# Exercise: cdtime and time axes

**AIM:** To explain how to manipulate time in CDAT

**Issues covered:**

- cdtime and time modules
- Component time
- Relative time
- Time axes

## Instructions

1. Create a new cdms time axis holding values in the range 0 to 121 at intervals of 12.

***Some tips: try the range(start, end, interval) function. Remember you can designate "time".***

2. Add the CF-compliant "standard_name" and "units" attributes to make the first value 1/1/1990 00:00 and the last 1/1/2000 00:00. What is the unit to span this distance?
3. Print your new axis as "component times".
4. Use the python "time" module to get the current time.

***Some tips: time.time() is now (in Unix time format [seconds since 1970]). Then use time.gmtime()***

5. Convert your current time value to gmtime.
6. Create a cdtime instance of your current time.

***cdtime.comptime() requires a set of arguments for (year, month...) but you have a tuple of (year, month...). The solution "apply(function, tuple)"!***

7. Display the cdtime instance as a component time.
8. Display the cdtime instance as a relative time as "seconds since 1970-01-01 00:00".
9. Try adding 90 days to the cdtime instance.
10. Try adding 90 days to your cdtime instance using a 360-day calendar ("cdtime.Calendar360").