VIVEKANANDA INSTITUTE OF PROFESSIONAL STUDIES- Technical Campus

VIVEKANANDA SCHOOL OF INFORMATION TECHNOLOGY

PRACTICAL FILE

Programming using 'C' Language

(BCA 171)

Bachelor of Computer Application

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Practical File Index

P.NO.	Title	Date	Signature
1	WAP to study variables and constants of int and float data types	29|09|23	
2	WAP to read two variables of type int and float. Read their values from the user and print the values	29|09|23	
3	WAP to read two integers from user and print both the numbers. Find their sum and assign it to third variable	29|09|23	
4	WAP to read numbers for five subjects and print their sum and average.	29|09|23	
5	WAP to read two floating type numbers from user. Calculate their sum, difference, product and average	06|10|23	
6	WAP to read Principle amount and time for a loan application. Take Rate of interest as a symbolic constant. Calculate Simple interest and display results	09|10|23	
7	WAP to read temperature in Celcius and convert it to Farenheit and vice-versa. Display the results of the program	09|10|23	
8	To swap two numbers using third variable	09|10|23	
9	To swap two numbers without using third variable	09|10|23	
10	Read input from user at runtime and convert time from -hours to seconds -hours to minutes -minutes to seconds -days to seconds	16|10|23	
11	To find area and perimeter of rectangle. Read input from user	16|10|23	
12	To print perimeter and area of circle. Read input from user	16|10|23	
13	To apply mathematical operation on ASCII value of character variables	16|10|23	
14	Mathematical operation on character to get other character	16|10|23	
15	WAP to read from user the values for 3 products (item_no, quantity, price). Find the total bill value and display. Also, allow a discount of 10% on the total bill and display net bill value	16|10|23	
16	To find maximum of two numbers by using Conditional operator	17|10|23	
17	To find maximum of three numbers using Conditional operator	17|10|23	
18	To find maximum of two numbers by using if else statement	17|10|23	
19	To find maximum of three numbers by if else if statement	17|10|23	
20	To find grades on the basis of marks, using if-else and relational operators Average marks Grade 80 to 100 Honours 60 to 79 First Division 50 to 59 Second Division 40 to 49 Third Division 0 to 39 Fail	23|10|23	
21	To find electricity charges based on consumption Consumption Units Rate of Charge 0 – 200 Rs. 0.50 per unit 201 – 400 Rs. 100 plus Rs. 0.65 per unit excess of 200 401 – 600 Rs. 230 plus Rs. 0.80 per unit excess of 400 601 and above Rs. 390 plus Rs. 1.00 per unit excess of 600	23|10|23	

22	WAP to read two integers and an operator (+,-,*,/,%). Use switch-case statement to get result of operator on two integers.	23|10|23	
23	To find nature of roots of quadratic equations	23|10|23	
24	WAP to print natural numbers till n using while loop. Also print reverse counting from m to 1. Get m,n from user at runtime	23|10|23	
25	WAP to compute xn using while statement	23|10|23	
26	WAP to generate multiplication tables using nested do-while statements	26|10|23	
27	WAP to print following patterns: triangle of '*', triangle of digits	26|10|23	
28	To read an integer and print sum of its digits using while loop. Construct and print reverse on n-digit number using do-while loop	30|10|23	
29	To determine if given number is prime or composite	30|10|23	
30	To print sum of first n odd natural numbers	30|10|23	
31	To print sum of series: 1+1/2+…..+1/n	30|10|23	
32	WAP to implement a function printline(int n,char ch) to print 'ch' n-times	30|10|23	
33	program to find simple interest in a function. Create function with arguments and return type	01|11|23	
34	Program to swap two numbers using functions (call by reference)	01|11|23	
35	Program to find factorial of a number using function and return its value in the calling function	06|11|23	
36	Program to find factorial of a number using recursion	06|11|23	
37	Program to display usage of static variables	06|11|23	
38	Program to display Fibonacci series using recursion	10|11|23	
39	Program to find all 3-digit Armstrong numbers	10|11|23	
40	To read a number and check if it is odd or even (if-else)	10|11|23	
41	To Check whether the given 4-digit no. is a palindrome.	10|11|23	
42	Program to show sum of n elements of array & show the average.	10|11|23	
43	Program to find the maximum and minimum integer in an array using functions.	10|11|23	
44	Program to perform Linear search.	20|11|23	
45	Program to generate reverse array for a given array.	20|11|23	
46	Program to perform Matrix Operations (switch-case): Addition, Subtraction, Multiplication and Transpose	20|11|23	
47	Program to read character array using getchar() in do-while loop and print it. Find its length and number of vowels (Case-sensitive)	20|11|23	
48	Program to find reverse of a string (without inbuilt function.)	22|11|23	
49	Program to compare and concatenate two string (without inbuilt function)	22|11|23	
50	Program to copy a string to another string (without inbuilt function.)	22|11|23	
51	Program to show the use of string function: strcpy(), strcat(), strcmp(), strlen().	22|11|23	
52	Program to find if a given string is palindrome or not.	22|11|23	
53	Program to define pointer variables for int, char and float. Print their values (using *) and addresses using pointers.	29|11|23	
54	Program using pointers to read array elements and find their sum.	29|11|23	
55	Program to find length of string using pointers.	29|11|23	
56	Program to declare an array of pointers, read values and print them.	29|11|23	

57	Program to enter book records, using structures	29|11|23	
58	Program to enter employee salary records, using structures. Create array of structures	29|11|23	
59	Program to define a structure stores and write a function update() to change the values of its members. (Pass structure to update() and return structure.)	29|11|23	
60	Program to open a file, read character data from keyboard and write it into the file. Close the file and reopen it to print the contents.	01|12|23	
61	Program to open a file, read integer data from keyboard and write it into the file. Close the file and reopen it to print the contents.	01|12|23	
62	Program to demonstrate use of malloc() and free().	01|12|23	

PROGRAM 1

WAP to study variables and constant of int and float data types.

```c
#include<stdio.h>
int main()
{
    const int int_const=77;
const float float_const=63.82;
int int_var=26;
float float_var=83.3;
printf("Rishi Das\n");
printf("value of integer constant:%d\n",int_const);
printf("value of integer variable:%d\n",int_var);
printf("value of floating constant:%.2f\n",float_const);
printf("value of floating variable:%.2f\n",float_var);
return 0;
}

```

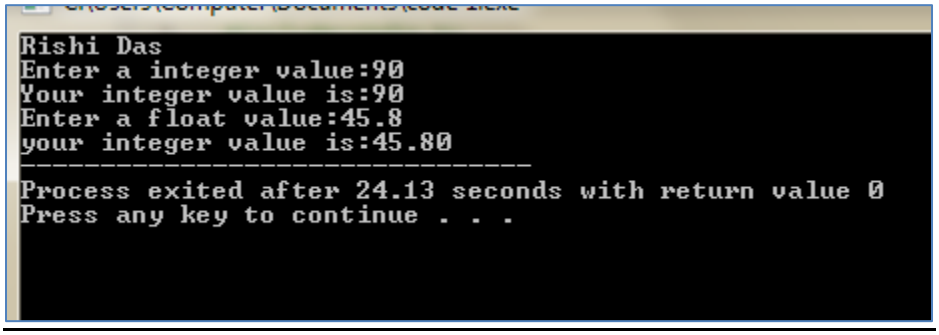
Output:

```
Rishi Das
value of integer constant:77
value of integer variable:26
value of floating constant:63.82
value of floating variable:83.30

--------------------------------
Process exited after 0.008938 seconds with return value 0
Press any key to continue . . .
```

Practical 2: WAP to read two variables of type int and float.Read their values from the user and print the values

```c
#include<stdio.h>
int main()
{
    int number_int;
    float number_float;
    printf("Rishi Das\n");
    printf("Enter a integer value:");
    scanf("%d",&number_int);
    printf("Your integer value is:%d\n",number_int);
    printf("Enter a float value:");
    scanf("%f",&number_float);
    printf("your integer value is:%.2f",number_float);
    return 0;
}
```

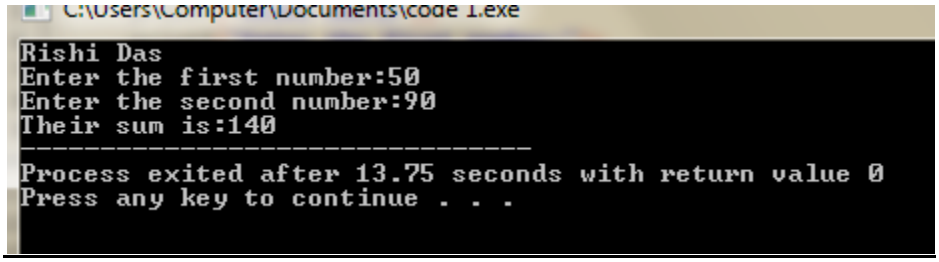
Output :



Practical 3: WAP to read two integers from user and print both the numbers.Find their sum and assign it to third variable.

```c
#include<stdio.h>
int main()
{
    int number1,number2,sum;
    printf("Rishi Das\n");
    printf("Enter the first number:");
    scanf("%d",&number1);
    printf("Enter the second number:");
    scanf("%d",&number2);
    sum=number1+number2;
    printf("Their sum is:%d",sum);
    return 0;

}
```

OUTPUT



PROGRAM 4:WAP to read numbers for five subjects and print their sum and average

```c
#include<stdio.h>
int main()
{
    int sub1=100,sub2=82,sub3=73,sub4=33,sub5=74;
    float sum,avg;
    sum=sub1+sub2+sub3+sub4+sub5;
    avg=sum/5;
    printf("Rishi Das\n");
    printf("Marks of subject 1:%d\n",sub1);
    printf("Marks of subject 2:%d\n",sub2);
    printf("Marks of subject 3:%d\n",sub3);
    printf("Marks of subject 4:%d\n",sub4);
    printf("Marks of subject 5:%d\n",sub5);
    printf("sum:%f\n",sum);
    printf("avg:%f\n",avg);
    return 0;
}

```

Output:

```
Rishi Das
Marks of subject 1:100
Marks of subject 2:82
Marks of subject 3:73
Marks of subject 4:33
Marks of subject 5:74
sum:362.000000
avg:72.400002

--------------------------------
Process exited after 0.01258 seconds with return value 0
Press any key to continue . . .
```

PROGRAM 5.WAP to read two floating type numbers from user.Calculate their sum,difference,product and average

```c
#include<stdio.h>
int main()
{
    float num1,num2,product,sum,avg,diff;
    printf("Rishi Das\n");
    printf("Enter the first number:");
    scanf("%f",&num1);
    printf("Enter the second number:");
    scanf("%f",&num2);
    sum=num1+num2;
    diff=num1-num2;
    product=num1*num2;
    avg=sum/2;
    printf("The sum is:%.2f\n",sum);
    printf("The difference is:%.2f\n",diff);
    printf("The product is:%.2f\n",product);
    printf("The average is:%.2f\n",avg);
    return 0;

}
```

OUTPUT :

```
Rishi Das
Enter the first number:46
Enter the second number:73
The sum is:119.00
The difference is:-27.00
The product is:3358.00
The average is:59.50

--------------------------------
Process exited after 11.65 seconds with return value 0
Press any key to continue . . .
```

PROGRAM 6: WAP to read principle amount and time for loan application.Take rate of interest as a symbolic constant.Calculate simple interest and display results.

```c
#include<stdio.h>
int main()
{
    int principle,time,simple_int,rate=7;
printf("Rishi Das\n");
printf("Enter the principle amount:");
scanf("%d",&principle);
printf("enter the time in years:");
scanf("%d",&time);
simple_int=(principle*rate*time)/100;
printf("Simple interest is:%d",simple_int);
return 0;
}

```

OUTPUT:

```
Rishi Das
Enter the principle amount:1000
enter the time in years:2
Simple interest is:140
--------------------------------
Process exited after 4.596 seconds with return value 0
Press any key to continue . . .
```

PROGRAM 7:WAP to read temperature in celcius and convert it to Farenheit and vice versa.Display the results of the program.

```c
#include<stdio.h>
int main()
{
    float temp_cel,con_far,temp_far,con_cel;
    printf("Rishi Das\n");
    printf("Enter temperature(in celcius):\n)");
    scanf("%f",&temp_cel);
    con_far=(temp_cel*9/5)+32;
    printf("The temperature in fehrenheit is:%.2f\n",con_far);
    printf("Enter the temperature(in fahrenheit):\n");
    scanf("%f",&temp_far);
    con_cel=(temp_far-32)*5/9;
    printf("The temperature in fahrenheit is:%.2f",con_cel);
    return 0;
```

OUTPUT:

```
Rishi Das
Enter temperature(in celcius):
)64.8
The temperature in fehrenheit is:148.64
Enter the temperature(in fahrenheit):
148.64
The temperature in fahrenheit is:64.80
--------------------------------
Process exited after 21.06 seconds with return value 0
Press any key to continue . . .
```

PROGRAM 8: To swap two numbers using third variable.

```c
#include<stdio.h>
int main()
{
    int a=5,b=10,c;
    printf("Rishi Das\n");
    printf("Before SWAP:A=%d,B=%d\n",a,b);
    c=a;
    a=b;
    b=c;
    printf("After SWAP:A=%d,B=%d\n",a,b);
    return 0;
}
```

OUTPUT:

```
Rishi Das
Before SWAP:A=5,B=10
After SWAP:A=10,B=5

--------------------------------

Process exited after 0.007367 seconds with return value 0
Press any key to continue . . .
```

PROGRAM 9: To swap two numbers without using third variable.

```c
#include<stdio.h>
int main()
{
    int a=5,b=10,c;
    printf("Rishi Das\n");
    printf("Before SWAP:A=%d,B=%d\n",a,b);
    a=a+b;
    b=a-b;
    a=a-b;
    printf("After SWAP:A=%d,B=%d\n",a,b);
    return 0;
}
```

OUTPUT:

```
Rishi Das
Before SWAP:A=5,B=10
After SWAP:A=10,B=5

--------------------------------
Process exited after 0.01138 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 10

(Wap to read input from user at runtime and convert time from hours to seconds ,hours to minutes ,minutes to seconds ,days to seconds)

```
#include<stdio.h>
int main()
{
	int minute,days,hours;
	printf("Rishi Das\n");
	printf("Enter days:");
	scanf("%d",&days);
	printf("Enter minute:");
	scanf("%d",&minute);
	printf("Enter hours:");
	scanf("%d",&hours);
	printf("Days to second=%d seconds\n",days*24*3600);
	printf("hours to second=%d seconds\n",hours*3600);
	printf("minute to second=%d seconds\n",minute*60);
	printf("hours to minute=%d minute\n",hours*60);
	return 0;
}
```

```
Rishi Das
Enter days:2
Enter minute:60
Enter hours:24
Days to second=172800 seconds
hours to second=86400 seconds
minute to second=3600 seconds
hours to minute=1440 minute

--------------------------------
Process exited after 4.885 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 11

(wap To find area and perimeter of rectangle. Read input from user)

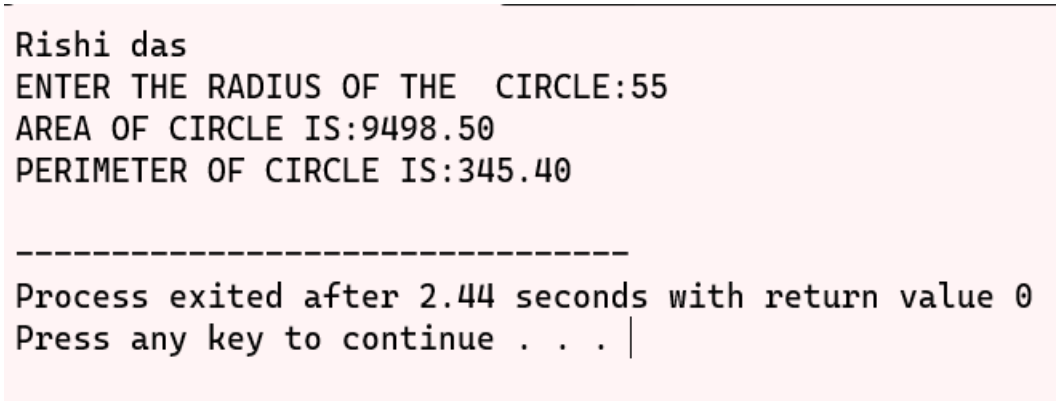
```
#include<stdio.h>

int main()

{

        int l,b,a,p;

        printf("Rishi das\n");

        printf("ENTER THE LENGTH AND BREADTH OF RECTANGLE RESPECTIVELY:");

        scanf("%d%d", &l,&b);

        a=l*b;

        p=2*(l+b);

        printf("AREA OF RECTANGLE IS:%d\n",a);

        printf("PERIMETER OF RECTANGLE IS:%d\n",p);

        return 0;

}
```

```
Rishi das
ENTER THE LENGTH AND BREADTH OF RECTANGLE RESPECTIVELY:5
4
AREA OF RECTANGLE IS:20
PERIMETER OF RECTANGLE IS:18

--------------------------------
Process exited after 3.198 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 12

(wap to print perimeter and area of circle. Read input from user)

```
#include<stdio.h>
#define PI 3.14
int main()
{

        float r,a,p;
        printf("Rishi das\n");
        printf("ENTER THE RADIUS OF THE  CIRCLE:");
        scanf("%f", &r);
        a=PI*r*r;
        p=2*PI*r;
        printf("AREA OF CIRCLE IS:%.2f\n",a);
        printf("PERIMETER OF CIRCLE IS:%.2f\n",p);
        return 0;
}
```



#PROGRAM 13

(wap To apply mathematical operation on ASCII value of character variables)

```
#include<stdio.h>

int main()

{

	char a,b;

	printf("Rishi das");

	printf("\nEnter the character: "); scanf("%c %c",&a,&b);

	printf("\nThe ASCII value of %c is %d",a,a);

	printf("\nThe ASCII value of %c is %d",b,b);

	printf("\nThe Sum is %c And the ASCII value of sum is %d",a+b,a+b);

	printf("\nThe Sum is %c And the ASCII value of sum is %d",a+5,a+5);

	printf("\nThe Sum is %c And the ASCII value of sum is %d",a-3,a-3);

	printf("\nThe Sum is %c And the ASCII value of sum is %d",a-2,a-2);

	return 0;

}
```

```
Rishi das
Enter the character: 5
6

The ASCII value of 5 is 53
The ASCII value of 6 is 54
The Sum is k And the ASCII value of sum is 107
The Sum is : And the ASCII value of sum is 58
The Sum is 2 And the ASCII value of sum is 50
The Sum is 3 And the ASCII value of sum is 51
--------------------------------
Process exited after 4.321 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 14

(Wap to mathematical operation on character to get other character)

```
#include<stdio.h>

 int main()

{

        char a,b,c,d,e,f;

        printf("Rishi das\n");

        printf("Enter two numbers: ");

        scanf("%c %c",&a,&b);

        c=a+b;

        printf("\nThe ASCII equivalent for the sum of %c and %c is %c",a,b,c); d=a-b;

        printf("\nThe ASCII equivalent for the sum of %c and %c is %c",a,b,d); e=a*b;

        printf("\nThe ASCII equivalent for the sum of %c and %c is %c",a,b,e); f=a/b;

        printf("\nThe ASCII equivalent for the sum of %c and %c is %c",a,b,f);



        return 0;

}
```

```
Rishi das
Enter two numbers: 23

The ASCII equivalent for the sum of 2 and 3 is e
The ASCII equivalent for the sum of 2 and 3 is
The ASCII equivalent for the sum of 2 and 3 is ÷
The ASCII equivalent for the sum of 2 and 3 is
--------------------------------
Process exited after 2.81 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 15

(Wap to read from user the values for 3 products (item_no., quantity, price).Find the total bill value and display. Also, allow a discount of 10% on the total bill and display net bill value)

```
#include <stdio.h>

int main()

{

        int x,y,z,a,b,c,tp,dis,p;

                printf("Rishi das\n");

                printf("\n NUMBER OF ITEMS BOUGHT (item 101)");

                scanf("%d",&x);

                printf("\n NUMBER OF ITEMS BOUGHT (item 102)");

                scanf("%d",&y);

                printf("\n NUMBER OF ITEMS BOUGHT (item 103)");

                scanf("%d",&z);

        a=x*25;

        b=y*10;

        c=z*100;

        tp=a+b+c;

        dis=tp/10;

        p=tp-dis;

        printf("BILL");

        printf("\n_____");

        printf("\n    item no.        quantity        price per unit        price");

        printf("\n_____");
```

```
        printf("\n     101          %d          35          %d" ,x,a);
        printf("\n     102          %d          10          %d" ,y,b);
        printf("\n     103          %d          60          %d" ,z,c);
        printf("\n_____________________________________________________________");
        printf("\n total price                              %d" ,tp);
        printf("\n discount(10%)                              %d",dis);
        printf("\n total price                              %d" ,p);

        return 0;
  }
```

```
Rishi das

 NUMBER OF ITEMS BOUGHT (item 101) 45

 NUMBER OF ITEMS BOUGHT (item 102)55

 NUMBER OF ITEMS BOUGHT (item 103)36
BILL
-------------------------------------------------------------------------
     item no.           quantity         price per unit         price
-------------------------------------------------------------------------
       101                  45                  35                1125
       102                  55                  10                550
       103                  36                  60                3600
-------------------------------------------------------------------------
 total price                                                      5275
 discount(10)                                                     527
 total price                                                      4748
--------------------------------
Process exited after 11.84 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 16

(Enter two variable and find the greatest number by conditional operator)

#include<stdio.h> int main()

```
int main()
{
    int a,b,j;
    printf("Rishi das\n");
    printf("Enter the two numbers:");
    scanf("%d%d",&a,&b);
    j=(a>b)? a:b;
    printf("The greatest number is %d",j);
    return 0;
}
```

```
Rishi das
Enter the two numbers:23 24
The greatest number is 24
--------------------------------
Process exited after 6.085 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 17

(wap to find maximum of three numbers using Conditional operator)

```
#include<stdio.h>

int main()

{

        int a,b,c,g;

        printf("Rishi das\n");

        printf("Enter the three numbers");

        scanf("%d%d%d",&a,&b,&c);

        g=(a>b)? ((a>c)? a:c) : ((b>c)? b:c);

        printf("The greatest number is %d",g);

        return 0;

}
```

```
Rishi das
Enter the three numbers 23 24 25
The greatest number is 25
--------------------------------
Process exited after 7.295 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 18

(wap to find maximum of two numbers by using if else statement)

```
#include<stdio.h>

int main()

{

        int a,b;

        printf("Rishi das\n");

        printf("ENTER TWO NUMBERS");

        scanf("%d%d",&a,&b);

        if (a>b)

                printf("%d is greater" ,a);

        else

                printf("%d is greater",b);

        return  0;

}
```

```
Rishi das
ENTER TWO NUMBERS 23 24
24 is greater
--------------------------------
Process exited after 4.69 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 19

(wap to find maximum of three numbers by if else if statement)

```
#include<stdio.h>
int main()
{
	int a,b,c;
	printf("Rishi das\n");
	printf("ENTER THREE NUMBERS\n");
	scanf("%d%d%d",&a,&b,&c);
	if (a>b)
		if  (a>c)
			printf("%d is greatest",a);
		else
			printf("%d is greatest",c);
	else
		if (b>c)
			printf("%d is greatest",b);
		else
			printf("%d is greatest",c);

	return 0;
}
```

```
Rishi das
ENTER THREE NUMBERS
22
23
24
24 is greatest
--------------------------------
Process exited after 6.17 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 20

```
#include <stdio.h>
int main()
{
	int a;
	printf("Rishi das\n");
	printf("ENTER MARKS\n");
	scanf("%d",&a);
	if (a>100)
		printf("INVALID NUMBER");			//OUTPUT BELOW:
	else if (a>=80)
		printf("HONOURS");
	else if (a>=60)
		printf("FIRST DIVISON");
	else if (a>=50)
		printf("SECOND DIVISON");
	else if (a>=40)
		printf("THIRD DIVISON");
	else
		printf("YOU ARE FAILED\n");
```

```
    return 0;
}
```

```
Rishi das
ENTER MARKS
80
HONOURS
--------------------------------
Process exited after 5.807 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 21

(wap To find the electricity charges based on consumption units rate of charge.)

```
#include<stdio.h>
 int main()
{
        float unit,charge;
        printf("Rishi das\n");
        printf("Enter the electricity unit of the house: ");
        scanf("%f",&unit);

if(unit<=200)
        charge=0.5;
else if(unit<=400)
        charge = 100 + (unit-200)*0.65;
else if(unit<=600)
        charge= 230 + (unit-400)*0.8;

else
        charge= 390 + (unit-600)*1;
```

```
printf("\nCharge is %.2f", charge);

return 0;

}
```

```
Rishi das
Enter the electricity unit of the house: 161

Charge is 0.50
--------------------------------
Process exited after 6.37 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 22

(Wap to read two integers and an operator (+, -, *, /). Use switch case statement to get the result of operator on two integers)

```
#include <stdio.h>
int main() {
printf("Rishi das\n");
  char operand;
  float first, second;
  printf("Enter an operator (+, -, *, /): ");
  scanf("%c", &operand);
  printf("Enter two operands: ");
  scanf("%f %f", &first, &second);
  switch (operand) {
    case '+':
      printf("%.1f + %.1f = %.1f", first, second, first + second);
      break;
    case '-':
      printf("%.1f - %.1f = %.1f", first, second, first - second);
      break;
    case '*':
      printf("%.1f * %.1f = %.1f", first, second, first * second);
      break;
    case '/':
```

```
    printf("%.1f / %.1f = %.1f", first, second, first / second);
    break;
  default:
    printf("ENTER THE COORECT OPERAND(+,-,*,/)");
 }
 return 0;
}
```

```
Rishi das
Enter an operator (+, -, *, /): +
Enter two operands: 23 24
23.0 + 24.0 = 47.0
--------------------------------
Process exited after 4.726 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 23

(wap to find the nature roots of quadratic equation)

```
#include<stdio.h>
#include<math.h>
int main()
{
	float a,b,c,d,x,y;
	printf("Rishi das");
	printf("**************************************************\n");

	printf("Enter the value of quadratic equation \n");
	printf("a = ");
	scanf("%f",&a);
	printf("b = ");
	scanf("%f",&b);
	printf("c = ");
	scanf("%f",&c);

	d= (pow(b,2)-(4*a*c)); if (d<0);
	{
	printf("**************************************************\n");


	printf("The given value has no roots");
```

```
        printf("\n*************************************************\n");


        }
        if(d>0)
        {
                printf("*************************************************\n");


                x = (-b+sqrt(d))/(2*a);
                y= (-b-sqrt(d))/(2*a);
                printf("The roots of quadratic equation is %.1f , %.1f",x,y);
                printf("\n*************************************************\n");
        }
        else
        {
                printf("*************************************************\n");
                x = (-b+sqrt(d))/(2*a);
                y= (-b-sqrt(d))/(2*a);
                printf("Given value has equal roots that is %.2f, %.2f",x,y);
printf("\n*************************************************************\n");
        }
return 0;
}
```

```
Rishi das**************************************************
Enter the value of quadratic equation
a = 5
b = 6
c = 7
**************************************************
The given value has no roots
**************************************************
**************************************************
Given value has equal roots that is -1.#J, -1.#J
**************************************************

--------------------------------
Process exited after 5.791 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 24

(Wap to print natural numbers till n using while loop. Also print reversecounting from m to 1. Get m and n from the user at a run time.)

```
#include <stdio.h>


int main()
{
	printf("Rishi das\n");
	int i,j,m,n;
	printf("ENTER A DIGIT  TILL YOU WANT TO PRINT:");


	scanf("\n%d",&n);
	i=1;
				//loop for printing counting till n digit
	while(i<=n)
	{
		printf("%d,",i);
		i++;
	}
	printf("\nENTER A DIGIT:");
	scanf("\n%d",&m);
	j=m;
	while(j>=1)
```

```
        {
                printf("%d,",j);
                j--;
        }

return 0;
}
```

```
Rishi das
ENTER A DIGIT  TILL YOU WANT TO PRINT:23
1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,
ENTER A DIGIT:24
24,23,22,21,20,19,18,17,16,15,14,13,12,11,10,9,8,7,6,5,4,3,2,1,
--------------------------------
Process exited after 8.037 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 25

(Wap to compute xn using while statement.)

```
#include <stdio.h>
int main()
{
        printf("Rishi das\n");
   int base;
   int exp;
   int result=1;
   printf("Enter a base number: ");
   scanf("%d", &base);
   printf("Enter an exponent: ");
   scanf("%d", &exp);
   while (exp !=0)
   {
      result=result*base;
      exp--;
   }
   printf("ANSWER:%d",result);
   return 0;
}
```

```
Rishi das
Enter a base number: 5
Enter an exponent: 8
ANSWER:390625
--------------------------------
Process exited after 6.38 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 26

Wap to generate multiplication tables using nested do while statement.

```
#include<stdio.h>

int main()

{

int i,j,num;

printf("Rishi das\n");

printf("Enter the number till the multiplication table required");

scanf("%d",&num);

i=1;

do

{

j=1;

do

{

printf("%3d",i*j);

j++;

}while(j<=10);

printf("\n");
```

```
i++;


}while(i<=num);

return 0;


}
```

```
Rishi das
Enter the number till the multiplication table required5
  1  2  3  4  5  6  7  8  9 10
  2  4  6  8 10 12 14 16 18 20
  3  6  9 12 15 18 21 24 27 30
  4  8 12 16 20 24 28 32 36 40
  5 10 15 20 25 30 35 40 45 50

--------------------------------
Process exited after 2.728 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 27

Wap to print following patterns: triangles of ‘*’, triangle of digits.

```
#include<stdio.h>
int main()
{
int row,i,j;
printf("Rishi das\n");
printf("Enter the number of rows");
scanf("%d",&row);
for(i=1;i<=row;i++)
{
for(j=1;j<=i;j++)
{
printf("*");

}
printf("\n");
}
printf("\n\n\n");
for(i=1;i<=row;i++)
```

```
{
for(j=1;j<=i;j++)
{
printf("%d",j);

}
printf("\n");



}
return 0;

}
```

```
Rishi das
Enter the number of rows 4
*
**
***
****



1
12
123
1234

--------------------------------
Process exited after 4.156 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 28

To read an integer and print sum of its digits using while loop. Construct and print reverse on n-digit number using do-while loop

```
#include<stdio.h>

int main()

{

                                                int
i,d=0,num,newm=0,sum=0,rev=0,o_num;

 printf("Rishi das");

 printf("\n------------------------------\n");

 printf("Enter the number: ");

 scanf("%d",&num);

 o_num=num;

 while(num!=0)

 {

 newm=num%10;

 sum+=newm;

 num/=10;

 d++;

 }

 printf("sum of digit %d\n",sum);
```

```
do
{
rev=rev*10+o_num%10;
o_num=o_num/10;
d++;
}
while(o_num!=0);
printf("Reverse number is %d",rev);
                                                    return 0;

}
```

```
Rishi das
------------------------------
Enter the number: 23
sum of digit 5
Reverse number is 32
------------------------------
Process exited after 2.424 seconds with return value 0
Press any key to continue . . .
```

```
#PROGRAM 29
#include<stdio.h>
int main()
{
        int i,num,n=0;
 printf("Rishi das");
 printf("\n-----------------------------\n");
 printf("Enter any number: ");
 scanf("%d",&num);
 for (i=1; i<=num; i++)
 {
 if(num%i==0)
 n++;
 }
 if (n==2)
 printf("It is a prime number");
 else
 printf("It is a composite number");
       return 0;
```

```
}
```

```
Rishi das
--------------------------------
Enter any number: 66
It is a composite number
--------------------------------
Process exited after 3.556 seconds with return value 0
Press any key to continue . . .
```

```
#PROGRAM 30
#include<stdio.h>
int main()
{
        int sum=0,num,i;
 printf("Rishi das");
 printf("\n-----------------------------\n");
 printf("Enter the number: ");
 scanf("%d",&num);
 for(i=1; i<=num; i++)
 {
 if(i%2==1)
 sum+=i;
 }
 printf("sum is %d",sum);
        return 0;

}
```

```
Rishi das
------------------------------
Enter the number: 23
sum is 144
--------------------------------
Process exited after 1.801 seconds with return value 0
Press any key to continue . . .
```

```
#PROGRAM 31
#include<stdio.h>
int main()
{
        float sum=0,num,i;
 printf("Rishi das");
 printf("\n-----------------------------\n");
 printf("Enter the number: ");
 scanf("%f",&num);
 for(i=1; i<=num; i++)
 {
 sum+=(1/i);
 }
 printf("sum is %.2f",sum);
       return 0;

}
```

```
Rishi das
--------------------------------
Enter the number: 23
sum is 3.73
--------------------------------
Process exited after 2.575 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 32

```
#include<stdio.h>
void printline(int n,int ch);
int main()
{

 int ch,n;
 printf("Rishi das");
 printf("\n----------------------------\n");
 printf("Enter the number\n");
 scanf("%d",&n);
 printf("Enter the character\n");
 scanf(" %c",&ch);
 printline(n,ch);
 return 0;
}
void printline(int k,int c)
{ int i;
 for (i=1; i<=k; i++)
 { printf("%c ",c);
```

```
}
}
```

```
Rishi das
------------------------------
Enter the number
12
Enter the character
4
4 4 4 4 4 4 4 4 4 4 4 4
--------------------------------
Process exited after 5.819 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 33

Program to find simple interest in a function create a function with argument and return type.

```
#include<stdio.h>

#define ROI 2

int si(int p, int t);

int main()

{

 int principal,time;

 printf("Rishi das\n");

 printf("Enter the principal amount and time: - ");

 scanf("%d %d",&principal,&time);

 printf("Simple interest is %d\n",si(principal,time));

 printf("Total amount is %d\n",principal+si(principal,time));

 return 0;

}

int si(int p, int t)

{

 return (p*ROI*t)/100;

}
```

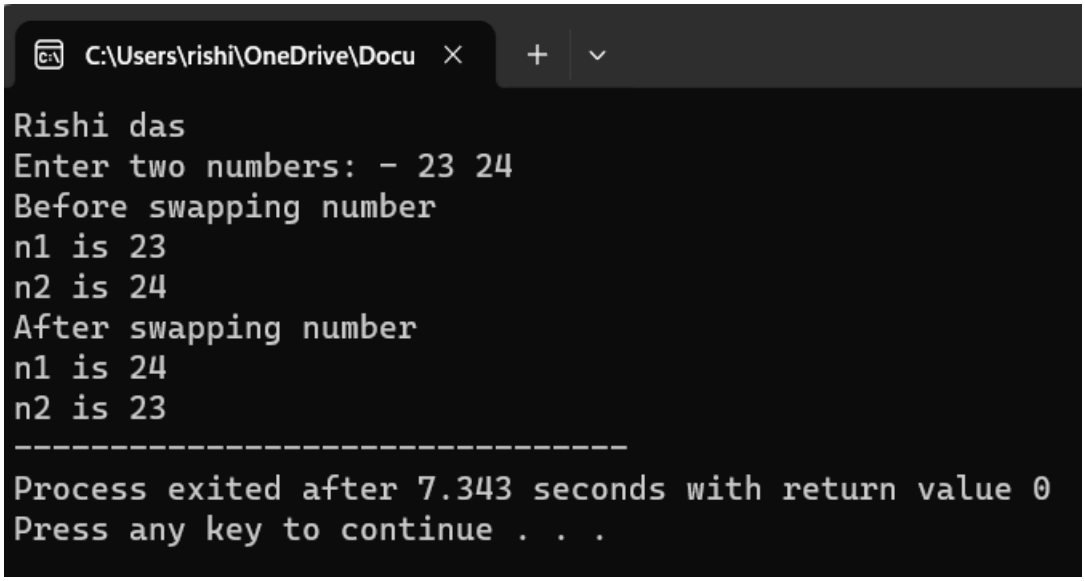
```
Rishi das
Enter the principal amount and time: - 5500
5
Simple interest is 550
Total amount is 6050


--------------------------------
Process exited after 7.224 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 34

Program to swap two numbers using function (call by reference).

```
#include<stdio.h>
int main()
{
 int n1,n2;
 printf("Rishi das\n");
 printf("Enter two numbers: - ");
 scanf("%d %d",&n1,&n2);
 printf("Before swapping number \nn1 is %d \nn2 is %d",n1,n2);
 swap(&n1,&n2);
 printf("\nAfter swapping number \nn1 is %d \nn2 is %d",n1,n2);
 return 0;
}
void swap(int *a, int *b)
{
 int temp;
 temp = *a;
 *a=*b;
 *b=temp;
```

```
 return;
}
```

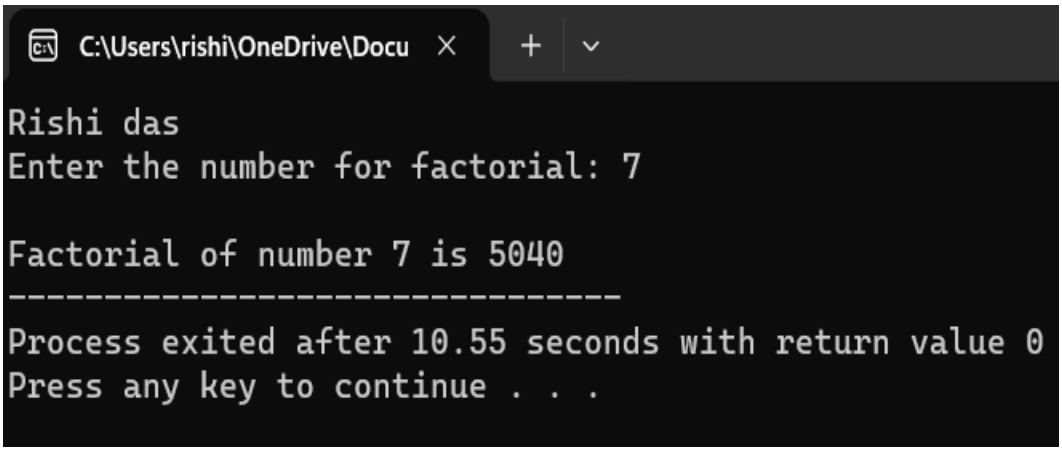

C:\Users\rishi\OneDrive\Docu
Rishi das
Enter two numbers: - 23 24
Before swapping number
n1 is 23
n2 is 24
After swapping number
n1 is 24
n2 is 23

Process exited after 7.343 seconds with return value 0
Press any key to continue . . .

#PROGRAM 35

Program to find factorial of a number using function and return its value in the calling function .

```
#include<stdio.h>
int main()
{
 int number;
 printf("Rishi das\n");
 printf("Enter the number for factorial: ");
 scanf("%d",&number);
 printf("\nFactorial of number %d is %d",number,fact(number));
 return 0;
}
int fact(int num)
{
 int i,fact=1;
 for(i=num;i>=1;i--)
 fact=fact*i;
 return fact;
}
```


C:\Users\rishi\OneDrive\Docu
Rishi das
Enter the number for factorial: 7
Factorial of number 7 is 5040

Process exited after 10.55 seconds with return value 0
Press any key to continue . . .

#PROGRAM 36

Program to find factorial of a number using recursion.

```
#include<stdio.h>
int fact(int num);
int main()
{
 int number;
 printf("Rishi das\n");
 printf("Enter the number for factorial: ");
 scanf("%d",&number);
 printf("\nFactorial of number %d is %d",number,fact(number));
 return 0;
}
int fact(int num)
{
 if(num!=0)
 return fact(num-1)*num;
 else
 return 1;
```

```
}
```

```
Rishi das
Enter the number for factorial: 54

Factorial of number 54 is 0
--------------------------------
Process exited after 3.393 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 37

Program to display the usage of static variable.

```
#include<stdio.h>
int function();
int main()
{
 int number;
 printf("Rishi das\n");
 printf("USage of static variable\n");
 printf("a is %d",function());
 printf("\na is %d",function());
 return 0;
}
int function()
{
 static int a=4;
 a++;
 return a;
}
```

```
Rishi das
USage of static variable
a is 5
a is 6
--------------------------------
Process exited after 0.07212 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 38

Program to display Fibonacci series using recursion.

```
#include<stdio.h>
int fib(int n);
int main()
{
 int number,i;
 printf("Rishi das\n");
 printf("Enter the number til you want Fibonacci series: ");
 scanf("%d",&number);
printf("The Fibonacci series:- ");
 for(i=0; i<number; i++)
 printf("%d ",fib(i));
 return 0;
}
int fib(int n)
{
 if (n==0)
 return 0;
 else if (n==1)
```

```
    return 1;
    else
    return fib(n - 1) + fib(n - 2);
}
```

```
Rishi das
Enter the number til you want Fibonacci series: 10
The Fibonacci series:- 0 1 1 2 3 5 8 13 21 34
--------------------------------
Process exited after 6.62 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 39

Program to find all 3-digit Armstrong numbers.

```
#include<stdio.h>
#include<math.h>
int arm(int num);
int main()
{
 int i;
 printf("Rishi das");
 printf("\nArmstrong numbers are: ");
 for(i=100;i<=999;i++)
 arm(i);
 return 0;
}
int arm(int num)
{
 int o_num,a=0,s=0,d=0;
 o_num=num;
 while(num>0)
 {
```

```
s=num%10;
a+=pow(s,3);
num=num/10;
d++;
}
if(a==o_num)
{
printf("%d ",o_num);
}
return 0;
}
```

```
Rishi das
Armstrong numbers are: 153 370 371 407
--------------------------------
Process exited after 0.07158 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 40

To read a number and check if it is odd or even (if-else).

```
#include<stdio.h>
void even(int n);
int main()
{
 int num,i;
 printf("Rishi das\n");
 printf("Enter the number: ");
 scanf("%d",&num);
 even(num);
 return 0;
}
void even(int n)
{
 if(n%2==0)
 printf("Number %d is even",n);
 else
 printf("Number %d is odd",n);
return;
```

}

```
Rishi das
Enter the number: 23
Number 23 is odd
--------------------------------
Process exited after 2.075 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 41

To Check whether the given 4-digit no. is a palindrome.

```
#include<stdio.h>
void palindrome(int n);
int main()
{
 int num;
 printf("Rishi das\n");
 printf("Enter a number: ");
 scanf("%d",&num);
 palindrome(num);
 return 0;
}
void palindrome(int n)
{

 int o_num,rev=0;
 o_num=n;
 while(n>0)
 {
```

```
rev=rev*10+n%10;
n=n/10;
}
if(rev==o_num)
{
printf("%d is a palindrome number\n\n",o_num);
}
else
{
printf("%d is not a palindrome number\n\n",o_num);
}
return ;
}
```

```
Rishi das
Enter a number: 40
40 is not a palindrome number


--------------------------------
Process exited after 3.458 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 42

Program to show sum of n elements of array & show the average.

```
#include<stdio.h>
int main()
{
 int n,i;
 float sum=0,avg=0;
 printf("Rishi das");
 printf("\nEnter the size of array: ");
 scanf("%d",&n);
 float arr[n];
 for (i=0;i<n;i++)
 {
 scanf("%f",&arr[i]);
 sum+=arr[i];
 }
 avg=sum/n;
 printf("Sum of array is %.1f\n",sum);
 printf("Average of array is %.1f\n",avg);
```

```
 return 0;
}
```

```
Rishi das
Enter the size of array: 4
1 2 3 4
Sum of array is 10.0
Average of array is 2.5

--------------------------------
Process exited after 6 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 43

Program to find the maximum and minimum integer in an array using functions.

```
#include<stdio.h>
int maximum(int arr[],int n);
int minimum(int arr[],int n);
int main()
{
 int n,i;
 printf("Rishi das");
 printf("\nEnter the size of array: ");
 scanf("%d",&n);
 int arr[n];
 for (i=0;i<n;i++)
 scanf("%d",&arr[i]);
 printf("Maximum value is %d\n",maximum(arr,n));
 printf("Minimum value is %d\n",minimum(arr,n));
 return 0;
}
 int maximum(int arr[],int n)
 {
```

```
int i;
int max = arr[0];
for (i=0;i<n;i++)
{
if(max<=arr[i])
max=arr[i];
}
return max;
}
int minimum(int arr[],int n)
{
int i;
int min = arr[0];
for (i=0;i<n;i++)
{
if(min>=arr[i])
min=arr[i];
}
return min;
}
```

```
Rishi das
Enter the size of array: 4
1 2 3 4
Maximum value is 4
Minimum value is 1

--------------------------------
Process exited after 6.731 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 44

Program to perform Linear search

```
#include<stdio.h>
int main()
{
 int n,item,i;
 printf("Rishi Das\n");
 printf("Enter the number of size in array: ");
 scanf("%d",&n);
 int arr[n];
 for (int i=0;i<n;i++)
 scanf("%d",&arr[i]);
 printf("Enter the number to search: ");
 scanf("%d",&item);
 for(i=0;i<=n;i++)
 {
 if(item==arr[i])
 { printf("Search is successful\n");
 printf("The number %d is available on index %d",item,i);
```

```
 break;
 }
 if(i==n)
 printf("The number %d is not available in array",item);
 }
return 0;
}
```

```
Rishi Das
Enter the number of size in array: 5
22 23 25 26 27
Enter the number to search: 23
Search is successful
The number 23 is available on index 1
--------------------------------
Process exited after 17.55 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 45

Program to generate reverse array for a given array

```
#include<stdio.h>
void reverse(int arr[], int n)
{
 int i = 0;
 int j = n-1;
 while(i<j)
 {
 int temp = arr[i];
 arr[i]=arr[j];
 arr[j]=temp;
 i++;
 j--;
 }
 return;
}
int main()
{
 int n;
```

```
 printf("Rishi Das\n");
 printf("Enter the number of size in array: ");
 scanf("%d",&n);
 int arr[n];
 for (int i=0;i<n;i++)
 scanf("%d",&arr[i]);
 reverse(arr,n);
 for (int i=0; i<n; i++)
 {
 printf("%d ",arr[i]);
 }
 return 0;
}
```

```
Rishi Das
Enter the number of size in array: 5
23 24 45 77 86
86 77 45 24 23
--------------------------------
Process exited after 13.27 seconds with return value 0
Press any key to continue . . .
```

#PROGRAM 46

Program to perform Matrix operation (switch-case): Addition, subtraction, multiplication, and transpose

```
#include<stdio.h>

#define ROW 2

#define COL 2

void addmatrix(int matrix_a[ROW][COL],int matrix_b[ROW][COL]);

void submatrix(int matrix_a[ROW][COL],int matrix_b[ROW][COL]);

void multiplymatrix(int matrix_a[ROW][COL],int
matrix_b[ROW][COL]);

void transposematrix(int matrix_a[ROW][COL],int
matrix_b[ROW][COL]);

int main()

{

 int matrix_a[ROW][COL],i,j;

 int matrix_b[ROW][COL];

 int operation;

 printf("Rishi Das\n");

 printf("Enter the matrix a: \n");

 for (i=0; i<ROW; i++)

 {
```

```
for(j=0; j<COL; j++)
{
scanf("%d",&matrix_a[i][j]);
}
}
printf("Enter the matrix b: \n");
for (i=0; i<ROW; i++)
{
for(j=0; j<COL; j++)
{
scanf("%d",&matrix_b[i][j]);
}
}
printf("Enter your choice: ");
scanf("%d",&operation);
switch (operation)
{
case 1:
addmatrix(matrix_a,matrix_b);
break;
```

```
 case 2:
 submatrix(matrix_a,matrix_b);
 break;
 case 3:
 multiplymatrix(matrix_a,matrix_b);
 break;
 case 4:
 transposematrix(matrix_a,matrix_b);
 break;
 default:
 printf("Invalid choice enter");
 }
 return 0;
}
void addmatrix(int matrix_a[ROW][COL],int matrix_b[ROW][COL])
{
 int resultmatrix[ROW][COL];
 int i,j;
 for (i=0; i<ROW; i++)
 for(j=0; j<COL; j++)
```

```
 resultmatrix[i][j]=matrix_a[i][j]+ matrix_b[i][j];
 printf("Addition of matrix is: \n");
 for (i=0; i<ROW; i++)
 {
 for(j=0; j<COL; j++)
 {
 printf("%d ",resultmatrix[i][j]);
 }
 printf("\n");
 }
 return;
}
void submatrix(int matrix_a[ROW][COL],int matrix_b[ROW][COL])
{
 int resultmatrix[ROW][COL];
 int i,j;
 for (i=0; i<ROW; i++)
 for(j=0; j<COL; j++)
 resultmatrix[i][j]=matrix_a[i][j]- matrix_b[i][j];
 printf("Subtraction of matrix is: \n");
```

```
 for (i=0; i<ROW; i++)
 {
 for(j=0; j<COL; j++)
 {
printf("%d ",resultmatrix[i][j]);
 }
 printf("\n");
 }
 return;
}
void multiplymatrix(int matrix_a[ROW][COL],int
matrix_b[ROW][COL])
{
 int resultmatrix[ROW][COL];
 int i,j,k;
 for (i=0; i<ROW; i++)
 for(j=0; j<COL; j++)
 {
 resultmatrix[i][j]=0;
 for(k=0; k<COL; k++)
 resultmatrix[i][j]+=matrix_a[i][k]* matrix_b[k][j];
```

```
}
printf("Multiply of matrix is:\n ");
for (i=0; i<ROW; i++)
{
for(j=0; j<COL; j++)
{
printf("%d ",resultmatrix[i][j]);
}
printf("\n");
}
return;
}
void transposematrix(int matrix_a[ROW][COL],int
matrix_b[ROW][COL])
{
int transposematrix_a[ROW][COL];
int transposematrix_b[ROW][COL];
int i,j;
for (i=0; i<ROW; i++)
for(j=0; j<COL; j++)
transposematrix_a[i][j]=matrix_a[j][i];
```

```
printf("Transpose Result of matrix a is: \n");
for (i=0; i<ROW; i++)
{
for(j=0; j<COL; j++)
{
printf("%d ",transposematrix_a[i][j]);
}
printf("\n");
}
for (i=0; i<ROW; i++)
for(j=0; j<COL; j++)
transposematrix_b[i][j]=matrix_b[j][i];
printf("Transpose Result of matrix b is: \n");
for (i=0; i<ROW; i++)
{
for(j=0; j<COL; j++)
{
printf("%d ",transposematrix_b[i][j]);
}
printf("\n");
```

```
 }
 return;
}
```

```
Rishi Das
Enter the matrix a:
1 2
3 4
Enter the matrix b:
5 6
7 8
Enter your choice: 4
Transpose Result of matrix a is:
1 3
2 4
Transpose Result of matrix b is:
5 7
6 8

--------------------------------
Process exited after 14.86 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 47

Program to read character array using getchar() in do-while loop and print it. Find its length and number of vowels(case sensitive)

```
#include<stdio.h>

int main()

{

 printf("Rishi Das\n");

 char ch,name[10];

 int len=0,vowel=0,i;

 printf("Enter String: ");

 do

 {

 ch=getchar();

 name[len]=ch;

 len++;


if(ch=='a'||ch=='e'||ch=='i'||ch=='o'||ch=='u'||ch=='A'||ch=='E'||ch==
'I'||ch=='O'||ch=='U')

 vowel++;

 }

 while(ch!='\n'&& len<10);
```

```
 printf("The character array entered is: ");
 for ( i = 0; i < len ; i++)
 {
 printf("%c ", name[i]);
 }
 printf("\n");
 printf("String length is %d\n",len-1);
 printf("Vowel in string is %d\n",vowel);
 return 0;
}
```

```
Rishi Das
Enter String: 5
The character array entered is: 5

String length is 1
Vowel in string is 0

--------------------------------
Process exited after 4.03 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 48

Program to find the reverse of string (Without inbuilt function).

```
#include<stdio.h>
int main()
{
 char name[1000],rev_name[1000];
 int i=0,j,count=0;
 printf("Rishi Das\n");
 printf("Enter the name: ");
 gets(name);
 while(name[i]!='\0')
 i++;
 count=i-1;
 for(j=0;j<i;j++)
 {
 rev_name[j]=name[count];
 count--;
 }
 rev_name[j]='\0';
 printf("Reverse name is %s",rev_name);
```

```
 return 0;
}
```

```
Rishi Das
Enter the name: yukti
Reverse name is itkuy
--------------------------------
Process exited after 5.474 seconds with return value 0
Press any key to continue . . .
```

#Practical 49

Program to compare and concatenate two strings (Without inbuilt function).

```
#include<stdio.h>
int main()
{
 char name[100],an_name[100];
 int i=0,j;
 printf("Rishi Das\n");
 printf("Enter the name: ");
 gets(name);
 printf("Enter the another name: ");
 gets(an_name);
 for(i=0; name[i]!='\0'&& an_name[i]!='\0'; i++)
 {
 if(name[i]!=an_name[i])
 {
 printf("Strings are not equal\n");
 break;
 }
 }
```

```
if(name[i]=='\0'&& an_name[i]=='\0')
 printf("Strings are equal\n");
 else
 {
 printf("Strings are not equal\n");
 }
 i=0;
 while(name[i]!='\0')
 i++;
 for(j=0; an_name[j]!='\0'; j++)
 {
 name[i]=an_name[j];
 i++;
 }
 name[i]='\0';
 printf("%s\n",name);
 printf("%s\n",an_name);
 return 0;
}
```

```
Rishi Das
Enter the name: radhakrishna
Enter the another name: radhakrishna
Strings are equal
radhakrishnaradhakrishna
radhakrishna

--------------------------------
Process exited after 10.22 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 50

Program to copy a string to another strings (Without inbuilt function)

```
#include<stdio.h>
int main()
{
 char name[100],an_name[100];
 int i;
 printf("Rishi Das\n");
 printf("Enter the name: ");
 gets(name);
 for(i=0; an_name[i]!='\0'; i++)
 {
 an_name[i]=name[i];
 }
 an_name[i] = '\0';
 printf("Original String: %s\n",name);
 printf("Copied String: %s\n",an_name);
 return 0;
}
```

```
Rishi Das
Enter the name: rishi
Original String: rishi
Copied String: r

--------------------------------
Process exited after 5.755 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 51

Program to show the use of string function: strcpy(), strcat(), strcmp(), strlen().

```
#include<stdio.h>
#include<string.h>
int main()
{
 char name[100],an_name[100],copy_name[100];
 printf("Rishi Das\n");
 printf("Enter the name: ");
 gets(name);
 printf("%d is the length of the string %s",strlen(name),name);
 printf("\nEnter the another name: ");
 gets(an_name);
 printf("%d is the length of the string %s",strlen(an_name),name);
 printf("\nCopy string is %s",strcpy(copy_name,name));
 printf("\nConcatenate string is %s",strcat(name,an_name));
 printf("\nReturn value of string is %d",strcmp(name,an_name));
 return 0;
}
```

```
Rishi Das
Enter the name: yukti
5 is the length of the string yukti
Enter the another name:
```

#PRACTICAL 52

Program to find string is palindrome or not

```
#include<stdio.h>
int main()
{
 char name[1000],rev_name[1000];
 int i=0,j,count=0,z;
 printf("rishi\n");
 printf("Enter the name: - ");
 gets(name);
 while(name[i]!='\0')
 i++;
 count=i-1;
 for(j=0;j<i;j++)
 {
 rev_name[j]=name[count];
 count--;
 }
 rev_name[j]='\0';
 printf("Reverse name is %s",rev_name);
```

```
int flag = 1;
for(z=0; z<i; z++)
{
if(rev_name[z] != name[z])
{
flag = 0;
break;
}
}
if(flag)
{
printf("\nIt is a palindrome string\n");
}
else
{
printf("\nIt is not a palindrome string\n");
}
return 0;
}
```

```
rishi
Enter the name: - yashoda
Reverse name is adohsay
It is not a palindrome string

--------------------------------
Process exited after 8.876 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 53

Program to define pointers variables for int, char and float. Print their values (using*) and print their address.

```
#include<stdio.h>

int main()

{

 printf("rishi\n");

 int num ,*i;

 float num1,*f;

 char str[10],*d;

 printf("Enter integer: ");

 scanf("%d",&num);

 printf("Enter float: ");

 scanf("%f",&num1);

 printf("Enter character: ");

 scanf("%s",str);

 i=&num;

 f=&num1;

 d=str;

 printf("%d is on the address of %u\n",*i,&num);

 printf("%f is on the address of %u\n",*f,&num1);
```

```
 printf("%s is on the address of %u\n",d,&str);

return 0;

}
```

```
rishi
Enter integer: 23
Enter float: 5.08
Enter character: a
23 is on the address of 6487556
5.080000 is on the address of 6487552
a is on the address of 6487536

--------------------------------
Process exited after 15.72 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 54

Program to use pointers to read arrays element and find their sum

```
#include<stdio.h>
int main()
{
 printf("Rishi\n");
 int n, i,sum=0,*p;
 printf("Enter the size of an array: ");
 scanf("%d",&n);
 int arr[n];
 printf("Enter elements in array: ");
 p=arr;
 for (i=0; i<n; i++)
 {
 scanf("%d",&arr[i]);
 sum+=*p;
 p++;
 }
 printf("Sum is %d",sum);
 return 0;
```

}

```
Rishi
Enter the size of an array: 5
Enter elements in array: 5
1 2 3 4 5
Sum is 15
--------------------------------
Process exited after 13.35 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 55

Program to find length of string using pointers.

```
#include<stdio.h>
int main()
{
 printf("Rishi das\n");
 char str[100],*p;
 int l=0;
 gets(str);
 p=str;
 while(*p!='\0')
 {
 *p++;
 l++;
 }
 printf("%d is the length of the String",l);
 return 0;
}
```

```
Rishi das
23
2 is the length of the String
--------------------------------
Process exited after 2.571 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 56

Program to declare an array of pointers, read values and print them.

```
#include<stdio.h>
int main()
{
 printf("Rishi das\n");
 int n, i;
 printf("Enter the size of an array: ");
 scanf("%d",&n);
 int arr[n],*p[n];
 for(i=0;i<n;i++)
 {
 p[i]=&arr[i]; // Enter address of array to pointer
 }
 printf("Enter the elements in pointer");
 for (i=0; i<n; i++)
 {
 scanf("%d",p[i]);
 }
 printf("Print the elements of pointer");
```

```
for (i=0; i<n; i++)
{
printf("%d\n",*p[i]);
}
return 0;
```

```
Rishi das
Enter the size of an array: 5
Enter the elements in pointer5
1 2 3 4 5
Print the elements of pointer5
1
2
3
4

--------------------------------
Process exited after 24.53 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 57

Program to enter book records, using structures.

```
#include<stdio.h>
struct book
{
 int page;
 int lesson;
 char book_name[20];
 char book_type[10];
};
int main()
{
 printf("Rishi das\n");
 struct book book1,book2;
 printf("Enter page number and lesson number in book 1: ");
 scanf("%d %d",&book1.page,&book1.lesson);
 printf("\nEnter book name book 1: ");
 scanf("%s",book1.book_name);
 printf("\nEnter book type of book 1: ");
```

```
 scanf("%s",book1.book_type);
 printf("\nEnter page number and lesson number in book 2: ");
 scanf("%d %d",&book2.page,&book2.lesson);
 printf("\nEnter book name book 2: ");
 scanf("%s",book2.book_name);
 printf("\nEnter book type of book 2: ");
 scanf("%s",book2.book_type);
 printf("Record of book 1 \nPage no. %d\nLesson no. %d\nBook name %s\nBook type %s\n",book1.page,book1.lesson,book1.book_name,book1.book_type);
 printf("Record of book 2 \nPage no. %d\nLesson no. %d\nBook name %s\nBook type %s",book2.page,book2.lesson,book2.book_name,book2.book_type);
 return 0;
}
```

```
Rishi das
Enter page number and lesson number in book 1: 45
5

Enter book name book 1: krishna conscicuqness

Enter book type of book 1:
Enter page number and lesson number in book 2: 5
45

Enter book name book 2: mumbai

Enter book type of book 2: literature
Record of book 1
Page no. 45
Lesson no. 5
Book name krishna
Book type conscicuqness
Record of book 2
Page no. 5
Lesson no. 45
Book name mumbai
Book type literature
--------------------------------
Process exited after 81.79 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 58

Program to enter employee salary records, using structures. Create array of structures.

```
#include<stdio.h>

struct employee

{

 int empid;

 int salary;

 char emp_name[20];

};

int main()

{

 int employee_number,i;

 printf("Rishi Das\n");

 printf("Enter the number of employee: ");

 scanf("%d",&employee_number);

 struct employee employe[employee_number];

 for(i=0;i<employee_number;i++)

 {

 printf("Enter the employee id: ");

 scanf("%d",&employe[i].empid);
```

```
printf("\nEnter the employee salary: ");
scanf("%d",&employe[i].salary);
printf("\nEnter employee name: ");
scanf("%s",employe[i].emp_name);
}
printf("\nEmployee Records:\n");
for (int i = 0; i < employee_number; i++) {
printf("\nDetails of employee %d:\n", i + 1);
printf("Name: %s\n", employe[i].emp_name);
printf("Employee ID: %d\n", employe[i].empid);
printf("Salary: %d\n", employe[i].salary);
}
return 0;
}
```

```
Rishi Das
Enter the number of employee: 2
Enter the employee id: 100

Enter the employee salary: 10000

Enter employee name: ranvijay singh
Enter the employee id:
Enter the employee salary:
Enter employee name:
Employee Records:

Details of employee 1:
Name: ranvijay
Employee ID: 100
Salary: 10000

Details of employee 2:
Name: singh
Employee ID: 0
Salary: 4210735

--------------------------------
Process exited after 26.62 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 59

Program to define a structure stores and write function update() to change the value of its member. Pass structure to update() and return structure.

```
#include<stdio.h>

struct data

{ int value;

};

struct data update(struct data new_data);

int main()

{

 printf("Rishi Das\n");

 struct data old;

 scanf("%d",&old.value);

 printf("Old value is %d\n",old.value);

 old=update(old);

 printf("Update value is %d\n",old.value);

 return 0;

}

struct data update(struct data new_data)

{ int n_value;
```

```
 scanf("%d",&n_value);
 new_data.value=n_value;
 return new_data;
}
```

```
Rishi Das
5
Old value is 5
6
Update value is 6

--------------------------------
Process exited after 5.857 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 60

Program to open a file, read character data from keyboard and write it into the file. Close the file and reopen it to print the contents.

```
#include<stdio.h>

int main()

{

 FILE *f1;

 char c;

 printf("Rishi Das\n");

 printf("Data Input\n\n");

 f1 = fopen("INPUT.txt", "w");

 while((c=getchar()) != '\n')

 putc(c,f1);

 fclose(f1);

 printf("\nData Output\n\n");

 f1 = fopen("INPUT.txt","r");

 while((c=getc(f1)) != EOF)

 printf("%c",c);

 printf("\n");

 fclose(f1);

 return 0;
```

```
}
```

```
Rishi Das
Data Input

45

Data Output

45

--------------------------------
Process exited after 2.671 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 61

Program to open a file, read integer data from keyboard and write it into the file. Close the file and reopen it to print the contents.

```
#include<stdio.h>

int main()

{

 FILE *f1;

 int n,i;

 printf("Rishi Das\n");

 printf("Data Input\n\n");

 f1 = fopen("Input number.txt", "w");

 for(i=1;i<=10;i++)

 {

 scanf("%d",&n);

 putw(n,f1);

 }

 fclose(f1);

 printf("\nData Output\n\n");

 f1 = fopen("Input number.txt","r");

 while((n=getw(f1)) != EOF)

 printf("%d ",n);
```

```
 printf("\n");
 fclose(f1);
 return 0;
}
```

```
Rishi Das
Data Input

23
24
25
26
27
28
29
30
31
32

Data Output

23 24 25

--------------------------------
Process exited after 12.07 seconds with return value 0
Press any key to continue . . .
```

#PRACTICAL 62

Program to demonstrate use of malloc() and free().

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
 int n,*arr;
 printf("Rishi Das\n");
 printf("Enter the number of elements: ");
 scanf("%d", &n);
 arr = (int *)malloc(n * sizeof(int));
 if (arr == NULL)
 {
 printf("Memory allocation failed.\n");
 return 1;
 }
 printf("Enter %d integers:\n", n);
 for (int i = 0; i < n; ++i)
 {
```

```
 scanf("%d", &arr[i]);
 }
 printf("Entered integers are: ");
 for (int i = 0; i < n; ++i)
 {
 printf("%d ", arr[i]);
 }
 printf("\n");
 free(arr);
 return 0;
}
```

```
Rishi Das
Enter the number of elements: 5
Enter 5 integers:
23
24
25
26
27
Entered integers are: 23 24 25 26 27

--------------------------------
Process exited after 13.31 seconds with return value 0
Press any key to continue . . .
```