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

#define MAXLINES 200

int getLine(char a[], int sz);
void linesWrite(char *a[], int n);
void linesSort(char *a[], int n);
int linesRead(char *a[], int max);
void linesFree(char *a[], int n);

int main(void){
    char *a[MAXLINES];
    int nLine;

    nLine=linesRead(a,MAXLINES);
    printf("\n==== before sorting ====\n");
    linesWrite(a,nLine);
    linesSort(a,nLine);
    printf("\n==== after sorting ====\n");
    linesWrite(a,nLine);
    linesFree(a,nLine);
    return 0;
}

int getLine(char a[], int sz){
    int c;
    int z = 0;
    while(1){
        if(z==sz-1){break;}
        c=getchar();
        if(c=='\n'){break;}
        if(c==EOF){return EOF;}
        a[z++] = c;
    }
    a[z]='\0';
    return z;
}

void linesFree(char *a[],int n){
```

```
int i;
for(i=0;i<n;i++){
    free(a[i]);
}
}

int linesRead(char *a[], int max){
    char line[100];
    int z;
    char *p;
    for(z=0;z<max;++z){
        printf(">");
        if(getLine(line, sizeof(line))==EOF){break;}
        p=(char*)malloc(strlen(line)+1);
        strcpy(p, line);
        a[z]=p;
    }
    return z;
}

void linesSort(char *a[], int n){
    int i;
    int nSwap;
    char *p;
    do{
        nSwap = 0;
        for(i=0;i+1 != n; ++i){
            ++nSwap;
            p=a[i]; a[i]=a[i+1]; a[i+1]=p;
        }
    }while(nSwap!=0);
}

void linesWrite(char *a[], int n){
    int i;
    for(i=0;i<n; ++i){printf("%s\n", a[i]);}
}
```

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```
masuda@DESKTOP-JOV4TPA:~/work/C_intermediate/src$ ./program081
>fdafas
>dafASF
>dasfdas
>
==== before sorting ====
fdafas
dafASF
dasfdas
```