

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#define LINESIZE 1024

struct listing{
    int id, host_id, minimum_nights, number_of_reviews, calculated_host_listings_count,
    availability_365;
    char *host_name, *neighbourhood_group, *neighbourhood, *room_type;
    float latitude, longitude, price;
};

struct listing getfields(char* line){
    struct listing item;

    item.id = atoi(strtok(line, ","));
    item.host_id = atoi(strtok(NULL, ","));
    item.host_name = strdup(strtok(NULL, ","));
    item.neighbourhood_group = strdup(strtok(NULL, ","));
    item.neighbourhood = strdup(strtok(NULL, ","));
    item.latitude = atof(strtok(NULL, ","));
    item.longitude = atof(strtok(NULL, ","));
    item.room_type = strdup(strtok(NULL, ","));
    item.price = atof(strtok(NULL, ","));
    item.minimum_nights = atoi(strtok(NULL, ","));
    item.number_of_reviews = atoi(strtok(NULL, ","));
    item.calculated_host_listings_count = atoi(strtok(NULL, ","));
    item.availability_365 = atoi(strtok(NULL, ","));

    return item;
}

void displayStruct(struct listing item){
    printf("ID : %d\n", item.id);
    printf("Host ID : %d\n", item.host_id);
    printf("Host Name : %s\n", item.host_name);
    printf("Neighbourhood Group : %s\n", item.neighbourhood_group);
    printf("Neighbourhood : %s\n", item.neighbourhood);
    printf("Latitude : %f\n", item.latitude);
    printf("Longitude : %f\n", item.longitude);
    printf("Room Type : %s\n", item.room_type);
    printf("Price : %f\n", item.price);
    printf("Minimum Nights : %d\n", item.minimum_nights);
    printf("Number of Reviews : %d\n", item.number_of_reviews);
    printf("Calculated Host Listings Count : %d\n", item.calculated_host_listings_count);
    printf("Availability_365 : %d\n\n", item.availability_365);
}

// compare
// Reference https://codertw.com/%E7%A8%8B%E5%BC%8F%E8%AA%9E%E8%A8%80/460267/
int compare_price(const void *a, const void *b){

    return (*((struct listing*)a)).price - (*((struct listing*)b)).price;
}

int compare_name(const void *a, const void *b){

    int ret = strcmp((*((struct listing*)a)).host_name, (*((struct listing*)b)).host_name);
    return ret;
}
```

```
int main(int argc, char* args[]){

    FILE *fptr = fopen("listings.csv", "rw+");
    int i;
    int count = 0;
    char line[LINESIZE];
    struct listing list_items[22552];

    while (fgets(line, LINESIZE, fptr) != NULL){
        list_items[count++] = getfields(line);
    }

    int number;
    printf("Enter number:\n1. Store By Price\n2. Store By Host Name\n");
    scanf("%d", &number);
    // Reference https://codertw.com/%E7%A8%B%E5%BC%8F%E8%AA%9E%E8%A8%80/460267/
    if(number == 1){
        qsort(list_items, count, sizeof(list_items[22552]), compare_price);
    }
    else if(number == 2){
        qsort(list_items, count, sizeof(list_items[22552]), compare_name);
    }
    else{
        printf("Error\n");
        exit(EXIT_FAILURE);
    }

    for (i = 0; i < count; i++){
        displayStruct(list_items[i]);
    }
    fclose(fptr);
    return 0;
}
```