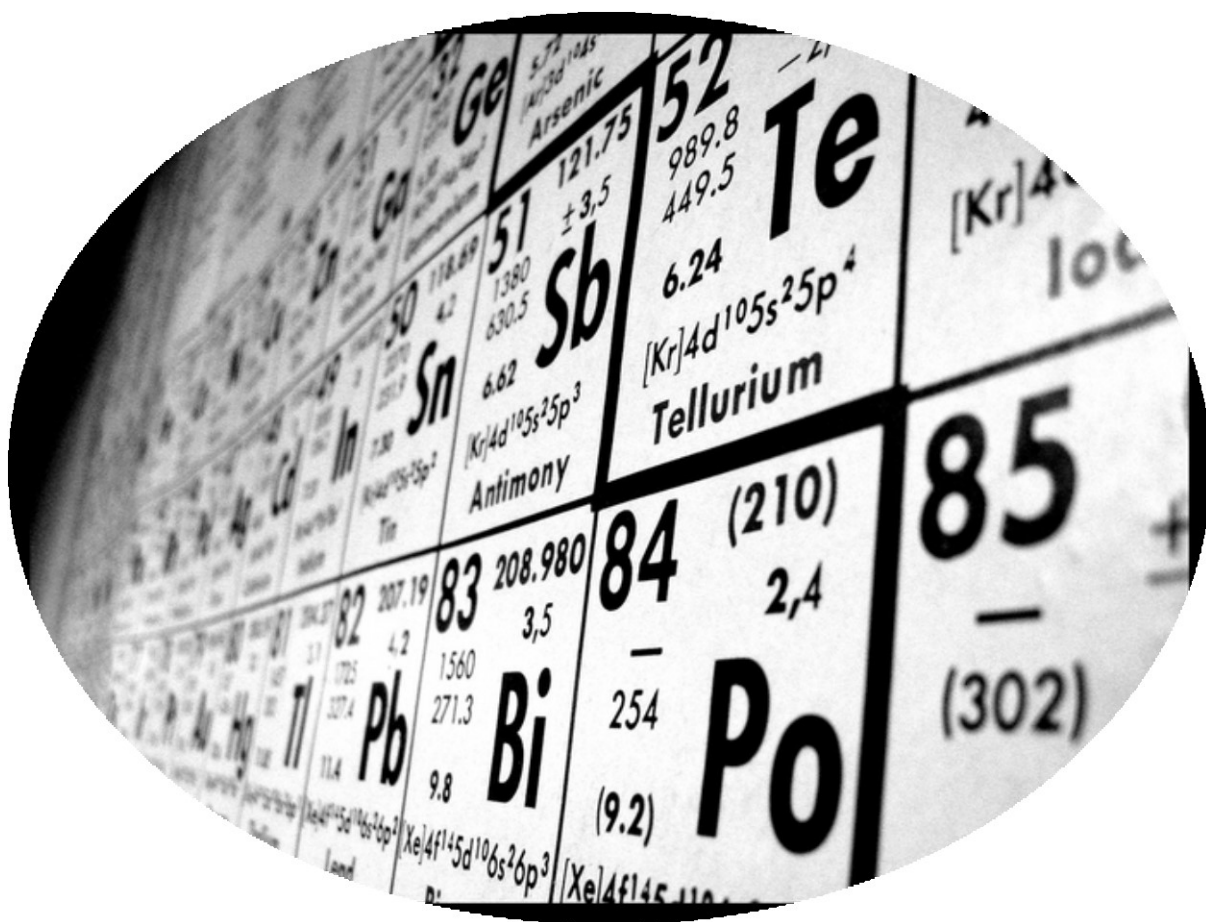


Computer Science Project



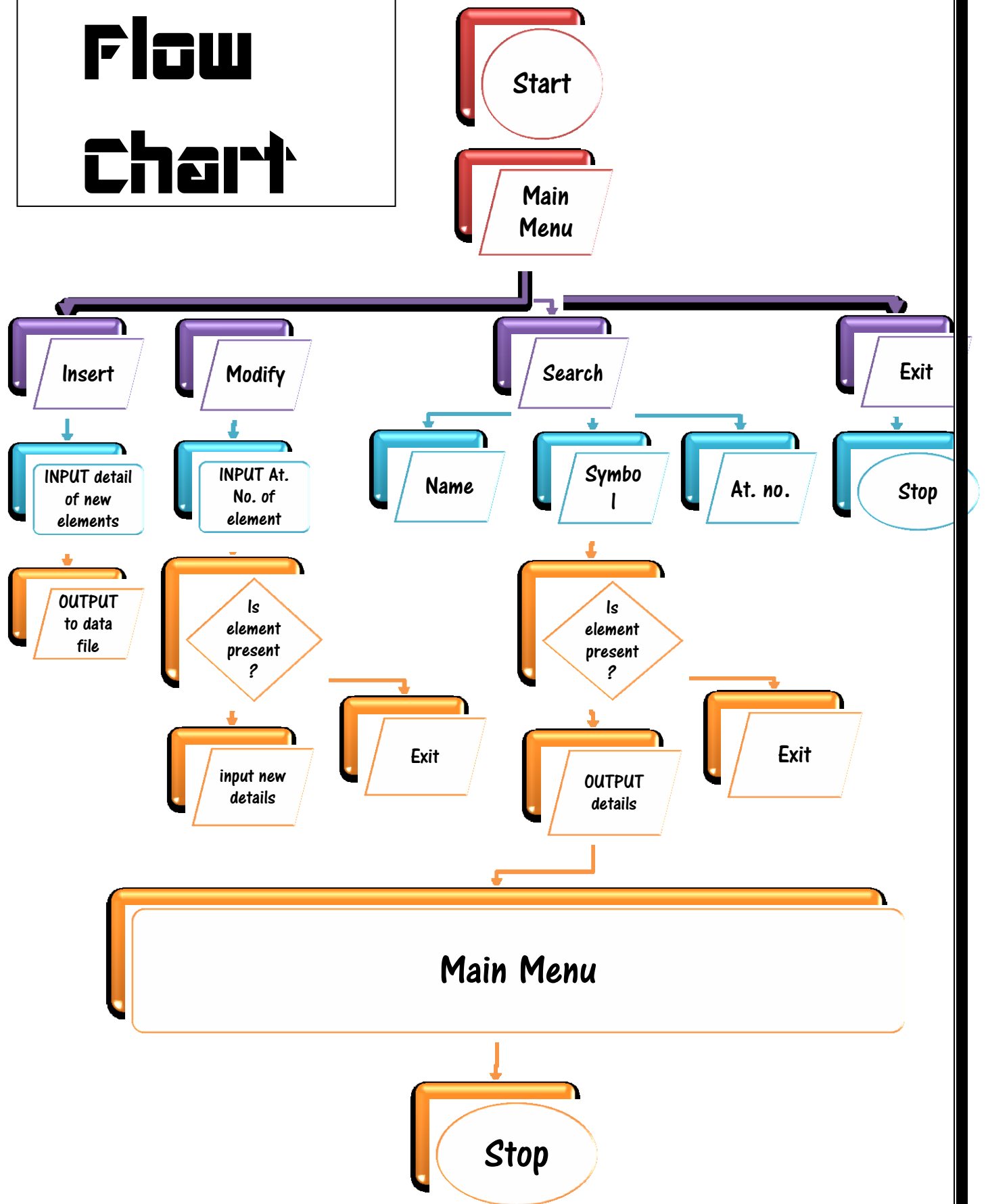
Periodic Table

By

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Flow Chart



Source Code:

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

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

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

```
#include<fstream.h>
```

```
#include<iomanip.h>
```

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

```
#include<process.h>
```

```
class element          //Declaration of class element
```

```
{
```

```
    int atomic_no;
```

```
    float atomic_mass, elec_neg ;
```

```
    char name[15], symbol[3], elec_config[50];
```

```
public:
```

```
    void input(void);
```

```
    void output(void);
```

```
    int get_atm_no(void);
```

```
    int get_name(char str[]);
```

```
    int get_sym(char str[]);
```

```

};                                //End of class declaration

void element::input()            //Function to input details
{
    cout<<endl<<"\tName: ";
    gets(name);
    cout<<endl<<"\tAtomic Number: ";
    cin>>atomic_no;
    cout<<endl<<"\tAtomic Mass: ";
    cin>>atomic_mass;
    cout<<endl<<"\tSymbol: ";
    gets(symbol);
    cout<<endl<<"\tElectronic Configuration: ";
    gets(elec_config);
    cout<<endl<<"\tElectronegativity: ";
    cin>>elec_neg;

};

void element::output()           //Function to output details
{
    clrscr();
    gotoxy(25,7);
    cout<<"Details of the element:";
    gotoxy(15,9);
    cout<<"Name: "<<name;
    gotoxy(15,11);

```

```
cout<<"Atomic Number: "<<atomic_no;
```

```
gotoxy(15,13);
```

```
cout<<"Atomic Mass: "<<atomic_mass;
```

```
gotoxy(15,15);
```

```
cout<<"Symbol: "<<symbol;
```

```
gotoxy(15,17);
```

```
cout<<"Electronic Configuration: ";
```

```
gotoxy(15,19);
```

```
cout<<elec_config;
```

```
gotoxy(15,21);
```

```
cout<<"Electronegativity: "<<elec_neg;
```

```
gotoxy(10,5);
```

```
for(int j=0; j<50; j++)
```

```
{
```

```
cout<<"*";
```

```
}
```

```
for(int i=0; i<20; i++)
```

```
{
```

```
gotoxy(10,i+5);
```

```
cout<<"*";
```

```
gotoxy(60,i+5);
```

```
cout<<"*";
```

```
}
```

```
gotoxy(10,24);
```

```
for(i=0;i<50; i++)  
{  
cout<<"*";  
};  
};
```

```
int element::get_atm_no()      /*Function to return  
                               the value of atomic number*/  
{  
    return(atomic_no);  
};
```

```
int element::get_name(char str[])  /*Function to compare the  
                                   name with the argument*/  
{ int r;  
  
    if(strcmpi(name,str)==0)  
    {  
        r=0;  
    }  
    else  
    {  
        r=1;  
    }  
};
```

```

    return r;
};

int element::get_sym(char str[]) /*Function to compare the symbol
                                with the argument*/
{
    int r;
    if(strcmpi(symbol,str)==0)
    {
        r=0;
    }

    else
    {
        r=1;
    };
    return r;
};

void display()                //Main Page
{
    clrscr();

    gotoxy(30,2);
    cout<<"THE PERIODIC TABLE";
    gotoxy(13,5); cout<<"H";
    gotoxy(13,7); cout<<"Li";

```

```
gotoxy(13,9); cout<<"Na";  
gotoxy(13,11); cout<<"K";  
gotoxy(13,13); cout<<"Rb";  
gotoxy(13,15); cout<<"Cs";  
gotoxy(13,17); cout<<"Fr";  
gotoxy(16,7); cout<<"Be";  
gotoxy(16,9); cout<<"Mg";  
gotoxy(16,11); cout<<"Ca";  
gotoxy(16,13); cout<<"Sr";  
gotoxy(16,15); cout<<"Ba";  
gotoxy(16,17); cout<<"Ra";  
gotoxy(19,11); cout<<"Sc";  
gotoxy(19,13); cout<<"Y";  
gotoxy(19,15); cout<<"La";  
gotoxy(19,17); cout<<"Ac";  
gotoxy(22,11); cout<<"Ti";  
gotoxy(22,13); cout<<"Zr";  
gotoxy(22,15); cout<<"Hf";  
gotoxy(22,17); cout<<"Rf";  
gotoxy(25,11); cout<<"V";  
gotoxy(25,13); cout<<"Nb";  
gotoxy(25,15); cout<<"Ta";  
gotoxy(25,17); cout<<"Ha";  
gotoxy(28,11); cout<<"Cr";  
gotoxy(28,13); cout<<"Mo";  
gotoxy(28,15); cout<<"W";  
gotoxy(28,17); cout<<"Un";
```



```
gotoxy(31,11); cout<<"Mn";
gotoxy(31,13); cout<<"Tc";
gotoxy(31,15); cout<<"Re";
gotoxy(31,17); cout<<"Ns";
gotoxy(34,11); cout<<"Fe";
gotoxy(34,13); cout<<"Ru";
gotoxy(34,15); cout<<"Os";
gotoxy(34,17); cout<<"Hs";
gotoxy(37,11); cout<<"Co";
gotoxy(37,13); cout<<"Rh";
gotoxy(37,15); cout<<"Ir";
gotoxy(37,17); cout<<"Mt";
gotoxy(40,11); cout<<"Ni";
gotoxy(40,13); cout<<"Pd";
gotoxy(40,15); cout<<"Pt";
gotoxy(40,17); cout<<"Uun";
gotoxy(43,11); cout<<"Cu";
gotoxy(43,13); cout<<"Ag";
gotoxy(43,15); cout<<"Au";
gotoxy(46,11); cout<<"Zn";
gotoxy(46,13); cout<<"Cd";
gotoxy(46,15); cout<<"Hg";
gotoxy(49,7); cout<<"B";
gotoxy(49,9); cout<<"Al";
gotoxy(49,11); cout<<"Ga";
gotoxy(49,13); cout<<"In";
gotoxy(49,15); cout<<"Tl";
```

```
gotoxy(52,7); cout<<"C";
gotoxy(52,9); cout<<"Si";
gotoxy(52,11); cout<<"Ge";
gotoxy(52,13); cout<<"Sn";
gotoxy(52,15); cout<<"Pb";
gotoxy(55,7); cout<<"N";
gotoxy(55,9); cout<<"P";
gotoxy(55,11); cout<<"As";
gotoxy(55,13); cout<<"Sb";
gotoxy(55,15); cout<<"Bi";
gotoxy(58,7); cout<<"O";
gotoxy(58,9); cout<<"S";
gotoxy(58,11); cout<<"Se";
gotoxy(58,13); cout<<"Te";
gotoxy(58,15); cout<<"Po";
gotoxy(61,7); cout<<"F";
gotoxy(61,9); cout<<"Cl";
gotoxy(61,11); cout<<"Br";
gotoxy(61,13); cout<<"I";
gotoxy(61,15); cout<<"At";
gotoxy(64,5); cout<<"He";
gotoxy(64,7); cout<<"Ne";
gotoxy(64,9); cout<<"Ar";
gotoxy(64,11); cout<<"Kr";
gotoxy(64,13); cout<<"Xe";
gotoxy(64,15); cout<<"Rn";
gotoxy(13,21); cout<<"Lanthanides";
```

```
gotoxy(25,21); cout<<"Ce";
gotoxy(28,21); cout<<"Pr";
gotoxy(31,21); cout<<"Nd";
gotoxy(34,21); cout<<"Pm";
gotoxy(37,21); cout<<"Sm";
gotoxy(40,21); cout<<"Eu";
gotoxy(43,21); cout<<"Gd";
gotoxy(46,21); cout<<"Tb";
gotoxy(49,21); cout<<"Dy";
gotoxy(52,21); cout<<"Ho";
gotoxy(55,21); cout<<"Er";
gotoxy(58,21); cout<<"Tm";
gotoxy(61,21); cout<<"Yb";
gotoxy(64,21); cout<<"Lu";
gotoxy(13,23); cout<<"Actinides";
gotoxy(25,23); cout<<"Th";
gotoxy(28,23); cout<<"Pa";
gotoxy(31,23); cout<<"U";
gotoxy(34,23); cout<<"Np";
gotoxy(37,23); cout<<"Pu";
gotoxy(40,23); cout<<"Am";
gotoxy(43,23); cout<<"Cm";
gotoxy(46,23); cout<<"Bk";
gotoxy(49,23); cout<<"Cf";
gotoxy(52,23); cout<<"Ea";
gotoxy(55,23); cout<<"Fm";
gotoxy(58,23); cout<<"Md";
```

```
gotoxy(61,23); cout<<"No";
```

```
gotoxy(64,23); cout<<"Lr";
```

```
gotoxy(11,30);
```

```
cout<<"MAIN MENU";
```

```
cout<<endl;
```

```
cout<<endl<<"\t1.Insert a new element";
```

```
cout<<endl<<"\t2.Modify a new element";
```

```
cout<<endl<<"\t3.Search for an element";
```

```
cout<<endl<<"\t4.Exit";
```

```
cout<<endl<<endl<<"\tPlease select an option: ";
```

```
int opt;
```

```
cin>>opt;
```

```
void insert(void);
```

```
void modify(void);
```

```
void search(void);
```

```
switch(opt)
```

```
{
```

```
case 1: insert();
```

```
    break;
```

```
case 2: modify();
```

```
    break;
```

```

    case 3: search();
        break;

    case 4: exit(0);
        break;

    default: cout<<endl<<"\tInvalid option";
        getch();
        display();
        break;
}
};

void insert()          //Function to insert data
{
    clrscr();
    ofstream fout;
    element e;
    fout.open("element.dat",ios::in|ios::app);
    char ans='y';

    while(ans=='y')
    {
        cout<<endl<<"\tEnter the details of the element to be inserted: ";
        cout<<endl<<endl;
        e.input();
    }
}

```

```
fout.write((char*)&e, sizeof(e));  
  
cout<<endl<<endl<<"\tThe element has been added";  
  
cout<<endl<<"\tDo you wish to add more elements? (y/n) . . . ";  
  
cin>>ans;  
  
}
```

```
fout.close();  
display();  
}
```

```
void modify()           //Function to modify data
```

```
{  
    clrscr();  
    element e;  
    fstream fio("element.dat", ios::in|ios::out|ios::binary);  
    int at_no; long pos; char found='f';  
  
    cout<<endl<<"\tEnter the atomic number of the element to be  
modified: ";  
  
    cin>>at_no;
```

```
    while(!fio.eof() && found=='f')  
    {  
        pos= fio.tellg();  
        fio.read((char*)&e, sizeof(e));  
        if(e.get_atm_no()==at_no)  
        {  
            cout<<endl<<"\tEnter the new details of the element: ";
```

```
e.input();
fio.seekp(pos);
fio.write((char*)&e,sizeof(e));
found='t';
};
};

fio.close();
if(found=='f')
cout<<endl<<endl<<"\tElement not found!";
cout<<endl<<endl<<"\tPress any key to go to the main menu. . . ";
getch();
void display(void);
display();
}
```

```
void search() //Function for the search page
```

```
{
clrscr();
gotoxy(20,2);
cout<<"SEARCH: ";
gotoxy(19,3);

for(int i = 0; i<9 ; i++)
{
cout<<"=";
}
```

```
gotoxy(1,7);
cout<<"\tSearch by? :";
cout<<endl<<"\t1. Element Name";
cout<<endl<<"\t2. Atomic Number";
cout<<endl<<"\t3. Element Symbol";
cout<<endl<<endl<<"\tEnter an option: ";
int opt,Num,found=0; char str[15];
cin>>opt;
ifstream fin;
element e;
fin.open("element.dat",ios::in);

switch(opt)
{
    case 1:
        cout<<endl<<endl<<"\tEnter the name of the element to be
searched: ";
        gets(str);

        while(!fin.eof()&&found==0)
        {
            fin.read((char*)&e, sizeof(e));
            if(e.get_name(str)==0)
            {
                found=1;
            };
        };
    };
};
```



```
break;
```

```
case 2:
```

```
cout<<endl<<endl;
```

```
cout<<"\tEnter the atomic number of the element to be searched: ";
```

```
cin>>Num;
```

```
while(!fin.eof())&&found==0)
```

```
{
```

```
fin.read((char*)&e, sizeof(e));
```

```
if(e.get_atm_no()==Num)
```

```
{
```

```
    found=1;
```

```
};
```

```
};
```

```
break;
```

```
case 3:
```

```
cout<<endl<<endl<<"\tEnter the symbol of the element to be  
searched: ";
```

```
gets(str);
```

```
while(!fin.eof())&&found==0)
```

```
{
```

```
fin.read((char*)&e, sizeof(e));
```

```
if(e.get_sym(str)==0)
{
    found=1;
};

};

break;

default:
cout<<endl<<endl<<"\Invalid Choice";
break;
}

if(opt==1||opt==2||opt==3)
{
    cout<<endl<<endl<<endl<<setw(25)<<"SEARCH RESULTS";
if(found==1)
{
    cout<<endl<<endl<<"\tElement found! ";
    cout<<endl<<endl<<endl<<"\tPress any key to display the element . .
. . .";
    getch();
    clrscr();
    e.output();
    cout<<endl<<endl<<endl<<endl;
```

```
cout<<"\tPress any key to go to the main menu. . . .";
```

```
getch();
```

```
display();
```

```
}
```

```
else
```

```
{ cout<<endl<<endl<<setw(5)<<"Sorry! Element not found. ";
```

```
cout<<endl<<endl<<endl<<endl;
```

```
cout<<"Press any key to go to the main menu. . . .";
```

```
getch();
```

```
display();
```

```
}
```

```
}
```

```
else
```

```
{
```

```
cout<<endl<<endl<<endl<<"Press any key to go to the main menu.  
. . . .";
```

```
getch();
```

```
display();
```

```
}
```

```
};
```

```
int main()
```

```
{
```

```
clrscr();
```

```
gotoxy(20,10);  
cout<<"WELCOME TO THE PERIODIC TABLE";  
gotoxy(19,11);  
  
for(int i=0; i<31 ; i++)  
{  
    cout<<"*";  
};  
  
gotoxy(10,19);  
cout<<"Project developed by:";  
gotoxy(15,21);  
cout<<"1.Vilas M ( 4619368 ) ";  
gotoxy(15,23);  
cout<<"2.Preetham Upadhya ( 4619364 )";  
gotoxy(15,25);  
cout<<"3.Kalon Acharjee ( 4619370 ) ";  
gotoxy(15,27);  
cout<<"4.Sneha Mahajan ( 4619373 ) ";  
gotoxy(10,33);  
cout<<"Press any key to continue. . . . .";  
getch();  
display();  
getch();  
return(0);  
}
```

Output Screenshots:

```
WELCOME TO THE PERIODIC TABLE
*****
```

```
Project developed by:
```

- 1.Uilas M < 4619368 >
- 2.Preetham Upadhya < 4619364 >
- 3.Kalon Acharjee < 4619370 >
- 4.Sneha Mahajan < 4619373 >

```
Press any key to continue. . . . . _
```

THE PERIODIC TABLE

H																	He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac	Rf	Ha	Un	Ns	Hs	Mt	Uun								

Lanthanides Ce Pr Nd Pm Sm Eu Gd Tb Dy Ho Er Im Yb Lu
 Actinides Th Pa U Np Pu Am Cm Bk Cf Ea Fm Md No Lr

MAIN MENU

- 1.Insert a new element
- 2.Modify a new element
- 3.Search for an element
- 4.Exit

Please select an option:

Enter the details of the element to be inserted:

Name: Nitrogen

Atomic Number: 7

Atomic Mass: 14

Symbol: N

Electronic Configuration: 1s2 2s2 2p5

Electronegativity: 3.0

The element has been added

Do you wish to add more elements? (y/n) . . . _

Enter the atomic number of the element to be modified: 7

Enter the new details of the element:

Name: Nitrogen

Atomic Number: 7

Atomic Mass: 14

Symbol: N

Electronic Configuration: 1s2 2s2 2p5

Electronegativity: 3.1

Press any key to go to the main menu. . . _

SEARCH: =====

Search by? :

1. Element Name
2. Atomic Number
3. Element Symbol

Enter an option: 1

Enter the name of the element to be searched: Hydrogen

SEARCH RESULTS

Element found!

Press any key to display the element _

```
*****
*
*           Details of the element:
*
*   Name: Hydrogen
*
*   Atomic Number: 1
*
*   Atomic Mass: 1
*
*   Symbol: H
*
*   Electronic Configuration:
*
*   1s1
*
*   Electronegativity: 1
*
*****
```

Press any key to go to the main menu. . . . _

SEARCH:
=====

Search by? :
1. Element Name
2. Atomic Number
3. Element Symbol

Enter an option: 3

Enter the symbol of the element to be searched: Li

SEARCH RESULTS

Element found!

Press any key to display the element _


```

*****
*                               *
*               Details of the element:               *
*                               *
*   Name: Lithium                                     *
*                               *
*   Atomic Number: 3                                   *
*                               *
*   Atomic Mass: 3                                     *
*                               *
*   Symbol: Li                                         *
*                               *
*   Electronic Configuration:                         *
*                               *
*   1s1 2s2                                           *
*                               *
*   Electronegativity: 3                             *
*                               *
*****

```

Press any key to go to the main menu. . . .

THE PERIODIC TABLE

H																	He
Li	Be									B	C	N	O	F	Ne		
Na	Mg									Al	Si	P	S	Cl	Ar		
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac	Rf	Ha	Un	Ns	Hs	Mt	Uun								

Lanthanides Ce Pr Nd Pm Sm Eu Gd Tb Dy Ho Er Tm Yb Lu
 Actinides Th Pa U Np Pu Am Cm Bk Cf Ea Fm Md No Lr

MAIN MENU

- 1.Insert a new element
- 2.Modify a new element
- 3.Search for an element
- 4.Exit

Please select an option: 5

Invalid option_