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

```ada
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

```ada
      :
      :
   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;
```