

C++ PROGRAMMING

By Kevin JUBERT

SUMMARY



UML Diagram



Menu



View Class



PaperBack Class



HardBack Class

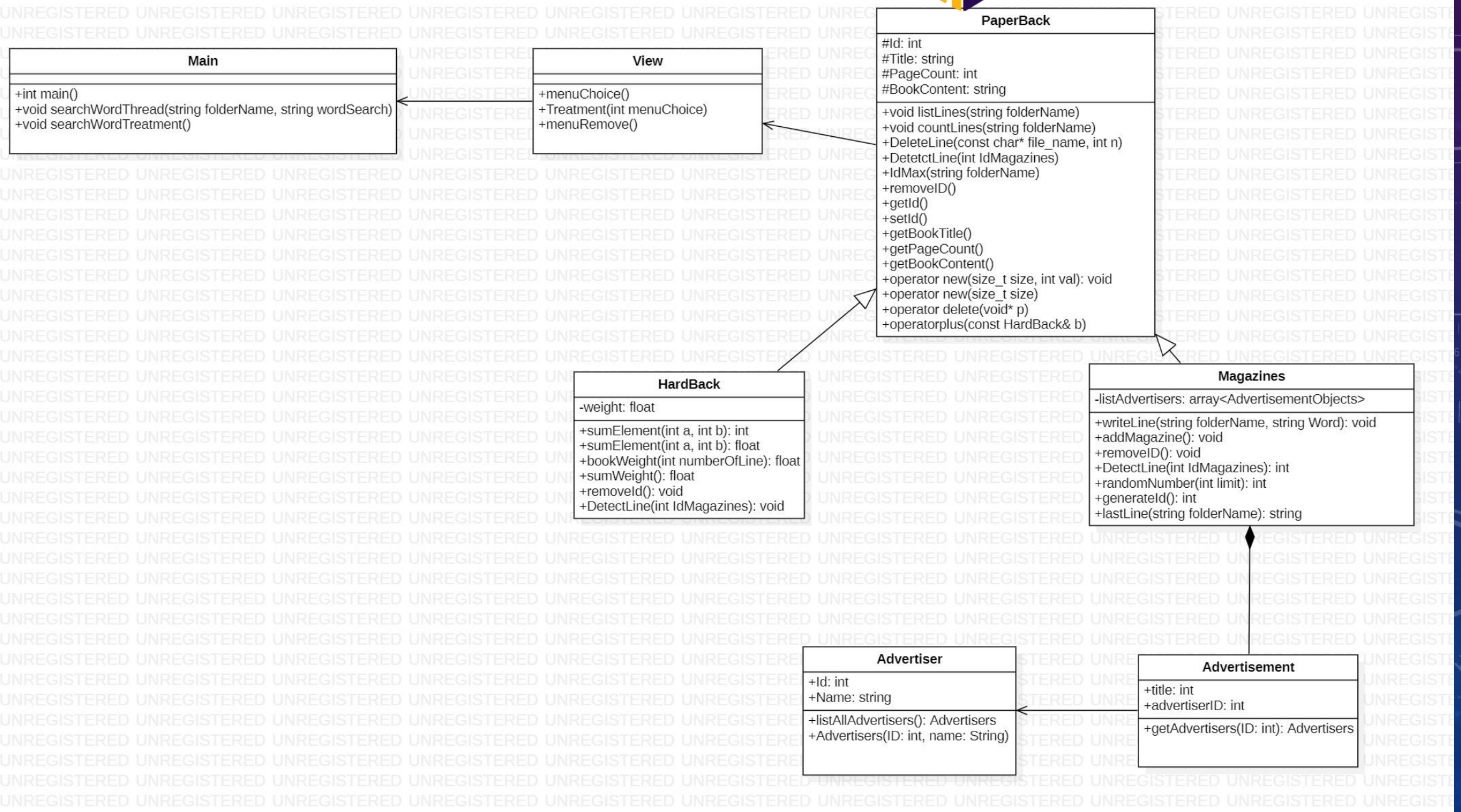


Magazines



Advertisers/ Advertisement

UML CLASS DIAGRAM



MAIN CLASS

```
Main.cpp  X  Magazines.h  PaperBack.h  HardBack.cpp  Liste d'erreurs  Sortie
KevinJUBERTProject  (Portée globale)

28
29  std::mutex MyMutex;
30
31
32
33
34  //----- SEARCH A WORD -----
35
36  +void searchWordThread(string folderName, string wordSearch){ ... }
71
72  +void searchWordTreatment(){ ... }
98
99  -int main()
100  {
101
102      bool die = false;
103
104      View view;
105
106      while (die == false)
107      {
108          - if (view.Treatment(view.menuChoice())==8) {
109              searchWordTreatment();
110          }
111      }
112
113      return 0;
114  }
115
```

Mutexes and Threading

Impossible condition to reach

Execution of the Program

If the user want run the « Search Word » function

VIEW CLASS

Management of Programs Execution

```
View.cpp Main.cpp Sortie Advertisement.cpp Magazines.h
KevinJUBERTProject (Portée globale)
27
28
29 +int View::menuChoice() { ... }
58 +int View::Treatment(int menuChoice) { ... }
139 +void View::menuRemove() { ... }
187
188
```

```
View.cpp Main.cpp Sortie Advertisement.cpp Magazines.h HardBack.cpp PaperBack.cpp
KevinJUBERTProject (Portée globale)
29 int View::menuChoice()
30 {
31     cout << " Welcome on Library's App :)" << endl;
32     cout << "\n\n\n" << endl;
33     int choiceTreatment;
34
35     cout << " *****" << endl;
36     cout << " => MENU LIBRARY <=" << endl;
37     cout << " *****" << endl;
38     cout << "\n ==> 1| List all magazines" << endl;
39     cout << " ==> 2| List all paperback books" << endl;
40     cout << " ==> 3| List all hardback books" << endl;
41     cout << " ==> 4| List all advertisers" << endl;
42     cout << " ==> 5| List advertisements and advertiser for a magazine" << endl;
43     cout << " ==> 6| Remove a Book / Magazine by ID" << endl;
44     cout << " ==> 7| Add a magazine" << endl;
45     cout << " ==> 8| Search for a word" << endl;
46     cout << " ==> 9| Sum of the weight of all hardback books" << endl;
47     cout << " ==>10| Sign out" << endl;
48     cout << endl;
49     cout << " *****" << endl;
50     cout << endl;
51
52     cin >> choiceTreatment;
53
54     return choiceTreatment;
55
56
57 };
```

```
View.cpp Main.cpp Sortie Advertisement.cpp Magazines.h HardBack.cpp PaperBack.cpp
KevinJUBERTProject (Portée globale)
139 void View::menuRemove()
140 {
141     // ----- REMOVE BY ID MENU -----
142
143
144     int choice;
145
146     cout << "+-----+-----+" << endl;
147     cout << " Which type of book do you want to remove?" << endl;
148     cout << " 1- Hardback Book 2 - PaperBack Book or 3 - Magazine" << endl;
149     cout << "+-----+-----+" << endl;
150     cin >> choice;
151
152     if (choice == 1) {
153         cout << "+-----+-----+" << endl;
154         paperBack.listLines("HardBack");
155         cout << "+-----+-----+" << endl;
156         cout << endl;
157         hardBack.removeID();
158         cout << endl;
159         cout << "+-----+-----+" << endl;
160     }
161
162     else if (choice == 2) {
```

```
View.cpp Main.cpp Sortie Advertisement.cpp Magazines.h HardBack.cpp PaperBack.cpp
KevinJUBERTProject (Portée globale)
58 int View::Treatment(int menuChoice)
59 {
60
61     switch (menuChoice)
62     {
63     case 1:
64         cout << " *****" << endl;
65         cout << " Magazines" << endl;
66         cout << " *****" << endl;
67         paperBack.listLines("Magazines");
68         break;
69     case 2:
70         cout << " *****" << endl;
71         cout << " PaperBack Books" << endl;
72         cout << " *****" << endl;
73         paperBack.listLines("PaperBack");
74         break;
75     case 3:
76         cout << " *****" << endl;
77         cout << " HardBacks Books" << endl;
78         cout << " *****" << endl;
79         paperBack.listLines("HardBack");
80         break;
81     }
```

C:\D:\StaffordShire University\ ConsoleApplication1\De

Welcome on Library's App :)

=> MENU LIBRARY <=

```
==> 1| List all magazines
==> 2| List all paperback books
==> 3| List all hardback books
==> 4| List all advertisers
==> 5| List advertisements and advertiser for a magazine
==> 6| Remove a Book / Magazine by ID
==> 7| Add a magazine
==> 8| Search for a word
==> 9| Sum of the weight of all hardback books
==>10| Sign out
```

MAIN MENU

8 . SEARCH A WORD

8

```
*****
                        Search a Word
*****
```

Enter a word to Search :THE

```
Enter a word to Search :THE
Id => 1 Title:"THE WOMAN IN THE WINDOW" Number of Page=45 ACT1.txt
+=====+
Loading...
Id => 6 Title:"ALL THE LIGHT WE CANNOT SEE" Number of Page=54
+=====+
Loading...
```

|====>2 Result(s) for THE in PaperBack Data Base.

```
Id => 4 weight: 2.53 Title: THE BETROTHED Number of Page: 269
+=====+
Loading...
```

```
Enter a word to Search :THE
Id => 1 Title:"THE WOMAN IN THE WINDOW" Number of Page=45 ACT1.txt
+=====+
Loading...
Id => 6 Title:"ALL THE LIGHT WE CANNOT SEE" Number of Page=54
+=====+
Loading...
```

|====>2 Result(s) for THE in PaperBack Data Base.

```
Id => 4 weight: 2.53 Title: THE BETROTHED Number of Page: 269
+=====+
Loading...
Id => 6 weight: 5.92 Title: THE HATE U GIVE Number of Page: 543
+=====+
Loading...
```

|====>2 Result(s) for THE in HardBack Data Base.

|====>0 Result(s) for THE in Magazines Data Base.

PAPERBACK CLASS



```
Sortie X Magazines.txt Main.cpp Advertisement.cpp Magazines.h HardBack.cpp Paperback.cpp X
KevinJUBERTProject Paperback IdMax(string folderName)

35 +string Paperback::getBookContent() { ... }
39
40 +string Paperback::getBookTitle() { ... }
44
45 +int Paperback::getPageCount() { ... }
49
50
51
52 +void Paperback::listLines(string folderName) { ... }
66
67 +int Paperback::countLines(string folderName) { ... }
82
83
84
85 //----- REMOVE BY ID -----
86
87
88 +int Paperback::IdMax(string folderName) { ... }
134
135 +void Paperback::removeID() { ... }
170
171 +void Paperback::DeleteLine(const char* file_name, int n) { ... }
194
195 +int Paperback::DetectLine(int IdPaperBackBook) { ... }
228
229
```


9 . SUM OF THE WEIGHT OF ALL HARDBACK BOOKS

Magazines.txt	Main.cpp	Advertisement.cpp	Magazines.h	HardBack.cpp	PaperBack.cpp	HardBack.txt
1	Id => 1 weight: 0.45	Title: ONE OF US IS LYING	Number of Page: 22			
2	Id => 2 weight: 3.10	Title: CHAIN OF GOLD	Number of Page: 214			
3	Id => 3 weight: 3.85	Title: STAMPED	Number of Page: 812			
4	Id => 4 weight: 2.53	Title: THE BETROTHED	Number of Page: 269			
5	Id => 5 weight: 0.74	Title: CLAP WHEN YOU LAND	Number of Page: 123			
6	Id => 6 weight: 5.92	Title: THE HATE U GIVE	Number of Page: 543			
7	Id => 7 weight: 1.45	Title: FIVE FEET APART	Number of Page: 90			
8	Id => 8 weight: 1.08	Title: CHILDREN OF VIRTUE AND VENGEANCE	Number of Page: 130			

Calculator :

$0,45 + 3,1 + 3,85 + 2,53 + 0,74 + 5,92 + 1,45 + 1,08 =$ >

19,12

Program :

```
9
*****
Weight's Sum of all Hardback Books
*****
+-----+
| Total of Books's Weight :19.12 |
+-----+
```

Sounds Perfect !!! ✓

HARDBACK BOOK « HEADER »

The image shows a C++ IDE window with the following tabs: HardBack.h, HardBack.cpp, Liste d'erreurs, Sortie, and Paperback.cpp. The project is named KevinJUBERTProject and has a global scope. The code in HardBack.h is as follows:

```
1  #pragma once
2  #include "PaperBack.h"
3
4
5
6  class HardBack :public Paperback
7  {
8  private:
9      float weight=0;
10
11  public:
12
13      void setWeight(float weight);
14      float getWeight();
15      int sumElement(int a, int b);
16      float sumElement(float a, float b);
17      float bookWeight(int numberOfLine);
18      void sumWeight();
19
20      auto operator+(const HardBack& b);
21
22      void removeID();
23
24      int DetectLine(int IdMagazines);
25
26
```

Annotations and arrows pointing to the code:

- Inheritance of Paperback Book class** (yellow box) points to line 6: `class HardBack :public Paperback`.
- Function Overloading** (red box) has two arrows pointing to lines 15 and 16: `int sumElement(int a, int b);` and `float sumElement(float a, float b);`.
- New & Delete** (teal box) has an arrow pointing to line 17: `float bookWeight(int numberOfLine);`.
- Operator Overloading** (blue box) has an arrow pointing to line 20: `auto operator+(const HardBack& b);`.

HARDBACK CLASS



```
View.cpp  Main.cpp  Sortie  Advertisement.cpp  Magazines.h
KevinJUBERTProject (Portée globale)

1  #include "HardBack.h"
2
3  +void  HardBack::setWeight(float weight){ ... }
7
8  +float  HardBack::getWeight(){ ... }
13
14  +int  HardBack::sumElement(int a, int b){ ... }
18
19  +float  HardBack::sumElement(float a, float b){ ... }
23
24  +float  HardBack::bookWeight(int numberOfLine){ ... }
83
84  +void  HardBack::sumWeight(){ ... }
95
96  // ----- REMOVE BY ID -----
97
98
99  +void  HardBack::removeID(){ ... }
137
138  +int  HardBack::DetectLine(int IdMagazines){ ... }
164
```

Simple function to sum
int and float elements

« *bookWeight* » has for
purpose to collect the
HardBack's weight on a
specified line.

« *sumWeight* » make the sum
of all Hardback Book's weight.

« *DetectLine* » detect the
line of an ID entered.

« *removeID* » mix the
DetectLine and the
DeleteLine function of
PaperBack class

MAGAZINES « HEADER »

```
Magazines.h  X  Paperback.h  HardBack.cpp  Liste d'erreurs  Sortie  Paperback.cpp
KevinJUBERTProject  (Portée globale)
4  #include <string>
5  #include <iostream>
6
7  #include <fstream>
8  #include <stdio.h>
9  #include <iomanip>
10 #include <sstream>
11
12 using namespace std;
13 using std::cout;
14 using std::cin;
15
16
17 class Magazines : public Paperback
18 {
19 public :
20     void writeLine(string folderName, string Word);
21     void addMagazine();
22     void removeID();
23     int DetectLine(int IdMagazines);
24     int randomNumber(int limit);
25     int generateId();
26     string lastLine(string folderName);
27 };
28
29
```

Inheritance of Paperback Book class

C++ Strings

MAGAZINES



twinkl.com

```
View.cpp | Main.cpp | Sortie | Advertisement.cpp | Magazines.h* X
KevinJUBERTProject | Magazines

19 public :
20     //ADD A NEW MAGAZINES
21
22     void writeLine(string folderName, string Word);
23     void addMagazine();
24     int randomNumber(int limit);
25     int generateId();
26     string lastLine(string folderName);
27
28     //REMOVE BY ID
29     void removeID();
30     int DetectLine(int IdMagazines);
31
32
33 };
34
35
```

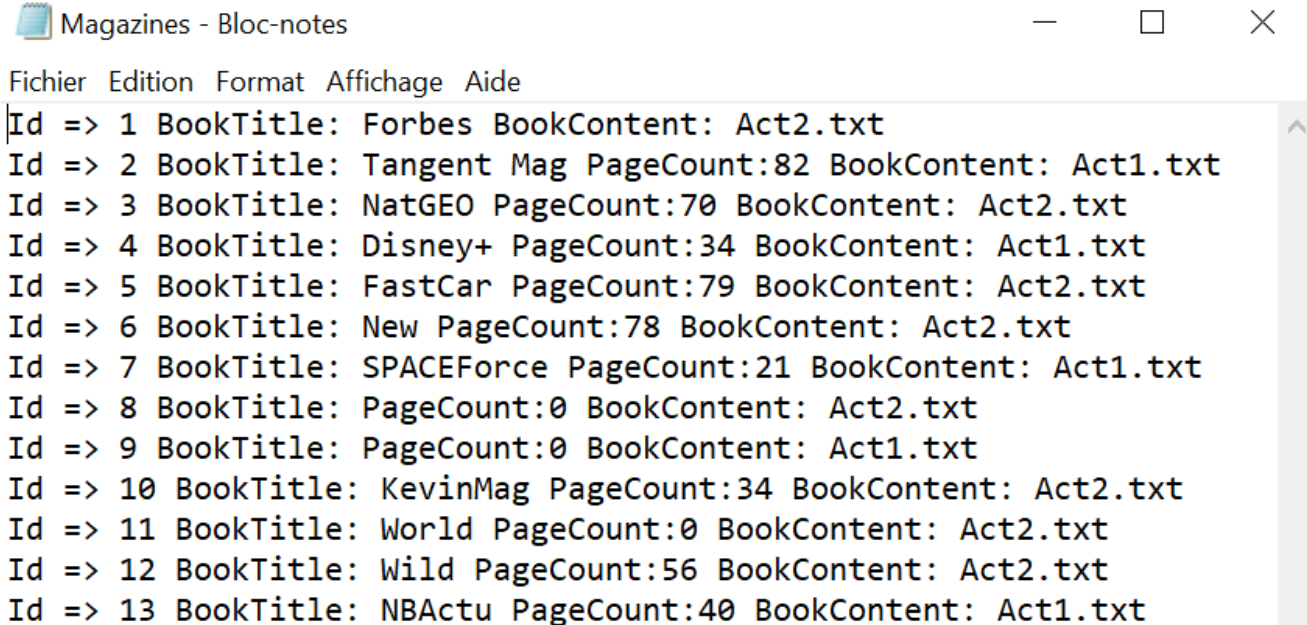
« *DetectLine* » detect the line of an ID entered.

« *removeID* » mix the DetectLine and the DeleteLine fuction of Paperback class

« 1 . LIST ALL MAGAZINES »

Magazines

```
+=====+
Id => 1 BookTitle: Forbes BookContent: Act2.txt
+=====+
Id => 2 BookTitle: Tangent Mag PageCount:82 BookContent: Act1.txt
+=====+
Id => 3 BookTitle: NatGEO PageCount:70 BookContent: Act2.txt
+=====+
Id => 4 BookTitle: Disney+ PageCount:34 BookContent: Act1.txt
+=====+
Id => 5 BookTitle: FastCar PageCount:79 BookContent: Act2.txt
+=====+
Id => 6 BookTitle: New PageCount:78 BookContent: Act2.txt
+=====+
Id => 7 BookTitle: SPACEForce PageCount:21 BookContent: Act1.txt
+=====+
Id => 8 BookTitle: PageCount:0 BookContent: Act2.txt
+=====+
Id => 9 BookTitle: PageCount:0 BookContent: Act1.txt
+=====+
Id => 10 BookTitle: KevinMag PageCount:34 BookContent: Act2.txt
+=====+
Id => 11 BookTitle: World PageCount:0 BookContent: Act2.txt
+=====+
Id => 12 BookTitle: Wild PageCount:56 BookContent: Act2.txt
+=====+
Id => 13 BookTitle: NBActu PageCount:40 BookContent: Act1.txt
Welcome on Library's App :)
```



Magazines - Bloc-notes

Fichier Edition Format Affichage Aide

```
Id => 1 BookTitle: Forbes BookContent: Act2.txt
Id => 2 BookTitle: Tangent Mag PageCount:82 BookContent: Act1.txt
Id => 3 BookTitle: NatGEO PageCount:70 BookContent: Act2.txt
Id => 4 BookTitle: Disney+ PageCount:34 BookContent: Act1.txt
Id => 5 BookTitle: FastCar PageCount:79 BookContent: Act2.txt
Id => 6 BookTitle: New PageCount:78 BookContent: Act2.txt
Id => 7 BookTitle: SPACEForce PageCount:21 BookContent: Act1.txt
Id => 8 BookTitle: PageCount:0 BookContent: Act2.txt
Id => 9 BookTitle: PageCount:0 BookContent: Act1.txt
Id => 10 BookTitle: KevinMag PageCount:34 BookContent: Act2.txt
Id => 11 BookTitle: World PageCount:0 BookContent: Act2.txt
Id => 12 BookTitle: Wild PageCount:56 BookContent: Act2.txt
Id => 13 BookTitle: NBActu PageCount:40 BookContent: Act1.txt
```

7. ADD A MAGAZINE

Magazines.txt ✖ Sortie View.cpp Main.cpp Advertisement.cpp

```
1 Id => 1 BookTitle: Forbes BookContent: Act2.txt
2 Id => 2 BookTitle: Tangent Mag PageCount:82 BookContent: Act1.txt
3 Id => 3 BookTitle: NatGEO PageCount:70 BookContent: Act2.txt
4 Id => 4 BookTitle: Disney+ PageCount:34 BookContent: Act1.txt
5 Id => 5 BookTitle: FastCar PageCount:79 BookContent: Act2.txt
6 Id => 6 BookTitle: New PageCount:78 BookContent: Act2.txt
7 Id => 7 BookTitle: SPACEForce PageCount:21 BookContent: Act1.txt
8 Id => 8 BookTitle: PageCount:0 BookContent: Act2.txt
9 Id => 9 BookTitle: PageCount:0 BookContent: Act1.txt
10 Id => 10 BookTitle: KevinMag PageCount:34 BookContent: Act2.txt
11 Id => 11 BookTitle: World PageCount:0 BookContent: Act2.txt
12 Id => 12 BookTitle: Wild PageCount:56 BookContent: Act2.txt
13 Id => 13 BookTitle: NBActu PageCount:40 BookContent: Act1.txt
```

```
*****
Add a Magazines
*****

Enter the Book's Title =>
StaffordMag

Enter the number of Page =>
78
```

Sortie Magazines.txt ✖ View.cpp Main.cpp Advertisement.cpp

```
1 Id => 1 BookTitle: Forbes BookContent: Act2.txt
2 Id => 2 BookTitle: Tangent Mag PageCount:82 BookContent: Act1.txt
3 Id => 3 BookTitle: NatGEO PageCount:70 BookContent: Act2.txt
4 Id => 4 BookTitle: Disney+ PageCount:34 BookContent: Act1.txt
5 Id => 5 BookTitle: FastCar PageCount:79 BookContent: Act2.txt
6 Id => 6 BookTitle: New PageCount:78 BookContent: Act2.txt
7 Id => 7 BookTitle: SPACEForce PageCount:21 BookContent: Act1.txt
8 Id => 8 BookTitle: PageCount:0 BookContent: Act2.txt
9 Id => 9 BookTitle: PageCount:0 BookContent: Act1.txt
10 Id => 10 BookTitle: KevinMag PageCount:34 BookContent: Act2.txt
11 Id => 11 BookTitle: World PageCount:0 BookContent: Act2.txt
12 Id => 12 BookTitle: Wild PageCount:56 BookContent: Act2.txt
13 Id => 13 BookTitle: NBActu PageCount:40 BookContent: Act1.txt
14 Id => 14 BookTitle:StaffordMag PageCount:78 BookContent: Act3.txt
```


6 . MAGAZINES : REMOVE BY ID

```
Sortie  Magazines.txt  View.cpp  Main.cpp  Advertisement.cpp
1  Id => 1 BookTitle: Forbes BookContent: Act2.txt
2  Id => 2 BookTitle: Tangent Mag PageCount:82 BookContent: Act1.txt
3  Id => 3 BookTitle: NatGEO PageCount:70 BookContent: Act2.txt
4  Id => 4 BookTitle: Disney+ PageCount:34 BookContent: Act1.txt
5  Id => 5 BookTitle: FastCar PageCount:79 BookContent: Act2.txt
6  Id => 6 BookTitle: New PageCount:78 BookContent: Act2.txt
7  Id => 7 BookTitle: SPACEForce PageCount:21 BookContent: Act1.txt
8  Id => 8 BookTitle: PageCount:0 BookContent: Act2.txt
9  Id => 9 BookTitle: PageCount:0 BookContent: Act1.txt
10 Id => 10 BookTitle: KevinMag PageCount:34 BookContent: Act2.txt
11 Id => 11 BookTitle: World PageCount:0 BookContent: Act2.txt
12 Id => 12 BookTitle: Wild PageCount:56 BookContent: Act2.txt
13 Id => 13 BookTitle: NBActu PageCount:40 BookContent: Act1.txt
14 Id => 14 BookTitle:StaffordMag PageCount:78 BookContent: Act3.txt
```

```
6
*****
Remove ID
*****
+-----+
Which type of book do you want to remove?
1- Hardback Book 2 - PaperBack Book or 3 - Magazine
+-----+
+=====+
+=====+
Id => 1 BookTitle: Forbes BookContent: Act2.txt
+=====+
Id => 2 BookTitle: Tangent Mag PageCount:82 BookContent: Act1.txt
```

```
+=====+
Id => 13 BookTitle: NBActu PageCount:40 BookContent: Act1.txt
+=====+
Id => 14 BookTitle:StaffordMag PageCount:78 BookContent: Act3.txt
+=====+
Check this list and Enter the Magazine's Id you want to remove :
14
+-----+
Are you sure to remove this Magazines from the list?
Enter 1-Yes or 2-No
+-----+
1
OK !This Magazines has been correctly removed
+=====+
```

```
Magazines.txt  Main.cpp  Advertisement.cpp  Magazines.h  HardBack.cpp
1  Id => 1 BookTitle: Forbes BookContent: Act2.txt
2  Id => 2 BookTitle: Tangent Mag PageCount:82 BookContent: Act1.txt
3  Id => 3 BookTitle: NatGEO PageCount:70 BookContent: Act2.txt
4  Id => 4 BookTitle: Disney+ PageCount:34 BookContent: Act1.txt
5  Id => 5 BookTitle: FastCar PageCount:79 BookContent: Act2.txt
6  Id => 6 BookTitle: New PageCount:78 BookContent: Act2.txt
7  Id => 7 BookTitle: SPACEForce PageCount:21 BookContent: Act1.txt
8  Id => 8 BookTitle: PageCount:0 BookContent: Act2.txt
9  Id => 9 BookTitle: PageCount:0 BookContent: Act1.txt
10 Id => 10 BookTitle: KevinMag PageCount:34 BookContent: Act2.txt
11 Id => 11 BookTitle: World PageCount:0 BookContent: Act2.txt
12 Id => 12 BookTitle: Wild PageCount:56 BookContent: Act2.txt
13 Id => 13 BookTitle: NBActu PageCount:40 BookContent: Act1.txt
```


END