SOFTWARE DEVELOPMENT 1

COURSEWORK

CODE OVERVIEW

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Input Validation

01) If a user enters an inappropriate value (not within the range), it gives a message as necessary.
(Day value range: 1 – 31, Month value range: 1 – 12, Year value range: 2000-2024)

```
Please enter the day of the survey in the format DD: 32
Out of range - value must be in the range 1 to 31.
Please enter the day of the survey in the format DD: -2
Out of range - value must be in the range 1 to 31.
Please enter the day of the survey in the format DD: 15
Please enter the month of the survey in the format MM: 13
Out of range - value must be in the range 1 to 12.
Please enter the month of the survey in the format MM: 0
Out of range - value must be in the range 1 to 12.
Please enter the month of the survey in the format MM: 6
Please enter the year of the survey in the format YYYY: 2025
Out of range - value must lie in the range 2000 to 2024.
Please enter the year of the survey in the format YYYY: 1999
Out of range - value must lie in the range 2000 to 2024.
Please enter the year of the survey in the format YYYY: 2024
```

02) If a user enters a single digit instead of double digits, the application automatically converts it into a double digit's value and continues to the next step.

```
Please enter the day of the survey in the format DD: 5
Please enter the month of the survey in the format MM: |
```

03) Until the user enters the right input, the program asks for the right input.

```
Do you want to select another data file for a different date? Y/N > h
Please enter "Y" or "N" > 5
Please enter "Y" or "N" > n
End of run
```

Error Handling

01) If user enters a string as date input, gives a message to enter an integer.

```
Please enter the day of the survey in the format DD: p
Integer required
```

02 If there is no csv file related to the requested date, give a message and ask the user whether to continue or not.

```
Please enter the day of the survey in the format DD: 02
Please enter the month of the survey in the format MM: 06
Please enter the year of the survey in the format YYYY: 2024
File directory not found
Do you want to select another data file for a different date? Y/N >
```

Sample Input and Output

```
Please enter the day of the survey in the format DD: 15
Please enter the month of the survey in the format MM: 6
Please enter the year of the survey in the format YYYY: 2024
*******************************************
data file selected is traffic_data15062024.csv
*******************************************
The total number of vehicles recorded for this date is 1037
The total number of trucks recorded for this date is 109
The total number of electric vehicles for this date is 368
The total number of two-wheeled vehicles for this date is 401
The total number of Busses leaving Elm Avenue/Rabbit Road heading North is 15
The total number of Vehicles through both junctions not turning left or right is 363
The percentage of total vehicles recorded that are trucks for this date is 11%
The average number of Bikes per hour for this date is 7

The total number of vehicles recorded as over the speed limit for this date is 205
The total number of vehicles recorded through Elm Avenue/Rabbit Road junction is 494
The total number of vehicles recorded through Hanley Highway/Westway junction is 543
10% of vehicles recorded through Elm Avenue/Rabbit Road are scooters.

The highest number of vehicles in an hour on Hanley Highway/Westway is 39
The most vehicles through Hanley Highway/Westway were recorded between 18:00 - 19:00
The number of hours of rain for this date is 0

Do you want to select another data file for a different date? Y/N > n
End of run
```