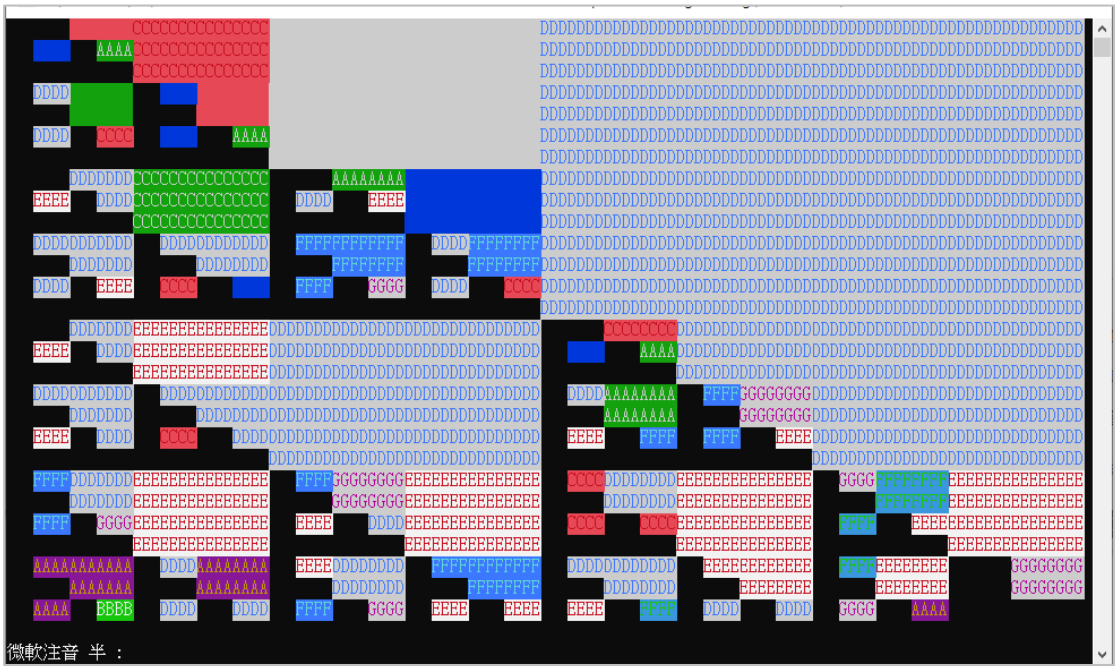
Course02

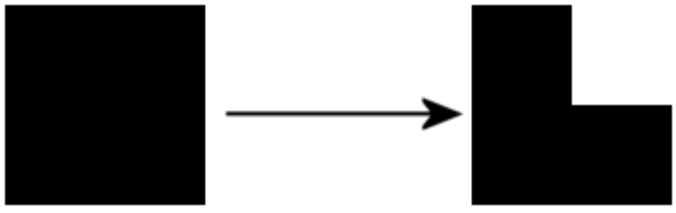
1. Please complete the recursive program to draw a Sierpinski Triangle with music.

1) Please change the array score[] into your song and complete the function playMusic().
2) Please complete the recursive function drawSierpinski().

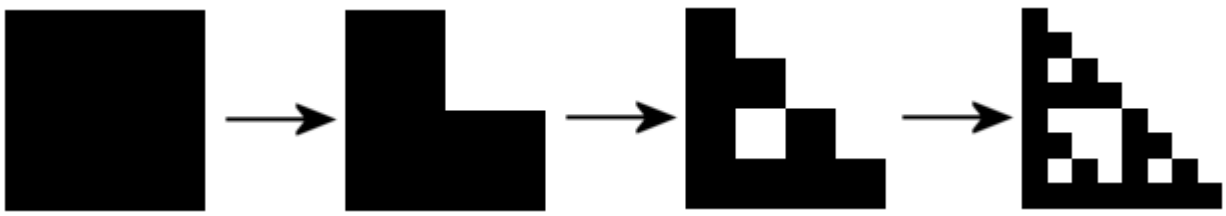
Note:
No 小蜜蜂 王老先生有塊地 生日快樂 國歌 國旗歌 小星星 兩隻老虎 三輪車跑得慢
No repeating the same song.



The algorithm will convert every rectangle into an L-shape. For instance:



Since the L-shape itself consists out of 3 rectangles, which are again converted into an L-shape. For instance:



```c
#define MAX 5 // define the max recursions, try different numbers!
#define N 500

void playMusic(int *score, int i, char *note)
{
    switch (score[i]) {
        case 0:
            // implement code here
            // ex: change colors of foreground and background
            //     indicate note and play sound
        case 1:  //C4
            // implement code here
        case 2:  //D4
            // implement code here
        ......
        ......
    }
}

void drawRect(int x1, int y1, int x2, int y2, char note)
{
    //textbackground(WHITE);
    int x,y;
    for (x=x1;x<=x2;x++)
       for (y=y1;y<=y2;y++) {
           gotoxy(x,y);
           printf("%c", note);
        }
        //_sleep(50);
}


void drawSierpinski(int n, int x1, int y1, int x2, int y2, int *score, int *i)
{
   if (score[*i]==-1) {
        clrscr();
        exit(1);
    }

    //draw the white rectangle
    char note;
```

```
    playMusic(score, *i, &note);
    drawRect((x1+x2)/2,y1,x2-1,(y1+y2)/2-1, note);

   if (n < MAX)
   {
        //Something missed here;
   }
}


int main()
{
    // change to your song
    int score[N] = {5,3,3,4,2,2, 1,2,3,4,5,5,5,
                    5,3,3,4,2,2, 1,3,5,5,3,
                    2,2,2,2,2,3,4, 3,3,3,3,3,4,5,
                    5,3,3,4,2,2, 1,3,5,5,1,
                    -1};
    int i=0;

    while(1) {
        textbackground(0);
        clrscr();
        drawSierpinski(1,1,1,120,30, score, &i);  // try different sizes!

        //getch();
    }
   getch();
   return 0;
}
```

2. Please complete one of Lab09-1/Lab09-2/Lab09-3 on the NYCU Formosa OJ (https://oj.nctu.edu.tw) and get “AC” in all testdata.