THIS FILE CONSISTS OF FOLLOWING -:

FIND GREATER BETWEEN TWO NUMBERS

FIND GREATER BETWEEN THREE NUMBERS

FIND GREATEST AMONG THREE NUMBERS USING C LANGUAGE

CONFIRM WHETHER LEAP YEAR OR NOT

DISPLAY MONTH USING IF-ELSE CONSTRUCT

SALARY OF A COMPUTER SALESMAN USING CONCEPT OF DEFINING VARIABLES WITH CONSTANT DATA

SALARY FOR A NEW EMPLOYEE TO BE HIRED

GIFT AGAINST BILL AMOUNT

ROUNDING OFF NUMBERS TO TENS PLACE

FIND ROOTS OF A QUADRATIC EQUATION

DISPLAY MONTH USING SWITCH CASE

DISPLAY MEANING OF GRADES WITH SWITCH CASE STRUCTURE

SIMPLE CALCULATOR FOR TWO FRACTIONS

PREDICT THE DAY ON WHICH A GIVEN DATE FALLS

INCREMENT AND DECREMENT OPERATORS

SAMPLE PROGRAM TO PRINT 1-100 USING FOR LOOP

PRINT DIFFERENT PATTERNS

COUNT POSITIVE AND NEGATIVE INPUTS IN TEN ENTRIES

DETERMINE A PERFECT NUMBER

DETERMINE A PRIME NUMBER

PRINT A MULTIPLICATION TABLE USING DO-WHILE LOOP

PRINT A MULTIPLICATION TABLE USING FOR LOOP

REVERSE OF A NUMBER

DISPLAY SERIES : 1,2,3,4,5,6,7……n

DISPLAY SERIES : -1,4,-9,16,-25,36,-49,……...n

DISPLAY SERIES : 0,2,5,9,14,20,27,35,44,54,65……n

DISPLAY SERIES : 2,6,12,20,30,42,56……..n

PRINT THE FIBONNACI SERIES: 1,2,3,5,8,13,21……..n

AVERAGE OF NUMBERS

SUM OF SERIES WITH FIRST AND LAST TERM ENTERED BY USER

SUM OF FRACTIONS SERIES: 1, 1/2, 1/3, 1/4 , 1/5,……1/n

FACTORS OF A NUMBER

FACTORIAL OF A NUMBER

SUM OF DIGITS IN A NUMBER

COMPOUND INETERST BY SIMPLE INTEREST

SIMPLE CALCULATOR FOR TWO FRACTIONS

SUM OF ALL TERMS IN A ARRAY INPUT BY THE USER

ACCEPT 10 NUMBERS AND PRINT THE SUM OF :
ALL ODD ELEMNTS, EVEN ELEMENTS AND EVERY 3^{RD} ELEMENT SEPARATELY

FORM A NEW NUMBER FROM THREE DIGITS INPUT

PRINT CONSUMER ELECTRICITY BILL AFTER DATA ENTRY

EMPLOYEE PAY-SLIP

REVERSE A VECTOR

FIND LARGEST AND SMALLEST ELEMNT IN A VECTOR

DELETE DUPLICATE ELEMENTS FROM A VECTOR

PLAYER DETAILS USING ARRAYS

WHITE SPACE CONFIRMATION

CONFIRM PRESENCE OF A CHARACTER IN A STRING

COUNT THE NUMBER OF VOWELS IN A STRING

ENCRYPTION OF A STRING

CONVERT A STRING INTO UPPERCASE

FIND SUBSTRING OF STRING
FIND PATTERN STRING IN GIVEN MAIN STRING
CONCATENATE TWO STRINGS
ADDITION OF TWO MATRICES
SUBTRACTION OF A MATRIX FROM ANOTHER
MULTIPLICATION OF TWO MATRICES
FIND ROWSUM AND COLUMNSUM IN A MATRIX
SUM OF ELEMENTS ABOVE AND BELOW THE MAIN DIAGONAL OF THE MATRIX
TRANSPOSE A MATRIX
BINARY SEARCH
BUBBLE SORT
MERGE TWO GIVEN ARRAYS
SORT TWO ARRAYS AND MERGE THEM
TARNSFORM ARRAY : 58712496010 INTO : 97520146810
ARRAY MANIPULATION
CUBE OF A NUMBER USING FUNCTION
PRINT THE LARGEST ELEMENT IN AN ARRAY USING FUNTION
EFFECT OF INCREMENT AND DECREMENT OPERATORS USING FUNCTON
PRINT PYRAMIDS OF DIGITS USING A FUNCTION
FIND THE LEAST COMMON DIVISOR OF TWO NUMBERS USING A FUNCTION
TO FIND THE LCM AND HCF OF GIVEN 3 NUMBERS
SUM OF N NATURAL NUMBERS FROM A GIVEN NUMBER USING A FUNCTION
ILLUSTRATE THE CALL BY VALUE METHOD FOR INVOKING A FUNCTION
SHOW THE HANDICAP OF CALL BY VALUE METHOD
A FUNCTION TO SHOW SPECIAL SERIES
SWAP TWO VALUES USING CALL BY REFERENCE
CONVERT DISTANCE IN FEET OR INCHES USING CALL BY REFERENCE METHOD
TO SET THE LARGER VALUE OF TWO GIVEN VALUES TO (-1) USING CALL BY REFERENCE
FUNCTION TAKING NO ARGUMENTS AND RETURNING NO VALUES
TAKE TWO VALUES AND AN ARITHMETIC OPERATOR TO DISPLAY THE RESULT
SORT AN INTEGER ARRAY USING FUNCTIONS
DISPLAY STUDENTS MARKSHEET USING FUNCTIONS
PALINDROME STRING OR NOT
PRINT THE POSITION OF A CHARACTER IN A STRING USING FUNCTIONS
DETERMINE WHETHER TWO STRINGS CONTAIN EQUAL NUMBER OF CHARACTERS
CHECK WHETHER A CHARACTER IS ALPHANUMERIC OR NOT
CHANGE THE CASE OF A CHARACTER
COPY SMALLER STRING INTO BIGGER STRING
APPEND THE FIRST STRING TO THE SECOND STRING
TO JUSTIFY A STRING
EMPLOYEE DATABASE
HOTEL FOOD BILLING PROGRAM
CONVERT DECIMAL NUMBER TO BINARY NUMBER
CONVERT DECIMAL NUMBER TO OCTAL NUMBER
CONVERT DECIMAL NUMBER TO HEXADECIMAL NUMBER
CONVERT BINARY NUMBER TO DECIMAL NUMBER
CONVERT BINARY NUMBER TO OCTAL NUMBER
CONVERT BINARY NUMBER TO HEXADECIMAL NUMBER
CONVERT OCTAL NUMBER TO DECIMAL NUMBER
CONVERT OCTAL NUMBER TO BINARY NUMBER
CONVERT OCTAL NUMBER TO HEXADECIMAL NUMBER
CONVERT HEXADECIMAL NUMBER TO DECIMAL NUMBER

CONVERT HEXADECIMAL NUMBER TO BINARY NUMBER

CONVERT HEXADECIMAL NUMBER TO OCTAL NUMBER

TRANSLATE NUMBER INTO WORDS

CALENDAR OF A MONTH

MY BEST PROGRAMS MENU

// CONSTANTS DECLARATION RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int i;
        char ch;
        char str[34];
        float f;
        clrscr();
        cout<<"ENTER AN INTEGER : ";
        cin>>i;
        cout<<"ENTER A CHARACTER : ";
        cin>>ch;
        cout<<"ENTER THE STRING : ";
        cin>>str;
        cout<<"ENTER A FLOAT : ";
        cin>>f;
        cout<<"\nCONSTANTS "<<endl;
        cout<<"\nINTEGER : " <<i<<endl;
        cout<<"\nCHARACTER : "<<ch<<endl;
        cout<<"\nSTRING : "<<str<<endl;
        cout<<"\nFLOAT : " <<f<<endl;
        getch();
}
/*OUTPUT

ENTER AN INTEGER : 7
ENTER A CHARACTER : R
ENTER THE STRING : RACHIT
ENTER A FLOAT : 6.3

CONSTANTS

INTEGER : 7

CHARACTER : R

STRING : RACHIT

FLOAT : 6.3


*/
```

```
// TO DISPLAY THE SIZE OF VARIOUS DATA TYPES AVAILABLE.
#include<iostream.h>
#include<conio.h>
void main ()
{       int x=25;
         clrscr ();
         cout<<"sizeof(char)";          gotoxy(x,1);
         cout<<sizeof(char)<<endl;
         cout<<"sizeof(signed char)"; gotoxy(x,2);
         cout<<sizeof(signed char)<<endl;
         cout<<"sizeof(unsigned char)"; gotoxy(x,3);
         cout<<sizeof(unsigned char)<<endl;
         cout<<"sizeof(int)"; gotoxy(x,4);
         cout<<sizeof(int)<<endl;
         cout<<"sizeof(signed int)"; gotoxy(x,5);
         cout<<sizeof(signed int)<<endl;
         cout<<"sizeof(unsigned int)"; gotoxy(x,6);
         cout<<sizeof(unsigned int)<<endl;
         cout<<"sizeof(short)"; gotoxy(x,7);
         cout<<sizeof(short)<<endl;
         cout<<"sizeof(signed short)"; gotoxy(x,8);
         cout<<sizeof(signed short)<<endl;
         cout<<"sizeof(unsigned short)"; gotoxy(x,9);
         cout<<sizeof(unsigned short)<<endl;
         cout<<"sizeof(short int)"; gotoxy(x,10);
         cout<<sizeof(short int)<<endl;
         cout<<"sizeof(float)"; gotoxy(x,11);
         cout<<sizeof(float)<<endl;
         cout<<"sizeof(short float)"; gotoxy(x,12);
         cout<<sizeof(short float)<<endl;
         cout<<"sizeof(long)"; gotoxy(x,13);
         cout<<sizeof(long)<<endl;
         cout<<"sizeof(signed long)"; gotoxy(x,14);
         cout<<sizeof(signed long)<<endl;
         cout<<"sizeof(unsigned long)"; gotoxy(x,15);
         cout<<sizeof(unsigned long)<<endl;
         cout<<"sizeof(long float)"; gotoxy(x,16);
         cout<<sizeof(long float)<<endl;
         cout<<"sizeof(double)"; gotoxy(x,17);
         cout<<sizeof(double)<<endl;
         cout<<"sizeof(long double)"; gotoxy(x,18);
         cout<<sizeof(long double)<<endl;
getch ();
}


/*OUTPUT

sizeof(char)                 1
sizeof(signed char)          1
sizeof(unsigned char)        1
sizeof(int)                  2
sizeof(signed int)           2
sizeof(unsigned int)         2
sizeof(short)                2
sizeof(signed short)         2
```

RETURN TO INDEX

```
sizeof(unsigned short)        2
sizeof(short int)             2
sizeof(float)                 4
sizeof(short float)           4
sizeof(long)                  4
sizeof(signed long)           4
sizeof(unsigned long)         4
sizeof(long float)            8
sizeof(double)                8
sizeof(long double)           10

*/
```

// EMPLOYEES DETAILS RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int eno;
        char grade;
        char name[25];
        float comm;
        clrscr();
        cout<<"ENTER EMPLOYEE NAME : ";
        cin.getline(name,25);
        cout<<"\nENTER EMPLOYEE NUMBER : ";
        cin>>eno;
        cout<<"\nENTER EMPLOYEE GRADE : ";
        cin>>grade;
        cout<<"\nENTER EMPLOYEE COMMISION : ";
        cin>> comm;
        clrscr();
        cout<< "EMPLOYEE DETAILS: "<<endl;
        cout<< "EMPLOYEE NAME : " <<name<<endl;
        cout<<"EMPLOYEE NUMBER : "<<eno<<endl;
        cout<<"EMPLOYEE GRADE : "<<grade<<endl;
        cout<<"EMPLOYEE COMMISSION : " <<comm<<endl;
        getch();
}

/*OUTPUT

ENTER EMPLOYEE NAME : RAM AIRAN

ENTER EMPLOYEE NUMBER : 7

ENTER EMPLOYEE GRADE : A

ENTER EMPLOYEE COMMISION : 7000

EMPLOYEE DETAILS:
EMPLOYEE NAME : RAM AIRAN
EMPLOYEE NUMBER : 7
EMPLOYEE GRADE : A
EMPLOYEE COMMISSION : 7000

*/
```

```
//TO FIND THE SUM OF TWO NUMBERS                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main ()
{
        int no1,no2,sum;
        clrscr();
        cout<<"ENTER FIRST NUMBER : ";
        cin>>no1;
        cout<<"ENTER SECOND NUMBER :";
        cin>>no2;
        sum=no1+no2;
        cout<<"THE SUM OF TWO NUMBER : "<<sum;
getch();
}

/*OUTPUT

ENTER FIRST NUMBER : 25
ENTER SECOND NUMBER :18
THE SUM OF TWO NUMBERS : 43

*/
```

```
//TO FIND THE DIFFERENCE BETWEEN TWO NUMBERS
#include<iostream.h>
#include<conio.h>
void main()
{
        int no1,no2,difference;
        clrscr();
        cout<<"ENTER THE FIRST NUMBER : ";
        cin>> no1;
        cout<<"\nENTER THE SECOND NUMBER : ";
        cin>>no2;
        difference=no1-no2;
        cout<<"\nTHE DIFFERENCE OF TWO NUMBERS IS : "<<difference;
        getch();
}

/*OUTPUT

ENTER THE FIRST NUMBER : 63

ENTER THE SECOND NUMBER : 45

THE DIFFERENCE OF TWO NUMBERS IS : 18

*/
```

RETURN TO INDEX

// TO DISPLAY PRODUCT OF TWO NUMBERS RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int num1, num2, prod;
        clrscr();
        cout<<"ENTER THE FIRST NUMBER : ";
        cin >> num1;
        cout<<"ENTER THE SECOND NUMBER : ";
        cin>>num2;
        prod=num1*num2;
        cout<<"THE PRODUCT OF THE NUMBERS IS : " <<prod;
        getch();
}

/*OUTPUT

ENTER THE FIRST NUMBER : 25
ENTER THE SECOND NUMBER : 18
THE PRODUCT OF THE NUMBERS IS : 450

*/
```

// TO DIVIDE A NUMBER WITH ANOTHER RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        float quotient, remainder;
        int no1,no2;
        clrscr();
        cout<<"\nENTER THE DIVIDEND : ";
        cin>> no1;
        cout<<"\nENTER THE DIVISOR : ";
        cin>>no2;
        quotient=no1/no2;
        remainder=no1%no2;
        cout<<"\nTHE QUOTIENT IS "<<quotient;
        cout<<"\n\nTHE REMAINDER IS "<<remainder;
        getch();
}

/* OUTPUT

ENTER THE DIVIDEND : 87

ENTER THE DIVISOR : 23

THE QUOTIENT IS 3

THE REMAINDER IS 18

*/
```

```
//SQUARE OF A NUMBER                                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main ()
{

        int num, sqr;
        clrscr ();
        cout << "ENTER A NUMBER : ";
        cin >> num;
        sqr= num*num;
        cout << "\nTHE SQUARE OF " << num << " is " << sqr;
        getch ();
}

/*OUTPUT

ENTER A NUMBER : 18

THE SQUARE OF 18 is 324

ENTER A NUMBER : 25

THE SQUARE OF 25 is 625

*/
```

// TO FIND THE AREA OF RECTANGLE RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        float l,b,area;
        clrscr();
        cout<< "AREA OF RECT ";
        cout<<"\n\nENTER LENGTH : ";
        cin>> l;
        cout<<"\nENTER BREADTH : ";
        cin>> b;
        area=l*b;
        cout<<"\nTHE AREA OF THE RECTANGLE WITH GIVEN PARAMETERS IS : "<<area;
        getch();
}

/*OUTPUT

 AREA OF RECT

 ENTER LENGTH : 12

 ENTER BREADTH : 23

 THE AREA OF THE RECTANGLE WITH GIVEN PARAMETERS IS : 276

*/
```

// AREA OF A TRIANGLE RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        clrscr();
        long float height, base, area;
        cout<<"\nPLEASE ENTER THE HEIGHT FOR THE TRAINGLE : ";
        cin>>height;
        cout<<"\nPLEASE ENTER THE BASE FOR THE TRIANGLE : ";
        cin>>base;
        area=base*height*0.5;
        cout<<"\nTHE AREA OF THE TRIANGLE IS : "<<area;
        getch();

}

/* OUTPUT

a)

PLEASE ENTER THE HEIGHT FOR THE TRAINGLE : 10

PLEASE ENTER THE BASE FOR THE TRIANGLE : 20

THE AREA OF THE TRIANGLE IS : 100

b)

PLEASE ENTER THE HEIGHT FOR THE TRAINGLE : 12

PLEASE ENTER THE BASE FOR THE TRIANGLE : 17

THE AREA OF THE TRIANGLE IS : 102

c)

PLEASE ENTER THE HEIGHT FOR THE TRAINGLE : 29

PLEASE ENTER THE BASE FOR THE TRIANGLE : 37

THE AREA OF THE TRIANGLE IS : 536.5

d)

PLEASE ENTER THE HEIGHT FOR THE TRAINGLE : 13

PLEASE ENTER THE BASE FOR THE TRIANGLE : 93

THE AREA OF THE TRIANGLE IS : 604.5

*/
```

// TO FIND THE VOLUME OF A SPHERE RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        float r,vol;
        clrscr();
        cout<< "VOLUME OF A SPHERE";
        cout<<"\n\nENTER RADIUS : ";
        cin>> r;
        vol=((4/3)*(22/7)*r*r*r);
        cout<<"\nTHE VOLUME OF THE SPHERE WITH GIVEN PARAMETERS IS : "<<vol;
        getch();
}

/*OUTPUT

 VOLUME OF A SPHERE

 ENTER RADIUS : 7

 THE VOLUME OF THE SPHERE WITH GIVEN PARAMETERS IS : 1432.4366
*/
```

// TO FIND THE TEMPERATURE IN CELSIUS FROM KELVIN RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int a,c;
        clrscr();
        cout << "ENTER TEMPERATURE IN DEGREE CELSIUS : ";
        cin >> a;
        c=a+273;
        cout << "\nTEMPERATURE IN KELVIN : " << c;
        getch();
}

/*OUTPUT

ENTER TEMPERATURE IN DEGREE CELSIUS : 100

TEMPERATURE IN KELVIN : 373

*/
```

```
//A PROGRAM TO FIND SIMPLE INTEREST
#include<iostream.h>
#include<conio.h>
void main()
{
        clrscr();
        int principal,time,rate,interest;
        cout<<"\n ENTER PRINCPAL : ";
        cin>>principal;
        cout<<"\n ENTER DURATION : ";
        cin>>time;
        cout<<"\n ENTER RATE OF INTEREST :";
        cin>>rate;
        interest=(principal*time*rate)/100;
        cout<<"\n SIMPLE INTEREST : "<<interest;
        getch();
}
```

RETURN TO INDEX

// PLAYER DETAILS RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
	clrscr();
	float runs1, runs2, runs3, runs4, runs5, balls1, balls2, balls3, balls4, balls5;
	long double sr1, sr2, sr3, sr4, sr5,  avgsr; char name[30];
	cout <<"\nENTER PLAYER NAME : ";
	cin.getline(name,30);
	cout<<"\nENTER RUNS SCORED IN MATCH 1: ";
	cin>>runs1;
	cout<<"\nENTER BALLS PLAYED BY PLAYER IN MATCH 1: ";
	cin >> balls1;
	sr1=(runs1*100)/balls1;
	cout<<"\nENTER RUNS SCORED IN MATCH 2: ";
	cin>>runs2;
	cout<<"\nENTER BALLS PLAYED BY PLAYER IN MATCH 2: ";
	cin >> balls2;
	sr2=(runs2*100)/balls2;
	cout<<"\nENTER RUNS SCORED IN MATCH 3: ";
	cin>>runs3;
	cout<<"\nENTER BALLS PLAYED BY PLAYER IN MATCH 3: ";
	cin >> balls3;
	sr3=(runs3*100)/balls3;
	cout<<"\nENTER RUNS SCORED IN MATCH 4: ";
	cin>>runs4;
	cout<<"\nENTER BALLS PLAYED BY PLAYER IN MATCH 4: ";
	cin >> balls4;
	sr4=(runs4*100)/balls4;
	cout<<"\nENTER RUNS SCORED IN MATCH 5: ";
	cin>>runs5;
	cout<<"\nENTER BALLS PLAYED BY PLAYER IN MATCH 5: ";
	cin >> balls5;
	sr5=(runs5*100)/balls5;
	avgsr=(sr1+sr2+sr3+sr4+sr5)/5;
	clrscr();
	cout<<"\nPLAYER NAME : "<< name <<endl;
	cout<<"\nRUNS SCORED IN MATCH1 : "<< runs1 <<endl;
	cout<<"\nBALLS PLAYED IN MATCH1 : "<< balls1<<endl;
	cout<<"\nMATCH1 STRIKE RATE : " << sr1<<endl;
	cout<<"\nRUNS SCORED IN MATCH2 : "<< runs2 <<endl;
	cout<<"\nBALLS PLAYED IN MATCH2 : "<< balls2<<endl;
	cout<<"\nMATCH2 STRIKE RATE : " << sr2<<endl;
	cout<<"\nRUNS SCORED IN MATCH3 : "<< runs3 <<endl;
	cout<<"\nBALLS PLAYED IN MATCH3 : "<< balls3<<endl;
	cout<<"\nMATCH3 STRIKE RATE : " << sr3<<endl;
	cout<<"\nRUNS SCORED IN MATCH4 : "<< runs4 <<endl;
	cout<<"\nBALLS PLAYED IN MATCH4 : "<< balls4<<endl;
	cout<<"\nMATCH4 STRIKE RATE : " << sr4<<endl;
	cout<<"\nRUNS SCORED IN MATCH5 : "<< runs5 <<endl;
	cout<<"\nBALLS PLAYED IN MATCH5 : "<< balls5<<endl;
	cout<<"\nMATCH5 STRIKE RATE : " << sr5<<endl;
	cout<<"\nAVERAGE STRIKE RATE : " <<avgsr<<endl;
	getch();
}
```

/*OUTPUT
ENTER PLAYER NAME : RAHUL DRAVID

ENTER RUNS SCORED IN MATCH 1: 87

ENTER BALLS PLAYED BY PLAYER IN MATCH 1: 95

ENTER RUNS SCORED IN MATCH 2: 99

ENTER BALLS PLAYED BY PLAYER IN MATCH 2: 112

ENTER RUNS SCORED IN MATCH 3: 76

ENTER BALLS PLAYED BY PLAYER IN MATCH 3: 65

ENTER RUNS SCORED IN MATCH 4: 51

ENTER BALLS PLAYED BY PLAYER IN MATCH 4: 23

ENTER RUNS SCORED IN MATCH 5: 124

ENTER BALLS PLAYED BY PLAYER IN MATCH 5: 157

PLAYER NAME : RAHUL DRAVID

RUNS SCORED IN MATCH1 : 87

BALLS PLAYED IN MATCH1 : 95

MATCH1 STRIKE RATE : 91.578947

RUNS SCORED IN MATCH2 : 99

BALLS PLAYED IN MATCH2 : 112

MATCH2 STRIKE RATE : 88.392857

RUNS SCORED IN MATCH3 : 76

BALLS PLAYED IN MATCH3 : 65

MATCH3 STRIKE RATE : 116.923077

RUNS SCORED IN MATCH4 : 51

BALLS PLAYED IN MATCH4 : 23

MATCH4 STRIKE RATE : 221.73913

RUNS SCORED IN MATCH5 : 124

BALLS PLAYED IN MATCH5 : 157

MATCH5 STRIKE RATE : 78.980892

AVERAGE STRIKE RATE : 119.522981
*/

RETURN TO INDEX

```
//SWAPPING INTEGERS
#include<iostream.h>
#include<conio.h>
void main()
{
        int a, b, c;
        clrscr();
        cout<<"\aENTER A : ";
        cin>>a;
        cout<<"\aENTER B : ";
        cin>>b;
        c=a;
        a=b;
        b=c;
        cout<<"\n\aNEW A= \a"<<a;
        cout<<"\n\aNEW B= \a"<<b;
        getch();
}

/*OUTPUT

ENTER A : 23
ENTER B : 34

NEW A= 34
NEW B= 23

*/
```

// CLASSIFY THE TOTAL NUMBER OF DAYS INPUT INTO YEAR, WEEK AND DAYS RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        long num, temp, days, week, year;
        char ch;
        do
        {
        clrscr();
        cout<<"ENTER THE TOTAL NUMBER OF DAYS : ";
        cin>>num;
        year=num/365;
        temp=num%365;
        week=temp/7;
        days=temp%7;
        cout<<"\n"<<year<<" years " << week << " weeks " << days << " days.";
        cout<<"\n\nRepeat? (y/n) : ";
        cin>>ch;
        }while(ch=='y'||ch=='Y');
}

/*OUTPUT

a)

ENTER THE TOTAL NUMBER OF DAYS : 2325

6 years 19 weeks 2 days.

Repeat? (y/n) : y

b)

ENTER THE TOTAL NUMBER OF DAYS : 167

0 years 23 weeks 6 days.

Repeat? (y/n) : y

c)

ENTER THE TOTAL NUMBER OF DAYS : 4598

12 years 31 weeks 1 days.

Repeat? (y/n) : y

d)

ENTER THE TOTAL NUMBER OF DAYS : 356

0 years 50 weeks 6 days.

Repeat? (y/n) : y
```

```
*/
```

```
//TERNARY OPERATOR                                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main()
{
        int count=0;
        int num1=7, num2=4;
        clrscr();
        count=(num1<num2)?num1:num2;
        cout<<count;
        getch();
}
/*OUTPUT

4

*/
```

//NESTED TERNARY OPERATOR RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int count=0;
        int num1=2;
        clrscr();
        count=(num1<0)?-1:(num1>0)?7:9;
        cout<<count;
        getch();
}
/*OUTPUT

7

*/
```

// FIND THE GREATER OF TWO GIVEN NUMBERS RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int num1, num2;
        clrscr ();
        cout << "PLEASE ENTER THE FIRST NUMBER : ";
        cin >> num1;
        cout << "PLEASE ENTER THE SECOND NUMBER : ";
        cin >> num2;
        if (num1>num2)
        {
        cout << "1st NUMBER IS GREATER.";
        }
        else
        {
        cout << "2nd NUMBER IS GREATER.";
        }
getch ();
}

/*OUTPUT

PLEASE ENTER THE FIRST NUMBER : 787
PLEASE ENTER THE SECOND NUMBER : 657
1st NUMBER IS GREATER.

PLEASE ENTER THE FIRST NUMBER : 874
PLEASE ENTER THE SECOND NUMBER : 897
2nd NUMBER IS GREATER.

*/
```

RETURN TO INDEX

```
//GREATER OF THREE NUMBERS
#include<iostream.h>
#include<conio.h>
void main()
{
	int a, b, c;
	clrscr();
	cout<<"ENTER NUMBER1 : ";
	cin>>a;
	cout<<"ENTER NUMBER2 : ";
	cin>>b;
	cout<<"ENTER NUMBER3 : ";
	cin>>c;
	if(a>b && a>c && b>c)
	{
		cout<<a<<" IS GREATEST."<<endl;
		cout<<b<<" IS SECOND GREATEST."<<endl;
		cout<<c<<" IS LEAST.";
	}
	else if(a>b && a>c && c>b)
	{
		cout<<a<<" IS GREATEST."<<endl;
		cout<<c<<" IS SECOND GREATEST."<<endl;
		cout<<b<<" IS LEAST.";
	}
	else if(b>a && b>c && a>c)
	{
		cout<<b<<" IS GREATEST."<<endl;
		cout<<a<<" IS SECOND GREATEST."<<endl;
		cout<<c<<" IS LEAST.";
	}
	else if(a>b && a>c && c>a)
	{
		cout<<b<<" IS GREATEST."<<endl;
		cout<<c<<" IS SECOND GREATEST."<<endl;
		cout<<a<<" IS LEAST.";
	}
	else if(c>a && c>b && b>a)
	{
		cout<<c<<" IS GREATEST."<<endl;
		cout<<b<<" IS SECOND GREATEST."<<endl;
		cout<<a<<" IS LEAST.";
	}
	else if(c>a && c>b && a>b)
	{
		cout<<c<<" IS GREATEST."<<endl;
		cout<<a<<" IS SECOND GREATEST."<<endl;
		cout<<b<<" IS LEAST.";
	}
	else
		cout<<"INVALID INPUT.";
getch();
}

/*OUTPUT
```

```
ENTER NUMBER1 : 12
ENTER NUMBER2 : 23
ENTER NUMBER3 : 34
34 IS GREATEST.
23 IS SECOND GREATEST.
12 IS LEAST.

ENTER NUMBER1 : 12
ENTER NUMBER2 : 9
ENTER NUMBER3 : 23
23 IS GREATEST.
12 IS SECOND GREATEST.
9 IS LEAST.

ENTER NUMBER1 : 45
ENTER NUMBER2 : 34
ENTER NUMBER3 : 32
45 IS GREATEST.
34 IS SECOND GREATEST.
32 IS LEAST.

*/
```

// A PROGRAM IN C LANGUAGE TO FIND THE GREATEST AMONG THREE NUMBERS
RETURN TO INDEX

```
#include<stdio.h>
#include<conio.h>
void main()
{
        int num1,num2,num3;
        clrscr();
        printf("\nEnter the value for first number : ");
        scanf("%d",&num1);
        printf("\nEnter the value for second number : ");
        scanf("%d",&num2);
        printf("\nEnter the value for third number : ");
        scanf("%d",&num3);
        if(num1>num2&&num1>num3)
        printf(" %d is greatest.",num1);
        else
        {
          if(num2>num1&&num2>num3)
          printf("\n%d is greatest.",num2);
          else
          printf("\n%d is greatest.",num3);
        }
        getch();
}
```

/* OUTPUT

a)

Enter the value for first number : 23

Enter the value for second number : 12

Enter the value for third number : 986

986 is greatest.

b)

Enter the value for first number : 349

Enter the value for second number : 233

Enter the value for third number : 31

349 is greatest.

c)

Enter the value for first number : 573

Enter the value for second number : 847

Enter the value for third number : 239

847 is greatest.

*/

// TO FIND IF A YEAR INPUT IS LEAP OR NOT RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main ()
{
  clrscr ();
  int year;
  cout << "ENTER A YEAR : ";
  cin >> year;
  if(year%400==0 || (year%4==0 && year%100!=0))
  {
    cout << "IT IS A LEAP YEAR.";
  }
  else
  {
    cout << "IT IS NOT A LEAP YEAR";
  }
  getch ();
}
/*OUTPUT

ENTER A YEAR : 2004
IT IS A LEAP YEAR.

ENTER A YEAR : 2003
IT IS NOT A LEAP YEAR
*/
```

```
// DISPLAY MONTH CORRESPONDING TO INPUT, USING IF-ELSE CONSTRUCT
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
        int n;
        cout<<"ENTER A NUMBER LESS THAN OR EQUAL TO 12 : ";
        cin>>n;
        while(n>12||n<1)
        {
        cout<<"\nINVALID ENTRY. PLEASE RE-ENTER YOUR CHOICE : ";
        cin>>n;
        }
        if(n==1)
        cout<<n<<" IMPLIES JANUARY.";
        else if(n==2)
        cout<<n<<" IMPLIES FEBRUARY.";
        else if(n==3)
        cout<<n<<" IMPLIES MARCH.";
        else if(n==4)
        cout<<n<<" IMPLIES APRIL.";
        else if(n==5)
        cout<<n<<" IMPLIES MAY.";
        else if(n==6)
        cout<<n<<" IMPLIES JUNE.";
        else if(n==7)
        cout<<n<<" IMPLIES JULY.";
        else if(n==8)
        cout<<n<<" IMPLIES AUGUST.";
        else if(n==9)
        cout<<n<<" IMPLIES SEPTEMBER.";
        else if(n==10)
        cout<<n<<" IMPLIES OCTOBER.";
        else if(n==11)
        cout<<n<<" IMPLIES NOVEMBER.";
        else if(n==12)
        cout<<n<<" IMPLIES DECEMBER.";
getch();
}
/*OUTPUT

ENTER A NUMBER LESS THAN OR EQUAL TO 12 : 11
11 IMPLIES NOVEMBER.

ENTER A NUMBER LESS THAN OR EQUAL TO 12 : 6
6 IMPLIES JUNE.

ENTER A NUMBER LESS THAN OR EQUAL TO 12 : 8
8 IMPLIES AUGUST.

ENTER A NUMBER LESS THAN OR EQUAL TO 12 : 9
9 IMPLIES SEPTEMBER.

ENTER A NUMBER LESS THAN OR EQUAL TO 12 : 12
```

12 IMPLIES DECEMBER.

ENTER A NUMBER LESS THAN OR EQUAL TO 12 : 3
3 IMPLIES MARCH.

*/

/*SALARY OF THE COMPUTER SALESMAN WITH CONCEPT OF DEFINING THE BASIC SALARY AS CONSTANT */ RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#define basic 1500
void main()
{
        long  bonus;
        long float commision, salary, comp_no, comp_cost, sales;
        char name[25], choice;
        do
        {
        clrscr();
        cout<<"\nPLEASE ENTER THE NAME : ";
        cin>>name;
        cout<<"\nPLEASE ENTER THE NUMBER OF COMPUTERS SOLD : ";
        cin>>comp_no;
        cout<<"\nPLEASE ENTER THE COST OF 1 COMPUTER : ";
        cin>>comp_cost;
        sales=comp_no*comp_cost;
        bonus=comp_no*200;
        commision=(sales*2)/100;
        salary=bonus+commision+basic;

        cout<<"\t\t\t\t*S.J. COMPUTERS*\n";
        cout<<"\n\nTOTAL SALES OF S.J. COMPUTERS : "<<sales;
        cout<<"\n\nBASIC SALARY OF " << name << " : " << basic;
        cout<<"\n\nCOMMISION OF " << name << " : " << commision;
        cout<<"\n\nBONUS OF " << name << " : " << bonus;
        cout<<"\n\nNET SALARY OF " << name << " : " << salary;
        cout<<"\n\nPRESS Y TO REPEAT ELSE EXIT PRESSING ANY KEY : ";
        cin>>choice;
        }while(choice=='y'||choice=='Y');
}
```

/* OUTPUT

PLEASE ENTER THE NAME : Rachit

PLEASE ENTER THE NUMBER OF COMPUTERS SOLD : 25

PLEASE ENTER THE COST OF 1 COMPUTER : 30000

S.J. COMPUTERS

TOTAL SALES OF S.J. COMPUTERS : 750000

BASIC SALARY OF Rachit : 1500

COMMISION OF Rachit : 15000

BONUS OF Rachit : 5000

NET SALARY OF Rachit : 21500

PRESS Y TO REPEAT ELSE EXIT PRESSING ANY KEY : N

// SALARY FOR AN EMPLOYEE TO BE HIRED FOR A JOB RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
	float age, sal;
	char name[25], exp, choice;

	do
	{
	clrscr();
	cout<<"ENTER NAME : ";
	cin>>name;
	cout<<"FRESHER OR EXPERIENCED? (F/E) : ";
	cin>>exp;
	while(exp!='e'&& exp!='E'&& exp!='f'&& exp!='F')
	{
		cout<<"INVALID INPUT!! PLEASE RE-ENTER THE EXPERIENCE : ";
		cin>>exp;
	}
	cout<<"ENTER AGE : ";
	cin >>age;
	if(exp=='e'||exp=='E')
	{
		if (age>=35)
		cout<<"MR. " << name << " YOUR SALARY IS : 10000";
		else if ( age>28 && age <35)
		cout<<"MR. " << name << " YOUR SALARY IS : 7000";
		else
		cout<<"SORRY !! YOU ARE NOT ELIGIBLE FOR THE JOB.";
	}
	else
	{
		if(age>=28 && age<=35)
		cout<<"MR. " << name << " YOUR SALARY IS : 4000";
		else
		cout<<"SORRY !! YOU ARE NOT ELIGIBLE FOR THE JOB.";
	}
	cout<<"\nDO YOU WANT TO CONTINUE? (y/n) : ";
	cin>>choice;
	}while(choice=='y'||choice=='Y');

}
```

/* OUTPUT

a)

```
ENTER NAME : Rachit
FRESHER OR EXPERIENCED? (F/E) : f
ENTER AGE : 34
MR. Rachit YOUR SALARY IS : 4000
DO YOU WANT TO CONTINUE? (y/n) : y
```

b)

ENTER NAME : Rachit
FRESHER OR EXPERIENCED? (F/E) : f
ENTER AGE : 27
SORRY !! YOU ARE NOT ELIGIBLE FOR THE JOB.
DO YOU WANT TO CONTINUE? (y/n) : y

c)
ENTER NAME : rachit
FRESHER OR EXPERIENCED? (F/E) : f
ENTER AGE : 35
SORRY !! YOU ARE NOT ELIGIBLE FOR THE JOB.
DO YOU WANT TO CONTINUE? (y/n) : n

d)
ENTER NAME : Rachit
FRESHER OR EXPERIENCED? (F/E) : e
ENTER AGE : 30
MR. Rachit YOUR SALARY IS : 7000
DO YOU WANT TO CONTINUE? (y/n) : y

e)
ENTER NAME : Rachit
FRESHER OR EXPERIENCED? (F/E): e
ENTER AGE : 37
MR. Rachit YOUR SALARY IS : 10000
DO YOU WANT TO CONTINUE? (y/n) : y

f)
ENTER NAME : Rachit
FRESHER OR EXPERIENCED? (F/E) : e
ENTER AGE : 28
SORRY !! YOU ARE NOT ELIGIBLE FOR THE JOB.
DO YOU WANT TO CONTINUE? (y/n) : n
*/

```
//GIFT AGAINST BILL AMOUNT                                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main()
{
        clrscr();
        float bill, amt;
        cout<<"\t\t\t**SJ supermarket**";
        cout<<"\n\nWELCOME DEAR CUSTOMER!!!";
        cout<<"\n\nENTER BILL NUMBER : ";
        cin>>bill;
        cout<<"\nENTER AMOUNT OF BILL : ";
        cin>>amt;
        cout<<"\t\t\t**SJ supermarket**";
        if(amt<100 && amt>0)
        cout<<"\n\nSORRY, NO GIFT FOR YOU.";
        else if(amt>=100 && amt<500)
        cout<<"\n\n\nTHANK YOU FOR SHOPPING FROM OUR STORE.\
        \nSURPRISE!! A GIFT FOR YOU!!\nCONGRATULATIONS!! YOU WIN A CALCULATOR";
        else if(amt>=500 && amt<1000)
        cout<<"\n\n\nTHANK YOU FOR SHOPPING FROM OUR STORE.\
        \nSURPRISE!! A GIFT FOR YOU!!\nCONGRATULATIONS!! YOU WIN A RADIO.";
        else if(amt>=1000)
        cout<<"\n\n\nTHANK YOU FOR SHOPPING FROM OUR STORE.\
        \nSURPRISE!!A GIFT FOR YOU!!\nCONGRATULATIONS!! YOU WIN OXFORD ATLAS";
        else if(amt>=3000)
        cout<<"\n\n\nTHANK YOU FOR SHOPPING FROM OUR STORE.\
        \nSURPRISE!!A GIFT FOR YOU!!\
        \nCONGRATULATIONS!! YOU WIN OXFORD ADVANCED LEARNER'S DICTIONARY";
        cout<<"\nPLEASE VISIT US AGIAN SOON.";
        getch();
}

/*OUTPUT

                        **SJ supermarket**

WELCOME DEAR CUSTOMER!!!

ENTER BILL NUMBER : 7

ENTER AMOUNT OF BILL : 1800
                        **SJ supermarket**


THANK YOU FOR SHOPPING FROM OUR STORE.
SURPRISE!!A GIFT FOR YOU!!
CONGRATULATIONS!! YOU WIN OXFORD ATLAS
PLEASE VISIT US AGIAN SOON.

*/
```

```
//ROUNDING OFF NUMBERS TO TENS PLACE                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main()
{
        clrscr();
        int n;
        float a, b;
        cout<<"\nENTER THE NUMBER TO BE ROUNDED OFF : ";
        cin>>n;
        a=n-(n%10);
        b=a+10;
        if(n%10<5)
        cout<<"\n"<<n<<" WHEN ROUNDED OFF = "<<a;
        else if(n%10>=5)
        cout<<"\n"<<n<<" WHEN ROUNDED OFF = "<<b;
        getch();
}

/*OUTPUT

ENTER THE NUMBER TO BE ROUNDED OFF : 18

18 WHEN ROUNDED OFF = 20


ENTER THE NUMBER TO BE ROUNDED OFF : 25

25 WHEN ROUNDED OFF = 30

*/
```

// TO FIND THE ROOTS OF A QUADRATIC EQUATION RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<math.h>
#include<process.h>
void main()
{
	float a,b,c,root1,root2,delta;
	char choice;
	do
	{
		clrscr();
		cout<<"ENTER THE VALUES FOR THE VARIABLESIN EQUATION : ax^2 + bx + c :";
		cout<<"\nENTER a : ";
		cin>>a;
		cout<<"\nENTER b : ";
		cin>>b;
		cout<<"\nENTER c : ";
		cin>>c;
		if(!a)
		{
			cout<<"\nINVALID ENTRY FOR a.";
			exit(0);
		}
		delta=(b*b)-(4*a*c);
		if(delta<0)
			cout<<"\nIMAGINARY AND COMPLEX ROOTS.";
		else if (delta>0)
		{
			root1=(-b+sqrt(delta))/(2*a);
			root2=(-b-sqrt(delta))/(2*a);
			cout<<"\nROOTS ARE REAL AND UNEQUAL."<<endl;
			cout<<"\nROOTS ARE : " << root1 << "\t" <<root2;
		}
		else if(delta==0)
		{
			root1=(-b/(2*a));
			root2=root1;
			cout<<"\nROOTS ARE REAL AND EQUAL."<<endl;
			cout<<"\nROOTS ARE : " << root1 << "\t" <<root2;
		}
		cout<<"\n\nDO YOU WANT TO CONTINUE (Y/N) : ";
		cin>>choice;
	}while(choice=='y'||choice=='Y');
}

/*OUTPUT

ENTER THE VALUES FOR THE VARIABLESIN EQUATION : ax^2 + bx + c :
ENTER a : 3

ENTER b : 5

ENTER c : 2
```

ROOTS ARE REAL AND UNEQUAL.

ROOTS ARE : -0.666667   -1
DO YOU WANT TO CONTINUE (Y/N) : n

*/

// MONTH DISPLAY USING SWITCH RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int m;
        clrscr();
        cout<<"ENTER A NUMBER : ";
        cin>>m;
        while(m>12||m<1)
        {
        cout<<"INVALID ENTRY. RE-ENTER YOUR CHOICE : ";
        cin>>m;
        }
        switch(m)
        {
                case 1 :       cout<<"JANUARY";           break;
                case 2 :       cout<<"FEBRUARY";          break;
                case 3 :       cout<<"MARCH";             break;
                case 4 :       cout<<"APRIL";             break;
                case 5 :       cout<<"MAY";        break;
                case 6 :       cout<<"JUNE";              break;
                case 7 :       cout<<"JULY";              break;
                case 8 :       cout<<"AUGUST";            break;
                case 9 :       cout<<"SEPTEMBER"; break;
                case 10 :      cout<<"OCTOBER";           break;
                case 11 :      cout<<"NOVEMBER";  break;
                case 12 :      cout<<"DECEMBER";          break;
        }
getch();
}

/*OUTPUT

ENTER A NUMBER : 11
NOVEMBER

ENTER A NUMBER : 6
JUNE

ENTER A NUMBER : 8
AUGUST

ENTER A NUMBER : 9
SEPTEMBER

ENTER A NUMBER : 3
MARCH

*/
```

```
//DISPLAY MEANING OF GRADES USING SWICH CASE STRUCTURE
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
void main()
{
        clrscr();
        char ch;
        cout<<"ENTER GRADE : ";
        cin>>ch;
        switch(ch)
        {
        case 'a':
        case 'A':
                cout<<"\nEXCELLENT"<<endl;
                break;
        case 'b':
        case 'B':
                cout<<"\nGOOD"<<endl;
                break;
        case 'c':
        case 'C':
                cout<<"\nO.K."<<endl;
                break;
        case 'd':
        case 'D':
                cout<<"\nPOOR"<<endl;
                break;
        default:
                cout<<"\nINVALID GRADE :"<<endl;
        }
getch();
}
/*OUTPUT

ENTER GRADE : A

EXCELLENT

ENTER GRADE : B

GOOD

ENTER GRADE : C

O.K.

ENTER GRADE : d

POOR

ENTER GRADE : E

INVALID GRADE :
*/
```

```
// SIMPLE CALCULATOR FOR 2 FRACTIONS                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
#include<process.h>
void main()
{
        float num1,num2,den1,den2,result;  char sign, choice;
        do
        {
                clrscr();
                cout<<"FRACTION 1 : "<<endl;
                cout<<"\nENTER THE NUMERATOR : ";              cin>>num1;
                cout<<"\nENTER THE DENOMINATOR : ";    cin>>den1;
                cout<<"\nENTER THE CALCULATION OPERATOR (+, -, *, /) : ";
                cin>>sign;
                cout<<"\nFRACTION 2 : "<<endl;
                cout<<"\nENTER THE NUMERATOR : ";              cin>>num2;
                cout<<"\nENTER THE DENOMINATOR : ";    cin>>den2;
                if(num1==0 || num2==0 || den1==0 || den2==0)
                {       cout<<"\nOOPS!!! INVALID ENTRY. BYE! "; exit(0);                }
                switch(sign)
                {       case '+': result=((num1/den1)+(num2/den2)); break;
                        case '-': result=((num1/den1)-(num2/den2)); break;
                        case '*': result=((num1/den1)*(num2/den2)); break;
                        case '/': result=((num1/den1)/(num2/den2)); break;
                        default :
                        cout<<"\nOOPS!!!INVALID CALCULATION OPERATOR. BYE!!";
                        exit(0);
                }
                cout<<"\nRESULT IS : "<<result;
                cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM? (Y/N) : ";
                cin>>choice;
        }while(choice=='y'||choice=='Y');
}
/*OUTPUT

FRACTION 1 :

ENTER THE NUMERATOR : 12

ENTER THE DENOMINATOR : 23

ENTER THE CALCULATION OPERATOR (+, -, *, /) : *

FRACTION 2 :

ENTER THE NUMERATOR : 12

ENTER THE DENOMINATOR : 23

RESULT IS : 0.272212

DO YOU WISH TO RE-EXECUTE THE PROGRAM? (Y/N) : n

*/
```

PREDICT THE DAY ON WHICH A GIVEN DATE FALLS RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
long x, num, date, month, year, julian, fours, hundreds, four_hundreds, day;char choice;
do
{
clrscr();
cout << "WELCOME! \n\n\nTHE PROGRAM GUESSES THE DAY ON WHICH A GIVEN DATE
OCCURS.\n\nHERE THE BIRTH DAY SHALL BE GUESSED AS AN EXAMPLE." << endl;
cout << "\n\nENTER YOUR BIRTH DATE : ";
cin>>num;
date=num/1000000;
year=num%10000;
x=num%1000000;
month=x/10000;
if ((year%100!=0 && year%4==0) || year%400==0)
julian=366;
else
julian=365;
switch(month)
{
case 1: julian -= 0;
case 2: julian -= 31;
case 3: if ( (year%100!=0 && year%4==0) || year%400==0)
        julian -= 29;
        else
        julian -= 28;
case 4: julian -= 31;
case 5: julian -= 30;
case 6: julian -= 31;
case 7: julian -= 30;
case 8: julian -= 31;
case 9: julian -= 31;
case 10: julian -= 30;
case 11: julian -= 31;
case 12: julian -= 30;
}
julian+=date;
fours=(year-1)/4;
hundreds=(year-1)/100;
four_hundreds=(year-1)/400;
day=(year+julian+fours-hundreds+four_hundreds)%7;
cout<<"\nTHE BITHDAY IS ON : ";
if(day==0)
cout<<"SATURDAY";
else if (day==1)
cout<<"SUNDAY";
else if (day==2)
cout<<"MONDAY";
else if (day==3)
cout<<"TUESDAY";
else if (day==4)
```

```
cout<<"WEDNESDAY";
else if (day==5)
cout<<"THURSDAY";
else
cout<<"FRIDAY";
cout << "\n\nWOULD YOU LIKE TO CONTINUE WITH MORE DATES? (y/n) : ";
cin >> choice;
} while(choice=='y' || choice=='Y');
getch();
}
```

// INCREMENT AND DECREMENT OPERATORS RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        clrscr();
        int num, a,b,c,d;
        cout<<"ENTER A NUMBER : ";
        cin>>num;
        a=num;
        b=num;
        c=num;
        d=num;
        cout<<"\n"<<num<<" is assigned to a,b,c and d : "<<endl;
        cout<<"++a = " << ++a<<"\n--b = "<< --b<<"\nc++ = " << c++<<endl;
        cout<<"d-- = " << d--<<endl;
        cout<<"a = "<<a<<"\nb = "<<b<<"\nc = "<<c<<"\nd = "<<d<<endl;
getch();
}
/*OUTPUT

ENTER A NUMBER : 18

18 is assigned to a,b,c and d :
++a = 19
--b = 17
c++ = 18
d-- = 18
a = 19
b = 17
c = 19
d = 17


*/
```

// A SAMPLE PROGRAM TO PRINT 1-100 RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main ()
{
        int num;
        clrscr();
        for (num=1; num<=100; num ++)
        {
                cout <<num<<"\t";
        }
        getch ();
}
```

```
/*OUTPUT

1     2     3     4     5     6     7     8     9     10
11    12    13    14    15    16    17    18    19    20
21    22    23    24    25    26    27    28    29    30
31    32    33    34    35    36    37    38    39    40
41    42    43    44    45    46    47    48    49    50
51    52    53    54    55    56    57    58    59    60
61    62    63    64    65    66    67    68    69    70
71    72    73    74    75    76    77    78    79    80
81    82    83    84    85    86    87    88    89    90
91    92    93    94    95    96    97    98    99    100


*/
```

//STAR PATTERN 1 RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int count,i;
        clrscr();
        for(count=0;count<=10;count++)
        {
                for(i=0;i<=count;i++)
                        cout<<'*';
                cout<<endl;
        }
        getch();
}

/* Output

*
**
***
****
*****
******
*******
********
*********
**********
***********

*/
```

// STAR PATTERN 2 RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int count,i;
        clrscr();
        for(count=10;count>=0;count--)
        {
                for(i=count;i>=0;i--)
                        cout<<'*';
                cout<<endl;
        }
        getch();
}

/* OUTPUT

**********
*********
********
*******
******
*****
****
***
**
*

*/
```

//STAR PATTERN 3 RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
	int count,i, n=10;
	clrscr();
	for(count=0;count<=n;count++)
	{
		for(int j=10; j>count;j--)
		{
			cout<<" ";
		}
		for(i=0; i<count;i++)
		{
			cout<<"*";
		}
		cout<<endl;

	}
	getch();
}

/* Output

         *
        **
       ***
      ****
     *****
    ******
   *******
  ********
 *********
**********

*/
```

// STAR PATTERN 4 RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>

void main()
{
	int count,i, n=10;
	clrscr();
	for(count=0;count<=n;count++)
	{
		for(i=0; i<count;i++)
		{
			cout<<" ";
		}
		for(int j=10; j>count;j--)
		{
			cout<<"*";
		}

		cout<<endl;

	}
	getch();
}

/* Output

**********
 *********
  ********
   *******
    ******
     *****
      ****
       ***
        **
         *

*/
```

//ALPHABETS PATTERN 1 RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>

void main()
{
        clrscr ();
        int count,i,n=26,k,j,m;
        char ch;
        for(i=1, m=65;i<=n;i++,m++)
        {
                for(k=1;k<=n-i;k++)
                  {
                        cout<<" ";
                  }
                for(ch=65;ch<=m;ch++)
                {
                        cout<<ch;
                 }
        cout<<endl;
        }
        getch();
}
```

```
// ALPHABETS PATTERN 2                                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>

void main()
{
        clrscr ();
        int count,i,n=26,k,j,m;
        char ch;
        for(i=1, m=65;i<=n;i++,m++)         // for line
        {
                for(k=1;k<=n-i;k++)  // for white space
                  {
                        cout<<" ";
                  }
                for(ch=65;ch<=m;ch++)    // for elements in line
                  {
                        cout<<ch << " ";
                  }
                cout<<endl;
        }
        getch();
}

//COUNT POSITIVE AND NEGATIVE INPUTS IN TEN ENTRIES                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main ()
{
        int count=0, pcount=0, ncount=0, num;
        clrscr ();
        cout<<"\nENTER 10 NUMBER :\n";
        for (count=0; count<10; count=count+1)
          {
                cin >> num;
                if (num>0)
                pcount=pcount+1;
                else
                ncount=ncount+1;
          }
        cout << "THE NUMBER OF POSITIVE INTEGERS : " << pcount <<          endl;
        cout << "THE NUMBER OF NEGATIVE INTEGERS : " << ncount;
getch ();
}

/*OUTPUT


ENTER 10 NUMBER :
123
34
56
5
-54
```

```
-43
453
-45
-3
-89
THE NUMBER OF POSITIVE INTEGERS : 5
THE NUMBER OF NEGATIVE INTEGERS : 5

*/
```

```
//TO DETERMINE A PERFECT NUMBER.                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main ()
{
        int num, fact, gfact, fsum=0;
        clrscr ();
        cout << "ENTER A NUMBER : ";
        cin >> num;
        gfact=(num/2)+1;
          for (fact=1; fact<=gfact; fact=fact+1)
          {
            if (num%fact==0)
                 fsum+=fact;
          }
          if (fsum==num)
           cout << "\nIT IS A PERFECT NUMBER. " << endl;
          else
           cout << "\nIT IS NOT A PERFECT NUMBER. " << endl;
getch ();
}
/*OUTPUT

ENTER A NUMBER : 6

IT IS A PERFECT NUMBER.

ENTER A NUMBER : 25

IT IS NOT A PERFECT NUMBER.


*/
```

// TO DETERMINE A PRIME NUMBER. RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main ()
{
        long num, fact; int count;
        clrscr ();
        cout << "ENTER A NUMBER : ";
        cin >> num;
        for ( fact=1, count=0; fact<=num/2; fact=fact+1)
         {
                 if (num%fact==0)
                         count=count+1;
         }
                if (count==1)
                 cout << "\nYES! ITS IS A PRIME NUMBER." << endl;
                else
                 cout << "\nNO! IT IS NOT A PRIME NUMBER." << endl;
getch ();
}
```

/*OUTPUT

ENTER A NUMBER : 3

YES! ITS IS A PRIME NUMBER.

ENTER A NUMBER : 23

YES! ITS IS A PRIME NUMBER.

ENTER A NUMBER : 9

NO! IT IS NOT A PRIME NUMBER.

*/

// PRINT THE MULTIPLES OF A NUMBER USING A DO-WHILE LOOP; RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int num, multi=0;
        clrscr();
        cout<<"\nPLEASE ENTER THE NUMBER : ";
        cin>>num;
        cout<<"\nTHE MULTIPLES OF " <<num <<" are : " <<endl << endl;
        do
        {
        multi++;
        cout <<num << " X " << multi << " =  " << num*multi << endl;
        } while(multi<10);
        getch();
}
```

/* Output

a)

PLEASE ENTER THE NUMBER : 63

THE MULTIPLES OF 63 are :

63 X 1 = 63
63 X 2 = 126
63 X 3 = 189
63 X 4 = 252
63 X 5 = 315
63 X 6 = 378
63 X 7 = 441
63 X 8 = 504
63 X 9 = 567
63 X 10 = 630

b)

PLEASE ENTER THE NUMBER : 1539

THE MULTIPLES OF 1539 are :

1539 X 1 = 1539
1539 X 2 = 3078
1539 X 3 = 4617
1539 X 4 = 6156
1539 X 5 = 7695
1539 X 6 = 9234
1539 X 7 = 10773
1539 X 8 = 12312
1539 X 9 = 13851
1539 X 10 = 15390

*/

// PRINT THE MULTIPLICATION TABLE OF A NUMBER USING A FOR LOOP; RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int num, multi;
        clrscr();
        cout<<"\nPLEASE ENTER THE NUMBER : ";
        cin>>num;
        cout<<"\nTHE MULTIPLES OF " <<num <<" are : " <<endl << endl;
        for(multi=1; multi<=10; multi++)
        {
        cout<< num<<" X " <<multi << " = " << num*multi <<endl;
        }
        getch();
}
```

/* Output

a)

PLEASE ENTER THE NUMBER : 81

THE MULTIPLES OF 81 are :

81 X 1 = 81
81 X 2 = 162
81 X 3 = 243
81 X 4 = 324
81 X 5 = 405
81 X 6 = 486
81 X 7 = 567
81 X 8 = 648
81 X 9 = 729
81 X 10 = 810

b)

PLEASE ENTER THE NUMBER : 2745

THE MULTIPLES OF 2745 are :

2745 X 1 = 2745
2745 X 2 = 5490
2745 X 3 = 8235
2745 X 4 = 10980
2745 X 5 = 13725
2745 X 6 = 16470
2745 X 7 = 19215
2745 X 8 = 21960
2745 X 9 = 24705
2745 X 10 = 27450

*/

// REVERSE OF A NUMBER INPUT THE USER RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>

void main()
{
        char choice;
        do
        {
                long num,reverse=0, count, t1;
                clrscr();
                 cout<<"\nENTER A NUMBER : ";
                cin>>num;
                while (num != 0)
                {
                t1=num%10;
                reverse=(reverse*10)+t1;
                num=num/10;
                }

                cout<<"\nTHE REVERSE NUMBER IS : "<<reverse<<endl;
                cout<<"\nREPEAT THE PROGRAM? (y/n) : ";
                cin>>choice;
        }while(choice=='y'||choice=='Y');
}

/* OUTPUT

a)

ENTER A NUMBER : 63

THE REVERSE NUMBER IS : 36

REPEAT THE PROGRAM? (y/n) : y

b)

ENTER A NUMBER : 854556

THE REVERSE NUMBER IS : 655458

REPEAT THE PROGRAM? (y/n) : y

c)

ENTER A NUMBER : 38978231

THE REVERSE NUMBER IS : 13287983

REPEAT THE PROGRAM? (y/n) : y

d)

ENTER A NUMBER : 4352496
```

THE REVERSE NUMBER IS : 6942534

REPEAT THE PROGRAM? (y/n) : n
*/

//A PROGRAM TO DISPLAY AN ARITHMETIC PROGRESSION : 1 , 2 , 3 , 4 , 5 ,.....N RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        long double i, n;
        clrscr();
        cout<<"\nEnter the number of elements for the series : ";
        cin>>n;
        gotoxy(1,4);
        for(i=1; i<=n; i++)
                cout<<i<<"\t";
        getch();
}
```

/* Output

a)
Enter the number of elements for the series : 15

```
1     2     3     4     5     6     7     8     9     10
11    12    13    14    15
```

b)
Enter the number of elements for the series : 30

```
1     2     3     4     5     6     7     8     9     10
11    12    13    14    15    16    17    18    19    20
21    22    23    24    25    26    27    28    29    30
```

c)
Enter the number of elements for the series : 81

```
1     2     3     4     5     6     7     8     9     10
11    12    13    14    15    16    17    18    19    20
21    22    23    24    25    26    27    28    29    30
31    32    33    34    35    36    37    38    39    40
41    42    43    44    45    46    47    48    49    50
51    52    53    54    55    56    57    58    59    60
61    62    63    64    65    66    67    68    69    70
71    72    73    74    75    76    77    78    79    80
81
```

// PRINT THE SERIES : -1, +4, -9, +16....N RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
	clrscr();
	int num, even, odd, sum, count1, count2, temp1=1, temp2;
	cout<<"Enter the number of elements : ";
	cin>>num;
	cout<<"\n";
	for(count1=1,count2=2;temp1<=num/2;count1+=2,count2+=2,temp1++)
	{
		even=count2*count2;
		odd=count1*count1;
		temp2=odd-(2*odd);
		cout<<temp2<<"\t";
		cout<<even<<"\t";
	}
	if(num%2!=0)
	{
		odd=count1*count1;
		temp2=odd-(2*odd);
		cout<<temp2;
	}
	getch();
}

/* Output

a)
Enter the number of elements : 10

-1    4     -9    16    -25   36    -49   64    -81   100

b)
Enter the number of elements : 34

-1    4     -9    16    -25   36    -49   64    -81   100
-121  144   -169  196   -225  256   -289  324   -361  400
-441  484   -529  576   -625  676   -729  784   -841  900
-961  1024  -1089 1156

c)
Enter the number of elements : 63

-1    4     -9    16    -25   36    -49   64    -81   100
-121  144   -169  196   -225  256   -289  324   -361  400
-441  484   -529  576   -625  676   -729  784   -841  900
-961  1024  -1089 1156  -1225 1296  -1369 1444  -1521 1600
-1681 1764  -1849 1936  -2025 2116  -2209 2304  -2401 2500
-2601 2704  -2809 2916  -3025 3136  -3249 3364  -3481 3600
-3721 3844  -3969

*/
```

// A SERIES WITH 2 APS : 0,2,5,9,14,20,27,35....N RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        clrscr();
        int n,i,sum;
        cout<<"Enter the nth term : ";
        cin>>n;
        cout<<"\n";
        for(i=2, sum=0; i<=n;i++)
        {
        cout<<sum << "\t" ;
        sum+=i;
        }
        cout<<sum;
        getch();
}
```

/* Output

a)

```
Enter the nth term : 7

0      2      5      9      14     20     27
```

b)

```
Enter the nth term : 18

0      2      5      9      14     20     27     35     44     54
65     77     90     104    119    135    152    170
```

c)

```
Enter the nth term : 25

0      2      5      9      14     20     27     35     44     54
65     77     90     104    119    135    152    170    189    209
230    252    275    299    324
```

d)

```
Enter the nth term : 36

0      2      5      9      14     20     27     35     44     54
65     77     90     104    119    135    152    170    189    209
230    252    275    299    324    350    377    405    434    464
495    527    560    594    629    665
```

e)

```
Enter the nth term : 45

0      2      5      9      14     20     27     35     44     54
65     77     90     104    119    135    152    170    189    209
230    252    275    299    324    350    377    405    434    464
495    527    560    594    629    665    702    740    779    819
```

860 902 945 989 1034

*/

// TO DISPLAY SERIES : 2,6,12,20,30,42,56.....N RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int sum=0, i,n, t;
        clrscr();
        cout<<"Enter the number of terms : ";
        cin>>n;
        cout<<"\n";
        for(i=2, t=1; t<=n; t++,i=i+2)
        {
                cout<<sum<<"\t";
                sum+=i;
        }

        getch();
}
```

/* Output

a)
Enter the number of terms : 9

0 2 6 12 20 30 42 56 72

b)
Enter the number of terms : 15

0 2 6 12 20 30 42 56 72 90
110 132 156 182 210

c)
Enter the number of terms : 24

0 2 6 12 20 30 42 56 72 90
110 132 156 182 210 240 272 306 342 380
420 462 506 552

d)
Enter the number of terms : 43

0 2 6 12 20 30 42 56 72 90
110 132 156 182 210 240 272 306 342 380
420 462 506 552 600 650 702 756 812 870
930 992 1056 1122 1190 1260 1332 1406 1482 1560
1640 1722 1806

e)
Enter the number of terms : 63

0 2 6 12 20 30 42 56 72 90
110 132 156 182 210 240 272 306 342 380
420 462 506 552 600 650 702 756 812 870
930 992 1056 1122 1190 1260 1332 1406 1482 1560
1640 1722 1806 1892 1980 2070 2162 2256 2352 2450

```
2550   2652   2756   2862   2970   3080   3192   3306   3422   3540
3660   3782   3906

*/
```

// PRINT THE FIBONACCI SERIES RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>

void main()
{
/*      FIBONACCI SERIES                    */
        char choice;
        do
        {
         clrscr();
         long double num, a=1, b=0, count;
         cout<<"ENTER THE NUMBER OF ELEMENTS REQUIRED : ";
         cin>>num;
         cout<<"\n\n";
         for(count=1; count<=num/2;count++)
         {
          a+=b;
          cout<<b << "\t";
          b+=a;
          cout<<a << "\t";
         }
         cout<<"\n\nREPEAT THE SAME PROGRAM? (Y/N) : ";
         cin>>choice;
        }while(choice=='y'||choice=='Y');
}
```

/* Output

a)
ENTER THE NUMBER OF ELEMENTS REQUIRED : 8

0 1 1 2 3 5 8 13

REPEAT THE SAME PROGRAM? (Y/N) : y

b)
ENTER THE NUMBER OF ELEMENTS REQUIRED : 36

0 1 1 2 3 5 8 13 21 34
55 89 144 233 377 610 987 1597 2584 4181
6765 10946 17711 28657 46368 75025 121393 196418 317811 514229
832040 1346269 2178309 3524578 5702887 9227465

REPEAT THE SAME PROGRAM? (Y/N) : y

c)
ENTER THE NUMBER OF ELEMENTS REQUIRED : 28

0 1 1 2 3 5 8 13 21 34
55 89 144 233 377 610 987 1597 2584 4181
6765 10946 17711 28657 46368 75025 121393 196418

REPEAT THE SAME PROGRAM? (Y/N) : N

```
// AVERAGE OF N NUMBERS                                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main()
{
        long float result ;
        long num,n, sum=0, count=0;
        clrscr();
        cout << "\nENTER THE NUMBER OF TERMS : ";
        cin >> n;
        for(count=0;count<n;sum+=num,count++)
        {
                cout<<"\nENTER A TERM : ";
                cin>>num;
        }
        result=sum/n;
        cout<<"\nTHE AVERAGE OF NUMBERS IS " << result;
        getch();
}

/*OUTPUT


ENTER THE NUMBER OF TERMS : 15

ENTER A TERM : 231

ENTER A TERM : 324

ENTER A TERM : 456

ENTER A TERM : 675

ENTER A TERM : 768

ENTER A TERM : 6

ENTER A TERM : 4566

ENTER A TERM : 87876

ENTER A TERM : 546

ENTER A TERM : 7457

ENTER A TERM : 5646

ENTER A TERM : 675

ENTER A TERM : 4356

ENTER A TERM : 6758

ENTER A TERM : 54678
```

THE AVERAGE OF NUMBERS IS 11667

*/

```
/* SUM OF AN ARITHMETIC PROGRESSION WHOSE FIRST TERM AND LAST TERMS ARE
ENTERED BY THE USER AND THE COMMON DIFFERENCE IS 1 */
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
void main()
{
        long double first, last, sum ; char choice;
        do
        {
        clrscr();
        cout<<"\n\nPLEASE ENTER THE FIRST TERM :";
        cin>>first;
        cout<<"\n\nPLEASE ENTER THE LAST TERM :";
        cin>>last;
        for(sum=0;first<=last;first++)
                sum=sum+first;
        cout<< "\n\n THE FINAL SUM IS : " << sum;
        cout<<"\n\nPRESS Y TO REPEAT ELSE EXIT PRESSING ANY KEY : ";
        cin>>choice;
        }while(choice=='y' || choice=='Y');
        cout<<"\n\nPROGRAM EXCLUSIVELY CODED BY RACHIT AGRAWAL OF CLASS 11. \n\
        \nANY MODIFICATION DONE HERBY INVITE LEGAL ACTION.\n\nSUGGESTIONS AND
COMMENTS WELCOME AT rachit.agrawal9@gmail.com";
        getch();
}

/* OUTPUT

a)

PLEASE ENTER THE FIRST TERM :98


PLEASE ENTER THE LAST TERM :100


 THE FINAL SUM IS : 297

 PRESS Y TO REPEAT ELSE EXIT PRESSING ANY KEY : y

b)

PLEASE ENTER THE FIRST TERM :12


PLEASE ENTER THE LAST TERM :1309

 THE FINAL SUM IS : 857329

 PRESS Y TO REPEAT ELSE EXIT PRESSING ANY KEY : n

 PROGRAM EXCLUSIVELY CODED BY RACHIT AGRAWAL OF CLASS 11.

 ANY MODIFICATION DONE HERBY INVITE LEGAL ACTION.
```

SUGGESTIONS AND COMMENTS WELCOME AT rachit.agrawal9@gmail.com

*/

```
// SUM OF FRACTIONS FROM 1 ... 1/N                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main()
{
        char des;
        clrscr();
        do
        {
        long float num,temp, sum=0;
        clrscr();
        cout<<"ENTER THE VALUE FOR nth DENOMINATOR : " ;
        cin>>num;
        cout<<"\n";
        for(temp=1;temp<=num;temp++)
        {
                sum=sum+(1/temp);
                cout<<sum << " + ";
        }
        cout<<"\n\nTHE SUM IS : "<<sum;
        cout<<"\n\nREPEAT? (y/n) : ";
        cin>>des;
        } while(des=='y'||des=='Y');
}

/*Output

a)
ENTER THE VALUE FOR nth DENOMINATOR : 7

1 + 1.5 + 1.833333 + 2.083333 + 2.283333 + 2.45 + 2.592857 +

THE SUM IS : 2.592857

REPEAT? (y/n) : y

b)
ENTER THE VALUE FOR nth DENOMINATOR : 18

1 + 1.5 + 1.833333 + 2.083333 + 2.283333 + 2.45 + 2.592857 + 2.717857 + 2.828968
 + 2.928968 + 3.019877 + 3.103211 + 3.180134 + 3.251562 + 3.318229 + 3.380729 +
 3.439553 + 3.495108 +

 THE SUM IS : 3.495108

 REPEAT? (y/n) : n
```

```
//CALCULATE THE FACTORS OF A GIVEN NUMBER                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main ()
{
        int num, fact, gfact;
        clrscr ();
        cout<<"ENTER A NUMBER : ";
        cin >> num;
        gfact=num/2;
        cout<<"THE FACTORS OF " << num << " ARE : " << endl;
        for ( fact=1; fact<=gfact; fact=fact+1)
           {
                if (num%fact==0)
                    cout << fact << endl;
           }
        getch ();
}

/*OUTPUT

ENTER A NUMBER : 90
THE FACTORS OF 90 ARE :
1
2
3
5
6
9
10
15
18
30
45

*/
```

// FACTORIAL OF A NUMBER RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        char choice;
        do
        {
        clrscr();
        long double num, i, fact=1;
        cout<<"\nENTER THE NUMBER : ";
        cin>>num;
        for(i=num;i>=1;i--)
        fact=fact*i;
        cout<<"\nTHE FACTORIAL OF " << num <<" IS " << fact;
        cout<<"\n\nREPEAT THE PROGRAM (y/n) : ";
        cin>>choice;
        }while(choice=='y'||choice=='Y');
}
```

/*Output

a)
ENTER THE NUMBER : 63

THE FACTORIAL OF 63 IS 1.982608e+87

REPEAT THE PROGRAM (y/n) : y

b)
ENTER THE NUMBER : 81

THE FACTORIAL OF 81 IS 5.797126e+120

REPEAT THE PROGRAM (y/n) : y

c)
ENTER THE NUMBER : 7

THE FACTORIAL OF 7 IS 5040

REPEAT THE PROGRAM (y/n) : y

d)
ENTER THE NUMBER : 9

THE FACTORIAL OF 9 IS 362880

REPEAT THE PROGRAM (y/n) : y

e)
ENTER THE NUMBER : 18

THE FACTORIAL OF 18 IS 6.402374e+15

REPEAT THE PROGRAM (y/n) : n

```
*/
```

// TO CALCULATE THE SUM OF DIGITS IN A NUMBER RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main ()
{

        long num, digit, sum;
        clrscr();
        cout << " ENTER A NUMBER : ";
        cin >> num;
        for (sum=0; num!=0; num=num/10)
        {
                digit=num%10;
                sum=sum+digit;
        }
        cout << "\nTHE SUM OF THE DIGITS : "<<sum;
        getch();
}
```

/*OUTPUT

ENTER A NUMBER : 98250237

THE SUM OF THE DIGITS : 36

*/

// COMPOUND INTEREST BY SIMPLE INTEREST RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        long float interest, prince, rate, amt;
        int time, temp, r;
        char choice;
        do
        {
        clrscr ();
        cout<<"PLEASE ENTER THE PRINCIPAL AMOUNT : ";
        cin>>prince;
        cout<<"\nENTER THE RATE OF INTEREST : ";
        cin>>rate;
        cout<<"\nENTER THE TIME : ";
        cin>>time;
        amt=prince;
        cout<<"\n\tTIME\tSIMPLE INTEREST\tAMOUNT";
        for(r=8, temp=0,interest=0;temp<=time;temp++, r++)
        {
                cout<<"\n\t"<<temp<<"\t"<<interest;
                gotoxy(33,r);
                cout<<amt;
                interest=(amt*rate)/100;
                amt=amt+interest;
        }
        cout<<"\n\tClosing"<<"\t"<<interest;
        cout<<amt;
        cout<<"\n\nTHUS, THE FINAL AMOUNT IS : "<<amt;
        cout<<"\n\nREPEAT? (y/n) : ";
        cin>>choice;
        if(choice=='n'||choice=='N')
        cout<<"\nTHANK YOU";
        getch();
        }while(choice=='y'||choice=='Y');
}
```

/* OUTPUT

a)

```
PLEASE ENTER THE PRINCIPAL AMOUNT : 30000

ENTER THE RATE OF INTEREST : 10

ENTER THE TIME : 5

        TIME    SIMPLE INTEREST AMOUNT
        0       0                       30000
        1       3000                    33000
        2       3300                    36300
        3       3630                    39930
        4       3993                    43923
        5       4392.3                   48315.3
        Closing 4831.53                   53146.83
```

THUS, THE FINAL AMOUNT IS : 53146.83

REPEAT? (y/n) : n

```
// SIMPLE CALCULATOR FOR 2 FRACTIONS                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
#include<process.h>
void main()
{
        float num1,num2,den1,den2,result;
        char sign, choice;
        do
        {
                clrscr();
                cout<<"FRACTION 1 : "<<endl;
                cout<<"\nENTER THE NUMERATOR : ";
                cin>>num1;
                cout<<"\nENTER THE DENOMINATOR : ";
                cin>>den1;
                cout<<"\nENTER THE CALCULATION OPERATOR (+, -, *, /) : ";
                cin>>sign;
                cout<<"\nFRACTION 2 : "<<endl;
                cout<<"\nENTER THE NUMERATOR : ";
                cin>>num2;
                cout<<"\nENTER THE DENOMINATOR : ";
                cin>>den2;
                if(num1==0 || num2==0 || den1==0 || den2==0)
                {
                        cout<<"\nOOPS!!! INVALID ENTRY. BYE! ";
                        exit(0);
                }
                switch(sign)
                {
                        case '+': result=((num1/den1)+(num2/den2)); break;
                        case '-': result=((num1/den1)-(num2/den2)); break;
                        case '*': result=((num1/den1)*(num2/den2)); break;
                        case '/': result=((num1/den1)/(num2/den2)); break;
                        default :
                        cout<<"\nOOPS!!!INVALID CALCULATION OPERATOR. BYE!!";
                        exit(0);
                }
                cout<<"\nRESULT IS : "<<result;
                cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM? (Y/N) : ";
                cin>>choice;
        }while(choice=='y'||choice=='Y');
}
/*OUTPUT

FRACTION 1 :

ENTER THE NUMERATOR : 12

ENTER THE DENOMINATOR : 23

ENTER THE CALCULATION OPERATOR (+, -, *, /) : *

FRACTION 2 :
```

ENTER THE NUMERATOR : 12

ENTER THE DENOMINATOR : 23

RESULT IS : 0.272212

DO YOU WISH TO RE-EXECUTE THE PROGRAM? (Y/N) : n */

// SUM OF ALL TERMS OF AN ARRAY INPUT BY THE USER RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        clrscr();       long float num[10], sum=0, y=1;
        cout<<"\nEnter 10 elements for the array : "<<endl<<endl;
        for(;y<=10;y++)
        {
         cout<<"\nEntry : "<<y<<endl<<endl;        cout<<"Enter : ";
         cin>>num[y];         sum+=num[y];
        }
        cout<<"\n\nThe sum all the elements entered for the array is : " << sum;
        getch();
}
```

/* Output

Enter 10 elements for the array :

Entry : 1

Enter : 1

Entry : 2

Enter : 22

Entry : 3

Enter : 345

Entry : 4

Enter : 454

Entry : 5

Enter : 67

Entry : 6

Enter : 234

Entry : 7

Enter : 564

Entry : 8

Enter : 234

Entry : 9

Enter : 563

Entry : 10

Enter : 673

The sum all the elements entered for the array is : 3157
*/

```
/* TO ACCEPT 10 NUMBERS IN AN ARRAY AND PRINT THE SUM OF:                    RETURN TO INDEX
ALL ODD ELEMENTS IN THE ARRAY
ALL EVEN ELEMENTS IN THE ARRAY
EVERY 3RD ELEMENT IN THE ARRAY */
#include<iostream.h>
#include<conio.h>
void main()
{
        int array[10], count=0, sum1=0, sum2=0, sum3=0;
        clrscr();
        //*********input**************
        cout<<"\nENTER 10 NUMBERS FOR THE ARRAY : " <<endl<<endl;
        for(count=0;count<10;count++)
        {
              cin >> array[count];
        }
        //************process***********
        for(count=0 ; count<10 ; count++)
        {
         if(count%2!=0)
                sum1=sum1+array[count];
         else
                sum2=sum2+array[count];
        }
        for(count=2 ; count<10 ; count=count+3)
        {
         sum3=sum3+array[count];
        }
        //**************output***********
        cout<<"\nTHE RESULTS ARE : " << endl;
        cout<<"\n1: "<<"SUM OF ALL ODD ELEMENTS : "<<sum1<<endl;
        cout<<"\n2: "<<"SUM OF ALL EVEN ELEMENTS : "<<sum2<<endl;
        cout<<"\n3: "<<"SUM OF EVERY 3rd ELEMENT IN THE ARRAY : "<< sum3 <<endl;
        getch();
}

/*OUTPUT


ENTER 10 NUMBERS FOR THE ARRAY :

12
23
34
45
56
67
78
89
90
99

THE RESULTS ARE :

1: SUM OF ALL ODD ELEMENTS : 323
```

2: SUM OF ALL EVEN ELEMENTS : 270

3: SUM OF EVERY 3rd ELEMENT IN THE ARRAY : 191

*/

// INPUT 3 DIGITS AND FORM A NEW NUMBER RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        char choice, ch1,ch2, ch3, ch4, s[4];
        int dig1, dig2, dig3, num2, num3, num4, num5, num6;
        do
        {
        clrscr();
        cout<<"\nENTER THREE DIGIT CHARACTER : \n";
        cin>>s;
        ch1=s[0];
        ch2=s[1];
        ch3=s[2];
        dig1=(ch1-'0');
        dig2=(ch2-'0');
        dig3=(ch3-'0');
        num2=dig1*100 + dig3*10 + dig2;
        num3=dig2*100 + dig3*10 + dig1;
        num4=dig2*100 + dig1*10 + dig3;
        num5=dig3*100 + dig2*10 + dig1;
        num6=dig3*100 + dig1*10 + dig2;
        cout<<"\nTHE NUMBERS FORMED ARE : \n"<< num2;
        cout<<"\n" <<num3<<"\n"<<num4<<"\n"<<num5<<"\n"<<num6;

        cout<<"\n\nDO YOU WISH TO REPEAT THE PROGRAM? (Y/N) : ";
        cin>>choice;
        }while(choice=='y'||choice=='Y');
}

/*OUTPUT


ENTER THREE DIGIT CHARACTER :
345

THE NUMBERS FORMED ARE :
354
453
435
543
534

DO YOU WISH TO REPEAT THE PROGRAM? (Y/N) : n

*/
```

```
/* PRINT THE BILL INDEX OF ALL USERS ALONG WITH THEIR ELECTRICITY
RETURN TO INDEX
CONSUMPTION UNITS AND THE BILL TO BE PAYED.*/
#include<iostream.h>
#include<conio.h>
void main()
{
        long consumption[25], charges[25];
        int  count, y;
        char name[5][25];
        clrscr();
        for(count=0; count<5; count++)
        {
          cout<<"ENTER THE NAME : ";
          cin>>name[count];
          cout<<"ENTER THE ELECTRICITY CONSUMPTION : ";
          cin >> consumption[count];
           if(consumption[count]<=400)
                charges[count]=consumption[count]*60;
           else if (consumption[count]>400 && consumption[count]<=900)
                charges[count]=((consumption[count]-100)*80) + 6000;
           else if(consumption[count]>900)
                charges[count]=((consumption[count]-300)*90) + 22000;
        }
        clrscr();
        gotoxy(1,1);
        cout << "NAME";
        gotoxy(7,1);
        cout << "CONSUMPTION";
        gotoxy(20,1);
        cout << "CHARGES" <<endl;
        for(count=0, y=3; count<5; count++, y++)
        {
         gotoxy(1,y);
         cout<<name[count];
         gotoxy(12,y);
         cout<<consumption[count];
         gotoxy(20,y);
         cout<<charges[count];
        }
getch();
}

/*OUTPUT

ENTER THE NAME : VISHAL
ENTER THE ELECTRICITY CONSUMPTION : 950
ENTER THE NAME : RAVI
ENTER THE ELECTRICITY CONSUMPTION : 750
ENTER THE NAME : RAM
ENTER THE ELECTRICITY CONSUMPTION : 375
ENTER THE NAME : MOHAN
ENTER THE ELECTRICITY CONSUMPTION : 625
ENTER THE NAME : HARSH
ENTER THE ELECTRICITY CONSUMPTION : 1200
```

NAME CONSUMPTION CHARGES

VISHAL 950 80500
RAVI 750 58000
RAM 375 22500
MOHAN 625 48000
HARSH 1200 103000 */

// EMPLOYEE PAY-SLIP RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        char choice;
        do
        {
                char name[5][15];
                long int count, eno[5], basic[5], hra[5], da[5], pf[5], it[5],
                gross_sal[5], gross_ded[5], net[5];
                clrscr();
                for(count=0;count<5;count++)
                {
                cout<<"\nEnter name : ";
                cin>>name[count];
                cout<<"Enter employee number : ";
                cin>>eno[count];
                cout<<"Enter Basic Salary : ";
                cin>>basic[count];
                hra[count]=0.55*basic[count];
                da[count]=0.20*basic[count];
                it[count]=0.30*basic[count];
                pf[count]=0.10*basic[count];
                gross_sal[count]=basic[count]+hra[count]+da[count];
                gross_ded[count]=it[count]+pf[count];
                net[count]=gross_sal[count]-gross_ded[count];
                }
                clrscr();
                cout<<"Employee Payslip\n\n";
                 cout<<"Number\t" <<"Name\t" << "Basic\t" << "Gr.Sal\t" << "Gr.Ded\t";
                 cout<<"Net Salary\n\n";
                for(count=0;count<5;count++)
                {
                      cout<<eno[count]<<"\t"<<name[count]<<"\t"<<basic[count]
                      <<"\t"<<gross_sal[count] <<"\t"<< gross_ded[count]<<"\t"
                      <<net[count]<<"\n\n";
                }
                cout<<"\n\nRepeat ?(y/n) : ";
                cin>>choice;
        }while(choice=='y'||choice=='Y');
}

/* Output

                Enter name : Vipul
                Enter employee number : 1
                Enter Basic Salary : 76937

                Enter name : Rachit
                Enter employee number : 2
                Enter Basic Salary : 63636

                Enter name : Kunchit
                Enter employee number : 3
```

```
Enter Basic Salary : 89376

Enter name : Ganesh
Enter employee number : 4
Enter Basic Salary : 74893

Enter name : Kunj
Enter employee number : 5
Enter Basic Salary : 92834

Employee Payslip

Number  Name    Basic   Gr.Sal  Gr.Ded  Net Salary

1       Vipul   76937   134639  30774   103865

2       Rachit  63636   111362  25453   85909

3       Kunchit 89376   156407  35749   120658

4       Ganesh  74893   131062  29956   101106

5       Kunj    92834   162458  37133   125325


Repeat ?(y/n) :n
*/
```

// PROGRAM TO REVERSE A VECTOR RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
	char choice;
	do
	{
		clrscr();
		int vec[10], count1, count2;
		cout<<"ENTER TEN ELEMENTS FOR VECTOR :\n";
		for(count1=0;count1<10;count1++)
			cin>>vec[count1];
		 cout<<"\n\n";
		 for(count1=0, count2=9;count1<5;count1++,count2--)
		{
			vec[count1]=vec[count1]+vec[count2];
			vec[count2]=vec[count1]-vec[count2];
			 vec[count1]=vec[count1]-vec[count2];
		}
		 cout<<"\n\nTHE ORIGINAL VECTOR IS AS FOLLOWS : \n\n";
		for(count1=0;count1<10;count1++)
			cout<<" " <<vec[count1];
		cout<<"\n\nTHE REVERSED VECTOR IS AS FOLLOWS : \n\n";
		for(count1=0; count1<10;count1++)
			cout<<" "<<vec[count1];
		cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N) : ";
		cin>>choice;
	}while(choice=='y'||choice=='Y');
}
```

/* OUTPUT

```
ENTER TEN ELEMENTS FOR VECTOR :
12
23
34
45
56
67
78
89
90
98

THE ORIGINAL VECTOR IS AS FOLLOWS :

12 23 34 45 56 67 78 89 90 98

THE REVERSED VECTOR IS AS FOLLOWS :

98 90 89 78 67 56 45 34 23 12

DO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N) : N
```

```
*/
```

```
//PROGRAM TO FIND THE LARGEST AND SMALLEST ELEMENTS IN A VECTOR
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
void main()
{
	char choice;
	do
	{
	clrscr();
	int count, num, vec[50], large, small;
	cout<<"ENTER HOW MANY ELEMENTS ARE THERE IN THE VECTOR (MAX 50) : ";
	cin>>num;
	cout<<"\nENTER THE VALUES IN THE VECOR \n";
	for(count=0; count<num; count++)
		cin>>vec[count];
	large=small=vec[1];
	for(count=0; count<num;count++)
	{
		if(vec[count]>large)
			large=vec[count];
		else if(vec[count]<small)
			small=vec[count];
		else
			continue;
	}
	cout<<"\nTHE LARGEST ELEMENT IS : "<<large<<endl;
	cout<<"\nTHE SMALLEST ELEMENT IS : "<<small<<endl;
	cout<<"\nDO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N) : ";
	cin>>choice;
	}while(choice=='y'||choice=='Y');
}

/*OUTPUT

ENTER HOW MANY ELEMENTS ARE THERE IN THE VECTOR (MAX 50) : 15

ENTER THE VALUES IN THE VECOR
12
23
34
45
56
67
78
89
90
98
87
76
65
54
34

THE LARGEST ELEMENT IS : 98
```

THE SMALLEST ELEMENT IS : 12

DO YOU WISH TO RE-EXECUTE THE PROGRAM? (Y/N) : n
*/

```
// PROGRAM TO DELETE THE DUPLICATE ELEMENTS FROM A VECTOR
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
void main()
{
	char choice;
	int count1, count2, count3, num, ans=0;
	float vec[20];
	do
	{

	clrscr();

	cout<<"\nENTER THE SIZE OF THE VECTOR(MAX. 20) : ";
	cin>>num;

	cout<<"\nENTER THE ELEMENTS FOR THE VECTOR: \n";

	for(count1=0; count1<num; count1++)
		cin>>vec[count1];

	cout<<"\nTHE ORIGINAL VECTOR:\n";

	for(count1=0; count1<num; count1++)
		cout<<"\n"<<vec[count1];

	for(count1=0; count1<num; count1++)
	{
		for(count2=count1+1; count2<num; count2++)
		{
			if(vec[count1]==vec[count2])
			{
				num=num-1;
				for(count3=count2; count3<num; count3++)
					vec[count3] =vec [count3+1];
				ans=1;
				count2--;
			}
		}

	}
	if(ans==0)
		cout<<"\nVECTOR IS WITHOUT DUPLICATES:\n";
	else
	{
		cout<<"\n\nVECTOR AFTER DELETING THE DUPLICATES: \n";
		for(count2=0; count2<num; count2++)
			cout<<"\n"<<vec[count2];
	}

	cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM? (Y/N) : ";
	cin>>choice;
	}while(choice=='y'||choice=='Y');
}
```

```
/* OUTPUT

ENTER THE SIZE OF THE VECTOR(MAX. 20) : 9

ENTER THE ELEMENTS FOR THE VECTOR:
231
345
32
45
76
34
32
231
345

THE ORIGINAL VECTOR:

231
345
32
45
76
34
32
231
345

VECTOR AFTER DELETING THE DUPLICATES:

231
345
32
45
76
34

DO YOU WISH TO RE-EXECUTE THE PROGRAM? (Y/N) : n

*/
```

```
// PLAYER DETAILS USING ARRAYS                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main()
{
        clrscr();
        char name[30];
        int count, matches;
        float runs[10],balls[10];
        long double sr[10], avgsr, temp=0;
        cout <<"\nENTER PLAYER NAME : ";
        cin.getline(name,30);
        cout<<"\nENTER NUMBER OF MATCHES PLAYED : ";
        cin>>matches;
        for(count=1;count<=matches;count++)
        {
                cout<<"\nENTER RUNS SCORED IN MATCH "<<count<<" : ";
                cin>>runs[count];
                cout<<"\nENTER BALLS PLAYED IN MATCH "<<count<<" : ";
                cin >> balls[count];
                sr[count]=(runs[count]*100)/balls[count];
                temp+=sr[count];
        }
        avgsr=temp/matches;
        clrscr();
        cout<<"\nPLAYER NAME : "<< name <<endl;
        for(count=1;count<=matches;count++)
        {
                cout<<"\nRUNS SCORED IN MATCH "<<count<<" : "<< runs[count] <<endl;
                cout<<"\nBALLS PLAYED IN MATCH "<<count<<" : "<< balls[count]<<endl;
                cout<<"\nSTRIKE RATE IN MATCH "<<count<< sr[count]<<endl<<endl;
        }
        cout<<"\nAVERAGE STRIKE RATE : " <<avgsr<<endl;
getch();
}

/*OUTPUT
ENTER PLAYER NAME : ROHAN GAVASKAR

ENTER NUMBER OF MATCHES PLAYED : 5

ENTER RUNS SCORED IN MATCH 1 : 79

ENTER BALLS PLAYED IN MATCH 1 : 76

ENTER RUNS SCORED IN MATCH 2 : 89

ENTER BALLS PLAYED IN MATCH 2 : 95

ENTER RUNS SCORED IN MATCH 3 : 84

ENTER BALLS PLAYED IN MATCH 3 : 97

ENTER RUNS SCORED IN MATCH 4 : 108
```

ENTER BALLS PLAYED IN MATCH 4 : 105

ENTER RUNS SCORED IN MATCH 5 : 120

ENTER BALLS PLAYED IN MATCH 5 : 150

PLAYER NAME : ROHAN GAVASKAR

RUNS SCORED IN MATCH 1 : 79

BALLS PLAYED IN MATCH 1 : 76

STRIKE RATE IN MATCH 1103.947368

RUNS SCORED IN MATCH 2 : 89

BALLS PLAYED IN MATCH 2 : 95

STRIKE RATE IN MATCH 293.684211

RUNS SCORED IN MATCH 3 : 84

BALLS PLAYED IN MATCH 3 : 97

STRIKE RATE IN MATCH 386.597938

RUNS SCORED IN MATCH 4 : 108

BALLS PLAYED IN MATCH 4 : 105

STRIKE RATE IN MATCH 4102.857143

RUNS SCORED IN MATCH 5 : 120

BALLS PLAYED IN MATCH 5 : 150

STRIKE RATE IN MATCH 580

AVERAGE STRIKE RATE : 93.417332
*/

```
//WHITE SPACE CONFIRMATION                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main()
{
        char choice, ch;
        do
        {
        clrscr();
        cout<<"ENTER THE CHARACTER : ";
        cin.get(ch);
        if(ch=='\t')
                cout<<"\n\nWHITE SPACE \'TAB\' CHARACTER \n";
        else if (ch=='\n')
                cout<<"\n\nWHITE SPACE \'NEW LINE \' CHARACTER \n";
        else if (ch==' ')
                cout<<"\n\nWHITE SPACE \'SPACE\' CHARACTER \n";
        else
                cout<<"\n\n IT IS A DIFFERENT CHARACTER AND NOT A WHITE SPACE.";
        cout<<"\n\nDO YOU WISH TO REPEAT THE PROGRAM? (Y/N) : ";
        cin>>choice;
        }while(choice=='y'||choice=='Y');
}

/*OUTPUT
ENTER THE CHARACTER :


WHITE SPACE 'SPACE' CHARACTER


DO YOU WISH TO REPEAT THE PROGRAM? (Y/N) : Y


ENTER THE CHARACTER :


WHITE SPACE 'NEW LINE ' CHARACTER


DO YOU WISH TO REPEAT THE PROGRAM? (Y/N) : Y


ENTER THE CHARACTER :


WHITE SPACE 'TAB' CHARACTER


DO YOU WISH TO REPEAT THE PROGRAM? (Y/N) : N

*/
```

/* CONFIRM PRESENCE OF A CHARACTER IN A STRING*/ RETURN TO INDEX

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

void main()
{
        char choice, ch, str[70], flag;
        int len, count;
        do
        {
        clrscr();
        cout<<"\nENTER THE STRING:\n\n";
        cin.getline(str, 70);
        len=strlen(str);
        cout<<"\nENTER A CHARACTER: ";
        cin.get(ch);
        flag='n';
        for(count=0;str[count]!=len;count++)
        {
                if(ch==str[count])
                {
                        flag='Y';
                        break;
                }
        }
        if(flag=='Y')
        {
        cout<<"\n";
        cout.put(ch);
        cout<<" is contained in the string : \n\n";
        cout.write(str,len);
        }
        else
        {
        cout<<"\n";
        cout.put(ch);
        cout<<" is not contained in the string : \n\n";
        cout.write(str,len);
        }
        cout<<"\n\nDO YOU WISH TO REPEAT THE PROGRAM?

(Y/N) : ";
        cin>>choice;
        }while(choice=='y'||choice=='Y');
}

/* OUTPUT

ENTER THE STRING:

lion and tiger kileed the zebra

ENTER A CHARACTER: z
```

z is contained in the string :

lion and tiger kileed the zebra

DO YOU WISH TO REPEAT THE PROGRAM? (Y/N) : n
*/

//COUNT THE NUMBER OF VOWELS IN A STRING. RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        char str[25];
        int count, consonant=0, vowel=0, digit=0;
        clrscr();
        cout<<"ENTER A WORD : ";
        cin.getline(str,25);
        for(count=0;str[count]!='\0';count++)
        {
                if(str[count]=='A'||str[count]=='a'||str[count]=='E'
                ||str[count]=='e'||str[count]=='I'||str[count]=='i'||
                str[count]=='O'||str[count]=='o'||str[count]=='U'||
                str[count]=='u')
                {
                        vowel++;
                }
                else
                {
                        consonant++;
                }
        }
        cout<<"consonant: "<<consonant;
        cout<<"\nvowel: "<<vowel;
        getch();
}
```

```
//ENCRYPTION OF A STRING                                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
#include<stdio.h>
void main()
{
        char choice, str1[21], str2[21], ch;
        int count=0;
        do
        {
        clrscr();
        cout<<"ENTER A STRING : ";
        gets(str1);

        for (count=0; str1[count]!='\0'; count++)
                str2[count]=255-str1[count];

        str2[count]='\0';
        puts("\nTHE ENCRYPTED STRING IS : ");
        cout<<str2;

        cout<<"\n\nDO YOU WISH TO REPEAT THE PROGRAM? (Y/N) : ";
        cin>>choice;
        }while(choice=='y'||choice=='Y');

}
/* OUTPUT
ENTER A STRING : godfather

THE ENCRYPTED STRING IS :
˜□›™ž‹—š□

DO YOU WISH TO REPEAT THE PROGRAM? (Y/N) : y

ENTER A STRING : rachit

THE ENCRYPTED STRING IS :
□žœ—–‹

DO YOU WISH TO REPEAT THE PROGRAM? (Y/N) : n

ENTER A STRING : GOOD MORNING TEACHER

THE ENCRYPTED STRING IS :
¸°°»ß²°±¶±¸ß«°¾¼·°

DO YOU WISH TO REPEAT THE PROGRAM? (Y/N) : N
*/
```

// CONVERT A STRING INTO UPPERCASE RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<ctype.h>
#include<string.h>
void main()
{
        clrscr();
        char str[50];
        int flag=1;
        cout<<"\nENTER A STRING : \n\n";
        cin.getline(str,50);
        for(int i=0; str[i]!='\0';i++)
        {
                if(islower(str[i]))
                {
                        flag=1;
                        str[i]=toupper(str[i]);
                }
        }
        if((flag==1)||(str[i]=='\0'))
        {
                cout<<"\nUPPERCASE STRING IS :\n\n";
                cout<<str;
        }
getch();
}

/*OUTPUT

ENTER A STRING :

rachit is coding programs for his project

UPPERCASE STRING IS :

RACHIT IS CODING PROGRAMS FOR HIS PROJECT

*/
```

```
// PROGRAM TO FIND THE SUBSTRING OF A GIVEN STRING.
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
#include<string.h>
#include<process.h>
void main()
{
	clrscr();
	char mainstr[50], substr[50];
	int pos, count, count1, count2, len, num, temp;
	cout<<"ENTER THE MAIN STRING ( MAX 49 CHARACTERS) : \n";
	cin.getline(mainstr, 50);
	len=strlen(mainstr);
	cout<<"\nENTER THE STARTING POSITION OF SUBSTRING : ";
	cin>>pos;
	if(pos>len)
	{
		cout<<"\n\nSTARTING POSITION EXCEEDS THE TOTAL LENGTH OF STRING";
		exit(0);
	}
	cout<<"\n\nENTER THE NUMBER OF CHARACTERS IN SUBSTRING : ";
	cin>>count;
	if(pos<=0)
	{
		cout<<"\n\nEXTRACTED STRING IS EMPTY.";
		exit(0);
	}
	else if (((pos+count)-1)>len)
	{
		cout<<"\n\nSTRING TO BE EXTRACTED EXCEEDS LENGTH \n";
		num=(len-pos);
	}
	else
		num=count;
	count2=0;
	for(count1=--pos; count2<num;count2++, count1++)
		substr[count2]=mainstr[count1];

	cout<<"\n\nTHE SUBSTRING IS : ";
	cout<<substr;
	for(count=0;count<50;count++)
	substr[count]='\0';
getch();
}

/*OUTPUT

ENTER THE MAIN STRING ( MAX 49 CHARACTERS) :
GOOD MORNING TEACHER

ENTER THE STARTING POSITION OF SUBSTRING : 3


ENTER THE NUMBER OF CHARACTERS IN SUBSTRING : 6
```

THE SUBSTRING IS : OD MOR

*/

```
// PROGRAM TO SEARCH FOR A PATTERN STRING IN THE THE MAIN STRING
RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
#include<string.h>
void main()
{
	clrscr();
	char mainstr[50], patstr[50];
	int count1, count2, count3=0, len1, len2, flag, pos, found=0;
	cout<<"ENTER THE MAIN STRING : ";
	cin.getline(mainstr, 50);
	cout<<"ENTER THE PATTERN STRING : ";
	cin.getline(patstr, 50);
	len1= strlen(mainstr);
	len2= strlen(patstr);
	flag=0;
	for(count1=0; count1<len1; count1++)
	{
		for(count2=count1; count2<len1; )
		{
			if(mainstr[count2]!=patstr[0])
			{
				flag=1;
				count2++;
			}
			else if(mainstr[count2]==patstr[0])
			{
				pos=count2;
				count3=0;
				while(mainstr[count2]==patstr[count3])
				{
					flag=0;
					count2++;
					count3++;
				}
				if(count3>=len2)
				{
					cout<<"\nPATTERN FOUND AT POSITION " << pos+1 << endl;
					found=1;
					break;
				}
				else
					count3=0;
			}
		}
		if ( found)
		break;
	}
	if((flag!=0)||((flag==0)&&(count3<len2)))
		cout<<"\nPATTERN NOT FOUND."<<endl;
getch();
}

/*OUTPUT
```

ENTER THE MAIN STRING : Rachit
ENTER THE PATTERN STRING : ach

PATTERN FOUND AT POSITION 2

*/

//PROGRAM TO CONCATENATE TWO STRINGS RETURN TO INDEX

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

void main()
{
        char choice;
        do
        {
        clrscr();
        char str1[25], str2[25], str3[25];
        int count1, count2;
        cout<<"ENTER THE FIRST STRING : ";
        cin.getline(str1, 25);
        cout<<"ENTER THE SECOND STRING : ";
        cin.getline(str2, 25);
        for(count1=0; str1[count1]!='\0'; count1++)
        {
                str3[count1]=str1[count1];
        }
        str3[count1]=' ';
        count1++;
        for(count2=0; str2[count2]!='\0'; count2++)
        {
                        str3[count1+count2]=str2[count2];
        }
        str3[count1+count2]='\0';
        cout<<"\nTHE NEW CONCATENATED STRING IS : \n\n";
        cout<<str3;
        cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N): ";
        cin>>choice;
        }while(choice=='Y'||choice=='y');
}

/* OUTPUT
ENTER THE FIRST STRING : GOOD EVENING
ENTER THE SECOND STRING : MR. SATYANARAYAN

THE NEW CONCATENATED STRING IS :

GOOD EVENING  MR. SATYANARAYAN

DO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N): N

*/
```

```
//ADDITION OF TWO MATRICES                                        RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
#include<process.h>
void main()
{
        int a[10][10],b[10][10],c[10][10],count1, count2,ra,ca,rb,cb;
        char choice;
        do
        {
        clrscr();

        cout<<"\nINPUT ROW FOR MATRIX A: ";
        cin>>ra;
        cout<<"\nINPUT COLUMN FOR MATRIX A: ";
        cin>>ca;
        cout<<"\nINPUT ROW FOR MATRIX B: ";
        cin>>rb;
        cout<<"\nINPUT COLUMN FOR MATRIX B: ";
        cin>>cb;

        if((ra==rb)&&(ca==cb))
                cout<<"\nTHE TWO MATRICES CAN BE ADDED AS THEY ARE IDENTICAL.";
        else
        {
                cout<<"\nTHE TWO MATRICES CANNOT BE ADDED SINCE THEY ARE INIDENTICAL.";
                cout<<"\nTHANK YOU.";
                exit(0);
        }

        cout<<"\n\nINPUT ELEMENTS FOR MATRIX A :\n";
        for(count1=0;count1<ra;count1++)
        {
                cout<<"\n";
                for(count2=0;count2<ca;count2++)
                        cin>>a[count1][count2];
        }

        cout<<"\n\nINPUT ELEMENTS FOR MATRIX B :\n";
        for(count1=0;count1<rb;count1++)
        {
                cout<<"\n";
                for(count2=0;count2<cb;count2++)
                        cin>>b[count1][count2];
        }

        for(count1=0;count1<ra;count1++)
        {
                for(count2=0;count2<ca;count2++)
                        c[count1][count2]=a[count1][count2]+b[count1][count2];
        }

        clrscr();
        cout<<"MATRIX A: ";
        for(count1=0;count1<ra;count1++)
        {
```

```
		cout<<"\n\n";
		for(count2=0;count2<ca;count2++)
			cout<<"\t"<<a[count1][count2];
	}

	cout<<"\n\nMATRIX B: ";
	for(count1=0;count1<rb;count1++)
	{
		cout<<"\n\n";
		for(count2=0;count2<cb;count2++)
			cout<<"\t"<<b[count1][count2];
	}

	cout<<"\n\nMATRIX C (NEW TO REPRESENT THE SUM OF MATRICES A & B): ";
	for(count1=0;count1<ra;count1++)
	{
		cout<<"\n\n";
		for(count2=0;count2<ca;count2++)
			cout<<"\t"<<c[count1][count2];
	}
	cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N) : ";
	cin>>choice;
	}while(choice=='y'||choice=='Y');
}


/* OUTPUT
INPUT ROW FOR MATRIX A: 3

INPUT COLUMN FOR MATRIX A: 3

INPUT ROW FOR MATRIX B: 3

INPUT COLUMN FOR MATRIX B: 3

THE TWO MATRICES CAN BE ADDED AS THEY ARE IDENTICAL.

INPUT ELEMENTS FOR MATRIX A :

1
2
3

12
23
34

45
56
67

INPUT ELEMENTS FOR MATRIX B :

98
76
65
```

45
34
32

21
6
4

MATRIX A:

1 2 3

12 23 34

45 56 67

MATRIX B:

98 76 65

45 34 32

21 6 4

MATRIX C (NEW TO REPRESENT THE SUM OF MATRICES A & B):

99 78 68

57 57 66

66 62 71

DO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N) : n */

```
// SUBTRACTION OF A MATRIX FROM ANOTHER                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
#include<process.h>
void main()
{
        char choice;
        do
        {
        clrscr();
        int a[10][10],b[10][10],c[10][10],count1, count2,ra,ca,rb,cb;
        cout<<"\nINPUT ROW FOR MATRIX A: ";
        cin>>ra;
        cout<<"\nINPUT COLUMN FOR MATRIX A: ";
        cin>>ca;
        cout<<"\nINPUT ROW FOR MATRIX B: ";
        cin>>rb;
        cout<<"\nINPUT COLUMN FOR MATRIX B: ";
        cin>>cb;

        if((ra==rb)&&(ca==cb))
                cout<<"\nSUBTRACTION BETWEEN THE TWO MATRICES IS POSSIBLE.";
        else
        {
                cout<<"\nSUBTRACTION BETWEEN THE TWO MATRICES IS NOT POSSIBLE.";
                cout<<"\nTHANK YOU.";
                exit(0);
        }

        cout<<"\n\nINPUT ELEMENTS FOR MATRIX A :";
        for(count1=0;count1<ra;count1++)
        {
                cout<<"\n";
                for(count2=0;count2<ca;count2++)
                        cin>>a[count1][count2];
        }

        cout<<"\n\nINPUT ELEMENTS FOR MATRIX B :";
        for(count1=0;count1<rb;count1++)
        {
                cout<<"\n";
                for(count2=0;count2<cb;count2++)
                        cin>>b[count1][count2];
        }

        for(count1=0;count1<ra;count1++)
        {
                for(count2=0;count2<ca;count2++)
                        c[count1][count2]=a[count1][count2]-b[count1][count2];
        }

        clrscr();
        cout<<"MATRIX A: ";
        for(count1=0;count1<ra;count1++)
        {
```

```
		cout<<"\n\n";
		for(count2=0;count2<ca;count2++)
			cout<<"\t"<<a[count1][count2];
	}

	cout<<"\n\nMATRIX B: ";
	for(count1=0;count1<rb;count1++)
	{
		cout<<"\n\n";
		for(count2=0;count2<cb;count2++)
			cout<<"\t"<<b[count1][count2];
	}

	cout<<"\n\nMATRIX C (NEW TO REPRESENT THE DIFFERENCE BETWEEN MATRICES A & B):
";
	for(count1=0;count1<ra;count1++)
	{
		cout<<"\n\n";
		for(count2=0;count2<ca;count2++)
			cout<<"\t"<<c[count1][count2];
	}

	cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N): ";
	cin>>choice;
	}while(choice=='Y'||choice=='y');
}

/* OUTPUT

INPUT ROW FOR MATRIX A: 3

INPUT COLUMN FOR MATRIX A: 3

INPUT ROW FOR MATRIX B: 3

INPUT COLUMN FOR MATRIX B: 3

SUBTRACTION BETWEEN THE TWO MATRICES IS POSSIBLE.

INPUT ELEMENTS FOR MATRIX A :
12
23
34

45
56
67

78
89
90

INPUT ELEMENTS FOR MATRIX B :
98
87
76
```

65
54
43

32
21
10

MATRIX A:

12 23 34

45 56 67

78 89 90

MATRIX B:

98 87 76

65 54 43

32 21 10

MATRIX C (NEW TO REPRESENT THE DIFFERENCE BETWEEN MATRICES A & B):

-86 -64 -42

-20 2 24

46 68 80

DO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N): n */

// MULTIPLICATION OF TWO MATRICES RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<process.h>
void main()
{
	long a[10][10],b[10][10],c[10][10];
	int count1, count2,count3,ra,ca,rb,cb;
	char choice;
	do
	{
	clrscr();

	cout<<"INPUT ROW FOR MATRIX A: ";
	cin>>ra;
	cout<<"\nINPUT COLUMN FOR MATRIX A: ";
	cin>>ca;
	cout<<"\nINPUT ROW FOR MATRIX B: ";
	cin>>rb;
	cout<<"\nINPUT COLUMN FOR MATRIX B: ";
	cin>>cb;

	if((ra==rb)&&(ca==cb))
		cout<<"\nMULTIPLICATION OF THE TWO MATRICES IS POSSIBLE.";
	else
	{
		cout<<"\nMULTIPLICATION OF THE TWO MATRICES IS NOT POSSIBLE.";
		cout<<"\nTHANK YOU.";
		exit(0);
	}

	cout<<"\n\nINPUT ELEMENTS FOR MATRIX A :";
	for(count1=0;count1<ra;count1++)
	{
		cout<<"\n";
		for(count2=0;count2<ca;count2++)
			cin>>a[count1][count2];
	}

	cout<<"\n\nINPUT ELEMENTS FOR MATRIX B :";
	for(count1=0;count1<rb;count1++)
	{
		cout<<"\n";
		for(count2=0;count2<cb;count2++)
			cin>>b[count1][count2];
	}

	for(count1=0;count1<ra;count1++)
	{
		for(count2=0;count2<cb;count2++)
		{
			c[count1][count2]=0;
			for(count3=0;count3<ca;count3++)
				{
					c[count1][count2]+=a[count1][count3]*b[count3][count2];
				}
```

```
            }
        }
        clrscr();
        cout<<"MATRIX A: ";
        for(count1=0;count1<ra;count1++)
        {
                cout<<"\n\n";
                for(count2=0;count2<ca;count2++)
                        cout<<" "<<a[count1][count2];
        }

        cout<<"\n\nMATRIX B: ";
        for(count1=0;count1<rb;count1++)
        {
                cout<<"\n\n";
                for(count2=0;count2<cb;count2++)
                        cout<<" "<<b[count1][count2];
        }

        cout<<"\n\nMATRIX C (NEW TO REPRESENT THE MULTIPLICATION OF MATRICES A & B):\n
        for(count1=0;count1<ra;count1++)
        {
                cout<<"\n";
                for(count2=0;count2<cb;count2++)
                        cout<<" "<<c[count1][count2];
                cout<<"\n";
        }

        cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N) : ";
        cin>>choice;
        }while(choice=='Y'||choice=='y');

}

/*OUTPUT

INPUT ROW FOR MATRIX A: 3

INPUT COLUMN FOR MATRIX A: 3

INPUT ROW FOR MATRIX B: 3

INPUT COLUMN FOR MATRIX B: 3

MULTIPLICATION OF THE TWO MATRICES IS POSSIBLE.

INPUT ELEMENTS FOR MATRIX A :
12
23
34

45
56
67

78
```

89
90

INPUT ELEMENTS FOR MATRIX B :
0
98
87

76
65
54

43
32
21

MATRIX A:

12 23 34

45 56 67

78 89 90

MATRIX B:

0 98 87

76 65 54

43 32 21

MATRIX C (NEW TO REPRESENT THE MULTIPLICATION OF MATRICES A & B):

3210 3759 3000

7137 10194 8346

10634 16309 13482

DO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N) : N */

```
// PROGRAM TO FIND ROW SUM AND COLUMN SUM OF A MATRIX
```
RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
	char choice;
	do
	{
	clrscr();
	int a[10][10], rosm[10], colsm[10], row, col, count1, count2;
	cout<<"ENTER THE NUMBER OF ROWS FOR MATRIX : ";
	cin>>row;
	cout<<"ENTER THE NUMBER OF COLUMN FOR MATRIX : ";
	cin>>col;
	cout<<"ENTER THE ELEMENTS FOR MATRIX :\n ";
	for(count1=0;count1<row;count1++)
	{	cout<<"\n";
		for(count2=0; count2<col; count2++)
			cin>>a[count1][count2];
	}

	for(count1=0; count1<row;count1++)
	{
		rosm[count1]=0;
		for(count2=0;count2<col; count2++)
			rosm[count1] += a[count1][count2];
	}

	for(count2=0; count2<col; count2++)
	{
		colsm[count2]=0;
		for(count1=0;count1<row; count1++)
			colsm[count2] += a[count1][count2];
	}

	cout<<"\n\nTHE MATRIX ALONGWITH ROWSUM AND COLUMNSUM IS :\n\n";
	for(count1=0; count1<row;count1++)
	{
		for(count2=0; count2<col; count2++)
			cout<<a[count1][count2]<<"\t";

		cout<<"\t"<<rosm[count1]<< endl;
	}
	cout<<"\n";
	for(count2=0; count2<col; count2++)
		cout<<colsm[count2]<< "\t";
	cout<<endl;
	cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM? (Y/N): ";
	cin>>choice;
	}while(choice=='Y'||choice=='y');
}

/*OUTPUT
ENTER THE NUMBER OF ROWS FOR MATRIX : 3
ENTER THE NUMBER OF COLUMN FOR MATRIX : 3
```

ENTER THE ELEMENTS FOR MATRIX :

25
36
45

49
63
72

70
81
90

THE MATRIX ALONGWITH ROWSUM AND COLUMNSUM IS :

25	36	45	106
49	63	72	184
70	81	90	241

144 180 207

DO YOU WISH TO RE-EXECUTE THE PROGRAM? (Y/N): n

*/

```
/* PROGRAM TO FIND SUM OF ELEMENTS ABOVE AND BELOW THE
RETURN TO INDEX
MAIN DIAGONAL OF MATRIX*/
#include<iostream.h>
#include<conio.h>
void main()
{
	int a[20][20], asum, bsum, row, col, count1, count2;	char choice;
	do
	{
	clrscr();
	cout<<"ENTER THE NUMBER OF ROWS FOR MATRIX : ";
	cin>>row;
	cout<<"\nENTER THE NUMBER OF COLUMNS FOR MATRIX : ";
	cin>>col;
	cout<<"\nENTER THE ELEMENTS FOR THE MATRIX :\n\n";
	for(count1=0;count1<row;count1++)
	{
		for(count2=0; count2<col; count2++)
			cin>>a[count1][count2];
	}
	asum=0;
	for(count1=0; count1<row;count1++)
	{
		for(count2=0;count2<col; count2++)
		{
			if(count1<count2)
			asum+=a[count1][count2];
		}

	}
	bsum=0;
	for(count1=0; count1<row;count1++)
	{
		for(count2=0;count2<col; count2++)
		{
			if(count1>count2)
			bsum+=a[count1][count2];
		}

	}
	for(count1=0;count1<row;count1++)
	{
		cout<<"\n\n";
		for(count2=0; count2<col; count2++)
			cout<<"\t"<< a[count1][count2];
	}
	cout<<"\n\nTHE ELEMENTS OF THE MAIN DIAGONAL ARE : ";
	for(count1=0; count1<row;count1++)
	{
		for(count2=0;count2<col; count2++)
		{
			if(count1==count2)
			cout<< a[count1][count2] << " ";
		}
```

```
        }
        cout<<"\n\nTHE SUM OF THE ELEMENTS ABOVE THE MAIN DIAGONAL : ";
        cout<<asum;
        cout<<"\n\nTHE SUM OF THE ELEMENTS BELOW THE MAIN DIAGONAL : ";
        cout<<bsum;
        cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM? (Y/N) : ";
        cin>>choice;
        }while(choice=='y'||choice=='Y');
}

/*Output

ENTER THE NUMBER OF ROWS FOR MATRIX : 4

ENTER THE NUMBER OF COLUMNS FOR MATRIX : 4

ENTER THE ELEMENTS FOR THE MATRIX :

1
2
3
4
5
6
7
8
9
18
27
45
63
72
49
35


      1      2      3      4

      5      6      7      8

      9      18     27     45

      63     72     49     35

THE ELEMENTS OF THE MAIN DIAGONAL ARE : 1 6 27 35

THE SUM OF THE ELEMENTS ABOVE THE MAIN DIAGONAL : 69

THE SUM OF THE ELEMENTS BELOW THE MAIN DIAGONAL : 216

DO YOU WISH TO RE-EXECUTE THE PROGRAM? (Y/N) : N

*/
```

```
//TRANSPOSE A MATRIX                                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main()
{
        char choice;
        do
        {
        clrscr();
        int a[10][10],b[10][10],count1, count2,ra,ca;
        cout<<"\nINPUT ROW FOR MATRIX A: ";
        cin>>ra;
        cout<<"\nINPUT COLUMN FOR MATRIX A: ";
        cin>>ca;

        cout<<"\nINPUT ELEMENTS FOR MATRIX A :";
        for(count1=0;count1<ra;count1++)
        {
                cout<<"\n";
                for(count2=0;count2<ca;count2++)
                        cin>>a[count1][count2];
        }

        for(count1=0;count1<ca;count1++)
        {
                for(count2=0;count2<ra;count2++)
                        b[count1][count2]=a[count2][count1];
        }
        clrscr();
        cout<<"MATRIX A: ";
        for(count1=0;count1<ra;count1++)
        {
                cout<<"\n\n";
                for(count2=0;count2<ca;count2++)
                        cout<<"\t"<<a[count1][count2];
        }
        cout<<"\n\nMATRIX B (TRANSPOSED FORM OF MATRIX A): ";
        for(count1=0;count1<ca;count1++)
        {
                cout<<"\n\n";
                for(count2=0;count2<ra;count2++)
                        cout<<"\t"<<b[count1][count2];
        }
        cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N) : ";
        cin>>choice;
        }while(choice=='y'||choice=='Y');
}

/* OUTPUT

INPUT ROW FOR MATRIX A: 3

INPUT COLUMN FOR MATRIX A: 3

INPUT ELEMENTS FOR MATRIX A :
12
```

23
34

45
56
67

78
89
90

MATRIX A:

12 23 34

45 56 67

78 89 90

MATRIX B (TRANSPOSED FORM OF MATRIX A):

12 45 78

23 56 89

34 67 90

DO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N) : n

*/

```
// TO SEARCH FOR POSITION OF A SEARCH NUMBER FROM THOSE INPUT
RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main()
{
	int num[15], search, count, flag=0;
	clrscr();
	cout<<"ENTER 15 INTEGERS FOR AN ARRAY : "<<endl<<endl;
	for(count=1;count<=15;count++)
		cin>>num[count];
	cout<<"\nENTER THE SEARCH NUMBER FROM THE ABOVE ARRAY : ";
	cin >> search;
	count=1;
	do
	{
		if(num[count]==search)
		{
			cout<<"\n\nTHE POSITION IS " << count;
			flag=1;
		}
	count++;
	}while(count<15);
	if(num[count]==search)
		{
			cout<<"\n\nTHE POSITION IS " << count;
			flag=1;
		}
	if(flag==0)
	cout<<"SORRY!! SEARCH NUMBER NOT FOUND IN THE ARRAY.";
getch();
}

/*OUTPUT

ENTER 15 INTEGERS FOR AN ARRAY :

12
23
34
45
56
67
78
89
90
90
89
78
76
65
45

ENTER THE SEARCH NUMBER FROM THE ABOVE ARRAY : 45
```

THE POSITION IS 4

THE POSITION IS 15

*/

```
// BUBBLESORT : to arrange the elements of an array in the ascending order
RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main()
{
	int num[7], swap=1, temp, i;
	clrscr();
//**********user input*************
	cout<<"\nENTER 7 ELEMENTS FOR THE ARRAY:\n";
	for(i=0; i<7; i++)
	{
		cout <<"\nENTRY "<<i+1<< " : ";
		cin >>  num[i];
	}
//****************process**************
	do
	{
	   swap=0;
	   for(i=0; i<6; i++)
	   {
		if(num[i]>num[i+1])
		{
			temp=num[i];
			num[i]=num[i+1];
			num[i+1]=temp;
			swap=1;
		}
	   }
	}while(swap==1);
//***************output****************
	clrscr();
	cout<<"\nThe sorted array is as follows: " << endl;
	for(i=0; i<7;i++)
		cout<<"\n"<< num[i]<<endl;

	cout<<"\nThe conversely sorted array is as follows : " <<endl;
	for(i=6; i>=0; i--)
		cout<<"\n" << num[i] <<endl;

	cout << "\nThis program has been created by Rachit Agrawal " <<endl;
	getch();
}


/*OUTPUT


ENTER 7 ELEMENTS FOR THE ARRAY:

ENTRY 1 : 56

ENTRY 2 : 87

ENTRY 3 : 34
```

ENTRY 4 : 97

ENTRY 5 : 23

ENTRY 6 : 83

ENTRY 7 : 49

The sorted array is as follows:

23

34

49

56

83

87

97

The conversely sorted array is as follows :

97

87

83

56

49

34

23

This program has been created by Rachit Agrawal

Suggestions and Comments welcome via email at : rachit_agrawal9@gmail.com

*/

// MERGE TWO GIVEN ARRAYS. RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        int array1[10]={2,4,6,9,12,19,17,19,21,22};
        int array2[15]={0,1,3,5,7,8,10,11,13,14,16,18,20,23,24};
        int array3[25], count1=0, count2=0, count3=0, count4;
        clrscr();

        do
        {
         if(array1[count1]<array2[count2])
         {
           array3[count3]=array1[count1];
           cout<< array3[count3]<<"\t";
           count1=count1+1;
         }
         else
         {
           array3[count3]=array2[count2];
           cout<< array3[count3]<<"\t";
           count2=count2+1;
         }
        }while(count1<9 && count2<15);

        if(count1==9)
        {
         for(count4=count2;count4<15;count3++,count4++)
         {
           array3[count3]=array2[count4];
           cout<<array3[count3]<<"\t";
         }
        }
        getch();
}

/*OUTPUT

0     1     2     3     4     5     6     7     8     9
10    11    12    13    14    16    18    19    17    19
20    21    23    24

*/
```

```
// TO SORT GIVEN TWO INTEGER ARRAYS SEPARATELY AND THEN MERGE THEM
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
void main()
{
//****************variable declaration**********************
int array1[10]={15,21,6,19,25,12,17,9,4,2};
int array2[15]={23,22,16,10,7,18,13,11,5,14,1,8,20,3,24}, array3[25];
int count=0, count1=0, count2=0, count3=0, swap=1, temp=0, count4;
        clrscr();
        cout<<"THE ORIGINAL ARRAYS ARE :\n\n";
        for(count=0;count<10;count++)
                cout<<array1[count]<<"\t";
        cout<<"\n\n\n";
        for(count=0;count<15;count++)
                cout<<array2[count]<<"\t";

//****************sorting**************
        do
        {
           swap=0;
           for(count=0; count<9; count++)
           {
                if(array1[count]>array1[count+1])
                {
                        temp=array1[count];
                        array1[count]=array1[count+1];
                        array1[count+1]=temp;
                        swap=1;
                }
           }
        }while(swap==1);

        do
        {
           swap=0;
           for(count=0; count<14; count++)
           {
                if(array2[count]>array2[count+1])
                {
                        temp=array2[count];
                        array2[count]=array2[count+1];
                        array2[count+1]=temp;
                        swap=1;
                }
           }
        }while(swap==1);
//**************************merging*******************************
        do
        {
               if(array1[count1]<array2[count2])
               {
                 array3[count3]=array1[count1];
                 count1++;
               }
```

```
            else if (array1[count1]>array2[count2])
            {
              array3[count3]=array2[count2];
              count2++;
            }
            else if(array1[count1]==array2[count2])
            {
                  array3[count3]=array1[count1];
                  count1++;
                  count3++;
                  array3[count3]=array2[count2];
                  count2++;
            }
        count3++;
       }while(count2<15);
       if(count2==15)
       {
             for(count4=count1;count1<10;count1++, count3++)
                  array3[count3]=array1[count4];
       }
//**************output****************
       cout<<"\n\nTHE SORTED ARRAYS ARE :\n\n";
       for(count=0;count<10;count++)
             cout<<array1[count]<<"\t";
       cout<<"\n\n\n";
       for(count=0;count<15;count++)
             cout<<array2[count]<<"\t";
       cout<<"\n\n\n\nTHE NEW ARRAY REQUIRED IS :\n" << endl;
       for(count=0; count<25;count++)
             cout<<array3[count]<<"\t";
getch();
}

/*OUTPUT

THE ORIGINAL ARRAYS ARE :

15    21    6     19    25    12    17    9     4     2



23    22    16    10    7     18    13    11    5     14
1     8     20    3     24

THE SORTED ARRAYS ARE :

2     4     6     9     12    15    17    19    21    25



1     3     5     7     8     10    11    13    14    16
18    20    22    23    24



THE NEW ARRAY REQUIRED IS :
```

```
1     2     3     4     5     6     7     8     9     10
11    12    13    14    15    16    17    18    19    20
21    22    23    24    25

*/
```

```
/* GIVEN INTEGER ARRAY : 5 8 7 1 2 4 9 6 0 10                    RETURN TO INDEX
   NEW ARRAY TO BE FORMED : 9 7 5 2 0 1 4 6 8 10 */
#include<iostream.h>
#include<conio.h>
void main()
{
        int array[10]={5,8,7,1,2,4,9,6,0,10}, newarray[10];
        int count1, count2, count3, count4, temp, swap;
        clrscr();
        cout<<"ORGINAL ARRAY :\n\n";
        for(count1=0;count1<10;count1++)
                cout<<array[count1]<<"\t";

        do
        {
                swap=0;
                for(count1=0;count1<9;count1++)
                {
                        if(array[count1]>array[count1+1])
                        {
                                temp=array[count1];
                                array[count1]=array[count1+1];
                                array[count1+1]=temp;
                                swap=1;
                        }
                }
        }while(swap==1);

        for(count1=0, count2=8,count3=9, count4=9;count1<5;count1++,count2-=2,count3--
            ,count4-=2)
        {
                newarray[count1]=array[count2];
                newarray[count3]=array[count4];
        }

        cout<<"\n\nNEW ARRAY :\n\n";
        for(count1=0;count1<10;count1++)
                cout<<newarray[count1]<<"\t";
getch();
}

/* OUTPUT

ORGINAL ARRAY :

5       8       7       1       2       4       9       6       0       10


NEW ARRAY :

9       7       5       2       0       1       4       6       8       10

*/
```

```
// ARRAY MANIPULATION MENU                                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main()
{
        int array[5], newarray[6], count,num, pos,choice;
        clrscr();
        cout<<"ENTER 5 ELEMENTS FOR THE ARRAY :\n\n";
        for(int i=1;i<=5;i++)
              cin>>array[i];
        do
        {
        clrscr();
        cout<<"ARRAY MANIPULATION\n1 ADD ELEMENT\n2 DELETE ELEMENT\n";
        cout<<"3 MODIFY ELEMENT\n4 SHOW ELEMENTS\n5 EXIT\n\n";
        cout<<"ENTER YOUR CHOICE : "; cin>>choice;
        clrscr();
        cout<<"YOUR CHOICE : "<<choice<<endl<<endl;
        switch(choice)
        {
        case 1: do
              {
              cout<<"ENTER THE POSITION FOR THE NEW ELEMENT : ";
              cin>>pos;
              }while(pos>6);
              cout<<"\nENTER THE ELEMENT : ";
              cin>>num;
              for(i=1;i<pos;i++)
                    newarray[i]=array[i];
              newarray[i]=num;
              for(i=pos+1;i<=6;i++)
                    newarray[i]=array[i-1];
              cout<<"\nTHE NEW ARRAY IS : \n\n";
              for(i=1;i<=6;i++)
                   cout<<newarray[i]<<"\t";
        getch();
        break;
        case 2: do
              {
              cout<<"ENTER THE POSITION FOR THE ELEMENT TO BE DELETED: ";
              cin>>pos;
              }while(pos>5);
              for(i=1;i<pos;i++)
                    newarray[i]=array[i];
              for(i=pos;i<5;i++)
                    newarray[i]=array[i+1];
              cout<<"\nTHE NEW ARRAY IS : \n\n";
              for(i=1;i<5;i++)
                   cout<<newarray[i]<<"\t";
        getch();
        break;
        case 3: do
              {
              cout<<"ENTER THE POSITION FOR THE ELEMENT TO BE MODIFIED: ";
              cin>>pos;
```

```
                }while(pos>5);
                cout<<"\nENTER THE NEW ELEMENT : ";
                cin>>num;
                for(i=1;i<pos;i++)
                        newarray[i]=array[i];
                newarray[i]=num;
                for(i=pos+1;i<=5;i++)
                        newarray[i]=array[i];
                cout<<"\nTHE NEW ARRAY IS : \n\n";
                for(i=1;i<=5;i++)
                     cout<<newarray[i]<<"\t";
        getch();
        break;
        case 4:
        cout<<"\nTHE ELEMENTS ENTERED BY YOU ARE :\n\n";
        for(i=1;i<=5;i++)
                cout<<array[i]<<"\t";
        getch();
        break;
        default: break;
        }
        }while(choice!=5);
if(choice==5)
cout<<"EXITING...!!!\n\nTHANK YOU FOR USING PROGRAM\n\nCODED BY RACHIT AGRAWAL.";
cout<<"\nSUGGESSTIONS AND COMMENTS WELCOME AT rachit.agrawal9@gmail.com.";
getch();
}

/*OUTPUT
ENTER 5 ELEMENTS FOR THE ARRAY :

7
16
25
34
43

ARRAY MANIPULATION
1 ADD ELEMENT
2 DELETE ELEMENT
3 MODIFY ELEMENT
4 SHOW ELEMENTS
5 EXIT

ENTER YOUR CHOICE : 1

YOUR CHOICE : 1

ENTER THE POSITION FOR THE NEW ELEMENT : 3

ENTER THE ELEMENT : 45

THE NEW ARRAY IS :

7      16      45      25      34      43
```

YOUR CHOICE : 2

ENTER THE POSITION FOR THE ELEMENT TO BE DELETED: 3

THE NEW ARRAY IS :

7 16 34 43

YOUR CHOICE : 3

ENTER THE POSITION FOR THE ELEMENT TO BE MODIFIED: 2

ENTER THE NEW ELEMENT : 54

THE NEW ARRAY IS :

7 54 25 34 43

YOUR CHOICE : 4

THE ELEMENTS ENTERED BY YOU ARE :

7 16 25 34 43

YOUR CHOICE : 5

EXITING...!!!

THANK YOU FOR USING PROGRAM

CODED BY RACHIT AGRAWAL.
SUGGESSTIONS AND COMMENTS WELCOME AT rachit.agrawal9@gmail.com.
*/

```
//TO PRINT THE CUBE OF A NUMBER USING A FUNCTION
```
RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        float cube(float);
        float x,y;
        clrscr();
        cout<<"\nENTER A NUMBER : ";
        cin>>x;
        y=cube(x);
        cout<<"\nTHE CUBE OF "<<x<<" is " << y;
getch();
}
float cube(float s)
{
        float n;
        n=s*s*s;
        return n;
}
/*OUTPUT

ENTER A NUMBER : 15

THE CUBE OF 15 is 3375

*/
```

```
// TO PRINT THE LARGEST ELEMENT OF AN ARRAY USING FUNCTION
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
void main()
{
	char ch;
	int i;
	float amt[50], big;
	float large(float array[],int n);
	clrscr();
	for(i=0;i<50;i++)
	{
		cout<<"ENTER ELEMENT NUMBER : "<<i+1<<" : ";
		cin>>amt[i];
		cout<<"WANT TO ENTER MORE? (Y/N) : ";
		cin>>ch;
		if(ch!='y'&& ch!='Y')
			break;
	}
	if(i<50)
	i++;
	big=large(amt, i);
	cout<<"\nTHE LARGEST ELEMENT OF THE ARRAY IS : "<<big<<endl;
getch();
}

float large(float array[], int n)
{
	float max=array[0];
	for(int j=1; j<n;j++)
	{
		if(array[j]>max)
		max=array[j];
	}
	return (max);
}

/*OUTPUT

ENTER ELEMENT NUMBER : 1 : 18
WANT TO ENTER MORE? (Y/N) : y
ENTER ELEMENT NUMBER : 2 : 25
WANT TO ENTER MORE? (Y/N) : y
ENTER ELEMENT NUMBER : 3 : 3
WANT TO ENTER MORE? (Y/N) : y
ENTER ELEMENT NUMBER : 4 : 24
WANT TO ENTER MORE? (Y/N) : y
ENTER ELEMENT NUMBER : 5 : 6
WANT TO ENTER MORE? (Y/N) : y
ENTER ELEMENT NUMBER : 6 : 23
WANT TO ENTER MORE? (Y/N) : y
ENTER ELEMENT NUMBER : 7 : 19
WANT TO ENTER MORE? (Y/N) : n

THE LARGEST ELEMENT OF THE ARRAY IS : 25
```

*/PREFIX AND SUFFIX RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
	int num;
	void suffix(int);
	void prefix(int);
	clrscr();
	cin>>num;
	prefix(num);
	suffix(num);
getch();
}
void prefix(int n)
{
	cout<<"\n"<<++n;
	cout<<"\n"<<--n;
}
void suffix(int n)
{
	cout<<"\n"<<n++;
	cout<<"\n"<<n--;
}

/*OUTPUT

18

19
18
18
19

*/
```

// TO INVOKE A FUNCTION FOR PRINTING PYRAMIDS OF DIGITS RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void pyramid()
{
        static int n=0;
        int p, m ,q;
        n++;
        for(p=1;p<=n;p++)
        {
                for(q=0;q<=n-p;q++)
                        cout<<' ';
                m=p;
                for(q=1;q<=p;q++)
                        cout<<m++<<' ';
                cout<<endl;
        }
        cout<<endl;
}
void main()
{
        int i;
        clrscr();
        for(i=0;i<5;i++)
                pyramid();
}

/*OUTPUT

 1

  1
 2 3

   1
  2 3
 3 4 5

    1
   2 3
  3 4 5
 4 5 6 7

     1
    2 3
   3 4 5
  4 5 6 7
 5 6 7 8 9
*/
```

```
// TO INVOKE A FUNCTION TO FIND THE LEAST COMMON DIVISOR OF TWO INTEGERS
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
int lcd(int a,int b)
{
        int i,j=2,flag=1;
        if(a>b)
                i=a;
        else
                i=b;
        while((j<=i)&&(flag))
        {
                if((a%j==0)&&(b%j==0))
                        flag=0;
                else
                        j++;
        }
        if(flag)
                j=1;
        return j;
}
void main()
{
        clrscr();
        int x, y, z;
        cout<<"\nENTER 2 NUMBERS WHOSE LCD IS TO BE FOUND : ";
        cin>>x>>y;
        z=lcd(x,y);
        cout<<"\nTHE LCD OF GIVEN 2 NUMBERS IS : "<<z<<endl;
getch();
}

/*OUTPUT

ENTER 2 NUMBERS WHOSE LCD IS TO BE FOUND : 185
148

THE LCD OF GIVEN 2 NUMBERS IS : 37

*/
```

//TO FIND THE LCM AND HCF OF GIVEN 3 NUMBERS
RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void lcm(int, int, int);
void hcf(int, int, int);

void main()
{
        char choice;
        do
        {       int a,b,c;
                clrscr();
                cin>>a>>b>>c;
                lcm(a,b,c);
                hcf(a,b,c);
                cout<<"\n\nDO YOU WANT TO REPEAT THE PROGRAM?(Y/N): ";
                cin>>choice;
        }while(choice=='Y'||choice=='y');
}

void lcm(int x,int y, int z)
{
        long max,lcom, count, flag=0;
        if(x>=y&&x>=z)
        max=x;
        else if(y>=x&&y>=z)
        max=y;
        else if(z>=x&&z>=y)
        max=z;
        for(count=1;flag==0;count++)
        {
                lcom=max*count;
                if(lcom%x==0 && lcom%y==0 && lcom%z==0)
                {
                        flag=1;
                        cout<<"\nTHE LCM OF "<<x<<","<<y<<","<<z<<" IS "<<lcom;
                }
        }
}

void hcf(int p, int q, int r)
{
         int gcf=1,flag=0, count;
         for(count=1; flag==0;count++)
         {
                if(p%count==0&&q%count==0&&r%count==0)
                        gcf=count;
                if(count>p&&count>q&&count>r)
                {
                  flag=1;
                  cout<<"\nTHE GCF OF "<<p<<","<<q<<","<<r<<" IS "<<gcf;
                }
         }
}
```

```
//TO SUM N NATURAL NUMBERS STARTING FROM A GIVEN NUMBER USING FUNCTION
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
int summat(int first,int count);
void main()
{
        clrscr();
        unsigned long a, b, sum;
        cout<<"\nENTER THE FIRST TERM : ";
        cin>>a;
        cout<<"\nHOW MANY NUMBERS ARE TO BE ADDED : ";
        cin>>b;
        sum=summat(a,b);
        cout<<"THE SUM IS : "<<sum<<"\n";
getch();
}
int summat(int first,int count)
{
        unsigned long i, s=0,j=first;
        for(i=0;i<count;i++)
                s+=j++;
        return s;
}
```

```
//TO ILLUSTRATE THE CALL BY VALUE METHOD OF FUNCTION INVOKING
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
void main()
{
        clrscr();
        int change(int);
        int original=10;
        cout<<"THE ORIGINAL VALUE IS : "<<original;
        cout<<"\nRETURN VALUE OF FUNCTION CHANGE() IS : "
        <<change(original);
        cout<<"\nTHE VALUE AFTER FUNCTION CHANGE() IS OVER : "
        << original;
getch();
}
int change(int a)
{
        a=20;
        return a;
}

/*OUTPUT

THE ORIGINAL VALUE IS : 10
RETURN VALUE OF FUNCTION CHANGE() IS : 20
THE VALUE AFTER FUNCTION CHANGE() IS OVER : 10

*/
```

```
//TO SHOW THE HANDICAP OF CALL BY VALUE METHOD
```
RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
        void swap(int,int);
        int a=7, b=4;
        clrscr();
        cout<<"THE ORIGINAL VALUES ARE : ";
        cout<<"a= " <<a<<" b= "<<b<<endl;
        swap(a,b);
        cout<<"THE VALUES AFTER SWAP() ARE : ";
        cout<<"a= " <<a <<" b= "<<b<<endl;
getch();
}
void swap(int x, int y)
{
        int temp;
        temp=x;
        x=y;
        y=temp;
        cout<<"SWAPPED VALUES ARE : ";
        cout<<"a= " << x <<" b= "<<y<<endl;
}

/*OUTPUT

THE ORIGINAL VALUES ARE : a= 7 b= 4
SWAPPED VALUES ARE : a= 4 b= 7
THE VALUES AFTER SWAP() ARE : a= 7 b= 4

*/
```

//A FUNCTION TO SHOW SPECIAL SERIES RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<math.h>
void factorial(int);
void series(int);
void main()
{
	clrscr();
	int num;
	cout<<"ENTER NUMBER : ";
	cin>>num;
	series(num);
	cout<<"\n\n";
	factorial(num);
	getch();
}
void factorial(int n)
{
	long float i,result=0, fact=1;
	for(i=1;i<=n;i++)
	{
		fact=fact*i;
		cout<<"+"<<i/fact<<"\t";
		result=result+(i/fact);
	}
	cout<<"\t="<<result;
}
void series(int n)
{
	long count, res=0;
	for(count=0;count<=n;count++)
	{
	  cout<<"+"<<pow(n,count)<<"\t";
	  res=res+pow(n,count);
	}
	cout<<"\t="<<res;
}

/*OUTPUT

ENTER NUMBER : 5
+1	+5	+25	+125	+625	+3125		=3906

+1	+1	+0.5	+0.166667	+0.041667		=2.708333

*/
```

```
//TO SWAP TWO VALUES USING CALL BY REFERENCE
#include<iostream.h>
#include<conio.h>
void main()
{
        void swap(int &, int &);
        int a=7, b=9;
        clrscr();
        cout<<"\nTHE ORIGINAL VALUES ARE : ";
        cout<<"a= " <<a<<" b= " <<b <<"\n";
        swap(a,b);
        cout<<"THE VALUES AFTER SWAP() ARE : ";
        cout<<"a= " <<a << " b= " <<b <<"\n";
getch();
}
void swap(int &x, int &y)
{
        int temp;
        temp=x;
        x=y;
        y=temp;
        cout<<"THE SWAPPED VALUES ARE : ";
        cout<<"a= " <<x<< " b= "<<y<<"\n";
}

/*OUTPUT

THE ORIGINAL VALUES ARE : a= 7 b= 9
THE SWAPPED VALUES ARE : a= 9 b= 7
THE VALUES AFTER SWAP() ARE : a= 9 b= 7

*/
```

RETURN TO INDEX

```
// TO CONVERT DISTANCE IN FEET OR INCHES USING A CALL BY REFERNCE METHOD
RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
#include<process.h>
void main()
{
        void convert(float &, char &, char);
        float distance;
        char choice, type='F';
        clrscr();
        cout<<"\nENTER DISTANCE IN FEET : ";
        cin>>distance;
        cout<<"\nYOU WANT THE DISTANCE IN FEETS OR INCHES ? (F/I) : ";
        cin>>choice;
        switch(choice)
        {
                case 'f':
                case 'F':       convert(distance,type,'F');
                break;
                case 'i':
                case 'I':        convert(distance, type,'I');
                break;
                default: cout<<"\nYOU ENTERED A WRONG CHOICE!!!";
                        exit(0);
        }
        cout<<"\nDISTANCE = " <<distance<<" " << type << "\n";
getch();
}
void convert(float &d, char &t, char ch)
{
        switch(ch)
        {
        case 'F': if(t=='I')
                        {
                                d=d/12;
                                t='F';
                        }
                        break;
        case 'I': if(t=='F')
                        {
                                d=d*12;
                                t='I';
                        }
                        break;
        }
}

/*OUTPUT

ENTER DISTANCE IN FEET : 25

YOU WANT THE DISTANCE IN FEETS OR INCHES ? (F/I) : i

DISTANCE = 300 I
*/
```

```
//TO SET LARGER OF THE GIVEN INTEGER TO -1 USING CALL BY REFERENCE
```
RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void setlarge(int &a,int &b)
{
	if(a>b)
	{
		cout<<"\n"<<a<<" IS LARGER AND IS SET TO -1.";
		a=-1;
		cout<<"\nTHE NEW VALUES ARE : "<<a<<"\t"<<b;
	}
	else
	{
		cout<<"\n"<<b<<" IS LARGER AND IS SET TO -1.";
		b=-1;
		cout<<"\nTHE NEW VALUES ARE : "<<a<<"\t"<<b;
	}

}

void main()
{
	int a,b;
	clrscr();
	cout<<"ENTER TWO NUMBER : "<<endl;
	cin>>a>>b;
	setlarge(a,b);
getch();
}
/*OUTPUT

ENTER TWO NUMBER :
34
45

45 IS LARGER AND IS SET TO -1.
THE NEW VALUES ARE : 34 -1

*/
```

// TO INVOKE A FUNCTION TAKING NO ARGUMENTS AND RETURNING NO VALUE
RETURN TO INDEX

```
#include<iostream.h>
#include<string.h>
#include<conio.h>
void func(void);
void main()
{
        clrscr();
        func();
getch();
}
void func(void)
{
        char name[25];
        cout<<"\nENTER YOUR NAME : ";
        cin.getline(name,25);
        int len=strlen(name);
        cout.write("HELLO ",7).write(name,len);
        return;
getch();
}
```

/* TO INVOKE A FUNCTION THAT TAKES TWO INTEGERS AND AN ARITHMETIC OPERATOR THEN DISPLAYS THE CORRESPONDING RESULT.*/

RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<process.h>
void main()
{
	clrscr();
	void calc(int,int, char);
	int a,b;
	char ch;
	cout<<"\nENTER TWO INTEGERS : "<<endl;
	cin>>a>>b;
	cout<<"\nENTER ATHE ARITHMETIC OPERATOR (+,-,*,%) : \n";
	cin>>ch;
	calc(a,b,ch);
getch();
}
void calc(int x, int y, char c)
{
	switch(c)
	{
		case '+': cout<<"\nSUM OF " <<x<<" AND "<<y<< " IS " <<(x+y);
		break;
		case '-': cout<<"\nDIFFERENCE OF " <<x<<" AND " << y;
			cout<<" IS " << (x+y);
			break;
		case '*': cout<<"\nPRODUCT OF " <<x<<" AND "<<y;
			cout<<" IS "<<(x*y);
			break;
		case '/': if(x<y)
			{
			     cout<<"\nFIRST INTEGER SHOULD BE ";
			     cout<<"GREATER THAN THE SECOND.";
			     exit(0);
			}
			cout<<"\nQUOTIENT " <<x<<" / " <<y<<" IS "<<(x/y);
			break;
		case '%': if(x<y)
			{
			     cout<<"\nFIRST INTEGER SHOULD BE ";
			     cout<<"GREATER THAN THE SECOND.";
			     exit(0);
			}
			cout<<"\nREMAINDER : "<<x<<" % " <<y<<" IS "<<(x%y);
			break;
		default : cout<<"\nWRONG OPERATOR!!!";
			break;
	}
return;
}
```

```
// TO SORT AN INTEGER ARRAY USING FUNCTION
RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void sort(int num[], int size)
{
	int swap=1, temp;
	do
	{
		swap=0;
		for(int i=0;i<size-1;i++)
		{
			if(num[i]>num[i+1])
			{
				temp=num[i];
				num[i]=num[i+1];
				num[i+1]=temp;
				swap=1;
			}
		}
	}while(swap==1);
	cout<<"\n";

}
void main()
{
	void sort(int[],int s);
	int n[100], s=10, temp, count;
	clrscr();
	cout<<"\nENTER 10 NUMBERS FOR AN ARRAY TO BE SORTED :\n";
	for(count=0;count<s;count++)
		cin>>n[count];
	temp=count;
	sort(n,count);
	for(count=0;count<temp;count++)
		cout<<n[count]<<"\t";
getch();
}

/*OUTPUT

ENTER 10 NUMBERS FOR AN ARRAY TO BE SORTED :
98
56
768
435
43
54
3245
56
45
67

43	45	54	56	56	67	98	435	768	3245

*/
```

```
//STUDENT MARKSHEET USING FUNCTIONS                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
void main()
{
        int getdata(void);
        float calcperc(int,int,int);
        void printresults(int,int,int,float,char);
        char calcgrade(float);
        int m1,m2,m3,tot;
        float perc;
        char grade;
        clrscr();
        m1=getdata();
        m2=getdata();
        m3=getdata();
        perc=calcperc(m1,m2,m3);
        grade=calcgrade(perc);
        printresults(m1,m2,m3,perc,grade);
getch();
}
int getdata(void)
{
        int marks;
        void err_msg(void);
        do
        {
                cout<<"ENTER MARKS : ";
                cin>>marks;
                if(marks<0||marks>100)
                        err_msg();
        }while(marks<0||marks>100);
return marks;
}
void err_msg(void)
{
        cout<<"MARKS ARE OUT OF 100"<<endl;
        cout<<"\nPLEASE ENTER MARKS BETWEEN 0 TO 100";
        cout<<"\nTRY AGAIN";
getch();
}
float calcperc(int s1,int s2,int s3)
{
        float per;
        per=(s1+s2+s3)/3;
        return per;
}
char calcgrade(float per)
{
        char grade;
        if(per>80)
                grade='A';
        else if(per>60)
                grade='B';
        else if (per>40)
```

```
                grade='C';
        else
                grade='D';
        return grade;
}
void printresults(int s1,int s2,int s3,float p,char g)
{
        cout<<"MARKS IN SUBJECT 1 : "<<s1;
        cout<<"\nMARKS IN SUBJECT 2 : "<<s2;
        cout<<"\nMARKS IN SUBJECT 3 : "<<s3;
        cout<<"\nPERCENTAGE SCORE : " << p;
        cout<<"\nGRADE SECURED : "<<g;
}
/*OUTPUT

ENTER MARKS : 98
ENTER MARKS : 89
ENTER MARKS : 78
MARKS IN SUBJECT 1 : 98
MARKS IN SUBJECT 2 : 89
MARKS IN SUBJECT 3 : 78
PERCENTAGE SCORE : 88
GRADE SECURED : A

*/
```

// PALINDROME STRING RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<string.h>
void main()
{
        char ch[10];
        int scount,ocount,read=1, len;
        clrscr();
        cout <<"ENTER A WORD : ";
        cin>>ch;
        len=strlen(ch);
        for(scount=1, ocount=len; scount<=len/2 || ocount>=len/2; scount++, ocount--)
        {
                if(ch[scount]!=ch[ocount])
                        read=0;
        }
        if(read==1)
                cout<<"YES! THE WORD IS PALINDROME.";
        else
                cout<<"NO! THE WORD IS NOT PALINDROME.";
        getch();
}
```

//FIND CHARACTER POSITION IN A STRING RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
int findpos(char s[],char c);
char string[80],ch;
int y=0;
cout<<"\nENTER MAIN STRING :\n";
cin.getline(string, 80);
cout<<"\nENTER CHARACTER TO BE SEARCH FOR : ";
cin.get(ch);
y=findpos(string,ch);
if(y==-1)
        cout<<"\nSORRY!! THE CHARACTER IS NOT IN STRING.";
getch();
}
int findpos(char s[], char c)
{
        int flag=-1;
        for(int i=0; s[i]!='\0';i++)
        {
                if(s[i]==c)
                {
                flag=0;
                cout<<"\nTHE CHARACTER IN THE STRING IS AT POSITION : "<<i+1;
                }
        }
return (flag);
}

/*OUTPUT


ENTER MAIN STRING :
RACHIT IS WATCHING A FREE ZEBRA IN THE PARK

ENTER CHARACTER TO BE SEARCH FOR : Z

THE CHARACTER IN THE STRING IS AT POSITION : 27

*/
```

```
// PROGRAM TO FIND WHETHER TWO STRINGS CONTAIN EQUAL NUMBER OF CHARACTERS.
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
#include<string.h>
void main()
{
        char str1[50], str2[50];
        clrscr();
        cout<<"ENTER THE FIRST STRING : ";
        cin.getline(str1, 49);
        cout<<"ENTER THE SECOND STRING : ";
        cin.getline(str2, 49);
        if(strlen(str1)==strlen(str2))
        {
        cout<<"\nBOTH STRINGS CONTAIN EQUAL NUMBER OF CHARACTERS.";
        }
        else
        {
        cout<<"\nBOTH STRINGS CONTAIN DIFFERENT NUMBER OF CHARACTERS.";
        }
        getch();
}

/*OUTPUT

ENTER THE FIRST STRING : GOOD EVENING
ENTER THE SECOND STRING : GOOD MORNING

BOTH STRINGS CONTAIN EQUAL NUMBER OF CHARACTERS.


ENTER THE FIRST STRING : HELLO! CAN I SPEAK TO RAM
ENTER THE SECOND STRING : OF COURSE! HERE HE IS..

BOTH STRINGS CONTAIN DIFFERENT NUMBER OF CHARACTERS.

*/
```

```
// CHECK WHETHER A CHARACTER IS ALPHANUMETRIC OR NOT
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>
#include<ctype.h>

void main()
{
        clrscr();
        char ch;
        int a;
        cout<<"ENTER A CHARACTER : ";
        cin>>ch;
        a=ch;
        if(isalnum(a))
        {
                cout<<"\nIT IS AN ALPHANUMERIC ";
        if(isdigit(a))
                cout<<"AND DIGIT CHARACTER. ";
        else
                cout<<"AND ALPHABETIC CHARACTER.";
        }
        else
                cout<<"\nIT IS SOME OTHER NON-ALPHANUMERIC CHARACTER.";
getch();
}

/*OUTPUT

ENTER A CHARACTER : R

IT IS AN ALPHANUMERIC AND ALPHABETIC CHARACTER.

ENTER A CHARACTER : 7

IT IS AN ALPHANUMERIC AND DIGIT CHARACTER.

ENTER A CHARACTER : %

IT IS SOME OTHER NON-ALPHANUMERIC CHARACTER.

*/
```

// CHANGE THE CASE OF A CHARACTER RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<stdio.h>
#include<ctype.h>
void main()
{
        clrscr();
        char ch;
        cout<<"\nENTER A CHARACTER : ";
        cin>>ch;
        if(ch=='\n')
        {
                ch=getchar();
        }
        if(isalpha(ch))
        {
        if(islower(ch))
        {
        cout<<"\nYOU INPUT A LOWERCASE ALPHABET.";
        ch=ch-32;
        cout<<"\n\nTHE UPPERCASE ALPHABET IS : "<<ch;
        }
        else if(isupper(ch))
        {
        cout<<"\nYOU INPUT AN UPPERCASE LETTER.";
        ch=ch+32;
        cout<<"\n\nTHE LOWERCASE ALPHABET IS : "<<ch;
        }
        }
        else
        cout<<"\nYOU INPUT A NON-ALPHABETICAL CHARACTER.";
getch();
}

/*OUTPUT


ENTER A CHARACTER : R

YOU INPUT AN UPPERCASE LETTER.

THE LOWERCASE ALPHABET IS : r



ENTER A CHARACTER : r

YOU INPUT A LOWERCASE ALPHABET.

THE UPPERCASE ALPHABET IS : R

*/
```

```
// COPY SMALLER STRING INTO THE BIGGER STRING
```
RETURN TO INDEX
```
#include<iostream.h>
#include<conio.h>
#include<string.h>
void main()
{
	clrscr();
	char str1[50], str2[50];
	int len1, len2;
	cout<<"\nENTER THE FIRST STRING: \n";
	cin.getline(str1, 50);
	cout<<"\nENTER THE SECOND STRING :\n";
	cin.getline(str2, 50);
	if(strlen(str1)>strlen(str2))
	{
		strcpy(str1, str2);
		cout<<"\nSECOND STRING IS COPIED INTO THE FIRST STRING. \n";
		cout<<str1;
	}
	else if(strlen(str2)>strlen(str1))
	{
		strcpy(str2,str1);
		cout<<"\nFIRST STRING IS COPIED INTO THE SECOND STRING.\n";
		cout<<str2;
	}
	else if(strlen(str1)==strlen(str2))
	{
		cout<<"\nSTRINGS ARE OF EQUAL SIZE. \n";
		cout<<"\nSTRING1 IS : ";
		cout<<str1;
		cout<<"\nSTRING2 IS : ";
		cout<<str2;
	}
getch();
}

/*OUTPUT

ENTER THE FIRST STRING:
RACHIT IS GOING TO SCHOOL

ENTER THE SECOND STRING :
KHUSHAL IS GOING FOR MATCH

FIRST STRING IS COPIED INTO THE SECOND STRING.
RACHIT IS GOING TO SCHOOL

*/
```

// APPEND THE FIRST STRING TO THE SECOND RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<string.h>
void main()
{
        clrscr();
        char str1[25], str2[50];
        cout<<"\nENTER FIRST STRING : ";
        cin.getline(str1, 25);
        cout<<"\nENTER THE SECOND STRING : ";
        cin.getline(str2, 25);
        strcat(str2, str1);
        cout<<"\n"<<str2;
        getch();
}
```

/*OUTPUT

ENTER FIRST STRING : MORNING

ENTER THE SECOND STRING : GOOD

GOOD MORNING

ENTER FIRST STRING : AGRAWAL

ENTER THE SECOND STRING : ABHISHEK

ABHISHEK AGRAWAL

```
//TO JUSTIFY A GIVEN STRING                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
char str1[80],str2[80];
int count1=0,count2=0,count3=0,count4=0,count5=0, count=0;
void white_spaces(char a[]);
void justify(int);
void main()
{
        clrscr();
        cout<<"ENTER A STRING : ";
        cin.getline(str1, 80);
        white_spaces(str1);
        justify(count4);
        cout<<"\nTHE JUSTIFIED STATEMENT IS :\n";
        for(count=0;count<80;count++)
                cout<<str2[count];
getch();
}
void white_spaces(char a[])
{
        for(count=0;count<80;count++)
        {
                if(a[count]==' ')
                        count1++;
                else
                        count2++;
                if(a[count]=='\0')
                  {
                        count3=80-count2-count1;
                        break;
                  }
        }
        count4=count3/count1;
}
void justify(int b)
{
        for(count=0, count1=0;count1<80;count++, count1++)
        {
                str2[count1]=str1[count];
                if(str1[count]==' ')
                {
                        for(count5=0;count5<b;count5++)
                        {
                                count1++;
                                str2[count1]=' ';
                        }
                }
        }
}
```

```
*/// EMPLOYEE DATABASE USING ARRAYS                                RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
#include<string.h>
void main()
{
        int eno[25],count,emp,swap=1; char grade[25];
        char name[25][25],tempn[25][25]; long float comm[25],temp;
        clrscr();
        cout<<"ENTER THE NUMBER OF EMPLOYEES FOR DATABASE : ";
        cin>>emp;
        for(count=0;count<emp;count++)
        {
                cout<<"\n\nENTER EMPLOYEE NAME : ";
                cin>>name[count];
                cout<<"\nENTER EMPLOYEE NUMBER : ";
                cin>>eno[count];
                cout<<"\nENTER EMPLOYEE COMMISSION : ";
                cin>> comm[count];
                if(comm[count]>60000)
                        grade[count]='A';
                else if(comm[count]>40000)
                        grade[count]='B';
                else if(comm[count]>20000)
                        grade[count]='C';
                else
                        grade[count]='D';
        }
        clrscr();
        do
        {
                swap=0;
                for(count=0;count<(emp-1);count++)
                {
                        if(eno[count]>eno[count+1])
                        {
                                temp=eno[count];
                                eno[count]=eno[count+1];
                                eno[count+1]=temp;
                                strcpy(tempn[count],name[count]);
                                strcpy(name[count],name[count+1]);
                                strcpy(name[count+1],tempn[count]);
                                temp=comm[count];
                                comm[count]=comm[count+1];
                                comm[count+1]=temp;
                                swap=1;
                                temp=grade[count];
                                grade[count]=grade[count+1];
                                grade[count+1]=temp;
                        }
                }
        }while(swap==1);
        cout<< "EMPLOYEE DETAILS: "<<endl<<endl;
        cout<< "\nNAME\t\tNUMBER\t\tGRADE\t\tCOMMISSION"<<endl<<endl;
        for(count=0;count<emp;count++)
```

```
        {
                cout<<name[count]<<"\t\t"<<eno[count]<<"\t\t";
                cout<<grade[count]<<"\t\t"<<comm[count]<<endl<<endl;
        }
getch();
}

/*OUTPUT

ENTER THE NUMBER OF EMPLOYEES FOR DATABASE : 5


ENTER EMPLOYEE NAME : RAM

ENTER EMPLOYEE NUMBER : 7

ENTER EMPLOYEE COMMISSION : 636363


ENTER EMPLOYEE NAME : PRASAD

ENTER EMPLOYEE NUMBER : 10

ENTER EMPLOYEE COMMISSION : 45983


ENTER EMPLOYEE NAME : VINAY

ENTER EMPLOYEE NUMBER : 35

ENTER EMPLOYEE COMMISSION : 37945


ENTER EMPLOYEE NAME : JAY

ENTER EMPLOYEE NUMBER : 3

ENTER EMPLOYEE COMMISSION : 27000


ENTER EMPLOYEE NAME : BARNIK

ENTER EMPLOYEE NUMBER : 12

ENTER EMPLOYEE COMMISSION : 19875


EMPLOYEE DETAILS:


NAME          NUMBER        GRADE         COMMISSION

JAY           3             C             27000

RAM           7             A             636363
```

PRASAD 10 B 45983

BARNIK 12 D 19875

VINAY 35 C 37945

*/

```
//A HOTEL FOOD BILLING PROGRAM.                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
#include<string.h>
//VARIABLES USED
int choice, bill=0, r1, r2, r3, count=0, prod=0;
char rachit[50]; char items[50][50];
//FUNCTIONS DECLARATIONS
void copyright();
void border();
void entry();
void hello();
void menu();
void bil(int);
//MAIN PROGRAM
void main()
{
        entry();
        do
        {
        menu();
        gotoxy(7,43);
        cout<<"ENTER YOUR CHOICE : ";
        cin>>choice;
        while(choice<0||choice>31)
        {
        gotoxy(7,45);
        cout<<"INVALID ENTRY. PLEASE RE-ENTER YOUR CHOICE : ";
        cin>>choice;
        }
        switch(choice)
        {
        case 1:bill+=25; hello(); break;
        case 2:bill+=45; hello(); break;
        case 3:bill+=30; hello(); break;
        case 4:bill+=35; hello(); break;
        case 5:bill+=40; hello(); break;
        case 6:bill+=45; hello(); break;
        case 7:bill+=25; hello(); break;
        case 8:bill+=35; hello(); break;
        case 9:bill+=40; hello(); break;
        case 10:bill+=10; hello(); break;
        case 11:bill+=45; hello(); break;
        case 12:bill+=45; hello(); break;
        case 13:bill+=10; hello(); break;
        case 14:bill+=20; hello(); break;
        case 15:bill+=25; hello(); break;
        case 16:bill+=15; hello(); break;
        case 17:bill+=20; hello(); break;
        case 18:bill+=20; hello(); break;
        case 19:bill+=20; hello(); break;
        case 20:bill+=25; hello(); break;
        case 21:bill+=40; hello(); break;
        case 22:bill+=20; hello(); break;
        case 23:bill+=35; hello(); break;
```

```
        case 24:bill+=40; hello(); break;
        case 25:bill+=35; hello(); break;
        case 26:bill+=35; hello(); break;
        case 27:bill+=15; hello(); break;
        case 28:bill+=40; hello(); break;
        case 29:bill+=45; hello(); break;
        case 30:bill+=45; hello(); break;
        default: bill+=0;
        }
        prod++;
        }while(choice>0 && choice<31);
        bil(prod);
        copyright();
}
void border()
{
            for(r3=3; r3<=79; r3++)
            {
                    gotoxy(r3,1);
                    cout<<"*";
                    gotoxy(r3,50);
                    cout<<"*";
            }

            for(r1=0, r2=1; r1<50; r1++, r2++)
            {
                    gotoxy(3,r2);
                    cout<<"*";
                    gotoxy(79,r2);
                    cout<<"*";
            }
}
void copyright()
{
            getch();
            clrscr();
            border();
            gotoxy(22,18);
            cout << "PROGRAM EXCLUSIVELY CREATED BY :";
            gotoxy(30,20);
            cout << "RACHIT AGRAWAL";
            gotoxy(20,22);
            cout << "EMAIL: rachit_agrawal9@gmail.com";
            gotoxy(15,24);
            cout << "PROGRAM TO BE DISTRIBUTED FREELY AS SHAREWARE.";
            gotoxy(25,26);
            cout << "PROGRAM CODE NOT TO BE MODIFIED.";
            gotoxy(10,28);
            cout << "MODIFICATIONS WITHOUT HIS PRIOR PERMISSION INVITE LEGAL ACT.";
            gotoxy(15,30);
            cout << "SUGGESTIONS AND COMMENTS WILL BE APRRECIATED AT
rachit_agrawal9@rediffmail.com";
            gotoxy(25,32);
            cout << "THANK YOU "<<rachit<<" FOR USING THE PROGRAM. ";
            gotoxy(27,34);
            cout << "HAVE A PROGRESSIVE DAY! ";
```

```
            getch();
}
void entry()
{
        clrscr();
        cout<<"\nWELCOME!!!WELCOME!!!\n\nTO THE MOST PRESTIGIOUS RESTAURANT.\
        \n'THE AFFORDABLES''!!!";
        for(r3=7; r3<=73; r3++)
        {
                gotoxy(r3,16);
                cout<<"*";
                gotoxy(r3,22);
                cout<<"*";
        }

        for(r1=0, r2=17; r1<=4; r1++, r2++)
        {
                gotoxy(7,r2);
                cout<<"*";
                gotoxy(73,r2);
                cout<<"*";
        }
        gotoxy(9,19);
        cout << "PLEASE ENTER YOUR NAME : ";
        cin.getline ( rachit, 24);
}
void hello()
{
        switch(choice)
        {
                case 1: strcpy(items[count],"BHEL PURI\t\t25");break;
                case 2: strcpy(items[count],"BHAJI PAV\t\t45");break;
                case 3: strcpy(items[count],"CASSATA\t\t30");break;
                case 4:         strcpy(items[count],"COLD COFFEE\t\t35");break;
                case 5: strcpy(items[count],"CHOCO DRIP SHAKE\t40");break;
                case 6: strcpy(items[count],"CHIKOO SHAKE\t\t45");break;
                case 7: strcpy(items[count],"DOUGHNUTS\t\t25");break;
                case 8: strcpy(items[count],"DELHI CHAT\t\t35");break;
                case 9: strcpy(items[count],"FALUDA KULFI\t\t40");break;
                case 10:strcpy(items[count],"GULAB JAMUN\t10");break;
                case 11:strcpy(items[count],"HAKKA NOODLES\t45");break;
                case 12:strcpy(items[count],"HAM BURGER\t\t45");break;
                case 13:strcpy(items[count],"IMARTI\t\t10");break;
                case 14:strcpy(items[count],"INDIAN SHARBAT\t20");break;
                case 15:strcpy(items[count],"JAPANESE JEMS\t25");break;
                case 16:strcpy(items[count],"KACHORI\t\t15");break;
                case 17:strcpy(items[count],"KINLEYS SODA\t20");break;
                case 18:strcpy(items[count],"MASALA PARATHA\t20");break;
                case 19:strcpy(items[count],"MASALA PAPAD\t20");break;
                case 20:strcpy(items[count],"MANGO SHAKE\t25");break;
                case 21:strcpy(items[count],"NAVRATNA KORMA\t40");break;
                case 22:strcpy(items[count],"PANI PURI\t\t20");break;
                case 23:strcpy(items[count],"PASTA\t\t35");break;
                case 24:strcpy(items[count],"PIZZA\t\t40");break;
                case 25:strcpy(items[count],"RASMALAI\t\t35");break;
                case 26:strcpy(items[count],"RAJBHOG ICE-CREAM\t35");break;
```

```
                case 27:strcpy(items[count],"SAMOSA\t\t15");break;
                case 28:strcpy(items[count],"SWEET CORN SOUP\t40");break;
                case 29:strcpy(items[count],"SPEGGATI\t\t45");break;
                case 30:strcpy(items[count],"TOMATO SOUP\t45");break;
        }
        count++;
}
void menu()
{
        clrscr();       border();
        gotoxy(7,4);
        cout << "WELCOME " << rachit;
        gotoxy(7,6);
        cout<<"DELICACIES\tPRICE";
        gotoxy(7,8);
        cout<<"1 BHEL PURI\t\t25";
        gotoxy(7,9);
        cout<<"2 BHAJI PAV\t\t45";
        gotoxy(7,10);
        cout<<"3 CASSATA\t\t30";
        gotoxy(7,11);
        cout<<"4 COLD COFFEE\t\t35";
        gotoxy(7,12);
        cout<<"5 CHOCO DRIP SHAKE\t40";
        gotoxy(7,13);
        cout<<"6 CHIKOO SHAKE\t45";
        gotoxy(7,14);
        cout<<"7 DOUGHNUTS\t\t25";
        gotoxy(7,15);
        cout<<"8 DELHI CHAT\t\t35";
        gotoxy(7,16);
        cout<<"9 FALUDA KULFI\t40";
        gotoxy(7,17);
        cout<<"10 GULAB JAMUN\t10";
        gotoxy(7,18);
        cout<<"11 HAKKA NOODLES\t45";
        gotoxy(7,19);
        cout<<"12 HAM BURGER\t\t45";
        gotoxy(7,20);
        cout<<"13 IMARTI\t\t10";
        gotoxy(7,21);
        cout<<"14 INDIAN SHARBAT\t20";
        gotoxy(7,22);
        cout<<"15 JAPANESE JEMS\t25";
        gotoxy(7,23);
        cout<<"16 KACHORI\t\t15";
        gotoxy(7,24);
        cout<<"17 KINLEYS SODA\t20";
        gotoxy(7,25);
        cout<<"18 MASALA PARATHA\t20";
        gotoxy(7,26);
        cout<<"19 MASALA PAPAD\t20";
        gotoxy(7,27);
        cout<<"20 MANGO SHAKE\t25";
        gotoxy(7,28);
        cout<<"21 NAVRATNA KORMA\t40";
```

```
        gotoxy(7,29);
        cout<<"22 PANI PURI\t\t20";
        gotoxy(7,30);
        cout<<"23 PASTA\t\t35";
        gotoxy(7,31);
        cout<<"24 PIZZA\t\t40";
        gotoxy(7,32);
        cout<<"25 RASMALAI\t\t35";
        gotoxy(7,33);
        cout<<"26 RAJBHOG ICE-CREAM\t35";
        gotoxy(7,34);
        cout<<"27 SAMOSA\t\t15";
        gotoxy(7,35);
        cout<<"28 SWEET CORN SOUP\t40";
        gotoxy(7,36);
        cout<<"29 SPEGGATI\t\t45";
        gotoxy(7,37);
        cout<<"30 TOMATO SOUP\t45";
        gotoxy(7,38);
        cout<<"31 FINAL BILL";
        gotoxy(7,40);
        cout<<"ENTER THE FOOD ITEM ORDERED FROM THE ABOVE MENU.";
        gotoxy(7,41);
        cout<<"ENTER 31 FOR THE FINAL BILL OF THE CUSTOMER.";
}
void bil(int prod)
{
        int temp;       clrscr();
        for(temp=0;temp<prod;temp++)
                cout<<items[temp]<<endl;
        cout<<"DEAR "<<rachit<<"!!\n YOUR FINAL BILL IS : "<<bill <<" RUPEES";
        cout<<"\nTHANKS FOR COMING. PLEASE VISIT AGAIN SOON.";
}
```

```
//DECIMAL TO BINARY BY RACHIT AGRAWAL
#include<iostream.h>
#include<conio.h>
void main()
{
	char choice;
	do
	{
		clrscr();
		int deci,temp[9];
		cout<<"\nENTER A DECIMAL NUMBER: ";
		cin>>deci;
		for (int count=0;deci>=1;count++)
		{
			temp[count]=deci%2;
			deci=deci/2;
		}
		for(count--;count>=0;count--)
			cout<<temp[count];
		cout<<"\nWISH TO CONTINUE?(Y/N): ";
		choice=getche();
	}while(choice=='y'||choice=='Y');
}
```

RETURN TO INDEX

//DECIMAL TO OCTAL BY RACHIT AGRAWAL RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
void main()
{
	char choice;
	do
	{
		clrscr();
		int deci,temp[9];
		cout<<"\nENTER A DECIMAL NUMBER: ";
		cin>>deci;
		for (int count=0;deci>=1;count++)
		{
			temp[count]=deci%8;
			deci=deci/8;
		}
		for(count--;count>=0;count--)
			cout<<temp[count];
		cout<<"\nWISH TO CONTINUE?(Y/N): ";
		choice=getche();
	}while(choice=='y'||choice=='Y');
}
```

RETURN TO INDEX

```
//DECIMAL TO HEXADECIMAL BY RACHIT AGRAWAL
#include<iostream.h>
#include<conio.h>
void main()
{
	char choice;
	do
	{
		clrscr();
		long deci,temp[9];
		char result[9]={0};
		cout<<"\nENTER A DECIMAL NUMBER: ";
		cin>>deci;
		for (int count=0;deci>=1;count++)
		{
			temp[count]=deci%16;
			deci=deci/16;
			if(temp[count]>9)
			{
				switch(temp[count])
				{
					case 10:result[count]='A';
						break;
					case 11:result[count]='B';
						break;
					case 12:result[count]='C';
						break;
					case 13:result[count]='D';
						break;
					case 14:result[count]='E';
						break;
					case 15:result[count]='F';
						break;
				}
			}
			else
			{
				result[count]=temp[count]+48;
			}
		}
		cout<<"\n";
		for(count=count-1; count>=0;count--)
			cout<<result[count];
		cout<<"\nWISH TO CONTINUE?(Y/N): ";
		choice=getch();
	}while(choice=='y'||choice=='Y');
}
```

```
//BINARY TO DECIMAL                                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
#include<math.h>
void main()
{
        clrscr();
        int bin, digit, a=0, deci=0;
        cout<<"\nENTER A BINARY NUMBER : ";
        cin>>bin;
        for(int count=0;bin>=1;count++)
        {
                digit=bin%10;
                while(digit>1)
                {
                        cout<<"\nOOPS!!! ERROR. RE-ENTER : ";
                        cin>>bin;
                        digit=bin%10;
                }
                a=digit*pow(2,count);
                deci+=a;
                bin/=10;
        }
        cout<<"\nTHE DECIMAL NUMBER IS : "<<deci;
        getch();
}
```

//BINARY TO OCTAL RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<math.h>
void main()
{
	clrscr();
	int bin, digit, a=0, deci=0, octa[9];;
	cout<<"\nENTER A BINARY NUMBER : ";
	cin>>bin;
	for(int count=0;bin>=1;count++)
	{
		digit=bin%10;
		while(digit>1)
		{
			cout<<"\nOOPS!!! ERROR. RE-ENTER : ";
			cin>>bin;
			digit=bin%10;
		}
		a=digit*pow(2,count);
		deci+=a;
		bin/=10;
	}

	for (count=0;deci>=1;count++)
	{
		octa[count]=deci%8;
		deci=deci/8;
	}
	for(count--;count>=0;count--)
		cout<<octa[count];
getch();
}
```

```
//BINARY TO HEXADECIMAL                                                    RETURN TO INDEX
#include<iostream.h>
#include<conio.h>
#include<math.h>
void main()
{
clrscr();
int bin, digit, a=0, deci=0,long temp[9]; char result[9];
cout<<"\nENTER A BINARY NUMBER : ";
cin>>bin;
for(int count=0;bin>=1;count++)
{
        digit=bin%10;
        while(digit>1)
        {
                cout<<"\nOOPS!!! ERROR. RE-ENTER : ";
                cin>>bin;
                digit=bin%10;
        }
        a=digit*pow(2,count);
        deci+=a;
        bin/=10;
}
for (count1=0;deci>=1;count1++)
{
        temp[count1]=deci%16;
        deci=deci/16;
        if(temp[count1]>9)
        {
                switch(temp[count1])
                {
                        case 10:result[count1]='A';
                                break;
                        case 11:result[count1]='B';
                                break;
                        case 12:result[count1]='C';
                                break;
                        case 13:result[count1]='D';
                                break;
                        case 14:result[count1]='E';
                                break;
                        case 15:result[count1]='F';
                                break;
                }
        }
        else
        {
                result[count1]=temp[count1]+48;
        }
}
cout<<"\n";
for(count=count-1; count>=0;count--)
        cout<<result[count];
getch();
}
```

//OCTAL TO DECIMAL RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<math.h>
void main()
{
	clrscr();
	int oct, digit, a=0, deci=0;
	cout<<"\nENTER A OCTAL NUMBER : ";
	cin>>oct;
	for(int count=0;oct>=1;count++)
	{
		digit=oct%10;
		while(digit>7)
		{
			cout<<"\nOOPS!!! ERROR. RE-ENTER : ";
			cin>>oct;
			digit=oct%10;
		}
		a=digit*pow(8,count);
		deci+=a;
		oct/=10;
	}
	cout<<"\nTHE DECIMAL NUMBER IS : "<<deci;
	getch();
}
```

//OCTAL TO BINARY RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<math.h>
void main()
{
	clrscr();
	int oct, digit, a=0, deci=0;
	cout<<"\nENTER A OCTAL NUMBER : ";
	cin>>oct;
	for(int count=0;oct>=1;count++)
	{
		digit=oct%10;
		while(digit>7)
		{
			cout<<"\nOOPS!!! ERROR. RE-ENTER : ";
			cin>>oct;
			digit=oct%10;
		}
		a=digit*pow(8,count);
		deci+=a;
		oct/=10;
	}
	int temp[9];
		for (count=0;deci>=1;count++)
		{
			temp[count]=deci%2;
			deci=deci/2;
		}
		for(count--;count>=0;count--)
			cout<<temp[count];
	getch();
}
```

//OCTAL TO HEXADECIMAL RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<math.h>
void main()
{
	clrscr();
	long oct, digit, a=0, deci=0,temp[9];;
	cout<<"\nENTER A OCTAL NUMBER : ";
	cin>>oct;
	for(int count=0;oct>=1;count++)
	{
		digit=oct%10;
		while(digit>7)
		{
			cout<<"\nOOPS!!! ERROR. RE-ENTER : ";
			cin>>oct;
			digit=oct%10;
		}
		a=digit*pow(8,count);
		deci+=a;
		oct/=10;
	}
	char result[9]={0};
	for (count=0;deci>=1;count++)
	{
		temp[count]=deci%16;
		deci=deci/16;
		if(temp[count]>9)
		{
			switch(temp[count])
			{
				case 10:result[count]='A';
					break;
				case 11:result[count]='B';
					break;
				case 12:result[count]='C';
					break;
				case 13:result[count]='D';
					break;
				case 14:result[count]='E';
					break;
				case 15:result[count]='F';
					break;
				}
		}
		else
		{
			result[count]=temp[count]+48;
		}
	 }
	 cout<<"\n";
	 for(count=count-1; count>=0;count--)
		cout<<result[count];
	getch();
```

```
}
```

//HEXADECIMAL TO DECIMAL RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>
#include<math.h>
#include<ctype.h>
#include<process.h>
void main()
{
		clrscr();
		char hex[8];
		long temp[8],sum=0;
		cin>>hex;
		for(int i=0;hex[i]!='\0';i++)
		{
			if(isdigit(hex[i]))
				temp[i]=hex[i]-48;
			else if(isalpha(hex[i]))
			{
				switch(hex[i])
				{
				case 'A':temp[i]=10;break;
				case 'B':temp[i]=11;break;
				case 'C':temp[i]=12;break;
				case 'D':temp[i]=13;break;
				case 'E':temp[i]=14;break;
				case 'F':temp[i]=15;break;
				}
			}
		}
		i--;
		for(int x=0;i>=0;i--, x++)
			sum=sum+(temp[i]*pow(16,x));
		cout<<"\n\n"<<sum;
getch();
}
```

//HEXADECIMAL TO BINARY RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>
#include<math.h>
#include<ctype.h>
#include<process.h>
void main()
{
		clrscr();
		char hex[8];
		long temp[8],sum=0;
		cin>>hex;
		for(int i=0;hex[i]!='\0';i++)
		{
			if(isdigit(hex[i]))
				temp[i]=hex[i]-48;
			else if(isalpha(hex[i]))
			{
				switch(hex[i])
				{
				case 'A':temp[i]=10;break;
				case 'B':temp[i]=11;break;
				case 'C':temp[i]=12;break;
				case 'D':temp[i]=13;break;
				case 'E':temp[i]=14;break;
				case 'F':temp[i]=15;break;
				}
			}
		}
		i--;
		for(int x=0;i>=0;i--, x++)
			sum=sum+(temp[i]*pow(16,x));
		long t[25];
		for (int count=0;sum>=1;count++)
		{
			t[count]=sum%2;
			sum=sum/2;
		}
		for(count--;count>=0;count--)
			cout<<t[count];

getch();
}
```

//HEXADECIMAL TO OCTAL RETURN TO INDEX

```
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>
#include<math.h>
#include<ctype.h>
#include<process.h>
void main()
{
		clrscr();
		char hex[8];
		long temp[8],sum=0;
		cin>>hex;
		 for(int i=0;hex[i]!='\0';i++)
		{
			if(isdigit(hex[i]))
				temp[i]=hex[i]-48;
			else if(isalpha(hex[i]))
			{
				switch(hex[i])
				{
				case 'A':temp[i]=10;break;
				case 'B':temp[i]=11;break;
				case 'C':temp[i]=12;break;
				case 'D':temp[i]=13;break;
				case 'E':temp[i]=14;break;
				case 'F':temp[i]=15;break;
				}
			}
		}
		i--;
		for(int x=0;i>=0;i--, x++)
			sum=sum+(temp[i]*pow(16,x));
		long t[25];
		for (int count=0;sum>=1;count++)
		{
			t[count]=sum%8;
			sum=sum/8;
		}
		for(count--;count>=0;count--)
			cout<<t[count];
getch();
}
```

//TO TRANSLATE NUMBER INTO WORDS RETURN TO INDEX

```
long num=0,temp=0,flag=0,flag1=0, risk=0, ge=0,g=0;
char words[200];
void unit(int);
void tns(int);
void di(int);
void hun(int);
void thous(int);
void dth(int);
void check(long);
void check1(long);
void main()
{
        clrscr();
        cout<<"\nENTER A NUMBER : ";
        cin>>num;
        ge=num;
        check(num);
        cout<<"\n\nTHE NUMBER " <<ge<<" IN WORDS IS :\n\n"<<words<<"\n\nONLY.";
        for(int i=0;words[i]!='\0';i++)
                strcpy(words," ");
getch();
}
void unit(int num)
{
        switch(num)
        {       case 0: flag1++;break;
                case 1: strcat(words,"ONE ");break;
                case 2: strcat(words,"TWO ");break;
                case 3: strcat(words,"THREE ");break;
                case 4: strcat(words,"FOUR ");break;
                case 5: strcat(words,"FIVE ");break;
                case 6: strcat(words,"SIX ");break;
                case 7: strcat(words,"SEVEN ");break;
                case 8: strcat(words,"EIGHT ");break;
                case 9: strcat(words,"NINE ");break;
        }
}
void tns(int num)
{
        num=num%10;
        switch(num)
        {
                case 0: strcat(words,"TEN ");break;
                case 1: strcat(words,"ELEVEN ");break;
                case 2: strcat(words,"TWELVE ");break;
                case 3: strcat(words,"THIRTEEN ");break;
                case 4: strcat(words,"FOURTEEN ");break;
                case 5: strcat(words,"FIFTEEN ");break;
                case 6: strcat(words,"SIXTEEN ");break;
                case 7: strcat(words,"SEVENTEEN ");break;
                case 8: strcat(words,"EIGHTEEN ");break;
                case 9: strcat(words,"NINETEEN ");break;
        }
```

```
}
void di(int num)
{
	flag=0;
	switch(num)
	{
		case 0: break;
		case 1: flag++;break;
		case 2: strcat(words,"TWENTY ");break;
		case 3: strcat(words,"THIRTY ");break;
		case 4: strcat(words,"FOURTY ");break;
		case 5: strcat(words,"FIFTY ");break;
		case 6: strcat(words,"SIXTY ");break;
		case 7: strcat(words,"SEVENTY ");break;
		case 8: strcat(words,"EIGHTY ");break;
		case 9: strcat(words,"NINETY ");break;
	}
}
void hun(int num)
{
	temp=num/100;
	unit(temp);
	if(flag1==0)
		strcat(words,"HUNDRED ");
	temp=num/10;
	temp=temp%10;
	di(temp);
	temp=num%10;
	if(flag==0)
		unit(temp);
	else
		tns(temp);
}
void thous(int num)
{
	temp=num/1000;
	unit(temp);
	strcat(words,"THOUSAND ");
	num=num%1000;
	hun(num);
}
void check1(long risk)
{
		if(risk>9&risk<20)
			tns(risk);
		else if(risk<100)
		{
			temp=risk/10;
			di(temp);
			temp=risk%10;
			unit(temp);
		}
}
void check(long num)
{
r:	if(num==0)
```

```
	{
		strcat(words,"ZERO");
		getch();
	}
	if(num>9&num<20)
		tns(num);
	else if(num<100)
	{
		temp=num/10;
		di(temp);
		temp=num%10;
		unit(temp);
	}
	else if(num<1000)
		hun(num);
	else if(num<10000)
		thous(num);
	else if(num<100000)
	{
		risk=num/1000;
		check1(risk);
		strcat(words,"THOUSAND ");
		num=num%1000;
		goto r;
	}
	else if(num<10000000)
	{
		risk=num/100000;
		check1(risk);
		strcat(words,"LAKHS ");
		num=num%100000;
		goto r;
	}
	else if(num<1000000000)
	{
		risk=num/10000000;
		check1(risk);
		strcat(words,"CRORES ");
		num=num%10000000;
		goto r;
	}
}
```

```
// TO DISPLAY THE CALENDAR OF A MONTH                                    RETURN TO INDEX
char day[10],choice1;
int month1=0;
int pos=0,i=0,x=1;
void m1();
void m2();
void m3();
void m4();
void m5();
void m6();
void fcheck(int);
void pcheck();
void main()
{
        //entry();
        clrscr();
        cout<<"\nENTER THE MONTH NUMBER : ";
        cin>>month1;
        cout<<"\nENTER FIRST DAY OF THE MONTH IN WORDS : ";
        cin>>day;
        if(strcmp(day,"sunday")==0||strcmp(day,"SUNDAY")==0)
                pos=1;
        else if(strcmp(day,"monday")==0||strcmp(day,"MONDAY")==0)
                pos=2;
        else if(strcmp(day,"tuesday")==0||strcmp(day,"TUESDAY")==0)
                pos=3;
        else if(strcmp(day,"wednesday")==0||strcmp(day,"WEDNESDAY")==0)
                pos=4;
        else if(strcmp(day,"thursday")==0||strcmp(day,"THURSDAY")==0)
                pos=5;
        else if(strcmp(day,"friday")==0||strcmp(day,"FRIDAY")==0)
                pos=6;
        else if(strcmp(day,"saturday")==0||strcmp(day,"SATURDAY")==0)
                pos=7;
        cout<<"\n\nSUN\tMON\tTUES\tWED\tTHURS\tFRI\tSAT\n";
check:
        fcheck(pos);
        if
(month1==1||month1==3||month1==5||month1==7||month1==8||month1==10||month1==12)
                m1();
        else if(month1==4||month1==6||month1==9||month1==11)
                m2();
        else if(month1==2)
                m3();

cout<<"\n\n\nPRESS N FOR THE NEXT MONTH AND P FOR THE PREVIOUS MONTH.";
cout<<"\nPRESS E EXIT\n\nYOUR CHOICE : ";
cin>>choice1;
if(choice1=='n'||choice1=='N')
{
month1++;
if(month1>12)
month1-=12;
pos=i%7;
goto check;
```

```
}
else if(choice1=='p'||choice1=='P')
{
month1--;
if(month1<1)
month1+=12;
pcheck();
goto check;
}
else
cout<<"\n\nTHANX FOR USING THE PROGRAM. PRESS ANY KEY TO EXIT";
getch();
}
void pcheck()
{
	if
(month1==1||month1==3||month1==5||month1==7||month1==8||month1==10||month1==12)
		m4();
	else if(month1==4||month1==6||month1==9||month1==11)
		m5();
	else if(month1==2)
		m6();
	pos=i;
}

void fcheck(int t)
{
	if(t==2)
		cout<<"\t";
	else if(t==3)
		cout<<"\t"<<"\t";
	else if(t==4)
		cout<<"\t"<<"\t"<<"\t";
	else if(t==5)
		cout<<"\t"<<"\t"<<"\t"<<"\t";
	else if(t==6)
		cout<<"\t"<<"\t"<<"\t"<<"\t"<<"\t";
	else if(t==7)
		cout<<"\t"<<"\t"<<"\t"<<"\t"<<"\t"<<"\t";
}
void m1()//m1 for type of months having 31 days
{
int count;
for(i=pos, count=1;count<=31;i++, count++)
{
	cout<<count<<"\t";
	if(i%7==0)
		cout<<"\n";
}
}
void m2()//m2 for type of months having 30 days
{
int count;
for(i=pos, count=1;count<=30;i++, count++)
{
	cout<<count<<"\t";
```

```
        if(i%7==0)
                cout<<"\n";
}
}
void m3()//m3 for type of months having 28 days
{
int count;
for(i=pos, count=1;count<=28;i++, count++)
{
        cout<<count<<"\t";
        if(i%7==0)
                cout<<"\n";
}
}
void m4()//m4 for type of months having 31 days
{
int count;
for(i=pos, count=31;count>=1;i--, count--)
{
        if(i<=0)
                i=7;
}
}
void m5()//m2 for type of months having 30 days
{
int count;
for(i=pos, count=30;count>=1;i--, count--)
{
        if(i<=0)
                i=7;
}
}
void m6()//m3 for type of months having 28 days
{
int count;
for(i=pos, count=28;count>=1;i--, count--)
{
        if(i<=0)
              i=7;
}
}
```

// MY BEST PROGRAMS MENU RETURN TO INDEX

SOURCE CODE

```
#include<iostream.h>
#include<conio.h>
```

```
#include<stdlib.h>
#include<stdio.h>
#include<string.h>
#include<math.h>
#include<process.h>
#include<ctype.h>
#include<dos.h>
#include<bios.h>

void prog();
char rachit[25],t, ltype,start,namex[10][15],xname[25];

int choice, decision, r1, r2, choice1=0, num2, height, ncardleft,
num16[10], swap=1, temp1, i, num11[15],search11, count11,l, flag=0;

long num1=0, fact, gfact, fsum, num3, fact1, count1, num4, fact2, gfact1,
bdate,tempo, date, gdate, month, year, julian, fours,hundreds, four_hundreds,
day, digit2, sum, digit3,basicn, digit4, luck;

long float result, circumference, area, volume, radius, length, breadth,
count3, temp;


void check(long);
void pyramid(int);
void matrices(int);
void birth_date(long);
void border()
{
        clrscr();
        for(r1=3; r1<=79; r1++)
        {
                gotoxy(r1,1);
                cout<<"*";
                gotoxy(r1,50);
                cout<<"*";
        }
        for(r2=1; r2<=50; r2++)
        {
                gotoxy(3,r2);
                cout<<"*";
                gotoxy(79,r2);
                cout<<"*";
        }
}
void copyright()
{
        clrscr();
        border();
        gotoxy(22,18);
        cout << "PROGRAM EXCLUSIVELY CREATED BY :";
```

```
            gotoxy(30,20);
            cout << "RACHIT AGRAWAL ";
            gotoxy(20,22);
            cout << "EMAIL: rachit.agrawal9@gmail.com";
            gotoxy(15,24);
            cout << "PROGRAM TO BE DISTRIBUTED FREELY AS SHAREWARE.";
            gotoxy(25,26);
            cout << "PROGRAM CODE NOT TO BE MODIFIED.";
            gotoxy(10,28);
             cout << "MODIFICATIONS WITHOUT HIS PRIOR PERMISSION INVITE LEGAL
ACT.";
            gotoxy(15,30);
            cout << "SUGGESTIONS AND COMMENTS WILL BE APRRECIATED.";
            gotoxy(25,32);
            cout << "THANK YOU "<<rachit<<" FOR USING THE PROGRAM. ";
            gotoxy(27,34);
            cout << "HAVE A PROGRESSIVE DAY! ";
            getch();
}
void entry()
{
            clrscr ();
            for(r1=7; r1<=73; r1++)
            {
                        gotoxy(r1,16);
                        cout<<"*";
                        gotoxy(r1,22);
                        cout<<"*";
            }
            for( r2=17; r2<=21; r2++)
            {
                        gotoxy(7,r2);
                        cout<<"*";
                        gotoxy(73,r2);
                        cout<<"*";
            }
            gotoxy(9,19);
            cout << "PLEASE ENTER YOUR NAME : ";
            cin.getline ( rachit, 24);
}

void hline(int x,int y,int w,char ch,int c)
{
        int i;
        textcolor(c);
        for (i=0;i<w;i++)
        {
                gotoxy(x+i,y);
                cout<<ch;
        }
}
```

```
void vline(int x,int y,int h,char ch,int c)
{
	int i;
	textcolor(c);
	for (i=0;i<h;i++)
	{
		gotoxy(x,y+i);
		cout<<ch;
	}
}

void box(int x,int y,int w,int h,char ch)
{
	hline(x,y,w,ch,15);
	hline(x+1,y+h-1,w,ch,15);
	vline(x,y,h,ch,15);
	vline(x+w,y,h,ch,15);
}

void clear(int x1,int y1,int x2,int y2)
{
	int i,j;
	for (i=x1;i<=x2;i++)
	{
		for (j=y1;j<=y2;j++)
		{
			gotoxy(i,j);
			cout<<" ";
		}
	}
}

void confirm()
{
	if (bioskey(1)!=0)
		{
			bioskey(0);
			copyright();
			prog();
		}
}

void loading()
{
	int i,x;
	clear(1,1,80,50);
	box(1,1,79,49,'*');
	box(27,5,26,6,'*');
	gotoxy(29,7);
	cout<<"I N S T R U C T I O N S";
```

```
        gotoxy(29,8);
        cout<<"======================";
        box(5,20,71,9,'*');
        gotoxy(7,22);
        cout<<"YOU CAN EASILY MOVE THROUGH THE MENU.";
        gotoxy(7,24);
        cout<<"PROPER LINKS TO PROGRAMS HAVE BEEN PROVIDED.";
        gotoxy(7,26);
        cout<<"KINLDY COOPERATE WITH ON SCREEN MESSEGES SEPARATELY.";
        box(18,40,44,3,'*');
        gotoxy(18,39);
        cout<<"LOADING PLEASE WAIT:";
        int p;
        for (i=1,x=19,p=16;p<=100;i++,x+=2, p+=4)
         {
                gotoxy(56,39);
                cout<<p<<"%";
                gotoxy(x,41);
                cout<<">";
                delay(300);
                gotoxy(x,41);
                cout<<"--";
                confirm();
         }
        clrscr();
}

void main_scr()
{
        char txt[100]={" R A C H I T  P R E S E N T S "};
        int i,x,m,n;;
        box(1,1,79,49,'*');
        box(5,5,71,7,'*');
        for (m=25,n=8,i=0;txt[i]!=0;i++,m++)
        {
                gotoxy(m,n);
                cout<<txt[i];
                delay(150);
                gotoxy(m,n);
                cout<<txt[i];
                confirm();
        }
        clear(6,11,75,11);
        box(5,5,71,10,'*');
        strcpy(txt," A  N E W  A C H I E V E M E N T ");
        for (m=24,n=11,i=0;txt[i]!='\0';i++,m++)
        {
                gotoxy(m,n);
                cout<<txt[i];
                delay(150);
                gotoxy(m,n);
```

```
                cout<<txt[i];
                confirm();
        }
        int len;
        strcpy(txt," BEST PROGRAMS ");
        len=strlen(txt);
        m=45/len;
        box(18,25,44,7,'*');
        gotoxy(45,44);
        cout<<"PRESS ANY KEY TO CONTINUE...";
        gotoxy(17,20);
        cout<<" W E L C O M E !! "<<rachit;
        int r;

        for (r=19,i=0;txt[i]!='\0';i++) //for entry effect
        {
                for (x=2;x<11;x++)
                {
                        gotoxy(x,28);
                        cout<<txt[i];
                        delay(200);
                        gotoxy(x,28);
                        cout<<txt[i];
                        gotoxy(x,28);
                        cout<<" ";
                }
                gotoxy(r,28);
                cout<<txt[i];
                r+=m;
        }

        for(x=0;bioskey(1)==0;x++)        //for shimmering light effect
        {
                for (i=0,r=19;txt[i]!='\0';i++,r+=m)
                {
                        gotoxy(r,28);
                        cout<<txt[i];
                }
                delay(500);
                for (i=0,r=19;txt[i]!='\0';i++,r+=m)
                {
                        gotoxy(r,28);
                        cout<<" ";
                }
                delay(300);
        }
        confirm();
}

void main_menu()
{
```

```
        int x=7,y=4;
        border();
        gotoxy(x,y);y+=2;
          cout << " WELCOME " << rachit <<" !! SELECT ONE PROGRAM FOR
EXECUTION : "<<endl;
        gotoxy(x,y);y+=2;
        cout << " 1 " << " SIMPLE CALCULATOR " << endl;
        gotoxy(x,y);y+=2;
        cout << " 2 " << " NUMBER DETAILS " << endl;
        gotoxy(x,y);y+=2;
        cout << " 3 " << " PYRAMIDS " << endl;
        gotoxy(x,y);y+=2;
        cout << " 4 " << " MATRICES " << endl;
        gotoxy(x,y);y+=2;
        cout << " 5 " << " CARD GAME " << endl;
        gotoxy(x,y);y+=2;
        cout << " 6 " << " NUMEROLOGY " << endl;
        gotoxy(x,y);y+=2;
        cout << " 7 " << " ARRAY PROGRAMS " << endl;
        gotoxy(x,y);y+=2;
        cout << " 8 " << " MENSURATION " << endl;
        gotoxy(x,y);y+=2;
        cout << " 9 " << " NUMBER SYSTEMS " << endl;
        gotoxy(x,y);y+=2;
        cout << " 10 " << " EXIT " << endl;
}

void cal_menu()
{
        int x=24,y=16;
        gotoxy(x,y);y+=2;
        cout << " CALCULATOR " << endl;
        gotoxy(x,y);y+=2;
        cout << " 1 " << " ADD " << endl;
        gotoxy(x,y);y+=2;
        cout << " 2 " << " SUBTRACT " << endl;
        gotoxy(x,y);y+=2;
        cout << " 3 " << " MULTIPLY " << endl;
        gotoxy(x,y);y+=2;
        cout << " 4 " << " DIVIDE " << endl;
        gotoxy(x,y);y+=2;
        cout << " 5 " << " EXIT " << endl;
}

void num_details()
{
        int x=24,y=16;
        border();
        gotoxy(x,y);y+=2;
        cout << " NUMBER DETAILS " << endl;
        gotoxy(x,y);y+=2;
```

```
            cout << " 1 " << " FACTORS " << endl;
            gotoxy(x,y);y+=2;
            cout << " 2 " << " PERFECT NUMBER " << endl;
            gotoxy(x,y);y+=2;
            cout << " 3 " << " PRIME NUMBER " << endl;
            gotoxy(x,y);y+=2;
            cout << " 4 " << " ALL IN ONE " << endl;
            gotoxy(x,y);y+=2;
            cout << " 5 " << " EXIT " << endl;
}

void pyramenu()
{
b:      clrscr();
            border();
            int x=7,y=6;
            gotoxy(x,y);y+=2;
            cout << " 1 " << " PYRAMID 1 " << endl;
            gotoxy(x,y);y+=2;
            cout << " 2 " << " PYRAMID 2 " << endl;
            gotoxy(x,y);y+=2;
            cout << " 3 " << " PYRAMID 3 " << endl;
            gotoxy(x,y);y+=2;
            cout << " 4 " << " PYRAMID 4 " << endl;
            gotoxy(x,y);y+=2;
            cout << " 5 " << " PYRAMID 5 " << endl;
            gotoxy(x,y);y+=2;
            cout << " 6 " << " PYRAMID 6 " << endl;
            gotoxy(x,y);y+=2;
            cout << " 7 " << " PYRAMID 7 " << endl;
            gotoxy(x,y);y+=2;
            cout << " 8 " << " PYRAMID 8 " << endl;
            gotoxy(x,y);y+=2;
            cout << " 9 " << " PYRAMID 9 " << endl;
            gotoxy(x,y);y+=2;
            cout << " 10 " << " PYRAMID 10 " << endl;
            gotoxy(x,y);y+=2;
            cout << " 11 " << " PYRAMID 11 " << endl;
            gotoxy(x,y);y+=2;
            cout << " 12 " << " PYRAMID 12 " << endl;
            gotoxy(x,y);y+=2;
            cout << " 13 " << " EXIT " << endl<<endl;
            int p;
            gotoxy(x,y);y+=2;
            cout<<"ENTER YOUR CHOICE FROM THE ABOVE MENU: ";
            cin>>p;
            pyramid(p);
            if(p<13)
                        goto b;
            copyright();
}
```

```
void matmenu()
{
a:      clrscr();
          border();
          int x=7,y=6;
          gotoxy(x,y);y+=2;
          cout << " 1 " << " ADDITION OF TWO MATRICES  " << endl;
          gotoxy(x,y);y+=2;
          cout << " 2 " << " SUBTRACTION OF TWO MATRICES " << endl;
          gotoxy(x,y);y+=2;
          cout << " 3 " << " MULTIPLICATION OF TWO MATRICES " << endl;
          gotoxy(x,y);y+=2;
          cout << " 4 " << " ROW SUM AND COLUMN SUM OF A MATRIX " << endl;
          gotoxy(x,y);y+=2;
           cout << " 5 " << " SUM OF ELEMENTS ABOVE AND BELOW THE MAIN
DIAGONAL OF MATRIX " << endl;
          gotoxy(x,y);y+=2;
          cout << " 6 " << " TRANSPOSE A MATRIX " << endl;
          gotoxy(x,y);y+=2;
          cout << " 7 " << " EXIT " << endl;
          gotoxy(x,y);y+=2;
          cout<<"ENTER YOUR CHOICE FROM THE ABOVE MENU : ";
          int p;
          cin>>p;
          if(p>7)
                goto a;
          else if(p==7)
          {
               copyright(); prog();
          }
          else
          matrices(p);
          getch();

}

void xmenu()

{
sh:     clrscr();
          border();
          int x=7,y=4;
          gotoxy(x,y);y+=2;
          cout<<"1 CONVERT DECIMAL NUMBER TO BINARY NUMBER";
          gotoxy(x,y);y+=2;
          cout<<"2 CONVERT DECIMAL NUMBER TO OCTAL NUMBER";
          gotoxy(x,y);y+=2;
          cout<<"3 CONVERT DECIMAL NUMBER TO HEXADECIMAL NUMBER";
          gotoxy(x,y);y+=2;
          cout<<"4 CONVERT BINARY NUMBER TO DECIMAL NUMBER";
```

```
	gotoxy(x,y);y+=2;
	cout<<"5 CONVERT BINARY NUMBER TO OCTAL NUMBER";
	gotoxy(x,y);y+=2;
	cout<<"6 CONVERT BINARY NUMBER TO HEXADECIMAL NUMBER";
	gotoxy(x,y);y+=2;
	cout<<"7 CONVERT OCTAL NUMBER TO DECIMAL NUMBER";
	gotoxy(x,y);y+=2;
	cout<<"8 CONVERT OCTAL NUMBER TO BINARY NUMBER";
	gotoxy(x,y);y+=2;
	cout<<"9 CONVERT OCTAL NUMBER TO HEXADECIMAL NUMBER";
	gotoxy(x,y);y+=2;
	cout<<"10 CONVERT HEXADECIMAL NUMBER TO DECIMAL NUMBER";
	gotoxy(x,y);y+=2;
	cout<<"11 CONVERT HEXADECIMAL NUMBER TO BINARY NUMBER";
	gotoxy(x,y);y+=2;
	cout<<"12 CONVERT HEXADECIMAL NUMBER TO OCTAL NUMBER";
	gotoxy(x,y);y+=2;
	cout<<"13 EXIT ";
	gotoxy(x,y);y+=2;
	cout << "ENTER YOUR CHOICE (1 to 13) : ";
	cin >> choice;
	while(choice<1 || choice>13)
		goto sh;
	check(choice);
}

void birth_date(long bdate)
{
	if(bdate>=1010000&&bdate<=31129999)	// date is single and month double
	{
		date=bdate/1000000;
		tempo=bdate%1000000;
		month=tempo/10000;
		year=tempo%10000;
	}
	else
			cout<<"INVALID DATE";
}

void array_prog()
{
	int x=24,y=16;
	border();
	gotoxy(x,y);y+=2;
	cout << " ARRAY PROGRAMS " << endl;
	gotoxy(x,y);y+=2;
	cout << " 1 " << " SORT " << endl;
	gotoxy(x,y);y+=2;
	cout << " 2 " << " SEARCH " << endl;
	gotoxy(x,y);y+=2;
	cout << " 3 " << " REVERSE " << endl;
```

```
		gotoxy(x,y);y+=2;
		cout << " 4 " << " EXIT " << endl;
}

void mensuration()
{
		int x=7,y=4;
		border();
		gotoxy(x,y);y+=2;
		cout<<"MENSURATION";
		gotoxy(x,y);y+=2;
		cout<<"1 VOLUME OF CUBOID";
		gotoxy(x,y);y+=2;
		cout<<"2 VOLUME OF CUBE";
		gotoxy(x,y);y+=2;
		cout<<"3 VOLUME OF CYLINDER";
		gotoxy(x,y);y+=2;
		cout<<"4 VOLUME OF CONE";
		gotoxy(x,y);y+=2;
		cout<<"5 VOLUME OF SPHERE";
		gotoxy(x,y);y+=2;
		cout<<"6 AREA OF SQUARE";
		gotoxy(x,y);y+=2;
		cout<<"7 AREA OF RECTANGLE";
		gotoxy(x,y);y+=2;
		cout<<"8 AREA OF TRIANGLE";
		gotoxy(x,y);y+=2;
		cout<<"9 AREA OF CIRCLE";
		gotoxy(x,y);y+=2;
		cout<<"10 CIRCUMFERENCE OF CIRCLE";
		gotoxy(x,y);y+=2;
		cout<<"11 EXIT";
		gotoxy(x,y);y+=2;
}

void simple_calculator()
{
		do
		{
				clrscr ();
				border();
				cal_menu();
				gotoxy(24,28);
				cout << " ENTER YOUR CHOICE : ";
				cin>>choice1;
				while(choice1>5 && choice1<1)
				{
						clrscr();
						border();
						cal_menu();
						gotoxy(24,28);
```

```
                        cout<<" INVALID CHOICE !!!"<<endl;
                        gotoxy(24,30);
                        cout<<" PLEASE RE-ENTER YOUR CHOICE : ";
                        cin>>choice1;
                }
                if (choice1 == 5)
                {
                        copyright();
                        prog();
                        break;
                }
                else
                {
                        clrscr();
                        border();
                        cal_menu();
                        gotoxy(24,28);
                        cout << " YOUR CHOICE : " << choice1;
                        gotoxy(24,30);
                        cout << " ENTER FIRST NUMBER : " ;
                        cin >> num1;
                        gotoxy(24,32);
                        cout << " ENTER SECOND NUMBER : " ;
                        cin >> num2;
                        switch (choice1)
                        {
                                case 1: result= num1+num2;  break;
                                case 2: result= num1-num2;  break;
                                case 3: result= num1*num2;  break;
                                case 4: result= num1/num2;  break;
                        }
                        gotoxy(24,34);
                        cout << " ANSWER = " << result << endl;
                        gotoxy(24,36);
                        cout<<" PRESS ENTER TO CONTINUE";
                        getch();
                }
        } while (choice1<5 && choice1 >=1);
}

void number_details()
{
        do
        {
                clrscr ();
                border();
                num_details();
                gotoxy(24,28);
                cout << " ENTER YOUR CHOICE : ";
                cin>>choice1;
                while(choice1>5 ||choice1<1)
```

```
                {
                        clrscr();
                        border();
                        num_details();
                        gotoxy(24,24);
                        cout << " 4 " << " EXIT " << endl;
                        gotoxy(24,28);
                        cout<<" INVALID CHOICE !!!"<<endl;
                        gotoxy(24,30);
                        cout<<" PLEASE RE-ENTER YOUR CHOICE : ";
                        cin>>choice1;
                }
                if (choice1 == 5)
                {
                        copyright();
                        prog();
                        break;
                }
                else
                {
                        clrscr();
                        border();
                        num_details();
                        gotoxy(24,28);
                        cout << " YOUR CHOICE : " << choice1;
                        switch (choice1)
                        {
                            case 1:
                            gotoxy(24,30);
                            cout<<"ENTER A NUMBER : ";
                            cin >> num4;
                            gotoxy(24,32);
                             cout<<"THE FACTORS OF " << num4 << " ARE : " << endl
<<endl;
                            gfact=num4/2;
                            gotoxy(24,34);
                            for ( fact2=1; fact2<=gfact; fact2++)
                            {
                                if (num4%fact2==0)
                                        cout<<fact2<<" ";
                            }
                            cout<<" and " << num4;
                            break;
                            case 2:
                            gotoxy(24,30);
                            cout << "ENTER THE NUMBER : ";
                            cin >> num1;
                            gfact=(num1/2);
                            for (fact=1, fsum=0; fact<=gfact; fact=fact+1)
                            {
                                if (num1%fact==0)
```

```
                fsum=fsum+fact;
        }
        gotoxy(24,32);
        if (fsum==num1)
                cout << "YES, IT IS A PERFECT NUMBER.";
        else
                cout << "NO, IT IS NOT A PERFECT NUMBER.";
        break;
        case 3:
        gotoxy(24,30);
        cout << "ENTER THE NUMBER : ";
        cin >> num3;
        for (count1=0, fact1=1; fact1<=(num3/2); fact1=fact1+1)
        {
                if (num3%fact1==0)
                        count1=count1+1;
        }
        gotoxy(24,32);
        if (count1==1)
                cout << "IT IS A PRIME NUMBER. " << endl;
        else
                cout << "IT IS A COMPOSITE NUMBER. " << endl;
        break;
        case 4:
        gotoxy(24,30);
        cout << "ENTER THE NUMBER : ";
        cin >> num1;
        gfact=(num1/2);
        gotoxy(24,32);
         cout<<"THE FACTORS OF " << num1 << " ARE : " << endl
<<endl;
        gotoxy(24,34);
        for (count1=0,fact=1, fsum=0; fact<=gfact; fact=fact+1)
        {
              if (num1%fact==0)
              {
                fsum=fsum+fact;
                count1++;
                cout<<fact<<" ";
              }
        }
        cout<<" and " << num1;
        gotoxy(24,36);
        if (fsum==num1)
              cout << "YES, IT IS A PERFECT NUMBER.";
        else
              cout << "NO, IT IS NOT A PERFECT NUMBER.";
        gotoxy(24,38);
        if (count1==1)
                        cout << "IT IS A PRIME NUMBER. " << endl;
        else
```

```
                                        cout << "IT IS A COMPOSITE NUMBER. " << endl;
                        }
                        gotoxy(24,40);
                        cout<<"PRESS ENTER TO CONTINUE";
                        getch();
                    }
                }while(choice1<5 && choice1>=1);
}

int j,k,c,x;
void pyramid(int fx)
{
        clrscr();
        switch(fx)
        {
                case 1:         //PYRAMID 1
                for(i=1;i<=9;i++)
                {
                        for(j=1;j<=i;j++)
                        {
                           cout<<j<<" ";
                        }
                        cout<<"\n";
                }
                break;
                case 2:         //PYRAMID 2
                for(i=1;i<=9;i++)
                {
                        for(j=1;j<=i;j++)
                        {
                           cout<<i<<" ";
                        }
                        cout<<"\n";
                }break;
                case 3: //PYRAMID 3
                for(i=1;i<=9;i++)
                {
                        for(j=1;j<=i;j++)
                        {
                                cout<<"* ";
                        }
                        cout<<"\n";
                }break;
                case 4: //PYRAMID 4
                for(i=1,c=1;i<=4;i++)
                {
                        for(j=1;j<=i;j++)
                        {
                           cout<<c<<" ";
                           c++;
                        }
```

```
        cout<<"\n";
}break;
case 5: //PYRAMID 5
for(i=1;i<=5;i++)
{
        for(j=1;j<=i;j++)
        {
           if(j%2==0)
                cout<<"* ";
           else
                cout<<"@ ";
        }
        cout<<"\n";
} break;
case 6: //PYRAMID 6
for(i=1;i<=4;i++)
{
        for(j=4;j>=i;j--)
        {
             cout<<" ";
        }
        for(x=1;x<=i;x++)
        {
             cout<<x;
        }
        cout<<"\n";
}break;
case 7: //PYRAMID 7
for(i=1;i<=4;i++)
{
        for(j=4;j>=i;j--)
        {
           cout<<" ";
        }
        for(x=i;x>=1;x--)
        {
           cout<<x;
        }
        cout<<"\n";
}break;
case 8: //PYRAMID 8
for( i=1;i<=4;i++)
{
     for(j=4;j>=i;j--)
        {
            cout<<" ";
        }
     for( x=i;x>=1;x--)
        {
                if(x%2==0)
                     cout<<"*";
```

```
                else
                cout<<"@";
        }
        cout<<"\n";
}
break;
case 9: //PYRAMID 9
for(i=1;i<=4;i++)
{
        for(j=4;j>=i;j--)
        {
           cout<<" ";
        }
        for( x=i;x>=1;x--)
        {
           if(x%2==0)
                cout<<"* ";
           else
                cout<<"@ ";
        }
        cout<<"\n";
}break;
case 10: //PYRAMID 10
for( i=1;i<=4;i++)
{
        for( j=4;j>=i;j--)
        {
                cout<<" ";
        }
        for(x=i;x>=1;x--)
        {
           if(i%2==0)
                 cout<<"*";
           else
                 cout<<"@";
        }
        cout<<"\n";
}break;
case 11: //PYRAMID 11
int count,i;
for(count=0;count<=5;count++)
{
        for(i=0;i<=count;i++)
                cout<<'*';
        cout<<endl;
}
for(count=4;count>=0;count--)
{
         for(i=count;i>=0;i--)
                cout<<'*';
         cout<<endl;
```

```
                }
                break;
                case 12: //PYRAMID 12
                for( i=1;i<=4;i++)
                {
                        for(j=4;j>=i;j--)
                        {
                                cout<<" ";
                        }
                        for( x=1;x<=i;x++)
                        {
                                cout<<x<<" ";
                        }
                        cout<<"\n";
                }
                for(i=3;i>=1;i--)
                {
                        for(int j=i;j<=4;j++)
                        {
                           cout<<" ";
                        }
                        for(int x=1;x<=i;x++)
                        {
                           cout<<x<<" ";
                        }
                        cout<<"\n";
                }        break;
                case 13:
                copyright();
                prog();
                break;
        }
getch();
}

void matrices(int fx)
{
        clrscr();
        long a[10][10],b[10][10],c[10][10],count1, count2,ra,ca,rb,cb,
        rosm[10], colsm[10], row, col, asum=0,bsum=0;
        char choice;
        switch(fx)
        {
                case 1: //ADDITION OF TWO MATRICES
                do
                {
                   clrscr();
                   cout<<"\nINPUT ROW FOR MATRIX A: ";
                   cin>>ra;
                   cout<<"\nINPUT COLUMN FOR MATRIX A: ";
                   cin>>ca;
```

```
                cout<<"\nINPUT ROW FOR MATRIX B: ";
                cin>>rb;
                cout<<"\nINPUT COLUMN FOR MATRIX B: ";
                cin>>cb;
                if((ra==rb)&&(ca==cb))
                      cout<<"\nTHE TWO MATRICES CAN BE ADDED AS THEY ARE
IDENTICAL.";
                else
                {
                      cout<<"\nTHE TWO MATRICES CANNOT BE ADDED SINCE THEY
ARE NOT INDENTICAL.";
                      cout<<"\nTHANK YOU.";
                      getch();
                      copyright();
                      matmenu();
                }
                cout<<"\n\nINPUT ELEMENTS FOR MATRIX A :\n";
                for(count1=0;count1<ra;count1++)
                {
                      cout<<"\n";
                      for(count2=0;count2<ca;count2++)
                         cin>>a[count1][count2];
                }
                cout<<"\n\nINPUT ELEMENTS FOR MATRIX B :\n";
                for(count1=0;count1<rb;count1++)
                {
                      cout<<"\n";
                      for(count2=0;count2<cb;count2++)
                         cin>>b[count1][count2];
                }
                for(count1=0;count1<ra;count1++)
                {
                      for(count2=0;count2<ca;count2++)
                                c[count1][count2]=a[count1][count2]+b[count1][count2];
                }
                clrscr();
                cout<<"MATRIX A: ";
                for(count1=0;count1<ra;count1++)
                {
                      cout<<"\n\n";
                      for(count2=0;count2<ca;count2++)
                                cout<<"\t"<<a[count1][count2];
                }
                cout<<"\n\nMATRIX B: ";
                for(count1=0;count1<rb;count1++)
                {
                      cout<<"\n\n";
                      for(count2=0;count2<cb;count2++)
                         cout<<"\t"<<b[count1][count2];
                 }
                 cout<<"\n\nMATRIX C (NEW TO REPRESENT THE SUM OF MATRICES
```

```
A & B): ";
                    for(count1=0;count1<ra;count1++)
                    {
                        cout<<"\n\n";
                        for(count2=0;count2<ca;count2++)
                           cout<<"\t"<<c[count1][count2];
                    }
                    cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N) : ";
                    cin>>choice;
                }while(choice=='y'||choice=='Y');
                break;
                case 2: // SUBTRACTION OF A MATRIX FROM ANOTHER
                do
                {
                        clrscr();
                        cout<<"\nINPUT ROW FOR MATRIX A: ";
                        cin>>ra;
                        cout<<"\nINPUT COLUMN FOR MATRIX A: ";
                        cin>>ca;
                        cout<<"\nINPUT ROW FOR MATRIX B: ";
                        cin>>rb;
                        cout<<"\nINPUT COLUMN FOR MATRIX B: ";
                        cin>>cb;
                        if((ra==rb)&&(ca==cb))
                                cout<<"\nSUBTRACTION BETWEEN THE TWO MATRICES
IS POSSIBLE.";
                        else
                        {
                                cout<<"\nSUBTRACTION BETWEEN THE TWO MATRICES
IS NOT POSSIBLE.";
                                cout<<"\nTHANK YOU.";
                                getch();
                                copyright();
                                matmenu();
                        }
                        cout<<"\n\nINPUT ELEMENTS FOR MATRIX A :";
                        for(count1=0;count1<ra;count1++)
                        {
                                cout<<"\n";
                                for(count2=0;count2<ca;count2++)
                                        cin>>a[count1][count2];
                        }
                        cout<<"\n\nINPUT ELEMENTS FOR MATRIX B :";
                        for(count1=0;count1<rb;count1++)
                        {
                                cout<<"\n";
                                for(count2=0;count2<cb;count2++)
                                        cin>>b[count1][count2];
                        }
                        for(count1=0;count1<ra;count1++)
                        {
```

```
                        for(count2=0;count2<ca;count2++)
                                c[count1][count2]=a[count1][count2]-b[count1]
[count2];
                }
                clrscr();
                cout<<"MATRIX A: ";
                for(count1=0;count1<ra;count1++)
                {
                        cout<<"\n\n";
                        for(count2=0;count2<ca;count2++)
                                cout<<"\t"<<a[count1][count2];
                }
                cout<<"\n\nMATRIX B: ";
                for(count1=0;count1<rb;count1++)
                {
                        cout<<"\n\n";
                        for(count2=0;count2<cb;count2++)
                           cout<<"\t"<<b[count1][count2];
                }
                 cout<<"\n\nMATRIX C (NEW TO REPRESENT THE DIFFERENCE
BETWEEN MATRICES A & B): ";
                for(count1=0;count1<ra;count1++)
                {
                        cout<<"\n\n";
                        for(count2=0;count2<ca;count2++)
                                cout<<"\t"<<c[count1][count2];
                }
                cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N):
";
                        cin>>choice;
              }while(choice=='Y'||choice=='y');
              break;
              case 3: // MULTIPLICATION OF TWO MATRICES
              do
              {
                 clrscr();
                 cout<<"INPUT ROW FOR MATRIX A: ";
                 cin>>ra;
                 cout<<"\nINPUT COLUMN FOR MATRIX A: ";
                 cin>>ca;
                 cout<<"\nINPUT ROW FOR MATRIX B: ";
                 cin>>rb;
                 cout<<"\nINPUT COLUMN FOR MATRIX B: ";
                 cin>>cb;
                 if((ra==rb)&&(ca==cb))
                        cout<<"\nMULTIPLICATION OF THE TWO MATRICES IS
POSSIBLE.";
                 else
                 {
                       cout<<"\nMULTIPLICATION OF THE TWO MATRICES IS NOT
POSSIBLE.";
```

```
                cout<<"\nTHANK YOU.";
                getch();
                copyright();
                matmenu();
        }
        cout<<"\n\nINPUT ELEMENTS FOR MATRIX A :";
        for(count1=0;count1<ra;count1++)
        {
                cout<<"\n";
                for(count2=0;count2<ca;count2++)
                        cin>>a[count1][count2];
        }
        cout<<"\n\nINPUT ELEMENTS FOR MATRIX B :";
        for(count1=0;count1<rb;count1++)
        {
                 cout<<"\n";
                 for(count2=0;count2<cb;count2++)
                        cin>>b[count1][count2];
        }
        for(count1=0;count1<ra;count1++)
        {
                for(count2=0;count2<cb;count2++)
                {
                   c[count1][count2]=0;
                   for(count3=0;count3<ca;count3++)
                   {
                           c[count1][count2]+=a[count1][count3]*b[count3][count2];
                   }
                }
        }
        clrscr();
        cout<<"MATRIX A: ";
        for(count1=0;count1<ra;count1++)
        {
                cout<<"\n\n";
                for(count2=0;count2<ca;count2++)
                   cout<<" "<<a[count1][count2];
        }
        cout<<"\n\nMATRIX B: ";
        for(count1=0;count1<rb;count1++)
        {
                cout<<"\n\n";
                for(count2=0;count2<cb;count2++)
                   cout<<" "<<b[count1][count2];
        }
        cout<<"\n\nMATRIX C (NEW TO REPRESENT THE MULTIPLICATION OF
MATRICES A & B):\n ";
        for(count1=0;count1<ra;count1++)
        {
                cout<<"\n";
                for(count2=0;count2<cb;count2++)
```

```
                cout<<" "<<c[count1][count2];
            cout<<"\n";
        }
        cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM?(Y/N) : ";
        cin>>choice;
        }while(choice=='Y'||choice=='y');
        break;
         case 4: // PROGRAM TO FIND ROW SUM AND COLUMN SUM OF A MATRIX
        do
        {
            clrscr();
            cout<<"ENTER THE NUMBER OF ROWS FOR MATRIX : ";
            cin>>row;
            cout<<"ENTER THE NUMBER OF COLUMN FOR MATRIX : ";
            cin>>col;
            cout<<"ENTER THE ELEMENTS FOR MATRIX :\n ";
            for(count1=0;count1<row;count1++)
            {
                cout<<"\n";
                for(count2=0; count2<col; count2++)
                   cin>>a[count1][count2];
            }
            for(count1=0; count1<row;count1++)
            {
                rosm[count1]=0;
                for(count2=0;count2<col; count2++)
                   rosm[count1] += a[count1][count2];
            }
            for(count2=0; count2<col; count2++)
            {
                colsm[count2]=0;
                for(count1=0;count1<row; count1++)
                   colsm[count2] += a[count1][count2];
            }
               cout<<"\n\nTHE MATRIX ALONGWITH ROWSUM AND COLUMNSUM IS :\n\n";
            for(count1=0; count1<row;count1++)
            {
                for(count2=0; count2<col; count2++)
                            cout<<a[count1][count2]<<"\t";
                cout<<"\t"<<rosm[count1]<< endl;
            }
            cout<<"\n";
            for(count2=0; count2<col; count2++)
                cout<<colsm[count2]<< "\t";
            cout<<endl;
             cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM? (Y/N): ";
            cin>>choice;
        }while(choice=='Y'||choice=='y');
```

```
                    break;
                    case 5: //PROGRAM TO FIND SUM OF ELEMENTS ABOVE AND BELOW
THE MAIN DIAGONAL OF MATRIX
                    do
                    {
                            clrscr();
                            cout<<"ENTER THE NUMBER OF ROWS FOR MATRIX : ";
                            cin>>row;
                            cout<<"\nENTER THE NUMBER OF COLUMNS FOR MATRIX : ";
                            cin>>col;
                            cout<<"\nENTER THE ELEMENTS FOR THE MATRIX :\n\n";
                            for(count1=0;count1<row;count1++)
                            {
                                    for(count2=0; count2<col; count2++)
                                            cin>>a[count1][count2];
                            }
                            asum=0;
                            for(count1=0; count1<row;count1++)
                            {
                                    for(count2=0;count2<col; count2++)
                                    {
                                            if(count1<count2)
                                                    asum+=a[count1][count2];
                                    }
                            }
                            bsum=0;
                            for(count1=0; count1<row;count1++)
                            {
                                    for(count2=0;count2<col; count2++)
                                    {
                                            if(count1>count2)
                                                    bsum+=a[count1][count2];
                                    }
                            }
                            for(count1=0;count1<row;count1++)
                            {
                                    cout<<"\n\n";
                                    for(count2=0; count2<col; count2++)
                                            cout<<"\t"<< a[count1][count2];
                            }
                            cout<<"\n\nTHE ELEMENTS OF THE MAIN DIAGONAL ARE : ";
                            for(count1=0; count1<row;count1++)
                            {
                                    for(count2=0;count2<col; count2++)
                                    {
                                            if(count1==count2)
                                            cout<< a[count1][count2] << " ";
                                    }
                            }
                             cout<<"\n\nTHE SUM OF THE ELEMENTS ABOVE THE MAIN
DIAGONAL : ";
```

```
                        cout<<asum;
                         cout<<"\n\nTHE SUM OF THE ELEMENTS BELOW THE MAIN
DIAGONAL : ";
                        cout<<bsum;
                         cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM?
(Y/N) : ";
                        cin>>choice;
                    }while(choice=='y'||choice=='Y');
                    break;
                    case 6: //TRANSPOSE A MATRIX
                    do
                    {
                        clrscr();
                        cout<<"\nINPUT ROW FOR MATRIX A: ";
                        cin>>ra;
                        cout<<"\nINPUT COLUMN FOR MATRIX A: ";
                        cin>>ca;
                        cout<<"\nINPUT ELEMENTS FOR MATRIX A :";
                        for(count1=0;count1<ra;count1++)
                        {
                                cout<<"\n";
                                for(count2=0;count2<ca;count2++)
                                        cin>>a[count1][count2];
                        }
                        for(count1=0;count1<ca;count1++)
                        {
                                for(count2=0;count2<ra;count2++)
                                        b[count1][count2]=a[count2][count1];
                        }
                                clrscr();
                        cout<<"MATRIX A: ";
                        for(count1=0;count1<ra;count1++)
                        {
                                cout<<"\n\n";
                                for(count2=0;count2<ca;count2++)
                                        cout<<"\t"<<a[count1][count2];
                        }
                        cout<<"\n\nMATRIX B (TRANSPOSED FORM OF MATRIX A): ";
                        for(count1=0;count1<ca;count1++)
                        {
                                cout<<"\n\n";
                                for(count2=0;count2<ra;count2++)
                                        cout<<"\t"<<b[count1][count2];
                        }
                         cout<<"\n\nDO YOU WISH TO RE-EXECUTE THE PROGRAM?
(Y/N) : ";
                        cin>>choice;
                }while(choice=='y'||choice=='Y');
        }
copyright(); matmenu();
}
```

```
void cardgame()
{
   do
   {
                        clrscr();
                        cout<<"CARD SELECTION GAME"<<endl;
                        cout<<"\n\nWELCOME!"<<endl;
                         cout << "\nYOU WILL BE HAPPY TO KNOW THAT NO USER CAN
DEFEAT ME IN THIS GAME." << endl<<endl;
                        cout << " \n\n\nRULES TO PLAY THE GAME: " << endl;
                        cout << " \n\nI HAVE A SET OF 25 CARDS.";
                        cout << " \nWE SHALL HAVE TO RANDOMLY SELECT 1 OR 2 OR 3
CARDS."<<endl;
                         cout << " \nSELECTION OF MORE THAN 3 CARDS IS NOT
ALLOWED."<<endl;
                        cout << " \nTHE LOSER WILL BE LEFT WITH ONLY ONE CARD IN
THE SET TO BE SELECTED BY HIM.";
                        cout << " \nI HOPE EVERYTHING IS CLEAR." << endl;
                        cout << " \nBEST OF LUCK!" << endl;
                           cout<<"\nIF YOU DISAGREE THEN PRESS 'y' TO
CONTINUE."<<endl;
                        cout<<"\nIF YOU ARE A BORN LOSER THEN PRESS ANY KEY TO
EXIT." << endl<<endl;
                        start=getche();
                        if (start=='y'||start=='Y')
                        {
                          cout << " \nPERHAPS YOUR BOLDNESS IS CHARACTERIZED."
<< endl;
                         cout << " \nPRESS ENTER TO CONTINUE"<<endl;
                         getch();
                         clrscr();
                         ncardleft=25;
                         do
                         {
                                    clrscr();
                                    cout << " PLEASE SELECT THE CARDS.(1/2/3)"<< endl;
                                    cin>>num1;
                                    if (num1<4)
                                    {
                                              cout << " SO, YOU SELECT : " << num1 << "
CARDS." << endl;
                                                num2=4-num1;
                                                 cout << " OK, I SELECT : " <<  num2  << "
CARDS." << endl;
                                                ncardleft=ncardleft-4;
                                                 cout << " THE NUMBER OF CARDS LEFT IN
THE SET NOW IS : " << ncardleft << endl;
                                    }
                                    else
                                              cout << " OOPS! SELECTION OF MORE THAN
```

```
3 CARDS IS NOT ALLOWED. " << endl;
                                        getch();
                                }while (ncardleft>1);
                                 cout << " NOW THERE IS ONLY ONE CARD LEFT FOR YOUR
SELECTION." << endl;
                                cout << " SO YOU HAVE LOST THE GAME."<<endl;
                                   cout << " I M GLAD TO INFORM ABOUT YOUR GOOD
BRAINSTORMING CAPABILITY." << endl;
                                cout << " BUT AFTER ALL YOU CAN NEVER DEFEAT ME IN THIS
GAME."<<endl;
                                cout << " THANK YOU FOR PLAYING THE GAME."<<endl;
                                 cout << " CAUTION: TIME WASTAGE BY REPEATED PLAYING IS
NOT ADVISABLE.";
                                cout << " BYE!! " << endl;
                        }
                        else
                                cout << "THANK YOU TO PROVE YOURSELF LOSER. TRY YOUR
LUCK BETTER NEXT TIME." << endl;
                        cout<<"\nPRESS Y TO CONTINUE ELSE PRESS N TO EXIT : ";
                        decision=getche();
                }while(decision=='y'||decision=='Y');
copyright(); prog();
}
char numname[100];
void numerology()
{
//  KNOW YOURSELF THROUGH NUMEROLOGY
b:
        clrscr();
        cout<<"PRESS ANY KEY TO CONTINUE ";
        getch();
        int x=7,y=3;
        box(1,1,79,49,'*');
        gotoxy(x,y);y+=2;
        cout<<"WELCOME!!";
        gotoxy(x,y);y+=2;
        cout << "PLEASE ENTER YOUR NAME : ";
        gets(numname);
        gotoxy(x,y);y+=2;
        cout<< "ENTER BIRTH DATE : (ddmmyyyy) ";
        cin>>bdate;
//*************************************************************************************
        birth_date(bdate);
//*****************************************************
        while(date<1||date>31||month<1||month>12)
        {
                goto b;
        }
//************************************************************
        while(date>29 && month==2 && ((year%100!=0 && year%4==0) || year%400==0))
           {
```

```
        goto b;
   }
while(date>28 && month==2 && year%100!=0 && year%4!=0 && year%400!=0)
   {
        goto b;
   }
if ((year%100!=0 && year%4==0) || year%400==0)
        julian=366;
else
        julian=365;
switch(month)
{
        case 1: julian -= 31;
        case 2: julian -= 31;
        case 3: if ( (year%100!=0 && year%4==0) || year%400==0)
                        julian -= 29;
                else
                        julian -= 28;
        case 4: julian -= 31;
        case 5: julian -= 30;
        case 6: julian -= 31;
        case 7: julian -= 30;
        case 8: julian -= 31;
        case 9: julian -= 31;
        case 10: julian -= 30;
        case 11: julian -= 31;
        case 12: julian -= 30;
}
julian+=date;
fours=(year-1)/4;
hundreds=(year-1)/100;
four_hundreds=(year-1)/400;
day=((year+julian+fours+four_hundreds-hundreds)%7);
clrscr();
box(1,1,79,49,'*');
x=7;
y=4;
gotoxy(x,y);y+=2;
cout<<"PERSONAL DETAILS OF " << numname << " : " <<endl;
gotoxy(x,y);y+=2;
cout<<"BIRTH DATE : "<<date << " ";
gdate=date;
switch(month)
{
        case 1:cout<<"JANUARY";                 break;
        case 2:cout<<"FEBRUARY";    break;
        case 3:cout<<"MARCH";           break;
        case 4:cout<<"APRIL";           break;
        case 5:cout<<"MAY";             break;
        case 6:cout<<"JUNE";            break;
        case 7:cout<<"JULY";            break;
```

```
        case 8:cout<<"AUGUST";                  break;
        case 9:cout<<"SEPTEMBER";  break;
        case 10:cout<<"OCTOBER";    break;
        case 11:cout<<"NOVEMBER";  break;
        case 12:cout<<"DECEMBER";  break;
}
cout<<" "<< year <<endl;
gotoxy(x,y);y+=2;
cout<<"BIRTH DAY : ";
switch(day)
  {
                case 0:cout<<"SATURDAY"; break;
                case 1:cout<<"SUNDAY";   break;
                case 2:cout<<"MONDAY";   break;
                case 3:cout<<"TUESDAY";  break;
                case 4:cout<<"WEDNESDAY";break;
                case 5:cout<<"THURSDAY"; break;
                case 6:cout<<"FRIDAY";       break;
   }
for (sum=0; bdate!=0; bdate=bdate/10)
   {
                digit2=bdate%10;
                sum=sum+digit2;
   }
for (basicn=0; date!=0; date=date/10)
   {
                digit3=date%10;
                basicn=basicn+digit3;
   }
int l,m;
if(basicn>9)
   {
                m=basicn/10;
                l=basicn%10;
                basicn=l+m;
   }
/*
   CAPRICORN : DEC21-JAN19
   AQUARIUS : JAN 20 - FEB 18
   PISCES : FEB19-MARCH19
   ARIES : MARCH20-APRIL18
   TUARUS : APRIL19-MAY19
   GEMINI : MAY20-JUNE20
   CANCER : JUNE21-JULY21
   LEO : JULY22-AUG21
   VIRGO : AUG22-SEPT21
   LIBRA : SEPT22-OCT22
   SCORPIO : OCT23-NOV20
   SAGITTARIUS : NOV21-DEC20
*/
gotoxy(x,y);y+=2;
```

```
cout<<"ZODIAC SIGN : ";
switch(month)
{
        case 1: if(gdate<=19)
                        cout<<"CAPRICORN";
                else if(gdate>19)
                        cout<<"AQUARIUS";
                break;
        case 2: if(gdate<=18)
                        cout<<"AQUARIUS";
                else if(gdate>18)
                        cout<<"PISCES";
                break;
        case 3: if(gdate<=19)
                        cout<<"PISCES";
                else if(gdate>19)
                        cout<<"ARIES";
                break;
        case 4: if(gdate<=18)
                        cout<<"ARIES";
                else if(gdate>18)
                        cout<<"TAURUS";
                break;
        case 5: if(gdate<=19)
                        cout<<"TAURUS";
                else if(gdate>19)
                        cout<<"GEMINI";
                break;
        case 6: if(gdate<=20)
                        cout<<"GEMINI";
                else if(gdate>20)
                        cout<<"CANCER";
                break;
        case 7: if(gdate<=21)
                        cout<<"CANCER";
                else if(gdate>21)
                        cout<<"LEO";
                break;
        case 8: if(gdate<=21)
                        cout<<"LEO";
                else if(gdate>21)
                        cout<<"VIRGO";
                break;
        case 9:         if(gdate<=21)
                        cout<<"VIRGO";
                else if(gdate>21)
                        cout<<"LIBRA";
                   break;
        case 10:if(gdate<=22)
                        cout<<"LIBRA";
                else if(gdate>22)
```

```
                        cout<<"SCORPIO";
                    break;
                case 11:if(gdate<=20)
                        cout<<"SCORPIO";
                    else if(gdate>20)
                        cout<<"SAGITTARIUS";
                    break;
                case 12:if(gdate<=20)
                        cout<<"SAGITTARIUS";
                    else if(gdate>20)
                        cout<<"CAPRICORN";
                    break;
        }
        gotoxy(x,y);y+=2;
        cout <<"BASIC NUMBER : "<<  basicn << endl;
        switch(basicn)
        {
                case 1:
                gotoxy(x,y);y+=2;
                 cout<<"LUCKY COLOURS : PALEST YELLOW, PALEST GREEN, DEEP
ORANGE,";
                gotoxy(x,y);y+=2;
                cout<<"GOLDEN HUES, WHITE, CREAM.";
                gotoxy(x,y);y+=2;
                cout<<"LUCKY GEMS : TOPAZ, AMBER.";
                break;
                case 2:
                gotoxy(x,y);y+=2;
                cout<<"LUCKY COLOURS :PALEST GREEN, CREAM, WHITE";
                gotoxy(x,y);y+=2;
                cout<<"PALEST YELLOW, GOLDEN HUES.";
                gotoxy(x,y);y+=2;
                cout<<"LUCKY GEMS : PEARL, CAT'S EYE, MOONSTONE.";
                break;
                case 3:
                gotoxy(x,y);y+=2;
                cout<<"LUCKY COLOURS : MAUVE, VIOLET, PURPLE";
                gotoxy(x,y);y+=2;
                cout<<"LUCKY GEMS : AMETHYST";
                break;
                case 4:
                gotoxy(x,y);y+=2;
                cout<<"LUCKY COLOURS : GREY, FAWN, ELECTRIC SHADES, ";
                gotoxy(x,y);y+=2;
                cout<<"TINTS OF YELLOW AND GREEN.";
                gotoxy(x,y);y+=2;
                cout<<"LUCKY GEMS : SAPPHIRE";
                break;
                case 5:
                gotoxy(x,y);y+=2;
                  cout<<"LUCKY COLOURS : SILVER GREY, GLISTENING WHITE,
```

```
SILVER,";
                gotoxy(x,y);y+=2;
                cout<<"GOLDEN AND ALL GLITTERING SHADES.";
                gotoxy(x,y);y+=2;
                cout<<"LUCKY GEMS : PLATINUM, SILVER, DIAMOND";
                break;
                case 6:
                gotoxy(x,y);y+=2;
                cout<<"LUCKY COLOURS : MAINLY BLUE AND ALL OTHERS EXCEPT";
                gotoxy(x,y);y+=2;
                cout<<"BLACK AND DARK PURPLE";
                gotoxy(x,y);y+=2;
                cout<<"LUCKY GEMS : TURQOUISE AND EMARALD";
                break;
                case 7:
                gotoxy(x,y);y+=2;
                 cout<<"LUCKY COLOURS :MAINLY GREEN AND YELLOW, CREAM,
WHITE,";
                gotoxy(x,y);y+=2;
                cout<<"PALEST YELLOW, GOLDEN HUES.";
                gotoxy(x,y);y+=2;
                cout<<"LUCKY GEMS : CAT'S EYE, MOONSTONES";
                break;
                case 8:
                gotoxy(x,y);y+=2;
                 cout<<"LUCKY COLOURS : DARKEST SHADES OF GREY, BLUE,
BROWN";
                gotoxy(x,y);y+=2;
                 cout<<"LUCKY GEMS : DULL RUBIES,CARBUNCLE, DEEP TONED
SAPPHIRE";
                break;
                case 9:
                gotoxy(x,y);y+=2;
                cout<<"LUCKY COLOURS : CRIMSON, RED, PALEST PINK";
                gotoxy(x,y);y+=2;
                cout<<"LUCKY GEMS : RED RUBIES, BLOODSTONES, GARNETS";
                break;
        }
        int count, first, second;
        for(flag=0, sum=0,count=0, first=0, second=0;numname[count]!='\0';count++)
        {
                if(isdigit(numname[count]))
                {
                        switch(numname[count])
                        {
                                case'1':sum+=1;break;
                                case'2':sum+=2;break;
                                case'3':sum+=3;break;
                                case'4':sum+=4;break;
                                case'5':sum+=5;break;
                                case'6':sum+=6;break;
```

```
                case'7':sum+=7;break;
                case'8':sum+=8;break;
                case'9':sum+=9;break;
        }
}
else if(isalpha(numname[count]))
{
        switch(numname[count])
        {
                case 'A':
                case 'a':
                sum+=1;break;
                case 'B':
                case 'b':
                sum+=2;break;
                case 'C':
                case 'c':
                sum+=3;break;
                case 'D':
                case 'd':
                sum+=4;break;
                case 'E':
                case 'e':
                sum+=5;break;
                case 'F':
                case 'f':
                sum+=8;break;
                case 'G':
                case 'g':
                sum+=3;break;
                case 'H':
                case 'h':
                sum+=5;break;
                case 'I':
                case 'i':
                sum+=1;break;
                case 'J':
                case 'j':
                sum+=1;break;
                case 'K':
                case 'k':
                sum+=2;break;
                case 'L':
                case 'l':
                sum+=3;break;
                case 'M':
                case 'm':
                sum+=4;break;
                case 'N':
                case 'n':
                sum+=5;break;
```

```
                        case 'O':
                        case 'o':
                        sum+=7;break;
                        case 'P':
                        case 'p':
                        sum+=8;break;
                        case 'Q':
                        case 'q':
                        sum+=1;break;
                        case 'R':
                        case 'r':
                        sum+=2;break;
                        case 'S':
                        case 's':
                        sum+=3;break;
                        case 'T':
                        case 't':
                        sum+=4;break;
                        case 'U':
                        case 'u':
                        sum+=6;break;
                        case 'V':
                        case 'v':
                        sum+=6;break;
                        case 'W':
                        case 'w':
                        sum+=6;break;
                        case 'X':
                        case 'x':
                        sum+=5;break;
                        case 'Y':
                        case 'y':
                        sum+=1;break;
                        case 'Z':
                        case 'z':
                        sum+=7;break;
                }
        }
        if(numname[count]==' ')
        {
                first=sum;
                flag++;
                sum=0;
        }
}
second=sum;
while(first>9)
{
        temp=first%10;
        first=first/10;
        first+=temp;
```

```
	}
	while(second>9)
	{
		temp=second%10;
		second=second/10;
		second+=temp;
	}
	if(flag==0)
	{
		gotoxy(x,y);y+=2;
		cout<<"THE NUMBER OF YOUR NAME SUMS UP TO "<<second;
		if(second!=basicn)
		{
			gotoxy(x,y);y+=2;
			 cout<<"OOPS!! YOUR NAME NUMBER IS NOT EQUAL TO YOUR BASIC NUMBER.";
			gotoxy(x,y);y+=2;
			cout<<"TO MAKE YOURSELF LUCKY, IT IS NECESSARY. ";
			gotoxy(x,y);y+=2;
			cout<<"SO I SUGGEST YOU TO CHANGE YOUR NAME .";
		}
		else
		{
			gotoxy(x,y);y+=2;
			 cout<<"CONGRATULATIONS!! YOUR NAME NUMBER IS EQUAL TO YOUR BASIC NUMBER.";
			gotoxy(x,y);y+=2;
			 cout<<"SO IT IS VERY LUCKY AND WILL ALWAYS FAVOUR YOU.";
		}
	}
	else
	{
		gotoxy(x,y);y+=2;
		cout<<"THE NUMBER OF YOUR FIRST NAME SUMS UP TO "<<first;
		gotoxy(x,y);y+=2;
		cout<<"THE NUMBER OF YOUR SECOND NAME SUMS UP TO "<<second;
		if(first!=basicn)
		{
			gotoxy(x,y);y+=2;
```