**كليـــــة الحاسبات والذكاء الإصطناعى**

**كنترول الفرقة الأولى**

**العـــام الجامعـــى 2019 / 2020 – دور مايـــــو**

كلية الحاسبات والذكاء الاصطناعي
Faculty of Computers & Artificial Intelligence

HELWAN UNIVERSITY

# الغلاف الخارجى للبحث

| أولاً: البيانات الخاصة بالطالب ||||
|---|---|---|---|
| الفرقة الدراسية | الاولي | التخصص | عام |
| اسم القسم | عام |||
| اسم المقرر | برمجة حاسب 1 |||
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| ثانياً: البيانات الخاصة بالبحث ||||||
|---|---|---|---|---|---|
| عنوان البحث | Library Research Project Application |||||
| طبيعة المشاركة | بحث فردى | x || بحث جماعى | |
| ارسال البحث | بواسطة البريد الالكتروني |||||

| اسماء الطلاب المشاركين فى البحث (يكتب الاسم رباعيا) | م | الاسم رباعى | رقم الجلوس | الرقم القومى |
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| تاريخ الإرسال | 7/ 6 / 2020 |
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| ثالثاً: البيانات الخاصة بالكنترول |||||
|---|---|---|---|---|
| النتيجة | ناجح | | راسب | |

| أعضاء لجنة تقييم البحث | | الاسماء | التوقيع |
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| فى حالة عدم قبول البحث يرجى ذكر الأسباب | - ............................................................ |
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# 1.Implementation Code

# (Main function)

```c
#include <stdio.h>
#include<stdlib.h>
#include<string.h>
void Insert(void);
void Delete(void);
void search_id(int id,int i);
void search_name(void);
void display_sorted(int);
void display_unsorted(void);
void implement(void);
 FILE *file;
int option,id,i=0;
int counter=0,p=0;
char check[5];
char ch1[5]="yes";
char ch2[5]="YES";
  struct Details{
    int id;
    char name[30];
    int quantity;  };
    struct Details books_detail[30];
     struct Details D[30];//struct for sorted data
int main(){
file=fopen("book data","r");        //start implement data from file to array of struct
if(file==NULL){printf("file cannot be found");}
  else{
       while(!feof(file)){
       fscanf(file,"%d\t",&books_detail[counter].id);
       fscanf(file,"\t%[^_]%*s",&books_detail[counter].name);
       fscanf(file,"%d\n",&books_detail[counter].quantity);
       counter++;
                    }
} fclose(file);
                        //end implement data from file to array of struct
do{
    printf("1:Insert a book \n");
    printf("2:Delete a book by id\n");
    printf("3:Search a book by id\n");
```

```c
      printf("4:Search a book by name\n");
      printf("5:Display all books sorted(id,name,quantity)\n");
      printf("6:Display all books unsorted(id,name,quantity)\n");
      printf("enter option:");
      scanf("%d",&option);
      getchar();
      system("cls");
    switch(option){
     case 1:Insert();break;
     case 2:Delete();break;
     case 3:printf("enter id to search:");
          scanf("%d",&id);
          search_id(id,i);
          break;
     case 4:search_name();break;
     case 5:display_sorted(1);break;
     case 6:display_unsorted();break;
    }implement();
printf("would you like to make another operation press (yes or no):\n");
scanf("%s",check);
      system("cls");
          }
    while(strcmp(check,ch1)==0||strcmp(check,ch2)==0);//repeat program
    return 0;
    }
```

# 2. Function Codes and their corresponding Screenshots of Output Screen

## a. Create a text file

Screenshot of the text file including some books with their ids, name, and quantity)
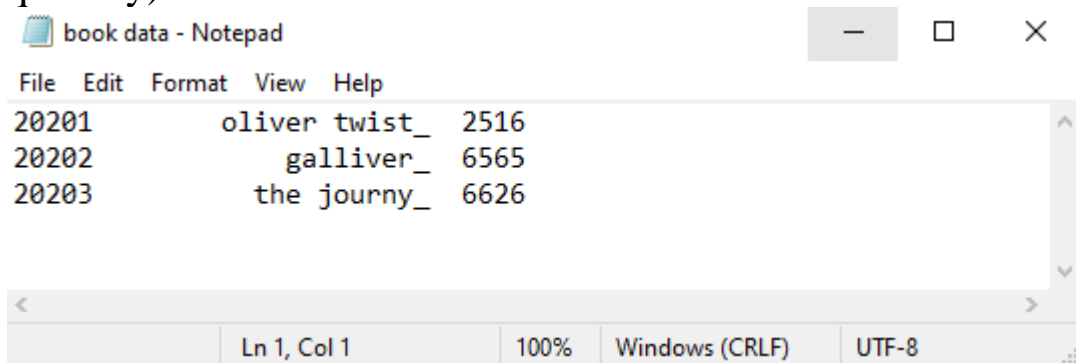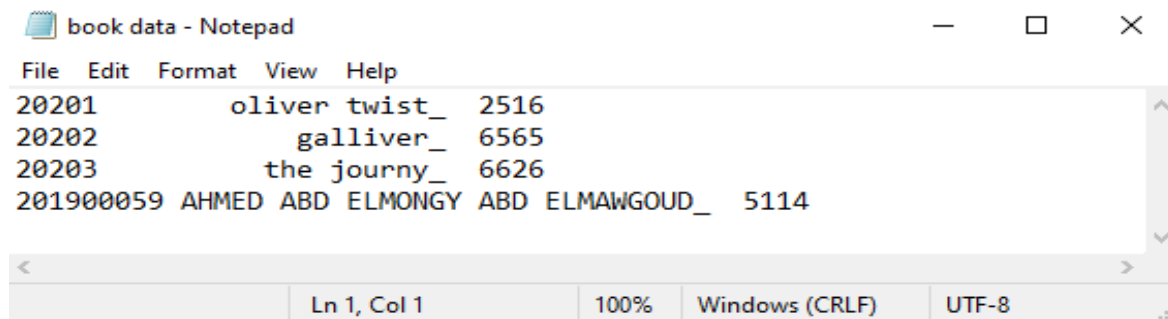


## b. Insert a book

The function and the screenshot of output screen (Insert your id, complete name, any grade as a book), text file after insertion.

```
void Insert(void){
    printf("enter book id:");
    scanf("%d",&books_detail[counter].id);
    getchar();
    printf("enter book name:");
    gets(books_detail[counter].name);
    printf("enter book quantity:");
    scanf("%d",&books_detail[counter].quantity);
    counter++;
}
```
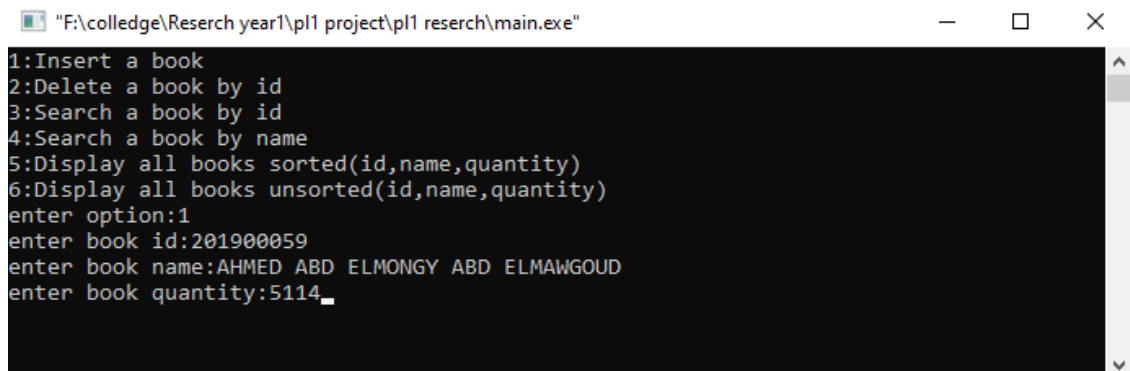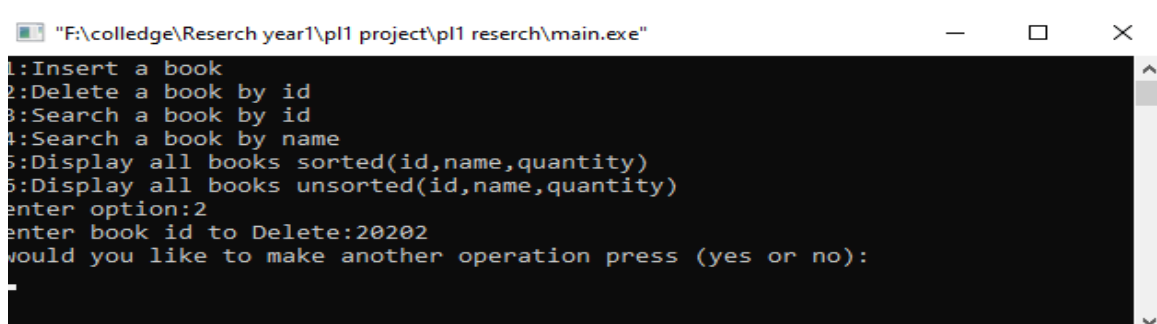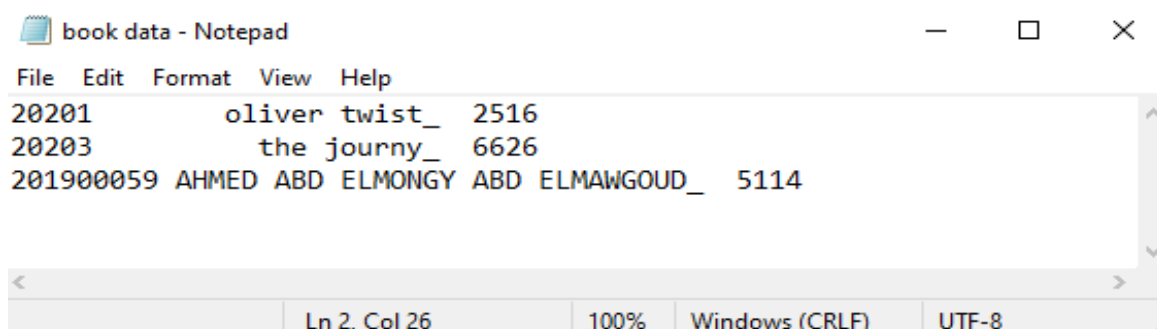
## c. Delete a book by id

The function and the screenshot of output screen (choose an id to delete, but not your id), text file after deletion.

```c
void Delete(void){                    //start delete book function
    int j,d,q=0,delete_id;
    printf("enter book id to Delete:");
    scanf("%d",&d);
        for(q=0;q<counter;q++){
            if(books_detail[q].id==d)break;
        }if(q<counter){              //if id was found
        counter--;
        for(j=q;j<counter;j++){
            books_detail[j].id=books_detail[j+1].id;
        }
        books_detail[j].quantity=books_detail[j+1].quantity;
        }
        else{printf("ID NOT FOUND\n");}
        }
```
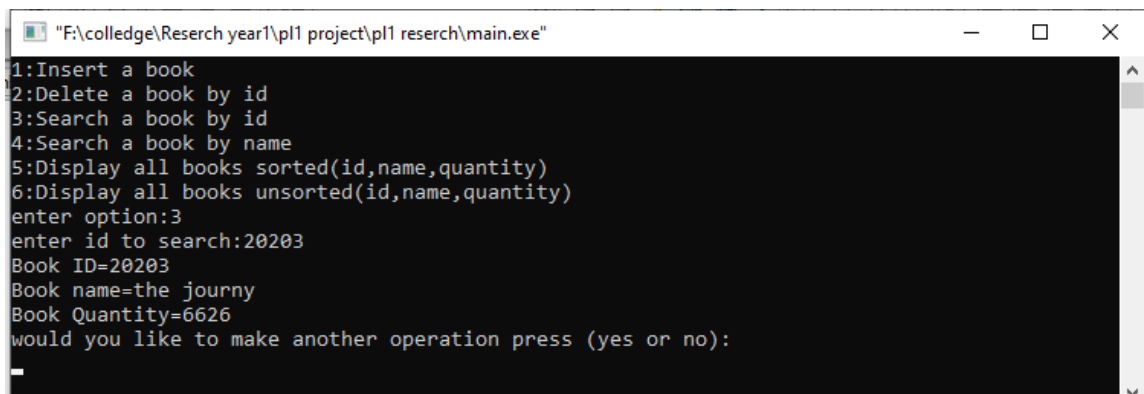
**d. Search a book by id and display its name and quantity using linear search recursively. If not exist, display "Not found".**
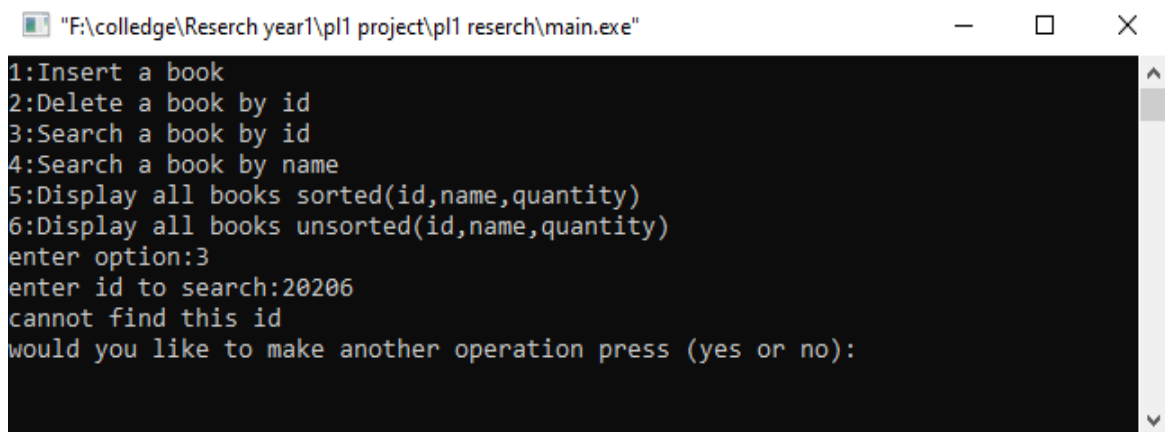
The function and the screenshot of output screen
- Choose *your id* to display.
- Choose an *id that doesn't exist* in your file.

**void search_id(int id,int i){**      **function with id recursion**
**if(i<counter)**
**{      if(id==books_detail[i].id){**
**printf("Book ID=%d\nBook name=%s\nBook**
**Quantity=%d\n",books_detail[i].id,books_detail[i].name,books_detail**
**[i].quantity);**
**i++;return search_id(id,counter+1);**
**}**
**else {i++;**
**return search_id(id,i);}**
**}**
**else if(i==counter){printf("cannot find this id\n");}**
**}**

```
"F:\colledge\Reserch year1\pl1 project\pl1 reserch\main.exe"              —   □   ×
1:Insert a book
2:Delete a book by id
3:Search a book by id
4:Search a book by name
5:Display all books sorted(id,name,quantity)
6:Display all books unsorted(id,name,quantity)
enter option:3
enter id to search:20203
Book ID=20203
Book name=the journy
Book Quantity=6626
would you like to make another operation press (yes or no):
```
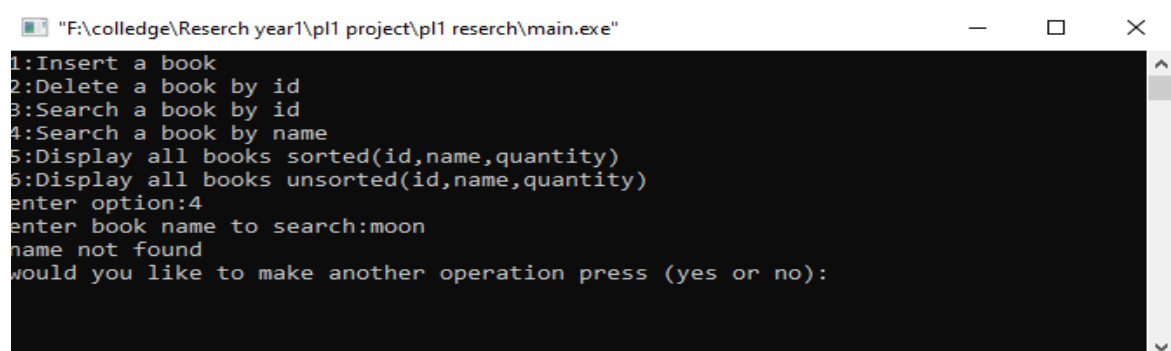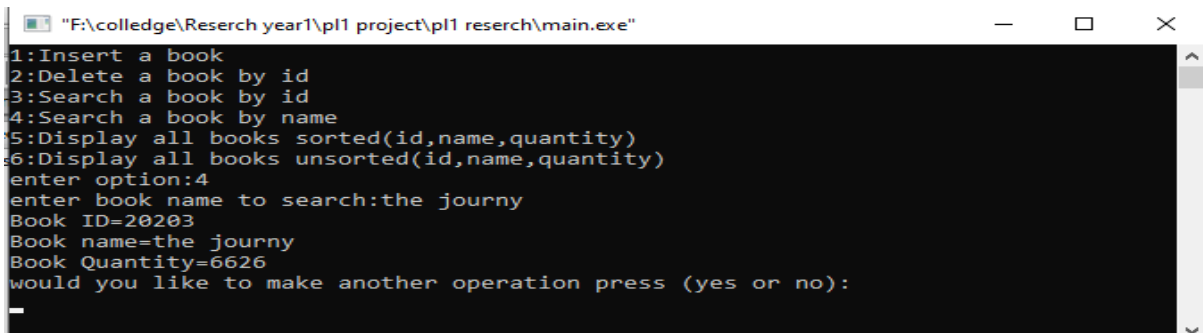
```
"F:\colledge\Reserch year1\pl1 project\pl1 reserch\main.exe"              —   □   ×
1:Insert a book
2:Delete a book by id
3:Search a book by id
4:Search a book by name
5:Display all books sorted(id,name,quantity)
6:Display all books unsorted(id,name,quantity)
enter option:3
enter id to search:20206
cannot find this id
would you like to make another operation press (yes or no):
```

**e. Search a book by name and display its id and quantity using binary search. If not exist, display "Not found".**

The function and the screenshot of output screen
- Choose an *id that exist* to display.
- Choose an *id that doesn't exist* in your file.

```
void search_name(void){
    display_sorted(0);
    int low=0,middle,high=p-1;char key[25];
    int cheak_num=0;
    printf("enter book name to search:");
    gets(key);
    while(low<=high){
        middle=(low+high)/2;
        if(strcmp(key,D[middle].name)==0){
            printf("Book ID=%d\nBook name=%s\nBook
Quantity=%d\n",D[middle].id,D[middle].name,D[middle].quantity);
            cheak_num=1;low=10;
        }
        else if(strcmp(key,D[middle].name)==1){low=middle+1;}
        else high=middle-1;
    }
    if(cheak_num==0){printf("name not found\n");}
}
```
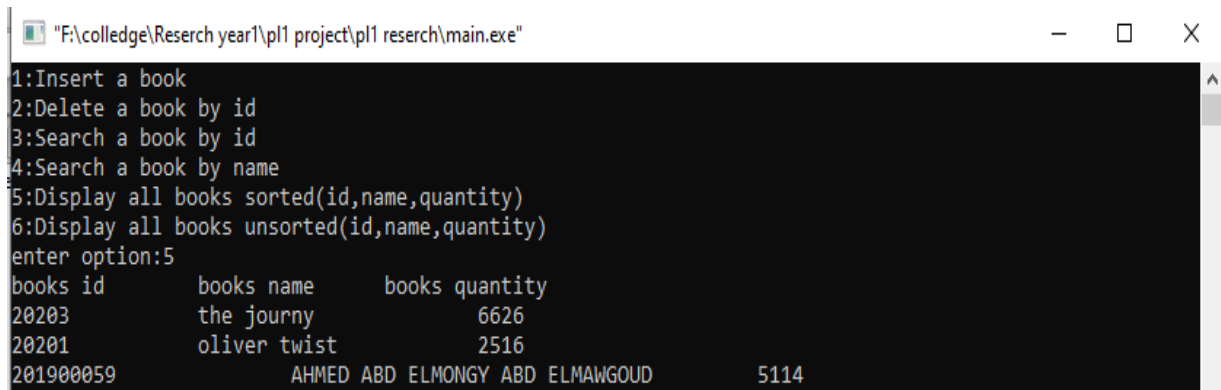
```
"F:\colledge\Reserch year1\pl1 project\pl1 reserch\main.exe"                    —    □    ×
1:Insert a book
2:Delete a book by id
3:Search a book by id
4:Search a book by name
5:Display all books sorted(id,name,quantity)
6:Display all books unsorted(id,name,quantity)
enter option:4
enter book name to search:the journy
Book ID=20203
Book name=the journy
Book Quantity=6626
would you like to make another operation press (yes or no):
```

```
"F:\colledge\Reserch year1\pl1 project\pl1 reserch\main.exe"                    —    □    ×
1:Insert a book
2:Delete a book by id
3:Search a book by id
4:Search a book by name
5:Display all books sorted(id,name,quantity)
6:Display all books unsorted(id,name,quantity)
enter option:4
enter book name to search:moon
name not found
would you like to make another operation press (yes or no):
```

**f. Display all books sorted by name, and their corresponding ids and quantity.**

The function and the screenshot of output screen of all sorted books including your name.

```c
void display_sorted(int mine){
   int h=0,g;char s_temp[25];

    file=fopen("book data","r");
if(file==NULL){printf("file cannot be found");}
   else{ while(!feof(file)){
        fscanf(file,"%d",&D[p].id);
        fscanf(file,"\t%[^_]%*s",D[p].name);
        fscanf(file,"%d\n",&D[p].quantity);
        p++;
        }
} fclose(file);
   for(h=1;h<p;h++){
    for(g=0;g<p;g++){
    if(strcmp(D[h].name,D[g].name)>0){
        int temp;
        temp=D[g].id;
        D[g].id=D[g+1].id;
        D[g+1].id=temp;
        temp=D[g].quantity;
        D[g].quantity=D[g+1].quantity;
        D[g+1].quantity=temp;
        strcpy(s_temp,D[g].name);
        strcpy(D[g].name,D[g+1].name);
        strcpy(D[g+1].name,s_temp);
   }
   }
   }
  if(mine){
  printf("books id\tbooks name\tbooks quantity\n");
   for(int i=0;i<p;i++){
     printf("%4d\t\t%s\t\t%d\n",D[i].id,D[i].name,D[i].quantity);
        }
      }
}
```
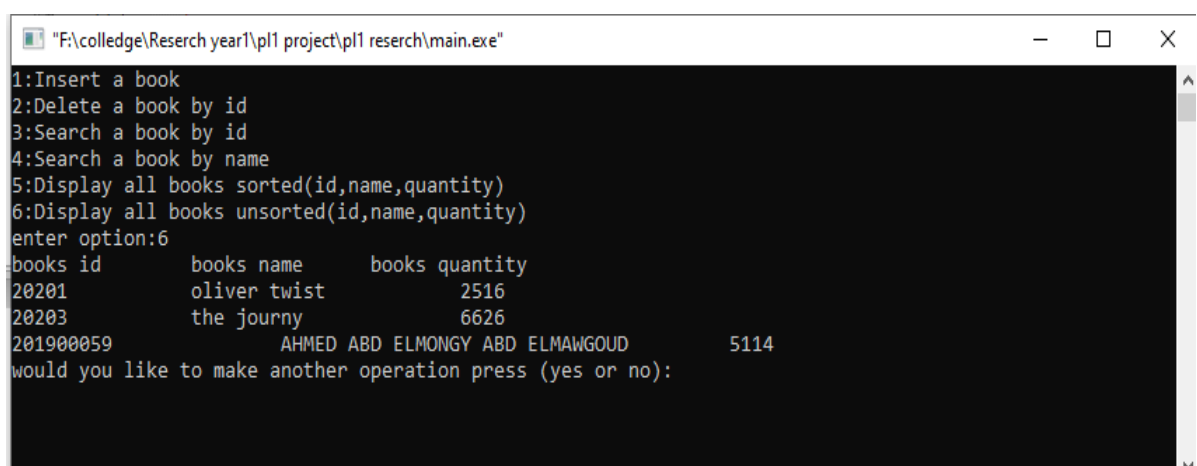
## g. Display all books unsorted, their ids, names and quantity (as entered)

The function and the screenshot of output screen of all unsorted books including your name.

```
void display_unsorted(void){
  printf("books id\tbooks name\tbooks quantity\n");
  for(int y=0;y<counter;y++){

printf("%4d\t\t%s\t\t%d\n",books_detail[y].id,books_detail[y].name
,books_detail[y].quantity);
  }
}
```
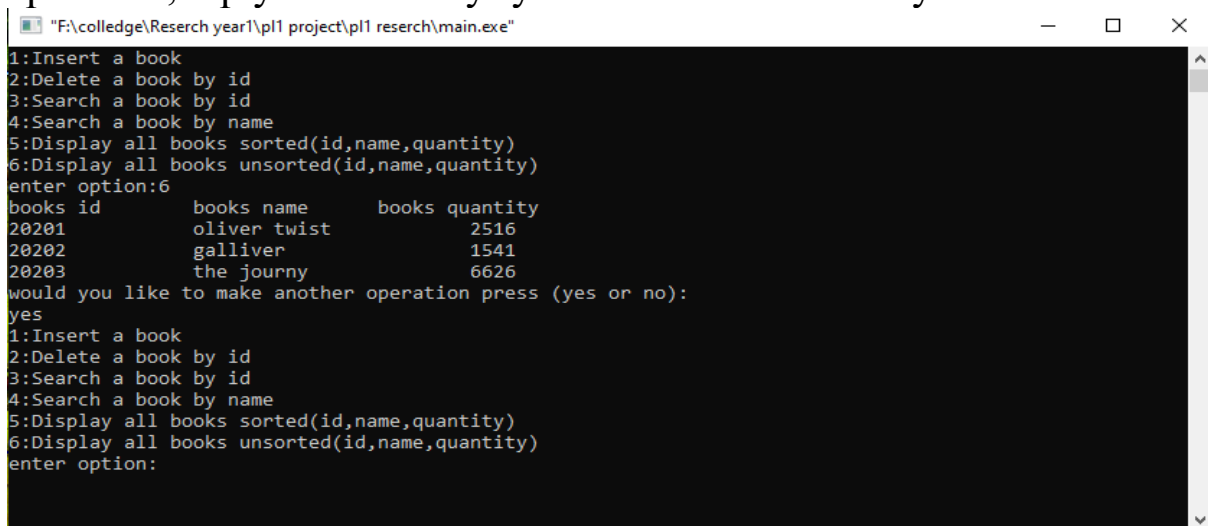
## h. Ask if you want another operation

The screenshot of output screen when you ask the user if he wants another operation, reply one time by 'yes' and another time by 'no'.
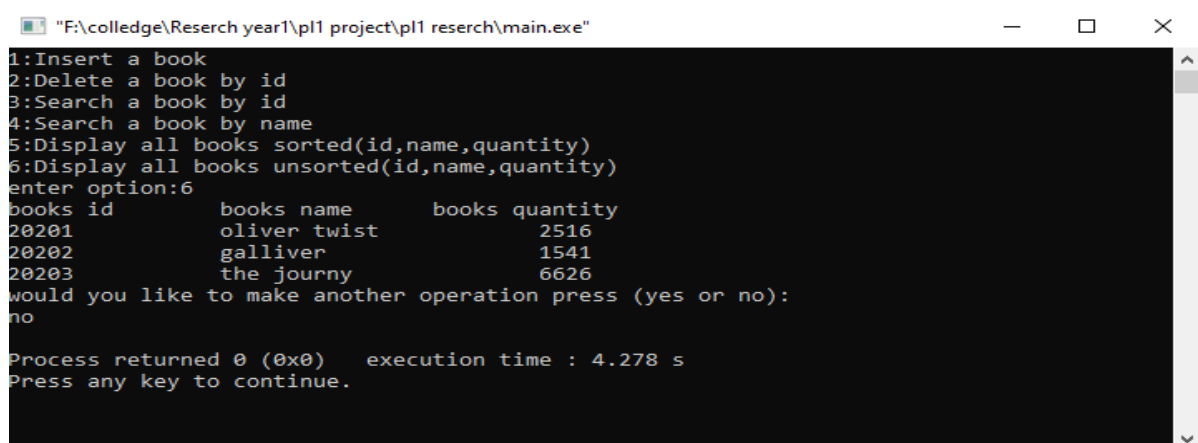
```
■ "F:\colledge\Reserch year1\pl1 project\pl1 reserch\main.exe"                    —    □    ×
1:Insert a book
2:Delete a book by id
3:Search a book by id
4:Search a book by name
5:Display all books sorted(id,name,quantity)
6:Display all books unsorted(id,name,quantity)
enter option:6
books id        books name      books quantity
20201           oliver twist        2516
20202           galliver            1541
20203           the journy          6626
would you like to make another operation press (yes or no):
yes
1:Insert a book
2:Delete a book by id
3:Search a book by id
4:Search a book by name
5:Display all books sorted(id,name,quantity)
6:Display all books unsorted(id,name,quantity)
enter option:
```

```
■ "F:\colledge\Reserch year1\pl1 project\pl1 reserch\main.exe"                    —    □    ×
1:Insert a book
2:Delete a book by id
3:Search a book by id
4:Search a book by name
5:Display all books sorted(id,name,quantity)
6:Display all books unsorted(id,name,quantity)
enter option:6
books id        books name      books quantity
20201           oliver twist        2516
20202           galliver            1541
20203           the journy          6626
would you like to make another operation press (yes or no):
no

Process returned 0 (0x0)    execution time : 4.278 s
Press any key to continue.
```

## Function that implement the book data to the file:

```c
void implement(void){
     file=fopen("book data","w");
    for(int z=0;z<counter;z++){
   fprintf(file,"%-10d",books_detail[z].id);
   fprintf(file,"%15s_",books_detail[z].name);
   fprintf(file,"%6.2d\n",books_detail[z].quantity);}
   fclose(file);
   }
```