Store Data of Authors & Books in a File
(Primary and Secondary Indexes)

Summary:

This program lets us store data about **books** and **authors** on the files, such as any book has only one author, but any author may have more than one book. The data will be stored in the following format: **delimited fields, length indicator records.**

Author attributes:

Author_ID (primary key), Author_Name (secondary key), Author_Address, Author_Mobile

Book attributes:

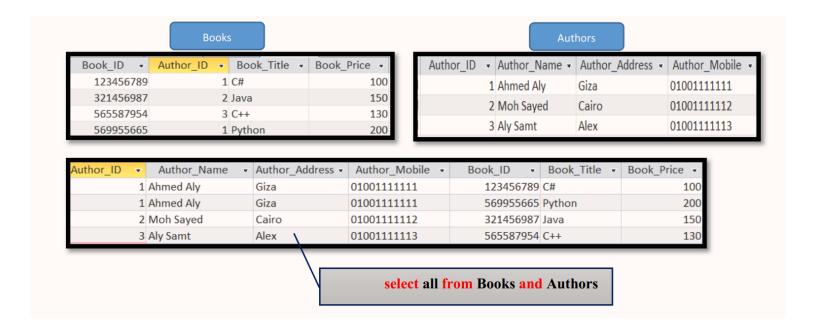Book_ID (primary key), Author_ID (secondary key), Book _Title, Book_Price

Primary and Secondary indexes:

• **All indexes** are **sorted ascending.**

• **The secondary indexes** are implemented using **inverted list** technique.

1. Primary index using the Book_ID (for Books datafile)
2. Primary index using the Author_ID (for Authors datafile)
3. Secondary index using Author_ID (for Books datafile) //Author_ID is sec. key in Books datafile
4. Secondary index using Author_Name (for Authors datafile)

Queries:

• The user can write a **query** that contains **fixed** key words (formatted in red below).
• Searching in indexes is performed using **binary search.**
• Examples for queries that user can write
♣ select all from Books where Author_ID = 'xxxx' // this query will use sec. index to get results
♣ select all from Authors where Author_ID = 'xxxx' // this query will use primary. index to get results
♣ select Book_Tile from Books where Book_ID = 'xxxx' // this query will use sec. index to get results

♣ select all from Books and Authors // (check snapshot below as an example)

Books			
Book_ID	Author_ID	Book_Title	Book_Price
123456789	1	C#	100
321456987	2	Java	150
565587954	3	C++	130
569955665	1	Python	200

Authors			
Author_ID	Author_Name	Author_Address	Author_Mobile
1	Ahmed Aly	Giza	01001111111
2	Moh Sayed	Cairo	01001111112
3	Aly Samt	Alex	01001111113

Author_ID	Author_Name	Author_Address	Author_Mobile	Book_ID	Book_Title	Book_Price
1	Ahmed Aly	Giza	01001111111	123456789	C#	100
1	Ahmed Aly	Giza	01001111111	569955665	Python	200
2	Moh Sayed	Cairo	01001111112	321456987	Java	150
3	Aly Samt	Alex	01001111113	565587954	C++	130

select all **from** Books **and** Authors

The project is built using **C++, Visual Studio**.