```c
#include<stdio.h>
#define MAX_TERMS 10
#define MAX_COL 10

typedef struct{
    int row;
    int col;
    int value;
} term;
term a[MAX_TERMS];

void fastTranspose(term a[], term b[]){
    int rowTerms [MAX_COL]; int startingPOS[MAX_COL];
    int i,j;
    int numCols=a[0].col;
    int numTerms=a[0].value;

    b[0].row=numCols;
    b[0].col=a[0].row;
    b[0].value=numTerms;

    if(numTerms>0){
        for(i=0;i<numCols;i++)
            rowTerms[i]=0;
        for(i=1;i<=numTerms;i++)
            rowTerms[a[i].col]++;
        startingPOS[0]=1;
        for(i=1;i<numCols;i++)
        startingPOS[i]=startingPOS[i-1]+rowTerms[i-1];
        for(i=1;i<=numTerms;i++){
            j=startingPOS[a[i].col]++;

        b[j].row=a[i].col;
        b[j].col=a[i].row;
        b[j].value=a[i].value;}
    }
}
int main(){
    term a[10]=
    {
        {3,4,5},
        {0,1,5},
        {0,3,6},
        {1,0,2},
        {1,2,4},
        {2,2,7},
```

```
47:     };
48:     term b[MAX_TERMS];
49:     fastTranspose(a,b);
50:     printf("Transpose:\n");
51:     int i;
52:     for(i=0;i<=b[0].value;i++){
53:         printf("(%d,%d,%d)\n",b[i].row,b[i].col,b[i].value);
54:     }
55:     return 0;
56: }
```