

```

1  local lib={}
2
3  -----
4  -- strings
5  lib.fmt = string.format
6  function lib.say(...) print(lib.fmt(...)) end
7  function lib.color(n,s) return lib.fmt("%07[im27[%sm%s27[0m",n,s) end
8  function lib.shout(x) print(lib.out(x)) end
9
10 function lib.out(t, u, key, val)
11   function key(_,k) return string.format("%s%s", k, lib.out(t[k])) end
12   function val(_,v) return lib.out(v) end
13   if type(t) ~= "table" then return tostring(t) end
14   u = #t>0 and lib.map(t, val) or lib.map(lib.keys(t), key)
15   return "{..table.concat(u, " " ..")" end
16
17 -----
18 -- tables
19 function lib.push(t,x) t[1+#t]=x; return x end
20 function lib.copy(t, u) u={};for k,v in pairs(t) do u[k]=v end; return u end
21
22 function lib.map(t,f, u)
23   u,f={},f or same; for k,v in pairs(t) do u[1+#u] = f(k,v) end; return u end
24
25 function lib.keys(t,u)
26   u={}; for k,_ in pairs(t) do u[1+#u]=k end;return lib.sort(u);end
27
28 -----
29 -- sorting
30 function lib.sort(t,f) table.sort(t,f); return t end
31 function lib.firsts(x,y) return x[1] < y[1] end
32 function lib.seconds(x,y) return x[2] < y[2] end
33
34 -----
35 -- maths
36 function lib.norm(lo,hi,x)
37   return math.abs(lo-hi)<1E-32 and 0 or (x-lo)/(hi-lo) end
38
39 function lib.sum(t,f, n)
40   n,f=0,f or same; for _,v in pairs(t) do n = n + f(v) end; return n end
41
42 -----
43 -- random: assumes seed is stored in the.seed
44 function lib.randi(lo,hi) return math.floor(0.5 + rand(lo,hi)) end
45
46 function lib.rand(lo,hi)
47   lo, hi = lo or 0, hi or 1
48   the.seed = (16807 * the.seed) % 2147483647
49   return lo + (hi-lo) * the.seed / 2147483647 end
50
51 -----
52 -- meta
53 function lib.same(x,...) return x end
54
55 -----
56 -- files
57 function lib.csv(file, x)
58   file = io.input(file)
59   return function() t,tmp)
60     x = io.read()
61     if x then
62       t={}
63       for y in x:gsub("[\n]"", ""):gmatch("[^\n]+)" do t[1+#t]=tonumber(y) or y end
64       x = io.read()
65       if #t>0 then return t end
66       else io.close(file) end end end
67
68 return lib

```