CHALMERS

Example: a simple control system

Problem: Write a procedure **`Periodic_Controller`** for the control system introduced in an earlier lecture.

- Task **`Temp_Controller`** should use an iteration period of **70 ms**.
- Task **`Pressure_Controller`** should use iteration period **30 ms**.
- Printing to the display should take place without the server task.
- Use package **Ada.Real_Time** to model physical time.

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Example: a simple control system

```
with Ada.Real_Time;
use Ada.Real_Time;
...
procedure Periodic_Controller is
  task Temp_Controller;
  task Pressure_Controller;

  task body Temp_Controller is
    TR : Temp_Reading;
    HS : Heater_Setting;
    Next_Time : Time;
    Interval : Time_Span := Milliseconds(70);
  begin
    Next_Time := Clock + Interval;
    loop
      Read(TR);
      Temp_Convert(TR,HS);
      Write(HS);
      Write(TR);

      delay until Next_Time;
      Next_Time := Next_Time + Interval;
    end loop;
  end Temp_Controller;
```

Generators for time intervals are found in **Ada.Real_Time**.

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Example: a simple control system

```
  :
  :
task body Pressure_Controller is
  PR : Pressure_Reading;
  PS : Pressure_Setting;
  Next_Time : Time;
  Interval : Time_Span := Milliseconds(30);
begin
  Next_Time := Clock + Interval;
  loop
    Read(PR);
    Pressure_Convert(PR,PS);
    Write(PS);
    Write(PR);
    delay until Next_Time;
    Next_Time := Next_Time + Interval;
  end loop;
end Pressure_Controller;

begin
  null;
end Periodic_Controller;
```