Lebanese University
Faculty of Science
BS Computer Science
2nd Year – S3

I2204 - Imperative Programming

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Exercises on
File Input/Output

Chapter 5

Exercise: test.txt

- write a function which creates a text file test.txt and writes to it :
  - hello world
  - good bye world
- and saves it
- test your function
  - run your program then check if the file was really created and its content is as indicated

Exercise: read test.txt

- write a function which reads the content of the text file test.txt and writes it to screen
- test your function
  - run your program then check if the file content was really copied to the screen

Exercise: write then read 1 student

```
typedef struct student{
  char name[20];
  int id;
}student;
```

- write a function "writeB" that
  - takes into parameter a file name, and a variable of type student, and
  - writes the variable in the file using the function fwrite
- write a function "readB" that
  - takes into parameter a file name, and
  - reads the student variable from the file and prints it on the screen

Exercise: write then read 1 array of student

- write a function "writeArStd" that
  - takes into parameter a file name, and an array of students, and
  - writes the array in the file using the function fwrite
- write a function "readArStd" that
  - takes into parameter a file name, and
  - reads the student array from the file and returns it

Exercise: write then read 1 list of student

- write a function "readListStd" that
  - takes into parameter a file name, and
  - reads the students from the file and returns them in the form of a linked list
  - Their order in the file must be maintained in the constructed list

Exercise: saveGrades

- Write the function saveGrades that
  - creates a text file "grades.txt"
  - fills it using fprintf with student names and their grades, from keyboard
    - 1 name + 1 space+ 1 grade per line
  - closes it
- write saveGradesTest to call it
- Check if the fille was succesfully created…

Exercise: dispalyGrade

- Write the function dispalyGrade that
  - given a student name
  - opens the file "grades.txt"
  - searches for the name and
  - returns his grade
- Write displayGradeTest

Exercise: updateGrades

- Write the function updateGrades which
  - reads the names from the file and their partial grades and
  - reads from the keyboard the final grade for each student
- Then saves the grades to the file again
- This time
  - 1 name + 1 space+ 1 partial grade + 1 space+ 1 final grade per line
- TIP
  - You have to read the file into a linked list then close the file
  - Then update the list with the grade for the final exam
  - Then write all the list to the file again

Exercise: results

- Write the function results which opens the file "grades.txt" and displays the results as follow:
- In the decreasing order of the grades
  - The student with the highest total grade first
    - Total grade = partial + final
  - The student with the lowest total grade last
- TIP
  - Here too you have to build a sorted linked list
  - Think of using a sortedInsert function

Exercise: menu for grading

- Program a menu with choices
  - Press 1 to create the grades file
  - Press 2 to display the content of the file
  - Press 3 to enter the final grades
  - Press 4 to display the results

- Try your program

Solve the old sessions

- for example :
  - Final 2019-2020 - Exercise III: File & String Manipulation
  - Session2 2017-2018:Part I: Binary images stored in binary files
  - Session2 2013-2014 Exercise III: Flights from Beirut to Istanbul