Exercise 1

Program Control Constructs in C++ I

Learning Outcomes:

- Construct a step-by-step procedure to solve a problem using C++ program control constructs.

Problem 1:

Collatz conjecture is described as:

$$n = \begin{cases} n/2 & if\ n\ is\ even \\ 3n+1 & if\ n\ is\ odd \end{cases}$$

Write a program that would truncate a maximum of 8-digit integer from left to right the determine which among the truncated value has the highest Collatz sequence count.

```
34

34 has the most Collatz sequence

/* May not be included
Since:
34 (17,52,26,13,40,20,10,5…)
3(16,8,4,2,1)
*/
```

Problem 2:

Prime numbers are number that can only be divided by 1 and itself. Write a program that would truncate a maximum of 8-digit integer from right to left and list the prime numbers from the truncated digits.

```
1231
1231, 31,
```