c2);
void main() {
 printf("\n Enter first complex num:");
 scanf("%d %d", &c1.r, &c1.i);
 printf("\n Enter second complex num:");
 scanf("%d %d", &c2.r, &c2.i);
```

```

printf("\n Enter first complex num: %.1d + i %.1d", c1.r, c1.i);
printf("\n Enter second complex num: %.1d + i %.1d", c2.r, c2.i);
add(c1, c2);
sub(c1, c2);
}
void add(struct complex c1, struct complex c2) {
 c3.r = c1.r + c2.r;
 c3.i = c1.i + c2.i;
 printf("\n Add of two comp num is %.1d + i %.1d", c3.r, c3.i);
}
void sub(struct complex c1, struct complex c2) {
 c3.r = c1.r - c2.r;
 c3.i = c1.i - c2.i;
 printf("\n sub of two comp num is %.1d - i %.1d", c3.r, c3.i);
}

```

INPUT:

Enter first complex num: 4 9      First complex num: 4 + i 9  
 Enter second complex num: 5 6      Second complex num: 5 + i 6  
 Add of two comp num is 9 + i 15  
 Sub of two comp num is -1 - i 3

- b. 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 employee's name and gross salary.

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

```
struct employee {
```

```
 char name[20];
```

```
 float basic;
```

```
 float da;
```

```
 float gross;
```

```
}
```

```
e[5];
```

```
void main() {
```

```
 int i;
```

```
 for (i = 0; i < 5; i++)
```

```
 scanf("%s %f", e[i].name, &e[i].basic);
```



```

for (i=0; i<5; i++) {
 e[i].da = 52.0/100 * e[i].basic;
 e[i].gross = e[i].da + e[i].basic;
 printf("\n name = %s gross = %.1f", e[i].name, e[i].gross);
}
}

```

INPUT:

Asma  
2300  
Afroz  
32000  
Jyothi  
15000  
Krishna  
12000  
Joshna  
22000

OUTPUT:

name = Asma gross = 3496.000000  
 name = Afroz gross = 48640.000000  
 name = Jyothi gross = 22800.000000  
 name = Krishna gross = 18240.000000  
 name = Joshna gross = 33400.000000

- c. 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.

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

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

```
struct book {
```

```
int bookid;
```

```
char title[30];
```

```
char author[20];
```

```
float price;
```

```
}
```

```
void print_book(struct book b1);
```

```
void main() {
```

```
struct book b1;
```

```
printf("\n Enter book details:");
```

```
scanf("%d %s %s %f", &b1.bookid, &b1.title, &b1.author, &b1.price);
```

```
print_book(b1);
```

```
}
```

```
void print_book(struct book b1) {
```

```
printf("\n Book details: %d %s %s %.1f", b1.bookid, b1.title, b1.author, b1.price);
```

```
}
```

INPUT: Enter book details: 201 c programming Balaguruswamy 230

OUTPUT: Book details: 201 c programming Balaguruswamy

230.000000

- d. Create a union containing 6 string; name, home-address, hostel-address, city, state & zip. Write a C program to display your present address.

```
#include <stdio.h>
#include <string.h>
union details {
 char name[20];
 char home-address[30];
 char hostel-address[30];
 char city[10];
 char state[10];
 int pincode;
};
a;
void main() {
 strcpy(a.name, "Jyothi Prasanna");
 printf("\n %s", a.name);
 strcpy(a.home-address, "1-32/2, NGO's Colony");
 printf("\n %s", a.home-address);
 strcpy(a.hostel-address, "Iare college");
 printf("\n %s", a.hostel-address);
 strcpy(a.city, "Hyderabad");
 printf("\n %s", a.city);
 strcpy(a.state, "Telangana");
 printf("\n %s", a.state);
 a.pincode = 501401;
 printf("\n %d", a.pincode);
 return 0;
}
```

OUTPUT:

Jyothi Prasanna

1-32/2, NGO's Colony

Iare college

Hyderabad

Telangana

501401

Signature  
27/7/22