Object Oriented Programming Lab

Assignment # 02: (File Handling)

Due Date: 10, March 2019

NOTE: No Concession for Plagiarism! Must follow C++ style guidelines rules provided to you.

Question#01:

Write a C++ program that will read data from a file. Each line of this input file contains different mathematical expressions. Calculate the expressions and save the results into another file. Ask from user the name of input file with full path, locate it in your computer, open it, read the data, save the results in another file and close them. i.e.

Input File (Expressions)	**Output File** (Answers)
1+4+8+56+23+12+0+66	170
3-5-7-9+0-12+44	14
2*4*8*10*12*14	107520
2+5+6-11+4	6
5+7*8*88-55+0-44	4834
3*8-4/5	24
6+8/4-5	3
9-3+(5%4)+6	13

Question#02:

The English teacher at your University needs help in grading a True/False test. The students' IDs and test answers are stored in a file. The first entry in the file contains answers to the test in the form:
TFFTFFTTTTFFTFTFTT

Every other entry in the file is the student ID, followed by a blank space, followed by the student's responses. i.e.

ABC54301 TFTFTFTT TFTFTFFTTFT

DEF54301 TTTTTTTTTFTFTFFFFFT

GHI54301 FFFFFFFTTTTTTTTTTT

JKL54301 FTFTFTFTFFTFTFTFTF

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For example, the first entry indicates that the student ID is ABC54301 and the answer to question 1 is true, the answer to question 2 is False, and so on. This student did not answer question 9 that's why there is a blank space. The exam has 20 questions, and the class has more than 150 students. Each correct answer is awarded two points, each wrong answer gets one point deducted, and no answer gets zero points.

Write a program that processes the test data. Show the output on console and write to the output file also in the following format; the output should be the student's ID, followed by the answers, followed by the test score, followed by the test grade.

Assume the following grade scale:

90%–100%, **A**; 80%–89.99%, **B**; 70%–79.99%, **C**; 60%–69.99%, **D**; and 0%–59.99%, **F**.

Question#03:

Sr. No	Planet	Population	Gravity
0	Earth:	6928198253	9.81
1	Jenny:	32155648	8.93
2	Tramtor:	89000000000	15.03
3	Trellan:	5214000	9.62
4	Freestone:	3945851000	8.68
5	Taanagoot:	361000004	10.23

You have been given an input file (planet.txt) as above. Write a C++ program that will show the user a manual having three different choices for copying, cutting and modifying the data. i.e.

1. If user enters the character **'C'** on console then copy all the data from input file and paste it into another file named as "copy.txt".
2. If user enters the character **'X'** on console then cut all the data from input file and paste it into another file named as "cut.txt".
3. If user enters the character **'E or M'** on console then edit/modify any record in the input file based on user's choice.
4. If user enters any other character then show this message "**Wrong Input, Please Try Again**".

For example;

If user entered 'E or M' then,

> Enter the record number you wish to change: **2**

> Your selection is: **2 Tramtor: 89000000000 15.03**

> Enter new name for this planet: **Trantor**

> Enter planetary population: **89521844777**

> Enter planet's acceleration of gravity: **10.53**

Here are the new contents of the planets.txt file:

Sr. No	Planet	Population	Gravity
0	Earth:	6928198253	9.81
1	Jenny:	32155648	8.93
2	**Trantor:**	**89521844777**	**10.53**
3	Trellan:	5214000	9.62
4	Freestone:	3945851000	8.68
5	Taanagoot:	361000004	10.23

Question#04:

Design a struct that stores all the information about an employee. Name of the Struct should be "**Employee_Struct**" i.e. employee first name, last name, father name, emp_number, blood group, emp_age, factory name, department, phone number, email address, home address, salaries of previous four years (array of type string/double with size=4) .

Write code that declares an array of instances (variables) of this struct in **main** program and fills up all **the input data from a file** given below.

- Write a function "swap" having two parameters of type "**Employee_Struct**" to swap all the values in struct variables and call it in main program?
- Update all the salaries (S1-to-S4) of each employee with an increment of 5k respectively and write the updated data in an output file.
- Sort all employee data in ascending order of age and print it on console.

F_Name	L_Name	Fther_N	E_N	B_G	Age	F_N	DP	Ph	Email	HA	s1	s2	s3	s4
Ahmad	Hussain	Axel	10	B+	26	FF	Testing	123	ABC	P1	20k	30k	40k	50k
Eyal	John	Baren	101	A+	28	FF	Networks	234	DEF	P2	10k	20k	30k	40k
Moshe	Neyr	Barry	01	O+	29	FF	Security	345	GHI	P5	20k	30k	40k	50k
Bla	Casper	Axel	03	B-	35	FF	Design	456	JKL	P7	30k	40k	50k	60k
Hoda	Claude	Baren	05	B+	30	FF	Security	678	MNO	P3	50k	60k	70k	80k
et188	Crew	Barry	09	A+	33	FF	Testing	789	PQR	P4	60k	70k	80k	90k
Steven	Chester	Axel	13	A-	22	FF	Networks	987	STU	P1	30k	30k	30k	30k
Abel	Clive	Baren	19	O+	23	FF	Design	876	VWX	P1	50k	40k	40k	45k
Abraham	Basil	Barry	20	AB+	28	FF	Design	765	XYZ	P3	40k	50k	60k	60k

Good Luck ☺