

# Forritunarmál Hópverkefni 6

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# 1

```
(*
Notkun: mapreduce f op u x
Fyrir: f er fall, op er tvíundaraðgerð,
       u er gildi og x er listi, x=[x1;...;xn]
Gildi: u op f(x1) op ... op f(xn)
*)
let rec mapreduce f op u x =
  match x with
  | [] ->
    u
  | a::b ->
    mapreduce f op (op u (f a)) b
;;
```

```
6 let
5   inc x = x+1
4 and
3   mul x y = x*y
2 in
1   let result = mapreduce inc mul 1 [0;1;2;3;4]
73 in
1   Printf.printf "Mapreduce: %d\n" result;;

:!opam exec -- dune exec test
Entering directory '/home/ragnar/school/forritun/v6/test'
Leaving directory '/home/ragnar/school/forritun/v6/test'
Mapreduce: 120
```

## 2

```
(*
Notkun: mapftwice f
Fyrir: f er fall sem tekur eitt viðfang af tagi 'a
Gildi: Fall sem tekur inn lista l=[l1;...;ln] af tagi 'a sem viðfang
       og skilar [f(f(l1));...;f(f(ln))]
*)
let mapftwice f =
  (*
  Notkun: gamer x
  Fyrir: x er listi, x=[x1;...;xn]
  Gildi: [f(f(x1));...;f(f(xn))]
  *)
  let rec gamer l =
    match l with
    | [] ->
      []
    | a::b ->
      (f (f a)) :: (gamer b)
  in
    gamer
;;
```

```
11 let () = Printf.printf "Mapftwice: [";;
12 let inc x =
13   x+1
14 in
15   let f =
16     mapftwice inc
17   in
18     let result = f [1;2;3]
19   in
20     List.iter (Printf.printf "%d ") result;;
21 let () = Printf.printf "]\n";;
22
```

```
:!opam exec -- dune exec test
Entering directory '/home/ragnar/school/forritun/v6/test'
Leaving directory '/home/ragnar/school/forritun/v6/test'
Mapftwice: [3 4 5 ]
```