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You may verbally discuss the general approach to solving group Project with the students from other groups. And that is the only extent collaboration allowed. You are not allowed to work together, you are not allowed to share or read others code/deliverables of other groups. If your code or any other deliverables resemble with those of other groups, you will be reported to Academic Integrity Office for plagiarism investigation. When found plagiarized, if this is your first offence, then it will result in zero grade for the assignment, if this is the second offence (Note: those in the past in this or any other courses are counted as well) then will result in Fail Grade for CST8283. If this is your third offence (Note: those in the past in this or any other courses are counted as well), then it could result in your removal from the program of study

You may consult any tools and information available external to the course but you must quote the reference in your submission. Failing that will result in Academic Integrity issue. Further, any content taken directly from these tools/information base and submitted will result in proportional reduction in grade. Any code obtained from generative AI tools such as chatGPT can't be submitted as your work and if done, that will be considered as plagiarized.

Project deliverables

This project can be submitted by a team of 2 or 3 members, but no more than 3 students. Make sure both team member's names and student numbers are recorded on the Cover Sheet. (page 5)

Your submission must include the following:

- Cover Page (included – page 5);
- Submit your code both in .txt and .cbl files (.txt file will be used to check for possible plagiarizing). Failure to submit both will result in 15% deduction.
- Function Chart;
- Flowcharts.
- Output REPORT.txt file

Program Requirements

An investment portfolio management program is required to read Investment records and Stock Symbol records from external files, produce an Investment Report file using the data on each Investment record, and the audit trail for the process (records read and records written).

The specifics for the input Investment records (from the Portfolio File – PORTFOLIO.txt), the processes required for each record, and the output format for

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each record in the Investment report file are described below.

The Stock Symbol records (STOCKS.txt) contains the Stock Symbol, Stock Name (e.g. BCE - Bell Canada, T - Telus, RCI-B - Rogers, RY - Royal Bank etc.) and the closing price of the stock on the day of the reporting.

For each record read in from the Portfolio File, an Investment Report record is be written into the investment report file (REPORT.txt) as described below.

Once all records have been processed, counters should be printed (to the same report file) to indicate the number of Investment records read and the number of Investment Report records written.

Both input files (PORTFOLIO.txt and STOCKS.txt) will be provided. A sample output file will also be provided.

Input Record Structures

The structure for each Investment record is below. The file to test your code will be provided with the file name PORTFOLIO.txt for the investment records, and STOCKS.txt for all the stock symbols.

Stock symbol (STOCKS.txt)

Record structure

(Note – there will be a maximum of 20 occurrences of records)

STOCK SYMBOL 7 bytes alphanumeric

STOCK NAME 25 bytes alphanumeric

CLOSING PRICE 6 bytes numeric with two decimals

(Note – This file is to be loaded into a table for use in the program)

Investment Record (PORTFOLIO.txt)

STOCK SYMBOL 7 bytes alphanumeric

#SHARES 5 bytes numeric

AVERAGE COST (PER SHARE) 6 bytes numeric with two decimals

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Investment Report record Structure (for REPORT.txt)

The output record will be structured on a single line as described below. You must use the ORGANIZATION clause as LINE SEQUENTIAL in the SELECT ASSIGN statement.

STOCK NAME

filler (3 space)

#SHARES

5 bytes numeric

filler (3 space)

AVERAGE COST 9 bytes (numeric with two decimals, suitably edited with \$, and . edit symbols)

filler (3 space)

CLOSING PRICE 9 bytes (numeric with two decimals, suitably edited with \$, and . edit symbols)

filler (3 space)

Adjusted Cost Base (Choose a suitable number of bytes including edit symbols. This is a calculated field obtained by multiplying the number of shares by the AVERAGE COST PER SHARE)

filler (3 space)

Market value (Choose a suitable number of bytes including edit symbols. This is a calculated field obtained by multiplying the number of shares by the closing share price)

filler (3 space)

Total Gain/Loss (Choose a suitable number of bytes including edit symbols. This is a calculated field obtained by subtracting Adjusted Cost Base from Market value)

Output Record Structure (Column Header)

You must have a Column Header Record at the top of the report with the column titles, STOCK NAME, #SHARES, UNIT COST, AT CLOSING, COST BASE, MARKET

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VALUE, and GAIN/LOSS aligned with the corresponding fields in the output record. Refer to the sample output file "REPORT.txt" for more clarification.

Processing Notes

The records from **Stock symbol file** (STOCKS.txt) are to be loaded into a table for use in preparing **Investment Report records**. Assume a maximum of 20 occurrences required for the table.

Hints

Open all three files during Initialization

Load the Table during Initialization

Use the PERFORM ... VARYING code to load the table during initialization and to search the table in the main line process.

Increment the counters for investment records read and investment report records written within the module for the READ and the WRITE as appropriate.

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COVER PAGE

NAME _____

STUDENT NUMBER _____

LAB SESSION _____

NAME _____

STUDENT NUMBER _____

LAB SESSION _____

Your initials are required below (Student Initials) certifying that the work submitted with this cover page is your own work, even if you have had help from me or other students. If you do not initial this Cover Page, I may not mark your submission.

(Student Initials)

(Student Initials)

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Marking Scheme (as applicable)

Refer to Notes Regarding Grading below for specific points that will be checked and influence the marks allocated.

Output format and content	_____ / 20
Program listing	_____ / 50
Documentation	_____ / 30
TOTAL	_____ / 100

Comments / feedback (provided by instructor on Brightspace)

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Notes Regarding Grading

The **program listing** will be examined primarily for:

- 1) relationship to function chart and flowchart;
- 2) use of prescribed commands as required by the problem specifications;
- 3) application of standards and structures;
- 4) use of proper functional constructs (cohesion and coupling);
- 5) use of internal comments (if required);
- 6) Successful compilation and execution.
- 7) Possible plagiarizing

The **output reports (REPORT.txt)** will be examined for accuracy of the output information and the prescribed format as noted in the program requirements.

The **documentation** will be examined to ensure:

- 1) proper use of symbols and logical diagrams/narratives (i.e. flowcharts);
- 2) proper structure and content of structure/function/hierarchy charts;
- 3) clear and accurate report;
- 4) clear description or comments of the program logic; and,
- 5) relationship to the program code.

Any violation of the established standards (Standards document in the Course Information content area of Brightspace) will result in a loss of at least 5 points. Any discrepancy regarding the grading notes above will result in a loss of at least 5 points.