```
//Khushi
//20BCAB42

//calculation
#include<stdio.h>
void main()
{
	int a,b;
	printf("Enter two numbers: ");
	scanf("%d %d",&a,&b);
	printf("ADDITION %d\n",a+b);
	printf("SUBSTACTION %d\n",a-b);
	printf("MULTIPLICATION %d\n",a*b);
	printf("DIVISION %d\n",a/b);
	printf("REMAINDER %d\n",a%b);
}
```
-x-x-x-

```
//To add first and last digit of the three digit number
#include<stdio.h>
void main()
{
	int n, a, b;
	printf("Enter a three digit number: ");
	scanf("%d",&n);
	a = n%10;
	b= n/100;
	printf("The added  value of first and last digit is: %d", a+b);
}
```
-x-x-x-

```
//if statement
#include<stdio.h>
void main()
{
	int x;
	printf("Enter a number ");
	scanf("%d", &x);
	if(x%2==0)
		printf("Even: %d",x);
```

```
	else
		printf("Odd: %d",x);
}
```
-x-x-x-
```
//switch statement
#include<stdio.h>
void main()
{
	int a=0,b=0,c=0;
	int ch;
	printf("Enter 2 numbers: ");
	scanf("%d %d",&a, &b);
	printf("%d %d" ,a,b);
	printf("\nOperation: 1.+ 2. - 3.* 4./ 5.%: ");
	scanf("%d",&ch);
	switch(ch)
	{
		case 1:
		{
		   c = a+b;
			printf("SUM: %d",c);
			break;
		}
		case 2:
		{
			c=a-b;
			printf("DIFFERENCE: %d",c);
			break;
		}
		case 3:
		{
			c=a*b;
			printf("PRODUCT: %d",c);
			break;
		}
		case 4:
		{
			c=a/b;
			printf("QUOTIENT: %d",c);
			break;
```

```
                }
                case 5:
                {
                        c=a%b;
                        printf("REMAINDER: %d",c);
                        break;
                }
                default:
                        printf("Invalid option");
        }
}
```

-x-x-x-

```
//do while loop
#include<stdio.h>
void main()
{
        int a,b,c,op;
        char ch;
        do
        {
         printf("Enter 2 numbers: ");
         scanf("%d %d",&a, &b);
         printf("\nOperation: 1.+ 2. - 3.* 4./ 5.%: ");
         scanf("%d",&op);
         switch(op)
           {
                case 1:
                {
                   c = a+b;
                        printf("SUM: %d",c);
                        break;
                }
                case 2:
                {
                        c=a-b;
                        printf("DIFFERENCE: %d",c);
                        break;
                }
                case 3:
```

```
                {
                        c=a*b;
                        printf("PRODUCT: %d",c);
                        break;
                }
                case 4:
                {
                        c=a/b;
                        printf("QUOTIENT: %d",c);
                        break;
                }
                case 5:
                {
                        c=a%b;
                        printf("REMAINDER: %d",c);
                        break;
                }
                default:
                        printf("Invalid option");
            }
          printf("\n Do you want to continue? ");
          scanf("%s",&ch);
        }
        while(ch=='y'|| ch=='Y');
}
```

-x-x-x-

```
//for loop
#include<stdio.h>
void main()
{
        int num,count,sum=0;
        printf("Enter a number:");
        scanf("%d",&num);
        for(count=1;count<=num;count++)
        sum=sum+count;
        printf("Sum= %d",sum);
}

//while loop
#include<stdio.h>
```

```
void main()
{
	int a=10;
	while(a<20)
	{
		printf("\n Loop entered- %d",a);
		a++;
	}
}
```

-x-x-x-

```
//calculator prog 1
#include<stdio.h>
int add(int a, int b)
{
	int c;
	c=a+b;
	return c;
}
int subtract(int a, int b)
{
	int c;
	c=a-b;
	return c;
}
int multiply(int a, int b)
{
	int c;
	c=a*b;
	return c;
}
int divide(int a, int b)
{
	int c;
	c=a/b;
	return c;
}
int modulus(int a, int b)
{
	int c;
	c=a%b;
```

```
	return c;
}
void main()
{
	int x,y,s,d,p,q,m;
	printf("Enter 2 values: ");
	scanf("%d %d",&x,&y);
	s=add(x,y);
	printf("SUM: %d",s);
	d=subtract(x,y);
	printf("\n DIFFERENCE: %d",d);
	p=multiply(x,y);
	printf("\n PRODUCT: %d",p);
	q=divide(x,y);
	printf("\n QUOTIENT: %d",q);
	m=modulus(x,y);
	printf("\n REMAINDER: %d",m);
}
```

-x-x-x-

```
//swap prog 2
#include <stdio.h>
void main()
{
  int a,b,c,x;
  printf("Enter three numbers: ");
  scanf("%d %d %d",&a,&b,&c);
  printf("\nBefore swapping: \n A=%d \n B=%d \n C=%d \n", a,b,c);
  x=a;
  a=b;
  b=x;
  x=b;
  b=c;
  c=x;
  x=c;
  c=a;
  a=x;
  x=a;
  a=c;
  c=x;
  printf("\n After swapping \n A=%d \n B=%d \n C=%d \n", a,b,c);
```

```
}
```
-x-x-x-

```
//electricity prog 3
#include <stdio.h>
void main()
{
        int units;
        float amount;
        printf("\n Enter the Units Consumed: ");
        scanf("%d", &units);
        if(units<101)
        amount= units * 1.50;
        else if(units>100 && units<301)
        amount= (100*1.50)+(100*2)+(units-100)*2 ;
        else if(units>300 && units<501)
        amount= (100*1.50)+(100*2)+(100*2.50)+(units-300)*2.50 ;
        else if(units>500)
        amount= (100*1.50)+(100*2)+(100*2.50)+(100*3.25)+(units-500)*3.25 ;
        printf("Electricity Bill: Rs %.2f",amount);
}
```
-x-x-x-

```
//odd and even numbers
#include <stdio.h>
void main()
{
   int a[50],i,n;
   printf("Array size? ");
   scanf("%d", &n);
   printf("Enter the numbers: ");
   for(i=0;i<n;i++)
      scanf("%d",&a[i]);
   printf("Even numbers: ");
   for(i=0;i<n;i++)
   {
      if(a[i]%2==0)
         printf("%d  ",a[i]);
   }
   printf("\nOdd numbers: ");
   for(i=0;i<n;i++)
```

```
    {
        if(a[i]%2!=0)
            printf("%d  ",a[i]);
    }
}
```
-x-x-x-

```
//reverse
#include <stdio.h>
void main()
{
    int a[50],i,n;
    printf("Array size? ");
    scanf("%d",&n);
    printf("Enter the numbers: ");
    for(i=0;i<n;i++)
    {
        scanf("%d",&a[i]);
    }
    printf("Reversed: ");
    for(i=n-1;i>=0;i--)
    {
        printf("%d ",a[i]);
    }
}
```
-x-x-x-

```
//student marks n roll
#include<stdio.h>
void main()
{
int roll[10],x,i;
float marks[10];
printf("Roll numbers: ");
for(i=0;i<10;i++)
scanf("%d",&roll[i]);
printf("\nMarks obtained: ");
for(i=0;i<10;i++)
scanf("%f",&marks[i]);
```

```
printf("\nROLL NUMBER? ");
scanf("%d",&x);
for(i=0;i<10 && roll[i] != x;i++);
if(x==roll[i])
printf("\nMARKS:%.2f ",marks[i]);
}
```

-x-x-x-

```
//transpose for square matrix
#include <stdio.h>
int main()
{
   int row, col,i, j, value;
   printf("\nNumber of rows? ");
   scanf("%d", &row);
   printf("Number of columns? ");
   scanf("%d", &col);
   int m[row][col];
   int t[col][row];
   for(i=0;i<row;i++)
   {
      for(j=0;j<col;j++)
      {
         printf("Enter value for %d %d: ", i+1,j+1);
         scanf("%d", &value);
         m[i][j]=value;
      }
   }
   printf("\nMATRIX:\n");
   for(i=0;i<row;i++)
   {
      for(j=0;j<col;j++)
         printf("%d ",m[i][j]);
      printf("\n");
   }
   for (i=0;i<row;i++)
   {
      for(j=0;j<col;j++)
         t[i][j]=m[j][i];
   }
```

```
    printf("\nTRANSPOSE:\n");
    for(i=0;i<col;i++)
    {
        for(j=0;j<row;j++)
            printf("%d ",t[i][j]);
        printf("\n");

    }
    return 0;
}
```

-x-x-x-

```
//unique elements
#include <stdio.h>
int main()
{
    int n,i,f=0,j;
    printf("Array size? ");
    scanf("%d",&n);
    int a[n];
    printf("Array elements? ");
    for(i=0;i<n;i++)
        scanf("%d",&a[i]);
    printf("\nUnique elements:");
    for(i=0;i<n;i++)
    {
        f=0;
        for(j=0;j<n;j++)
        {
            if(i!=j)
            {
                if(a[i]==a[j])
                    f++;
            }
        }
        if(f!=1)
            printf("%d ",a[i]);
    }
}
```

-x-x-x-

```
//matrix multiplication
#include <stdio.h>
void main()
{
   int a[5][5],b[5][5],d[5][5],k, r1,r2,c1,c2, i, j;
   printf("Matrix 1 order? ");
   scanf("%d %d",&r1,&c1);
   printf("Matrix 2 order? ");
   scanf("%d %d",&r2,&c2);
   if(c1==r2)
   {
      printf("\nMatrix 1 elements?\n");
      for (i=0;i<r1;i++)
      {
         for (j=0;j<c1;j++)
            scanf("%d",&a[i][j]);
      }
      printf("\nMatrix 2 elements?\n");
      for (i=0;i<r2;i++)
      {
         for (j=0;j<c2;j++)
            scanf("%d",&b[i][j]);
      }
      for(i=0;i<r1;i++)
      {
         for(j=0;j<c2;j++)
         {
            d[i][j]=0;
            for(k=0;k<c1;k++)
            d[i][j]=d[i][j]+a[i][k]*b[k][j];
         }
      }
      printf("\nPRODUCT:\n");
      for(i=0;i<r1;i++)
      {
         for(j=0;j<c2;j++)
            printf("%d ",d[i][j]);
            printf("\n");
```

```
        }
    }
    else
        printf("Matrices are not compatible \n");
}
```

-x-x-x-

```
//matrix sum
#include <stdio.h>
void main()
{
    int r1,r2,c1,c2, i, j;
    printf("Matrix 1 order? ");
    scanf("%d %d", &r1,&c1);
    int a[r1][c1];
    printf("Matrix 2 order? ");
    scanf("%d %d", &r2,&c2);
    int b[r2][c2];
    int s[r1][c1];
    if((r1==r2)&&(c1==c2))
    {
        printf("\nMatrix 1 elements?\n");
        for (i=0;i<r1;i++)
        {
            for (j=0;j<c1;j++)
                scanf("%d",&a[i][j]);
        }
        printf("\nMatrix 2 elements?\n");
        for (i=0;i<r2;i++)
        {
            for (j=0;j<c2;j++)
                scanf("%d",&b[i][j]);
        }
        for(i=0;i<r1;i++)
        {
            for(j=0;j<c2;j++)
            {
                s[i][j]=0;
                s[i][j]=a[i][j]+b[i][j];
            }
        }
```

```
        printf("\nSUM:\n");
        for(i=0;i<r1;i++)
        {
            for(j=0;j<c2;j++)
                printf("%d ",s[i][j]);
                printf("\n");

        }
    }
    else
        printf("Matrices are not compatible \n");
}
```

-x-x-x-

```
//string inbuilt functions
#include<stdio.h>
#include<string.h>
void main()
{
    char c1[]="Welcome";
    char c2[]="Hello";
    int i,j,k;
    i=strcmp(c1,"Welcome");
    j=strcmp(c1,c2);
    k=strcmp(c1,"Hello");
    printf("c1=Welcome, c2=Hello\n");
    printf("COMPARED: %d %d %d \n",i,j,k);
    printf("CONCATENATE: %s \n\n",strcat(c1,c2));

    char s1[]="Hi Hola";
    char s2[]="Hey Hello Hi";
    printf("s1=Hi Hola, s2=Hey Hello Hi\n");
    printf("LENGTH 1: %d \n", strlen(s1));
    printf("LENGTH 2: %d \n", strlen(s2));
    char* d=strdup(s1);
    printf("DUPLICATE: %s \n",d);
    printf("STRING CHARACTER: %s \n", strchr(s1,'o'));
    printf("STRING STRING: %s \n", strstr(s2,"Hello"));
    //printf("LOWER %s \n",strlwr(s1)); //doesnt work in kali
```

```
    //printf("UPPER %s \n",strupr(s2)); //doesnt work in kali
    //printf("REVERSE %s \n",strrev(s1)); //doesnt work in kali
}
```

-x-x-x-

```
//number of words and characters
#include<stdio.h>
#include<string.h>
void main()
{
    char s[100],c;
    int word=1;
    printf("Line? ");
    gets(s);
    //scanf("%s\n",s);
    for(int i=0;s[i]!='\0';i++)
    {
        if(s[i]==' ')
            word++;
    }
    printf("Number of words:%d\n",word);
    printf("Number of characters:%d\n",strlen(s));
}
```

-x-x-x-

```
//string in reverse order
#include<stdio.h>
void main()
{
    char s[100], c,s1[20];
    int x=0, l=0;
    printf("Enter a sentence\n");
    gets(s);
    for(int j=0; s[j]!='\0'; j++)
    {
        l++;
    }
    for(int i=0; i<=l;i++)
    {
      c=s[i];
```

```
      s1[x]=c;
      x++;

      if(c==' '||c=='\0')
      {
         for(int k=x-1;k>=0;k--)
         {
            printf("%c",s1[k]);
         }
         x=0;
         printf(" ");
      }
    }
}
```

-x-x-x-

```
//string sorting
#include<stdio.h>
#include<string.h>
int main()
{
  int i,j,n;
  char a[25][25],temp[25];
  printf("List size? ");
  scanf("%d",&n);

  puts("Elements? ");
  for(i=0;i<=n;i++)
    gets(a[i]);
  for(i=0;i<=n;i++)
  {
    for(j=i+1;j<=n;j++)
    {
      if(strcmp(a[i],a[j])>0)
      {
        strcpy(temp,a[i]);
        strcpy(a[i],a[j]);
        strcpy(a[j],temp);
      }
```

```
    }
  }
  printf("\nSORTED:");
  for(i=0;i<=n;i++)
    puts(a[i]);

  return 0;
}
```

-x-x-x-

1. WAP to create a structure called traveler and members of structure are train no, coach no, seat no, source, destination, gender, age, name and departure date.

```
#include<stdio.h>
struct traveller
{
   int train_no;
   char coach[4];
   int seat_no;
   char source[50];
   char destination[50];
   char gender[10];
   int age;
   char name[50];
   char date[15];
};
int main()
{
   struct traveller x;
   printf("Enter the name of the traveller \n");
   scanf("%s",&x.name);
   printf("Enter the age \n");
   scanf("%d",&x.age);
   printf("Enter the gender\n");
   scanf("%s",&x.gender);
   printf("Enter the date \n");
   scanf("%s",&x.date);
   printf("Enter the Source \n");
   scanf("%s",&x.source);
   printf("Enter the Destination\n");
   scanf("%s",&x.destination);
```

```
    printf("Enter the train number \n");
    scanf("%i",&x.train_no);
    printf("Enter the coach number \n");
    scanf("%s",&x.coach);
    printf("Enter the seat number \n");
    scanf("%i",&x.seat_no);
    printf("Name : %s\n",x.name);
    printf("Age : %i\n",x.age);
    printf("Gender : %s\n",x.gender);
    printf("Date : %s\n",x.date);
    printf("Source : %s\n",x.source);
    printf("Destination : %s\n",x.destination);
    printf("Train Number : %i\n",x.train_no);
    printf("Coach Number : %s\n",x.coach);
    printf("Seat Number : %d\n",x.seat_no);
    return 0;
}
```

-x-x-x-

2.WAP to read info of 20 books and print book and author names of those whose price is more than
Rs.1000

```
#include<stdio.h>
struct books
{
    char title[50];
    char author[50];
    float price;
};
void main()
{
    struct books book[20];
    int i;
    for(i=0;i<20;i++)
    {
        printf("Book %d\n",i+1);
        printf("Title: ");
        scanf("%s",(book[i].title));
        printf("Author: ");
        scanf("%s",(book[i].author));
```

```
        printf("Price:Rs ");
        scanf("%f",&(book[i].price));
        printf("\n");
    }
    for(i=0;i<20;i++)
    {
        if(book[i].price>1000)
        {
            printf("Title: %s\n",book[i].title);
            printf("Author: %s\n",book[i].author);
            printf("\n");
        }
    }
}
```

-x-x-x-