Programming Assignment 7
Due Friday April 30th , 2021
No Later than 5:00 pm

The voting place that you live in partitioned into 5 counties. There are 4 candidate that are running for the city representative.

Write a C++ program that reads the election results from each of these counties and tabulates the total vote in your district for all candidates running for the election. The program reads the election returns in each county for each candidate.

The program should have an array of 5 structures to hold counties and candidate's data.

When the program runs, the data for each county and the candidates are red from a file **(voting.txt).** The total value for each county is calculated and stored.

Once the data are stored for all the counties and candidates, the program should calculate and display the totals for each candidate, the percentage of the total vote .

The input file (voting.txt) has the following data

1 192 148 306 137

2 147 190 412 121

3 186 112 221 138

4 114 121 508 139

5 267 113 482 129

The input file (voting.txt) has the following data

1 192 148 2206 137

2 147 190 2312 121

3 186 112 1121 138

4 114 121 1408 139

5 267 113 1382 129

Note : Use the following structure

```
ElectionRecord
{
        int   county
        int   candidate_A
        int   candidate_B
        int   candidate_C
        int   candidate_D
        int   total
        };
```

From your main program , you need to call the following function and pass the array of structure to each function.

1. **Populate** : function that reads data from the input file ("voting.txt") and stores the appropriate information in the struct array. The total vote for each county is also calculated and stored in the struct array

2. **Display data** : function that display data from the stored structures array

3. **Total and Winners** : Function that calculates and display the following
   - Total number votes for each candidate in all Counties.
   - Total number of votes for all candidates.
   - Percentage of vote for each candidate . If there is one candidate whose percentage if better that 50 percent, display a message declaring that candidate to be a winner of the election. If there is not such candidate , display out a message indicating the names of two top candidates of the top two vote getters and indicate a run-off election. The percent is calculated by dividing total number of votes for each candidate by total number of votes for all candidates.

Program Output :

City of Kiel
City Representative Position
---------- Election Result for The Year - 2021 ----------

County	Smith Candidate A	Joe Candidate B	Ada Candidate C	Ive Candidate D	Total Votes
Lamb	192	148	306	137	783
Camp	147	190	412	121	870
Rains	186	112	221	138	675
San	114	121	508	139	882
Real	267	113	482	129	991
Total:	906	684	1929	664	4183
Percentage:	21.70	16.52	46.11	15.87	

Winner : No Winner

Run-off Election between Smith - Candidate A and
Ada - Candidate C

This Report is Prepared By : Husain Gholoom
The Voting Company
Date : 4 – 30 - 2021

Program Output :

City of Kiel
City Representative Position
---------- Election Result for The Year - 2021 ----------

County	Smith Candidate A	Joe Candidate B	Ada Candidate C	Ive Candidate D	Total Vote
Lamb	192	148	2206	137	2683
Camp	147	190	2312	121	2770
Rains	186	112	1121	138	1557
San	114	121	1408	139	1782
Real	267	113	1382	129	1891
Total	906	684	8429	664	10683
Percentage	8.48	6.40	78.90	6.21	

Winner : Ada - Candidate C

This Report is Prepared By : Husain Gholoom
City of Kiel
Date : 4 – 30 - 2021

Style Guidelines :

At the beginning of your program (and **before** the #include statement), include the following :

Header comments (file documentation block) should be at the top of each file and should contain: Author / s, Due Date, Assignment Number, Course number and section, Instructor, and a brief description of the purpose of the code in the file. For example :

```
//   Author  : (Your name  here!!)
//   Due Date  :
//   Programming Assignment Number  7
//   Spring   2021   -   CS 1428   -   Section  Number
//
//    Instructor   :   Husain Gholoom
//    Brief description of the  purpose of the program
```

Variable names :

Must be meaningful.
The initial letter should be lowercase, following words should be capitalized, no other caps or punctuation (i.e. weightInPounds).
Each variable must be declared on a separate line with a descriptive comment.

Named constants :

Use for most numeric literals.

All capitals with underscores (i.e. TX_STATE_SALES_TAX)

Should occur at top of function, or global (only if necessary)

Line length of source code should be no longer than 80 characters (no wrapping of lines).

Indentation :

Use 2-4 spaces (but be consistent throughout your program).

Indent blocks, within blocks, etc.

Use blank lines to separate sections.

Comments for variables :
All variable definitions should be commented as follows:

```
int  gender;    // integer value for the gender,
                // 1 = Male , 2 = Female ,
```

Rules :

1. **This assignment will replace the lowest grade of your programming assignments.**

2. Your program **must compile** and run using Code::Blocks 20:03 IDE running under the latest version of windows. (No Compiler Special Flags are set. You are not allowed to use C++11, C++14 … etc.) .

3. Your program must be **documented according to the style above . See the website for the sample programming style program.**

4. Must **use struct , at least 3 functions (prototypes and definitions) , arrays of structs , repetitions , and control structures .**

5. Not allowed to use global arrays or global variables, global variables of type struct

6. Not allowed to use any other concept that was not covered in the class.

7. You must use the appropriate libraries in writing this program.

8. Must properly format the output by use the appropriate library.

9. You must name your program as :

   SP21_PA7_XXXXXX.cpp

   Where XXXXXXX is your first and last name.

   For example :

   SP21_PA7_HusainGholoom.cpp

10. You must upload your programs no later than 5:00 pm on the due date. **No late assignments will be accepted. 5:00 pm and after will be considered late and will not be accepted.**

Use Canvas To upload your program

Maximum points for this assignment are 10 / 10

- **You will receive a grade of zero if :**
  - Submitting Incorrect file format such as uploading .cbp instead of .cpp
  - Missing electronic copy
  - Compilation errors
  - Using global variables / arrays / global array definition of type structure
  - Using any other concept that was not covered in the class

- Logical Errors (**at least 1 point will be deducted**)

- Other **(at least - 1.25 points will be deducted)**

  if any of the following takes a place :

  - Incorrect file name , Incorrect Output format , incorrect Style such as Missing Header or footer , missing comments, or documentations , incorrect or missing section number or due date , not replacing my name with your name , **not using at least 3 functions (function prototypes and definitions).**