The Interplay of Time Point, Time Duration, and Clock

This lesson highlights the interplay of time point, time duration, and clock.

This course would not be complete without writing a chapter about the time library. The time library consists of three parts: time point, time duration, and clock; they all depend on each other.

Time point:

The time point is given by its starting point - the so-called epoch - and the time that has elapsed since the epoch (expressed as a time duration)".

Time duration:

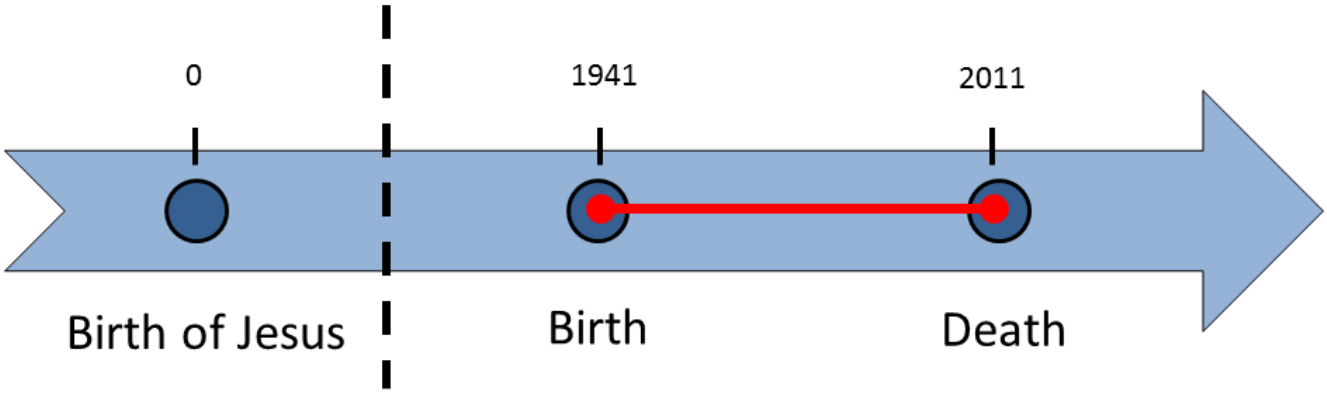
The time duration is the difference between two time points. It is measured in the number of time ticks.

Clock:

The clock consists of a starting point and a timer tick. This information enables you to calculate the current time.

You can compare time points. When you add a time duration to a time point, you get a new time point. The time tick is the accuracy of the clock in which you measure the time duration. The birth of Jesus - in my culture - is the starting time point, and a year is a typical time tick.

I will illustrate the three concepts using the lifetime of Dennis Ritchie - the creator of C who died in 2011. For the sake of simplicity, I'm only interested in the years. Here is the lifetime:



The birth of Jesus is our epoch; the time points 1941 and 2011 are defined by the epoch and the time duration. (Of course, the epoch is also a time point.) When I subtract 1941 from 2011, I get the time duration. This time duration is measured to an accuracy of one year in our example. Dennis Ritchie died at 70.

Let’s dive deeper into the components of the time library.