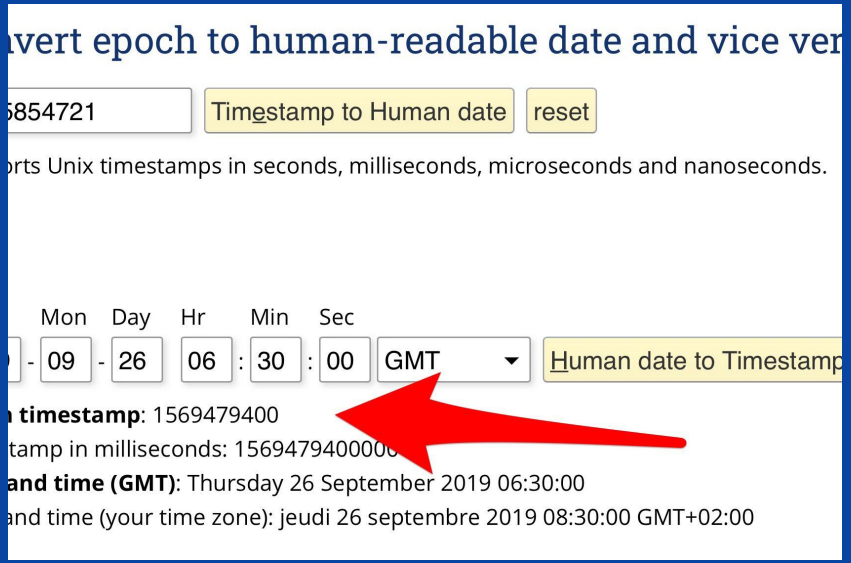
Timestamps



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Timestamps

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- A unix timestamp is a way to track time in seconds
- Counting of time starts from January 1st, 1970 at UTC
- The Timestamp is there for the time between January 1970 and the current date you look at

Timestamps

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- 1 Hour = 3600 seconds
- 1 Day = 86400 Seconds
- 1 Week = 604800 Seconds
- 1 Month (30.44 days) = 2629743 Seconds
- 1 Year (365.24) = 31556926 Seconds

Bugs and Time - Y2K

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- Did you know that on January 19, 2038, the UNIX timestamp will stop working (32 bit overflow) on older systems
- Another trivial time situation happened with Y2K - computers had problems dealing with dates after December 31, 1999
- https://www.nationalgeographic.org/encyclopedia/Y2K-bug

At the core of the lesson

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Lessons Learned:

- Dealing with Timestamps
- Numbers representing Timestamps can be stored easily by machines making it easier to manage time by representing all timezones at the same time

Summer/Winter and Daylight savings

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Winter Time and Summer Time

- It begins at 1.00 am GMT on the last Sunday in October every year
- Clocks are reversed by 1 hour
- Winter time ends at 1.00am on the last Sunday in March the following year - this signals Summer has started

Time Zones

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Working with timezones

- By default datetime uses your computer's timezone. For your programs to work globally, a universal point of reference should be used when dealing with time. For example GMT, UTC or your local time.

- These references can then be used to help users from other countries see time from their perspective.

- You can manipulate time on your own but it can be harder to keep track of different time zones and rules around the world – including daylight savings.

Some Common time zones

TIME ZONE	Region
GMT	Greenwich Mean Time (UK area as focal point)
CEST	Central European Summer Time (1hr ahead of GMT)
UTC	Coordinated Universal Time - a successor to the GMT time zone.
EST	Eastern Standard Time (New York area for example)
PST	Pacific Standard Time (California or western America regions)

For a detailed list: https://www.timeanddate.com/time/zones/

Working with Time zones in Real World

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- Many software applications are designed with location in mind
- For the most part, you should not manage timezones by yourself.
- Stick to a reference such as GMT or UTC when saving your data.
- Derive the actual time by calling special datetime methods

At the core of the lesson

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Lessons Learned:

- You have learned how to work with dates and timezones
- You can manipulate dates while maintaining a different timezone

Documentation

Documentation

1. https://docs.python.org/3/library/calendar.html
2. https://dateutil.readthedocs.io/en/stable/index.html

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