PROGRAM NUMBER 1

Program to write Welcome to budding engineers!

```
#include <stdio.h>
int main()
{
printf(“Welcome to budding engineers!”);
return 0;
}
```

PROGRAM NUMBER 2

Program to print address using puts

```
#include<stdio.h>
int main()
{
puts(“Address:#17,Street 2,
Model Town,Ludhiana”);
return 0;
}
```

PROGRAM NUMBER 3

Program to print sum of two numbers

```
#include<stdio.h>
int addnum(int x,int y);
int main()
{
int a,b,sum;
printf(“Enter two numbers:\n”);
scanf("%d",&a);
scanf("%d",&b);
sum=addnum(a,b);
printf(“Sum= %d\n”,sum);
return 0;
}
```

```
int addnum(int x,int y)
{
int result;
result=x+y;
return result;
}
```

PROGRAM NUMBER 4

Program to convert temperature from Fahrenheit to Celsius

```
#include<stdio.h>
int main()
{
float f,c;
printf("Enter the temperature in Fahrenheit= ");
scanf("%f",&f);
c=((f-32)*5)/9;
printf("Temperature in Celsius= %.2f\n",c);
return 0;
}
```

PROGRAM NUMBER 5

Program to find area and perimeter of circle

```
#include<stdio.h>
int main()
{
float r,area,perimeter;
printf("Enter the radius of circle: ");
scanf("%f",&r);
area=3.14rr;
perimeter=23.14r;
printf("Area of the circle: %.2f\n",area);
printf("Perimeter of the circle: %.2f\n",perimeter);
return 0;
}
```

PROGRAM NUMBER 6

Program to swap two numbers without using third variable

```
#include <stdio.h>
int main()
{
int a,b;
printf("Enter the value of a and b: ");
scanf("%d%d",&a,&b);
a=a+b;
b=a-b;
a=a-b;
printf("Value of a is %d and b is %d\n",a,b);
return 0;
}
```

PROGRAM NUMBER 7

Program to check whether number is odd or even

```
#include<stdio.h>
void check(int a);
int main()
{
int num;
printf("Enter the number: ");
scanf("%d",&num);
check(num);
return 0;
}
void check(int a)
{
int s1=a%2;
if(s1==0)
printf("Number is even\n");
else
printf("Number is odd\n");

}
```

PROGRAM NUMBER 8

Program to find factorial of a number

```
#include<stdio.h>
int main()
{
int n,i,p=1;
printf("Enter the number: ");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
p=p*i;
}
printf("Factorial of %d is %d\n",n,p);
return 0;
}
```

PROGRAM NUMBER 9

Program to find reverse of a number

```
#include<stdio.h>
int main()
{
int a,t,b,c;
printf("Enter the number: ");
scanf("%d",&a);
c=0;
t=a;
while(a!=0)
{
b=a%10;
c=c*10+b;
a=a/10;
}
printf("Reverse of %d is %d\n",t,c);
return 0;
}
```

PROGRAM NUMBER 10

Program to find sum of two numbers using pointers

```
#include<stdio.h>

int sum(int *a,int *b);
int main()
{
int a,b,answer;
printf("Enter numbers to be added:");
scanf("%d %d",&a,&b);
answer=sum(&a,&b);
printf("Sum is : %d",answer);
return 0;
}
int sum(int *a,int *b)
{
return (*a + *b);
}
```

PROGRAM NUMBER 11

Program to print days of week using switch case

```
#include<stdio.h>
int main()
{
int number;
printf("Enter a number to print days of the week (1, 2, 3, 4, 5, 6, 7): ");
scanf("%d", &number);
switch(number)
{
case 1:
puts("Monday");
break;
case 2:
puts("Tuesday");
break;
case 3:
puts("Wednesday");
break;
case 4:
puts("Thursday");
break;
case 5:
puts("Friday");
break;
```

```
case 6:
puts(“Saturday”);
break;
case 7:
puts(“Sunday”);
break;
default:
puts(“Error! input is not correct\n”);
}


  return 0;


}
```

PROGRAM NUMBER 12

Program to use operators using switch case

```
#include <stdio.h>
int main() {
char operator;
double a,b;
printf(“Enter an operator (+, -, ,/): “);
scanf(“%c", &operator);
printf(“Enter two operands: \n”);
scanf("%lf %lf",&a, &b);
switch(operator)
{
case ‘+’:
printf("%.2f + %.2f = %.2f\n",a, b, a + b);
break;
case ‘-’:
printf("%.2f - %.2f = %.2f\n",a, b, a - b);
break;
case '':
printf(“%.2f * %.2f = %.2f\n",a, b, a * b);
break;
case ‘/’:
printf("%.2f / %.2f = %2f\n",a, b, a / b);
break;
default:
printf(“Error! operator is not correct\n”);
}
```

```
  return 0;


}
```

PROGRAM NUMBER 13

Program to check whether the year is leap or not

```
#include<stdio.h>
int main()
{
int year;


  printf("Enter a year \n");
  scanf("%d", &year);
  if ((year % 400) == 0)
      printf("%d is a leap year \n",year);
  else if ((year % 100) == 0)
      printf("%d is a not leap year\n",year);
  else if ((year % 4) == 0)
      printf("%d is a leap year \n", year);
  else
      printf("%d is not a leap year \n", year);
      return 0;


}
```

PROGRAM NUMBER 14

Program to check whether number is prime or not

```
#include<stdio.h>
int main()
{
int a,i,c=0;
printf(“Enter the number\n”);
scanf("%d",&a);
for (i=1;i<=a;i++)
{
if(a%i 0)
```

```
c++;
}
if(c 2)
printf(“Number is prime\n”);
else
printf(“Number is not prime\n”);
return 0;
}
```

PROGRAM NUMBER 15

Program to check whether number is palindrome or not

```
#include<stdio.h>
int main()
{
int n,t,a,b=0;
printf(“Enter the number\n”);
scanf("%d",&n);
t=n;
while(n!=0)
{
a=n%10;
b=b*10+a;
n=n/10;
}
if(b==t)
printf(“Number is palindrome\n”);
else
printf(“Number is not palindrome\n”);
return 0;
}
```

PROGRAM NUMBER 16

Program to print Fibonacci series

```
#include <stdio.h>
int main()
{
int n,a=0,b=1,c=0,i;
printf(“Enter the limit of series(no. of terms to be printed): ”);
```

```
scanf(”%d”,&n);
printf("%d %d ”,a,b);
for(i=2;i<=n;i++)
{
c=a+b;
printf(”%d ”,c);
a=b;
b=c;
}
printf(”\n");
return 0;
}
```

PROGRAM NUMBER 17

Program to enter and print elements of an array

```
#include<stdio.h>
int main()
{
int a[100],n;
printf(“Enter the limit of array: ”);
scanf(”%d”,&n);
printf(“Enter the elements for array:\n”);
for(int i=1;i<=n;i++)
scanf("%d",&a[i]);
printf(“Array\n”);
for(int i=1;i<=n;i++){
printf("%d ”,a[i]);
printf(”\n");
}
return 0;
}
```

PROGRAM NUMBER 18

Program to print elements of a 2-D array

```
#include<stdio.h>

void displayArray(int arr[3][3]);
```

```
int main() { int arr[3][3], i, j; printf(“Please enter 9 numbers for the array: \n”);
for (i = 0; i < 3; ++i)
{ for (j = 0; j < 3; ++j) {
scanf("%d", &arr[i][j]); } } // passing the array as argument
displayArray(arr);
return 0;
}

void displayArray(int arr[3][3])
{
int i, j; printf(“The complete array is: \n”); for (i = 0; i < 3; ++i) { // getting cursor to new line
printf("\n"); for (j = 0; j < 3; ++j) {
// \t is used to provide tab space printf("%d\t", arr[i][j]); } } }
```

PROGRAM NUMBER 19

Program to add two matrices

```
#include <stdio.h>
int main()
{
int a[3][3],b[3][3],c[3][3];
printf(“Enter the value for first matrix\n”);
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
scanf("%d",&a[i][j]);
}
printf(“Enter the value for second matrix\n”);
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
scanf("%d",&b[i][j]);
}
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
c[i][j]=a[i][j]+b[i][j];
}
printf(“First Matrix\n”);
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
printf("%d\t",a[i][j]);
```

```
printf("\n");
}
printf(“Second Matrix\n”);
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
printf("%d\t",b[i][j]);
printf("\n");
}
printf(“Result of Addition of Two Matrix\n”);
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
printf("%d\t",c[i][j]);
printf("\n");
}
}
```

PROGRAM NUMBER 20

Program to find transpose of a matrix

```
#include <stdio.h>
int main()
{
int a[3][3],c[3][3];
printf(“Enter the value for matrix\n”);
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
scanf("%d",&a[i][j]);
}
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
c[j][i]=a[i][j];
}
printf(“Matrix\n”);
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
printf("%d\t",a[i][j]);
printf("\n");
}
```

```
printf(“Result of Transpose of Matrix\n”);
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
printf("%d\t",c[i][j]);
printf("\n");
}
}
```

PROGRAM NUMBER 21

Program to subtract two matrices

```
#include <stdio.h>
int main()
{
int a[3][3],b[3][3],c[3][3];
printf(“Enter the value for first matrix\n”);
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
scanf("%d",&a[i][j]);
}
printf(“Enter the value for second matrix\n”);
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
scanf("%d",&b[i][j]);
}
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
c[i][j]=a[i][j]-b[i][j];
}
printf(“First Matrix\n”);
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
printf("%d\t",a[i][j]);
printf("\n");
}
printf(“Second Matrix\n”);
for(int i=1;i<=3;i++)
{
```

```
for(int j=1;j<=3;j++)
printf("%d\t",b[i][j]);
printf("\n");
}
printf(“Result of Subtraction of Two Matrix\n”);
for(int i=1;i<=3;i++)
{
for(int j=1;j<=3;j++)
printf("%d\t",c[i][j]);
printf("\n");
}
}
```

PROGRAM NUMBER 22

Program to find nature of roots in a quadratic equation

```
#include <stdio.h>
int main()
{
int a,b,c,D;
printf(“Enter the coefficients according to the eqn:ax^2+bx+c”);
printf(“a,b,c:”);
scanf("%d %d %d",&a,&b,&c);
D=(b*b)-4*a*c;
if(D==0)
printf(“Roots are real and equal”);
else if(D>0)
printf(“Roots are real and distinct”);
else
printf(“Roots are imaginary”);
return 0;
}
```

PROGRAM NUMBER 23

Program to find square of a number using functions

```
#include<stdio.h>
int square(int x);
int main()
{
```

```
int n,s;
printf(“Enter the number: “);
scanf(”%d”,&n);
s=square(n);
printf(“Square of %d= %d\n”,n,s);
}
int square(int x)
{
int s=x*x;
return s;
}
```

PROGRAM NUMBER 24

Program to swap a number using call by value

```
#include <stdio.h>
void swap(int, int);
int main()
{
int x, y;
printf(“Enter the value of x and y\n”);
scanf("%d%d",&x,&y);
printf(“Before Swapping\nx = %d\ny = %d\n”, x, y);
swap(x, y);
printf(“After Swapping\nx = %d\ny = %d\n”, x, y);
return 0;
}
void swap(int a, int b)
{
int temp;
temp = b;
b = a;
a = temp;
}
```

PROGRAM NUMBER 25

Program to swap a number using call by reference

```
#include <stdio.h>
void swap(int * num1, int * num2);
int main()
{
int num1, num2;
printf("Enter two numbers: ");
scanf("%d%d", &num1, &num2);
printf("Before swapping in main n");
printf("Value of num1 = %d \n", num1);
printf("Value of num2 = %d \n\n", num2);
swap(&num1, &num2);
printf("After swapping in main n");
printf("Value of num1 = %d \n", num1);
printf("Value of num2 = %d \n\n", num2);
return 0;
}
void swap(int * num1, int * num2)
{
int temp;
temp = *num1;
*num1= *num2;
*num2= temp;
}
```

PROGRAM NUMBER 26

Program to find factorial of a number using recursion

```
#include <stdio.h>
int factorial(int n);
int main()
{
int n;
printf("Enter the number: ");
scanf("%d", &n);
printf("Factorial of %d = %d\n", n,factorial(n));
return 0;
}
int factorial(int n)
{
if (n>=1)
return n*factorial(n-1);
```

```
else
return 1;
}
```

PROGRAM NUMBER 27

Program to print Fibonacci series using recursion

```
#include<stdio.h>
int Fibonacci(int);
int main()
{
int n,i=0;
printf(“Enter the limit: “);
scanf(”%d”,&n);
printf(“Fibonacci series\n”);
for(int j=0;j<=n;j++)
{
printf("%d “,Fibonacci(i));
i++;
}
printf(”\n");
return 0;
}
int Fibonacci(int n)
{
if(n 0)
return 0;
else if(n 1)
return 1;
else
return ( Fibonacci(n-1) + Fibonacci(n-2) );
}
```

PROGRAM NUMBER 28

Program to find sum of two complex numbers using structures

```
#include<stdio.h>
struct comp{
float real;
```

```
float imag;
};

int main()
{
struct comp comp1,comp2,result;
printf("Enter first complex number:");
scanf("%f %f",&comp1.real,&comp1.imag);
printf("Enter second complex number:");
scanf("%f %f",&comp2.real,&comp2.imag);
result.real=comp1.real+comp2.real;
result.imag=comp1.imag+comp2.imag;
printf("sum of two complex numbers is:%f +i%.2f",result.real,result.imag);
return 0;
}
```

PROGRAM NUMBER 29

Program to enter and print elements in a structure

```
#include<stdio.h>
struct student{
char name[20];
int age;
};

int main()
{
struct student st1;
printf("Enter name : ")
scanf("%s",st1.name);
printf("Enter age:");
scanf("%d",&st1.age);
printf("Name is:%s and age is:%d",st1.name,st1.age);
return 0;
}
```

PROGRAM NUMBER 30

Program to print table of given number

```
#include<stdio.h>
int main()
{
int result,i,n;
printf(“Enter the number whose table is to be printed:”);
scanf("%d",&n);
for(i=0;i<=10;i++)
{
result=n*i;
printf("%d * %d = %d\n",n,i,result);
}
return 0;
}
```