

Practical File Of Fundamentals of C Programming(23CS001)

Submitted

in partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING
in
COMPUTER SCIENCE & ENGINEERING



**CHANDIGARH-PATIALA NATIONAL HIGHWAY RAJPURA
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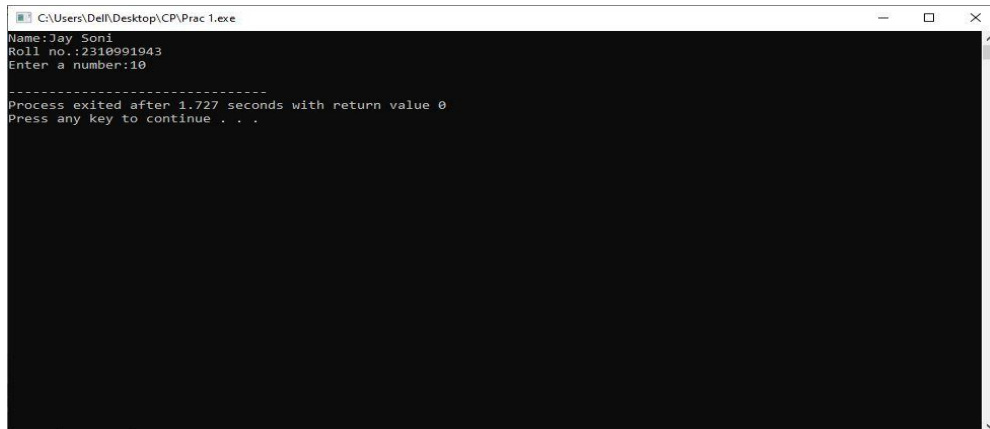
Sr.No.	Practical Name	Teacher Sign
1	Write a Program to show the use to input (Scanf)/output (Printf) statements and block structure of C-program by highlighting the features of "stdio.h".	
2	Write a program to add two numbers and display the sum.	
3	Write a program to calculate the area and the circumference of a circle by using radius as the input provided by the user.	
4	Write a Program to perform addition, subtraction, division and multiplication of two numbers given as input by the user.	
5	Write a program to evaluate each of the following equations. (i) $V = u + at$. (ii) $S = ut + \frac{1}{2}at^2$ (iii) $T = 2\sqrt{a+vb} + 9c$ (iv) $H = \sqrt{b^2 + p}$	
6	Write a program to swap two variable: a) By using temporary variable. b)) By using temporary variable.	
7	Write a Program to find the greatest among three numbers using: • Conditional Operator • If-Else statement	
8	Write the following programs using switch case statement: • To check that an input alphabet is vowel or consonant • To check whether a number is positive, negative or zero	

Program 1: Write a Program to show the use to input (Scanf)/output (Printf) statements and block structure of C-program by highlighting the features of "stdio.h".

Solution:

```
#include <stdio.h>
int main()
{
    printf("Name:Jay Soni\nRoll no.:2310991943\n");
    printf("Enter a number:");
    int num;
    scanf("%d",&num);
    return 0;
}
```

Output:



```
C:\Users\Delhi\Desktop\CP\Prac 1.exe
Name:Jay Soni
Roll no.:2310991943
Enter a number:10

-----
Process exited after 1.727 seconds with return value 0
Press any key to continue . . .
```

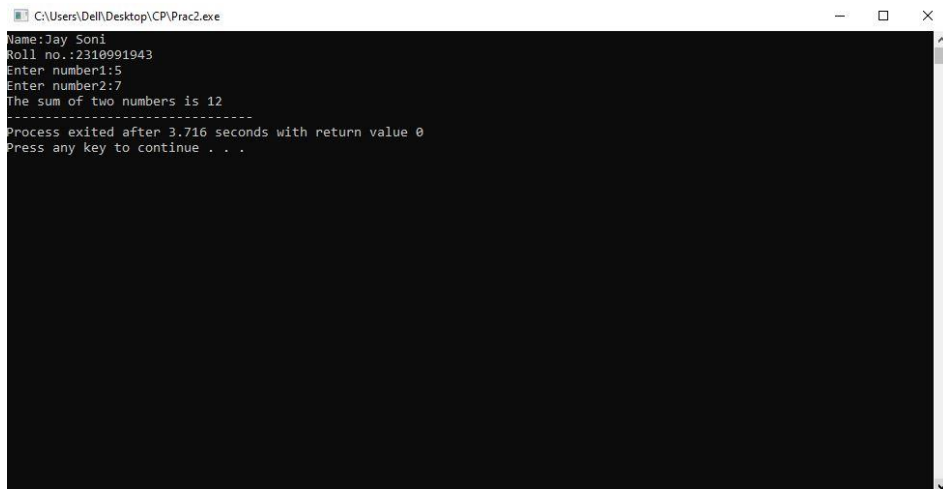
Program 2: Write a program to add two numbers and display the sum.

Solution:

```
#include <stdio.h>

int main()
{
    printf("Name:Jay Soni\nRoll no.:2310991943\n");
    int num1,num2,sum;
    printf("Enter number1:");
    scanf("%d",&num1);
    printf("Enter number2:");
    scanf("%d",&num2);
    sum=num1+num2;
    printf("The sum of two numbers is %d",sum);
    return 0;
}
```

Output:



```
C:\Users\Devi\Desktop\CP\Prac2.exe
Name:Jay Soni
Roll no.:2310991943
Enter number1:5
Enter number2:7
The sum of two numbers is 12
-----
Process exited after 3.716 seconds with return value 0
Press any key to continue . . .
```

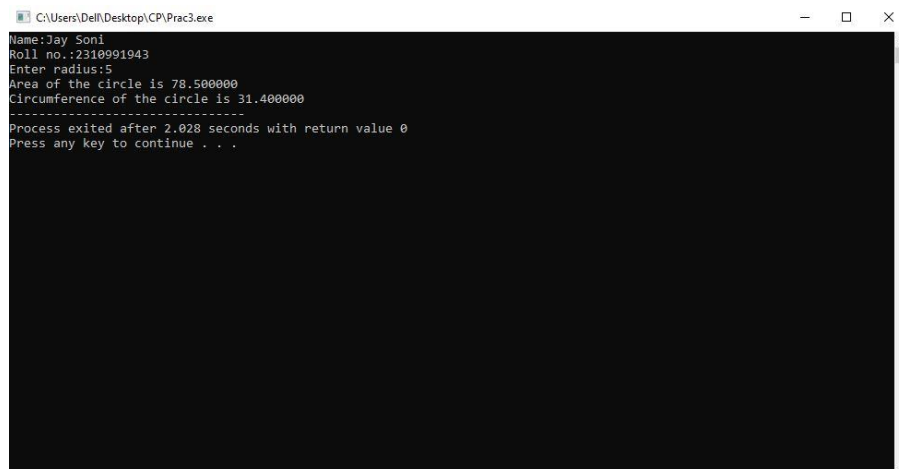
Program 3: Write a program to calculate the area and the circumference of a circle by using radius as the input provided by the user.

Solution:

```
#include <stdio.h>

int main()
{
    printf("Name:Jay Soni\nRoll no.:2310991943\n");
    float radius,area,circumference;
    printf("Enter radius:");
    scanf("%f",&radius);
    area=3.14*radius*radius;
    printf("Area of the circle is %f\n",area);
    circumference=2*3.14*radius;
    printf("Circumference of the circle is %f",circumference);
    return 0;
}
```

Output:



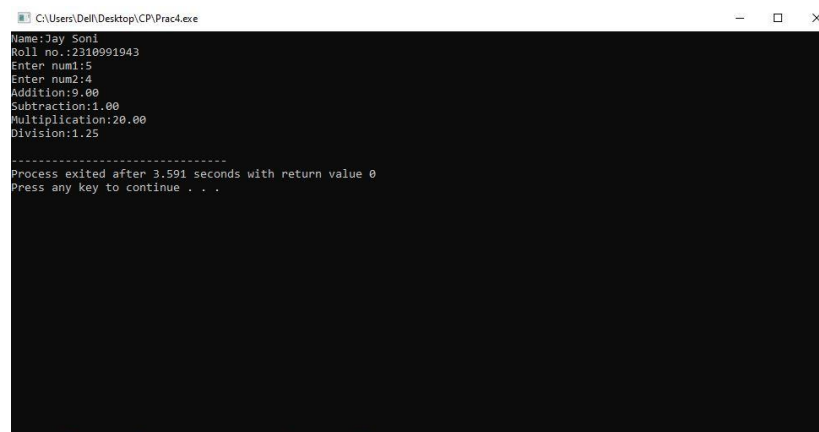
```
C:\Users\Deell\Desktop\CP\Prac3.exe
Name:Jay Soni
Roll no.:2310991943
Enter radius:5
Area of the circle is 78.500000
Circumference of the circle is 31.400000
-----
Process exited after 2.028 seconds with return value 0
Press any key to continue . . .
```

Program 4: Write a Program to perform addition, subtraction, division and multiplication of two numbers given as input by the user.

Solution:

```
#include <stdio.h>
int main()
{
    printf("Name:Jay Soni\nRoll no.:2310991943\n");
    float num1,num2,addition,subtraction,multiplication,division;
    printf("Enter num1:");
    scanf("%f",&num1);
    printf("Enter num2:");
    scanf("%f",&num2);
    addition=num1+num2;
    subtraction=num1-num2;
    multiplication=num1*num2;
    division=num1/num2;
    printf("Addition:%.2f\n",addition);
    printf("Subtraction:%.2f\n",subtraction);
    printf("Multiplication:%.2f\n",multiplication);
    printf("Division:%.2f\n",division);
    return 0;
}
```

Output:



```
C:\Users\Devi\Desktop\CP\Prac4.exe
Name:Jay Soni
Roll no.:2310991943
Enter num1:5
Enter num2:4
Addition:9.00
Subtraction:1.00
Multiplication:20.00
Division:1.25
-----
Process exited after 3.591 seconds with return value 0
Press any key to continue . . .
```

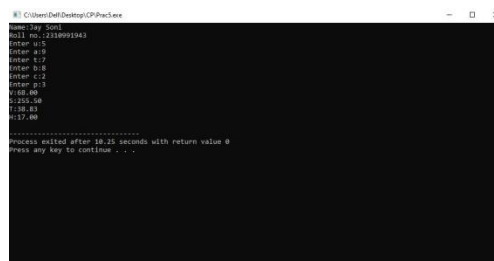
Program 5: Write a program to evaluate each of the following equations. (i) $V = u + at$. (ii) $S = ut + \frac{1}{2}at^2$ (iii) $T = 2\sqrt{a + \sqrt{b + 9c}}$ (iv) $H = \sqrt{b^2 + p}$

Solution:

```
#include <stdio.h>

#include <math.h>
int main()
{
    printf("Name:Jay Soni\nRoll no.:2310991943\n");
    float u,a,t,b,c,p,V,S,T,H;
    printf("Enter u:");
    scanf("%f",&u);
    printf("Enter a:");
    scanf("%f",&a);
    printf("Enter t:");
    scanf("%f",&t);
    printf("Enter b:");
    scanf("%f",&b);
    printf("Enter c:");
    scanf("%f",&c);
    printf("Enter p:");
    scanf("%f",&p);
    V= u+a*t; S= u*t+0.5*a*t*t;
    T= 2*a+sqrt(b)+9*c; H= sqrt(b*b)+p*p;
    printf("V:%.2f\n",V);
    printf("S:%.2f\n",S);
    printf("T:%.2f\n",T);
    printf("H:%.2f\n",H);
    return 0;
}
```

Output:



```

Name:Jay Soni
Roll no.:2310991943
Enter u:5
Enter a:9
Enter t:7
Enter b:8
Enter c:2
Enter p:3
V:68.00
S:245.00
T:28.00
H:17.00
Process exited after 18.75 seconds with return value 0
Press any key to continue . . .
```

Practical 6: Write a program to swap two variables.

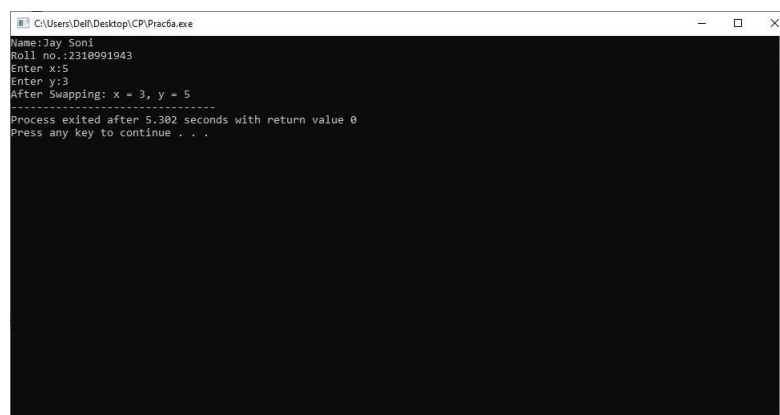
a. By using temporary variable.

b. Without using temporary variable.

Solution:

```
a. #include <stdio.h>
int main()
{
    printf("Name:Jay Soni\nRoll no.:2310991943\n");
    int x,y;
    printf("Enter x:");
    scanf("%d",&x);
    printf("Enter y:");
    scanf("%d",&y);
    if (y == 0){
        y = x;
        x = 0;}
    else if (x == 0){
        x = y;
        y = 0;}
    else{
        x = x * y;
        y = x / y;
        x = x / y;}
    printf("After Swapping: x = %d, y = %d", x, y);
    return 0;
}
```

Output:



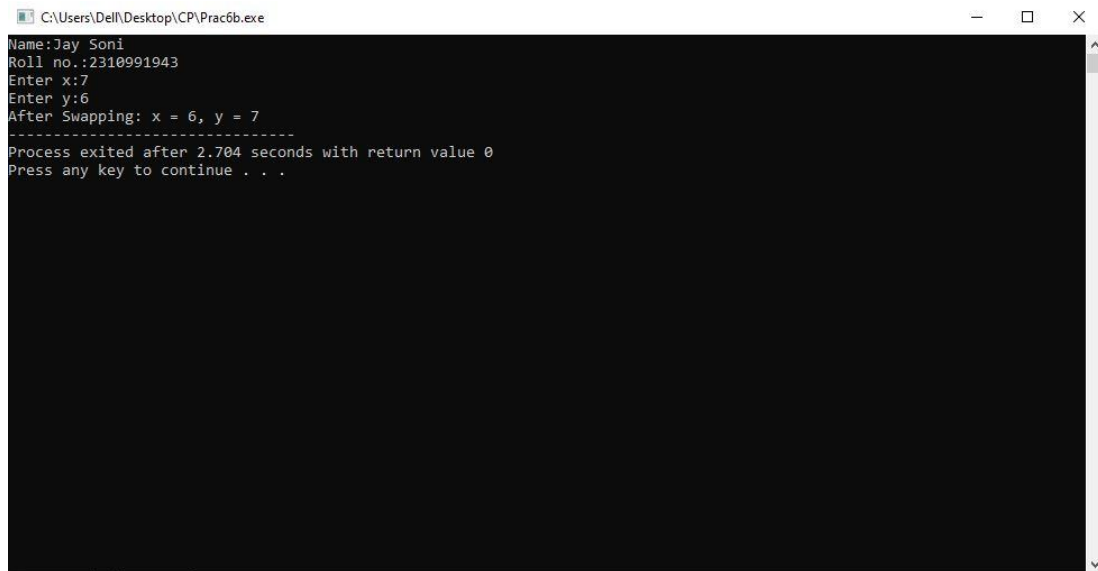
```
C:\Users\Debi\Desktop\CP\Prac6a.exe
Name:Jay Soni
Roll no.:2310991943
Enter x:5
Enter y:3
After Swapping: x = 3, y = 5
Process exited after 5.302 seconds with return value 0
Press any key to continue . . .
```


Solution:

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

int main()
{
    printf("Name:Jay Soni\nRoll no.:2310991943\n");
    int x,y,temp;
    printf("Enter x:");
    scanf("%d",&x);
    printf("Enter y:");
    scanf("%d",&y);
    temp = x;
    x = y;
    y = temp;
    printf("After Swapping: x = %d, y = %d", x, y);
    return 0;
}
```

Output:



```
C:\Users\Dell\Desktop\CP\Prac6b.exe
Name:Jay Soni
Roll no.:2310991943
Enter x:7
Enter y:6
After Swapping: x = 6, y = 7
-----
Process exited after 2.704 seconds with return value 0
Press any key to continue . . .
```

Program 7: Write a Program to find the greatest among three numbers using:

a. Conditional Operator

b. If-Else statement

Solution:

a. #include <stdio.h>

int main()

{

printf("Name:Jay Soni\nRoll no.:2310991943\n");

int num1, num2, big, num3;

printf("Enter 1st Number: ");

scanf("%d", &num1);

printf("Enter 2nd Number: ");

scanf("%d", &num2);

printf("Enter 3rd Number: ");

scanf("%d", &num3);

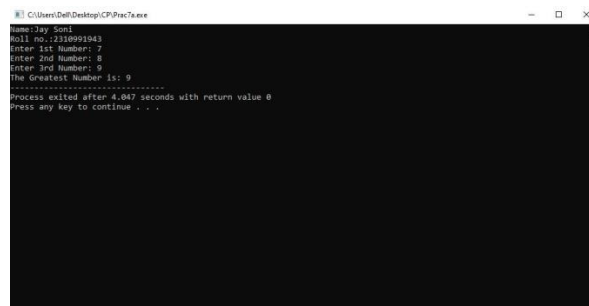
big = (num1 > num2 && num1 > num3 ? num1 : num2 > num3 ? num2 : num3);

printf("The Greatest Number is: %d", big);

return 0;

}

Output:



```
C:\Users\Devi\Desktop\CPP\Prac7.exe
Name:Jay Soni
Roll no.:2310991943
Enter 1st Number: 7
Enter 2nd Number: 8
Enter 3rd Number: 9
The Greatest Number is: 9
.....
Process exited after 4.047 seconds with return value 0
Press any key to continue . . .
```

Solution:

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

int main()
{
    printf("Name:Jay Soni\nRoll no.:2310991943\n");

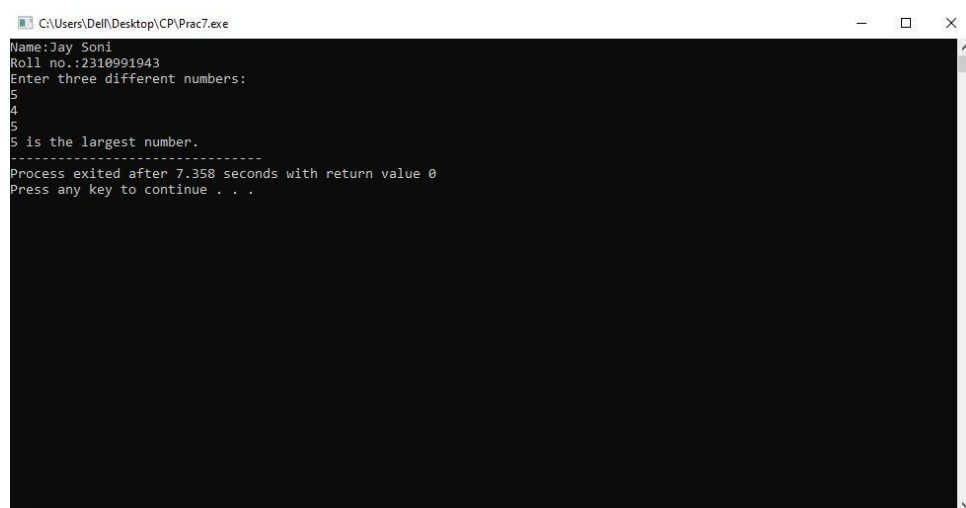
    int n1, n2, n3;

    printf("Enter three different numbers: \n");
    scanf("%d %d %d", &n1, &n2, &n3);

    if (n1 >= n2 && n1 >= n3){
        printf("%d is the largest number.", n1);}
    else if (n2 >= n1 && n2 >= n3){
        printf("%d is the largest number.", n2);}
    else{
        printf("%d is the largest number.", n3);}

    return 0;
}
```

Output:



```
C:\Users\Del\N\Desktop\CP\Prac7.exe
Name:Jay Soni
Roll no.:2310991943
Enter three different numbers:
5
4
5
5 is the largest number.
-----
Process exited after 7.358 seconds with return value 0
Press any key to continue . . .
```

Program 8. Write the following programs using switch case statement:

a. To check that an input alphabet is vowel or consonant

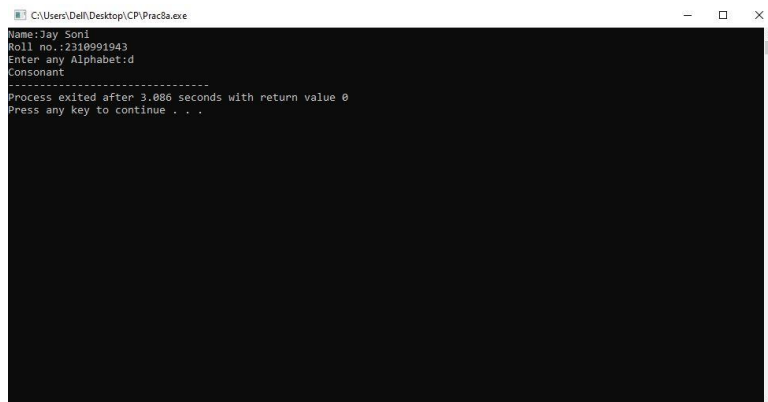
b. To check whether a number is positive, negative or zero

Solution:

```
a) #include <stdio.h>
int main()
{
    printf("Name:Jay Soni\nRoll no.:2310991943\n");
    char x;
    printf("Enter any Alphabet:");
    scanf("%c", &x);
    switch (x{
    case 'a':
        printf("Vowel");
        break;
    case 'e':
        printf("Vowel");
        break;
    case 'i':
        printf("Vowel");
        break;
    case 'o':
        break;
    case 'u':
        printf("Vowel");

        printf("Vowel");
        break;
    default:
        printf("Consonant");
        break;}
    return 0;
}
```

Output:

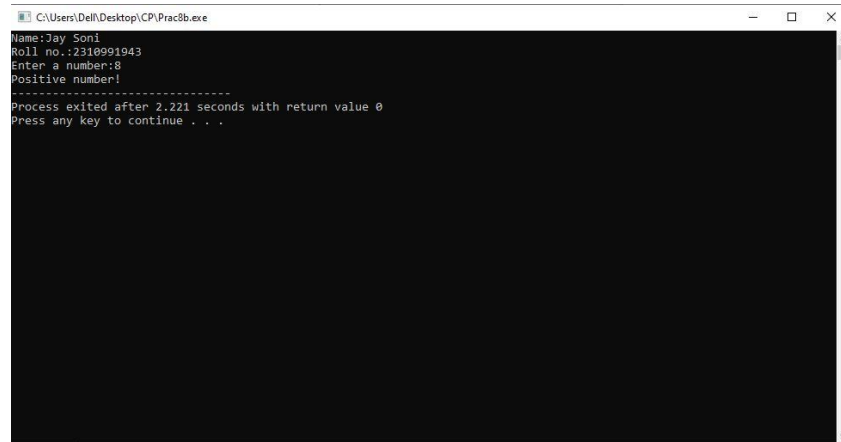
A screenshot of a Windows command prompt window titled "C:\Users\Devi\Desktop\CP\Prac8a.exe". The window has a black background with white text. The output shows: "Name:Jay Soni", "Roll no.:2310991943", "Enter any Alphabet:d", "Consonant", a separator line of dashes, "Process exited after 3.086 seconds with return value 0", and "Press any key to continue . . .".

```
C:\Users\Devi\Desktop\CP\Prac8a.exe
Name:Jay Soni
Roll no.:2310991943
Enter any Alphabet:d
Consonant
-----
Process exited after 3.086 seconds with return value 0
Press any key to continue . . .
```

Solution:

```
b) #include <stdio.h>
int main()
{
    printf("Name:Jay Soni\nRoll no.:2310991943\n");
    int num;
    printf("Enter a number:");
    scanf("%d",&num);
    switch (num>0){
    case 1:
        printf("Positive number!");
        break;
    case 0:
        switch (num<0){
        case 1:
            printf("Negative number!");
            break;
        default:
            printf("Zero!");
            break;}
    }
    return 0;
}
```

Output:



```
C:\Users\Delh\Desktop\CP\Prac8b.exe
Name:Jay Soni
Roll no.:2310991943
Enter a number:8
Positive number!
.....
Process exited after 2.221 seconds with return value 0
Press any key to continue . . .
```