

非手続き型言語1回目課題 解答例

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1 演習問題 3.1.1 e) – f)

```
(* c -- e で使う *)
fun thirdelement (L) = hd(tl(tl(L)));

(* e *)
fun thirdchar (S) = thirdelement(explode S);

(* f *)
fun cyclelist (L) =
  if L = nil then nil
  else tl(L)@[hd(L)];
```

2 演習問題 3.1.2 a) – d)

```
(* a *)
fun minmaxpair (a, b, c) =
  if a > b then
    if a > c then
      if b > c then (c, a)
      else (b, a)
    else (b, c)
  else
    if b > c then
      if a > c then (c, b)
      else (a, b)
    else (a, c);

(* 3.1.2 a) 別解 *)
fun min3 (a, b, c) =
  if a < b then
```

```

        if a < c then a
        else c
    else if b < c then b
    else c;

fun max3 (a, b, c) =
    if a > b then
        if a > c then a
        else c
    else if b > c then b
    else c;

fun minmaxpair2(a,b,c) = (min3(a,b,c), max3(a,b,c));

(* b *)
fun sorted3tuple (a, b, c) =
    if a > b then
        if a > c then
            if b > c then [c, b, a]
            else [b, c, a]
        else [b, a, c]
    else
        if b > c then
            if a > c then [c, a, b]
            else [a, c, b]
        else [a, b, c];

(* 別解 *)
fun mid3(a,b,c) =
    if(a < b) then if (b < c) then b
                    else if a > c then a
                    else c
    else if (a < c) then a
    else if (b < c) then c
    else b;

fun sorted3tuple2(a,b,c)=
    [min3(a,b,c), mid3(a,b,c), max3(a,b,c)];

(* c *)
fun round10 (x) = round (x / 10.0) * 10;

(* d *)

```

```
fun deletesecond (L) = hd(L)::tl(tl(L));
```

3 実行結果

```
- use "ML1answer.ml";
[opening ML1answer.ml]
val thirdelement = fn : 'a list -> 'a
val thirdchar = fn : string -> char
ML1answer.ml:11.8 Warning: calling polyEqual
val cyclelist = fn : ''a list -> ''a list
val minmaxpair = fn : int * int * int -> int * int
val min3 = fn : int * int * int -> int
val max3 = fn : int * int * int -> int
val minmaxpair2 = fn : int * int * int -> int * int
val sorted3tuple = fn : int * int * int -> int list
val mid3 = fn : int * int * int -> int
val sorted3tuple2 = fn : int * int * int -> int list
val round10 = fn : real -> int
val deletesecond = fn : 'a list -> 'a list
val it = () : unit
- thirdchar ("abcdef");
val it = #"c" : char
- cyclelist ([1,2,3,4,5]);
val it = [2,3,4,5,1] : int list
- minmaxpair (10, 5, ~3);
val it = (~3,10) : int * int
- sorted3tuple(33, ~6, ~19);
val it = [~19,~6,33] : int list
- round10(113.7);
val it = 110 : int
- deletesecond ([1,2,3,4,5]);
val it = [1,3,4,5] : int list
-
```