Pseudo Code: SD 1 Coursework -Task A, B, C Pseudo Code

```
1.START PROGRAM
2.DEFINE FUNCTION validate_date_input
    2.1.REPEAT
        2.1.1TRY
            2.1.1.1.REPEAT
                TRY
                    -PROMPT user to enter day in DD format.
                    -IF 1 <= day <= 31 THEN
                        -BREAK
                    -ELSE
                        -DISPLAY error message.
                    -ENDIF
                EXCEPT ValueErrror
                    -DISPLAY error message.
            2.1.1.2.UNTIL
            2.1.1.3.REPEAT
                TRY
                    -PROMPT user to enter month in mm format.
                    -IF 1 <= month <= 12 THEN
                        -BREAK
                    -ELSE
                        -DISPLAY error message.
                    -ENDIF
                EXCEPT ValueErrror
                    -DISPLAY error message.
            2.1.1.4.UNTIL
            2.1.1.5.REPEAT
                TRY
                    -PROMPT user to enter year in YYYY format.
                    -IF 2000 <= day <= 2024 THEN
                        -BREAK
                    -ELSE
                        -DISPLAY error message.
                    -ENDIF
                    EXCEPT ValueErrror
                        -DISPLAY error message.
            2.1.1.6.UNTIL
            2.1.1.7.REPEAT
                Get the number of days in the month for the specific year
                -IF day <= days_in_month THEN
                    -Return day,month,year
                -ELSE
                    -DISPLAY error message.
```

-DISPLAY restarting message.

- BREAK and restart the entire process.

2.1.1.8.UNTIL

2.1.2.EXCEPT

Display an error and restart the loop.

2.2UNTIL

3.DEFINE FUNCTION validate_continue_input()

3.1.REPEAT

3.1.1.PROMPT user for input ("Y" or "N")as continue_input.

3.1.2.IF input is valid THEN

3.1.2.1.RETURN continue_input

3.1.3.ELSE

3.1.3.1.DISPLAY message to enter "Y" or "N"

3.2.UNTIL

4.DEFINE FUNCTION process_csv_data()

4.1.TRY

4.1.1.Set counters to zero.

4.1.2.Open the CSV file in 'r' mode.

4.1.1.1.Creates a CSV reader object (reader).

4.1.1.2.DOWHILE row in reader

Increment total vehicles for every row.

Count vehicle types.

-Total Bicycles

-Total Electic Vehicles

-Total Two-wheeled Vehicles

Count buses leaving Elm Avenue/Rabbit Road heading North

Count vehicles Making No Turns

Count speeding vehicles

Counts vehicles passing through specific junctions

Counts scooters passing through Elm Avenue/Rabbit Road

Count hours for the selected date

Count the number of vehicles passing through "Hanley Highway/Westway" junction during each hour of the day.

4.1.3.Populate outcomes dictionary with calculated results.

4.1.4.Calculate peak traffic hours.

4.1.5.Formats the peak time as a list of readable strings.

4.1.6.Return outcomes.

4.2.EXCEPT FileNotFoundError

4.2.1.Display an error message.

5.DEFINE FUNCTION display_outcomes()

5.1.IF outcomes are invalid THEN

5.1.1.DISPLAY an error message.

5.1.2.Return
5.2. Constuct a formatted string of results.
5.3.Print the result.
6.DEFINE FUNCTION save_results_to_file()
6.1.TRY
6.1.1.Constructing the data string
6.1.2.Open the file in append mode.
6.1.2.1.Write the formatted results string to the file.
6.1.3.Display a success message.
6.2.EXCEPT
6.1.3.Display an error message.

Author: Shenali Fernando

Student ID: w2120071