MAFD4202 - Mainframe Development I - 2021 - Midterm Test

### Practical Exercise – 30 marks

For this question, you are to complete the program that I have started for you.

Download the program and data file from DC Connect normally, as you would for a lab assignment. The program is already set up to write out headings, what you need to worry about is creating the output for PRINT-LINE and the totals.

You may use any course notes, labs, working examples or online resources as necessary.

Here is the content of the data file (not the precise layout).   
It is **not necessary** to alter the input record description.

NAME Province GROSS PERSONAL

Code INCOME EXEMPTION

SAM SPADE ON 30,000 4,000

PAUL SIMON ON 71,344 15,000

ADAM WEST MB 100,000 10,000

JESSICA JONES AB 75,000 35,000

PETER PARKER QC 120,000 31,333

Output your program should produce (values below are correct):

Name Province Federal Provincial Total Tax Tax Tax

SAM SPADE ON 5,564.00 3,877 9,441

PAUL SIMON ON 12,057.62 8,401 20,459

ADAM WEST MB 19,260.00 9,000 28,260

JESSICA JONES AB 8,560.00 3,120 11,680

PETER PARKER QC 18,974.74 17,467 36,442

Total Tax $106,282

Average Ontario Tax: $6,139

**Detailed Requirements**

1. **(2 marks)** Calculate the Taxable Income as Gross Income – Personal Exemption.
2. **(3 marks)** The Federal Tax is 21.4% of the taxable income for all records. It is to be calculated and printed out as dollars and cents. Here and throughout this question it is your choice as to whether to use COMPUTE or arithmetic verbs.
3. **(5 marks)** Provincial Tax is based on the province in which you live. For this question **only four province codes** are present:

|  |  |  |
| --- | --- | --- |
| Province Name | Code | Tax Rate |
| Alberta | AB | 7.8% |
| Ontario | ON | 14.91% |
| Quebec | QC | 19.7% |
| Manitoba | MB | 10% |

Provincial tax is calculated **to the nearest dollar – no cents**.

1. **(3 marks)** The total tax is the Federal + Provincial Taxes   
   and is calculated to the **nearest dollar**.

SAMPLE CALCULATION for Sam Spade:

30,000 – 4,000 = 26,000 (gross income – personal exemption)

21.4 % of 26,000 = 5,564.00 (Federal Tax)

14.91% of 26,000 = 3877 (Tax for ON is 14.91% - see above)

5,564.00 + 3877 = 9,441 (Total Tax)

1. **(5 marks)** For Ontario only calculate the Average Tax Paid by adding up the Provincial tax paid for Ontario records and dividing by the number of Ontario codes found. You must use a counter variable to achieve this. You may not use literals or constants to do this, for example you cannot divide by 2 even though you know that there are 2 ON records.
2. **(5 marks)** Also calculate and print out the TOTAL of the TOTAL TAX. You do not have to total federal or provincial tax.
3. **(5 marks)** The program is to print out the data as shown above. Use the editing (like zero suppression, commas, and dollar signs) shown in the sample output.
4. **(2 marks)** When completed please submit a zip or 7z archive of your entire Visual Studio Project (.sln and Sub-Directory with everything else),   
   even if incorrect, using the DC Connect Dropbox Midterm Practical.