

# System Time and Numeric Operations

Hui Chen

Department of Computer & Information Science

Brooklyn College

# Objectives

- To obtain the current system time using **System.currentTimeMillis()** (§2.12).

# Outline

- Discussed
  - Problem → Algorithm → Implementation
  - Design a program with input and output
  - Numeric data types and operators
  - Augmented assignment
  - Type casting
- This lesson covers an example
  - Obtain system time
  - Display it nicely (using numerical operations)

# Problem. Displaying Current Time

- Write a program that displays current time in GMT in the format hour:minute:second such as 1:45:19.
- Algorithm
  - Obtain current system time
  - Convert it to the format
  - Print it out

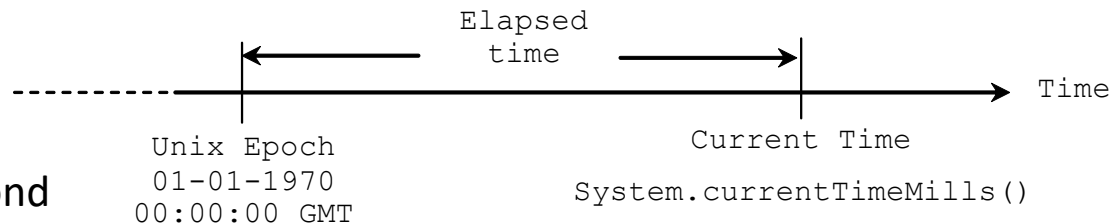
# Obtaining Current System Time

- Java provides
  - `System.currentTimeMillis()`
- It returns the current time in milliseconds since *the Unix epoch*, i.e., the midnight, January 1, 1970 GMT.
  - 1970 was the year when the Unix operating system was formally introduced.

- We can then use numeric operations to convert it to the nice format we want

- Note:

- 1000 milliseconds = 1 second
- 60 seconds = 1 minute
- 60 minutes = 1 hour



# Implementation

```
public class ShowCurrentTime {
    public static void main(String[] args) {
        long totalMilliseconds = System.currentTimeMillis(); // Obtain the total milliseconds since midnight, Jan 1, 1970

        long totalSeconds = totalMilliseconds / 1000; // Obtain the total seconds since midnight, Jan 1, 1970

        long currentSecond = totalSeconds % 60; // Compute the current second in the minute in the hour

        long totalMinutes = totalSeconds / 60; // Obtain the total minutes

        long currentMinute = totalMinutes % 60; // Compute the current minute in the hour

        long totalHours = totalMinutes / 60; // Obtain the total hours

        long currentHour = totalHours % 24; // Compute the current hour

        // Display results
        System.out.println("Current time is " + currentHour + ":"
            + currentMinute + ":" + currentSecond + " GMT");
    }
}
```

# Questions?