REFSORT

2* Here's the layout of the C program:

```
#define abort(c, m)
        {
            fprintf(stderr, "%s!\n%s", m, buf); return c;
        }
#include <stdio.h>
#include <string.h>
#include <ctype.h>
  typedef struct {
    char key[max_key];
    char entry[max_size];
  } item;
  item items[max_items];       ▷ all items of current group ◁
  item *sorted[max_items];         ▷ pointers to items in alphabetic order ◁
  char cur_page[10];        ▷ page number, as a string ◁
  char buf[max_size];          ▷ current line of input ◁
  char *input_status;         ▷ Λ if end of input reached, else buf ◁
  int main()
  {
    register char *p, *q;
    register int n;        ▷ current number of items ◁
    register item *x, **y;
    input_status ← fgets(buf, max_size, stdin);
    while (input_status) {
      ⟨Check that buf contains a valid page-number line 3⟩;
      ⟨Read and sort additional lines, until buf terminates a group 4⟩;
      ⟨Output the current group 5*⟩;
    }
    return 0;      ▷ normal exit ◁
  }
```

5* ⟨Output the current group 5*⟩ ≡
```
  {
    for (y ← sorted; y < sorted + n; y++) printf("%s\n", (*y)→entry);
    printf("\\donewithpage%s\n", cur_page);
  }
```
This code is used in section 2*.

10* A corresponding change to the copying loop is also needed.

⟨Copy the buffer to x→entry 10*⟩ ≡
```
  {
    register int toggle ← 0;
    for (p ← buf + 2, q ← x→entry; (*p ≠ '␣' ∨ toggle) ∧ *p; p++) {
      if (*p ≡ '"') toggle ⊕= 1;
      if (*p ≠ '␣') *q++ ← *p;
    }
    for ( ; *p; p++) *q++ ← *p;
  }
```
This code is used in section 6.

11* Index.

The following sections were changed by the change file: 2, 5, 10, 11.

abort: $\underline{2}$,* 3, 4, 6, 7.
buf : $\underline{2}$,* 3, 4, 6, 9, 10*
cur_page: $\underline{2}$,* 3, 5*
entry: $\underline{2}$,* 5,* 10*
fgets: 2,* 4.
fprintf : 2*
input_status: $\underline{2}$,* 4.
isupper: 6, 7.
item: $\underline{2}$*
items: $\underline{2}$,* 4.
key: $\underline{2}$,* 6, 7, 8.
main: $\underline{2}$*
max_items: $\underline{1}$, 2,* 4.
max_key: $\underline{1}$, 2,* 6.
max_size: $\underline{1}$, 2,* 4, 6.
n: $\underline{2}$*
p: $\underline{2}$*
printf : 5*
q: $\underline{2}$*
sorted: $\underline{2}$,* 5,* 8.
stderr : 2*
stdin: 2,* 4.
strcmp: 8.
strlen: 3.
toggle: $\underline{9}$, $\underline{10}$*
x: $\underline{2}$*
y: $\underline{2}$*

⟨ Check that *buf* contains a valid page-number line 3 ⟩   Used in section 2*.
⟨ Copy the buffer to *x→entry* 10* ⟩   Used in section 6.
⟨ Copy *buf* to item *x* 6 ⟩   Used in section 4.
⟨ Output the current group 5* ⟩   Used in section 2*.
⟨ Process a custom-formatted identifier 7 ⟩   Used in section 6.
⟨ Read and sort additional lines, until *buf* terminates a group 4 ⟩   Used in section 2*.
⟨ Scan past *α* 9 ⟩   Used in section 6.
⟨ Sort the new item into its proper place 8 ⟩   Used in section 4.