```
#include<iostream>
#include<dos.h>
#include<conio.h>
#include<stdlib.h>
#define SHOW 1
#define HIDE 2
//union REGS input,output;

class piano
{
 public:int BIGKEY,MIDKEY,back,border;
      piano()  /* Constructor initialization */
      {
            BIGKEY=15;
            MIDKEY=1;
            back=7;
            border=15;
      }
}color;
```

```
void drawpiano(int x,int y);
int check_xy(int x,int y);
void BOX(int c,int r,int c1,int r1,int col);
int initmouse();
void setupscreen();
void pointer(int on);
void restrictmouse(int x1,int y1,int x2,int y2);
void check_keys(int x,int y);
void getmouse(int *button,int *x,int *y);
float freq[7] = {130.81, 146.83, 164.81,
174.61,196, 220, 246.94 } ;
int n=0,a=4,backcolor=2,exitcode=1;
void showbar(int t)
{
 if(t>65) t=65;
 if(t<1) t=1;
 textcolor(15);
 for(int q=0;q<=t;t++)
 {
      gotoxy(3+q,4);
      cprintf("Û");
 }
```

```
}
int main()
{
 int b,x,y,key;
 char ch;
 if(initmouse()==-1) /* Terminates the program
if mouse not connected */
 {
       clrscr();
       cout<<"\n\nNO MOUSE !\n\n";
       exit(1);
 }
 pointer(SHOW);
 setupscreen();
 exitcode=1;
 while(exitcode)
 {
       if(kbhit())
       {
          ch=getch();
          if(ch==27) break;
          if(ch==75) a--;
```

```
  if(ch==77) a++;
  check_keys(x,y);
  switch(ch)
  {
      case 'a':case'A':key=0;break;
      case 's':case'S':key=1;break;
      case 'd':case'D':key=2;break;
      case 'f':case'F':key=3;break;
      case 'j':case'J':key=4;break;
      case 'k':case'K':key=5;break;
      case 'l':case'L':key=6;break;
  }
  sound(freq[key]*a);
  delay(80);
  nosound();
}
getmouse(&b,&x,&y);
if(b==1)
{
      while(b==1)
      {
            getmouse(&b,&x,&y);
```

```
                key=check_xy(x,y);
                if(key!=-1 && key<7)
                {
                      sound(freq[key]*a);
                }
                else if(key>6)
                   {
                      sound(freq[12-key]*(a/2));
                   }
            }
            nosound();
            check_keys(x,y);
      }
 }
 textbackground(0);
 clrscr();
 _setcursortype(_NORMALCURSOR);
return 0;
}

/* End of Main Function *
void setupscreen() /* Display screen settings */
```

```
{
 _setcursortype(_NOCURSOR);
 textbackground(backcolor);
 clrscr();
 drawpiano(9,17);
 BOX(4,5,8,5,0);
 BOX(5,5,7,5,1);
 textcolor(15);
 gotoxy(70,5);
 cprintf(">Quit<");
 gotoxy(4,4);
 cprintf("Range");
 textbackground(0);
 gotoxy(8,5);
 cprintf("  ");
 gotoxy(4,5);
 cprintf("  ");
 gotoxy(6,5);
 cprintf("%d",a);
 textcolor(14);
 textbackground(backcolor+7);
 gotoxy(30,4);
```

```
 cprintf(" VIRTUAL PIANO ");


}


void pianokey(int x,int y) /* Piano key display
settings */
{
 textbackground(color.MIDKEY);
 textcolor(color.BIGKEY);
 gotoxy(x,y);
 cprintf("ÛÛÛ  ÛÛÛ");
 gotoxy(x,y+1);
 cprintf("ÛÛÛ  ÛÛÛ");
 gotoxy(x,y+2);
 cprintf("ÛÛÛ  ÛÛÛ");
 gotoxy(x,y+3);
 cprintf("ÛÛÛÛÞÛÛÛ");
 gotoxy(x,y+4);
 cprintf("ÛÛÛÛÞÛÛÛ");
 gotoxy(x,y+5);
 cprintf("ÛÛÛÛÞÛÛÛ");
 gotoxy(x,y+6);
```

```
 cprintf("ÛÛÛÛÞÛÛÛ");
 gotoxy(x,y);
}

void drawpiano(int x,int y) /* Drawing of piano
*/
{
 int t=9;
 BOX(x-5,y-3,75,y+8,color.border); /*invoking
function box */
 BOX(x-4,y-2,74,y+7,color.back);
 pianokey(x,y);
 pianokey(x+t,y);
 pianokey(x+t*2,y);
 pianokey(x+t*3,y);
 pianokey(x+t*4,y);
 pianokey(x+t*5,y);
 pianokey(x+t*6,y);
}

void BOX(int c,int r,int c1,int r1,int col)
{
 int i,j;
```

```
 textcolor(col);
 for(i=r;i<=r1;i++)
 {
      for(j=c;j<=c1;j++)
      {
            gotoxy(j,i);
            cprintf("Û");
      }
 }
}
int initmouse()
{
 input.x.ax=0;
 int86(0x33,&input,&output);
 return(output.x.ax==0 ? -1 : 0);
}
void pointer(int on)
{
  input.x.ax=on;
  int86(0x33,&input,&output);
}
void restrictmouse(int x1,int y1,int x2,int y2)
```

```
{
  input.x.ax=7;
  input.x.cx=x1/8;
  input.x.dx=x2/8;
  int86(0x33,&input,&output);
  input.x.ax=8;
  input.x.cx=y1/8;
  input.x.dx=y2/8;
  int86(0x33,&input,&output);
}
void getmouse(int *button,int *x,int *y)
{
 input.x.ax=3;
 int86(0x33,&input,&output);
 *button=output.x.bx;
 *x=output.x.cx/8;
 *y=output.x.dx/8;
}
int check_xy(int x,int y)
{
 /* Mid keys */
 if(x>=11 && y>=16 && x<=12 && y<=18)
```

```
return 7;
if(x>=20 && y>=16 && x<=21 && y<=18)
return 8;
if(x>=29 && y>=16 && x<=30 && y<=18)
return 9;
if(x>=38 && y>=16 && x<=39 && y<=18)
return 10;
if(x>=47 && y>=16 && x<=48 && y<=18)
return 11;
if(x>=56 && y>=16 && x<=57 && y<=18)
return 0;
if(x>=65 && y>=16 && x<=66 && y<=18)
return 12;

/* Big keys */
if(x>=8 && y>=16 && x<=15 && y<=22)
return 0;
if(x>=17 && y>=16 && x<=24 && y<=22)
return 1;
if(x>=26 && y>=16 && x<=33 && y<=22)
return 2;
if(x>=35 && y>=16 && x<=42 && y<=22)
```

```
  return 3;
  if(x>=44 && y>=16 && x<=51 && y<=22)
  return 4;
  if(x>=53 && y>=16 && x<=60 && y<=22)
  return 5;
  if(x>=62 && y>=16 && x<=69 && y<=22)
  return 6;
  return (-1);  /*no key pressed */
}
void check_keys(int x,int y)
{
  if(x==7 && y==4)  a++;
  if(x==3 && y==4)  a--;
  if(a<1) a=1;else if(a>30) a=30;
  textcolor(15);textbackground(1);
  gotoxy(5,5);cprintf("   ");
  if(a<10) gotoxy(6,5);
  else gotoxy(5,5);
  cprintf("%d",a);
  if(x>=69 && y>=4 && x<=74 && y<=4)
exitcode=0;
}
```

//*********END OF PIANO**********//