Text of exercise #3

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A data base is given on a single binary file with fixed-length records. The format of the file is the one generated in exercise 2. The program has to implement a user menu with the following options:

- `R n`: where `R` is the character "R", and `n` is an integer value. Read from file all data fields for the student number `n` and print them on standard output.
- `W n`: Where `W` is the character "W", and `n` is an integer value. Read from standard input all data fields for the student number `n` and write them on the file in position `n`.
- `E`: End the program.

The input file name is given on the command line. The following is an example of execution (using the file presented in exercise 2):

```
user choice: R 3     // The user wants to read info for student 3
3 200000 Verdi Giacomo 15
user choice: R 1     // The user wants to read info for student 1
1 100000 Romano Antonio 25
user choice: W 1     // The user wants to over-write info for student 1
                     // with info read from standard input
Data: 1 100000 Romano Antonio 27
                     // Read input data and store them for student 1
user choice: W 5     // The user wants to add data for student 5
                     // with info read from standard input
data: 5 157143 White House 30
                     // Read input data and store them for student 1
user choice: E       // The user wants to end the program
stop program
```

Notice that:

- The input file is supposed to be the one generated in exercise 2;
- "`//`" specifies explanatory comments not program I/O lines "`R 3`", "`R 1`", "`W 1`", etc. are the user inputs, all other characters belong to the program output.

Write three versions of the program:

- Version A: read and write the file using `SetFilePointerEx`;
- Version B: read and write the file using an OVERLAPPED data structure;
- Version C: lock each record before reading (or writing) it, and release the same record as soon as the operation has been performed. (Notice that locking for now is useless, but it will be useful with multi-threaded applications).