Introduktion til Programmering og Problemløsning (PoP)

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Tupler

```
$fsharpi
...
> let a = (1, 1.0);;
val a : int * float = (1, 1.0)

> printfn "%A %A" (fst a) (snd a);;
1 1.0
val it : unit = ()

> let b = 1, "en", '\049'
val b : int * string * char = (1, "en", '1')
```

Produkttype

Funktioner til at indicerer i par

Parentes unødvendig men anbefalelses

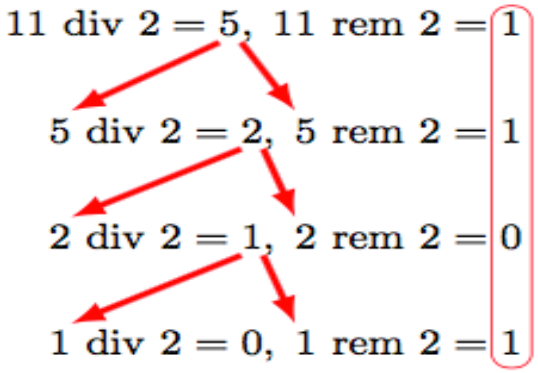
```
> let (b1, b2, b3) = b;;
val b3 : char = '1'
val b2 : string = "en"
val b1 : int = 1

> let mutable c = (1,2)
- c <- (2,3)
- printfn "%A" c;;
(2, 3)
val mutable c : int * int = (2, 3)
val it : unit = ()
```

Venstre side af en binding kan have navngivne tuple-elementer

Hele typen - ikke enkelt - elementer kan være mutérbare

Decimal til Binær




```
let N = 11
let mutable n = N
let mutable str = ""
while n > 0 do
  let rest = n % 2
  n <- n / 2
  if rest > 0 then
    str <- "1"+str
  else
    str <- "0"+str
printfn "%d_10 = %s_2" N str
```

```
let N = 11
let mutable n = N
let mutable str = ""
while n > 0 do
 str <- (if n % 2 > 0 then "1" else "0") + str
 n <- n / 2
printfn "%d_10 = %s_2" N str
```

```
let N = 11
let mutable n = N
let mutable str = ""
while n > 0 do
 str <- string (n % 2) + str
 n <- n / 2
printfn "%d_10 = %s_2" N str
```

```
let uint2bin N =
  let mutable n = N
  let mutable str = ""
  while n > 0 do
   str <- string (n % 2) + str
   n <- n / 2
  str

let N = 11
printfn "%d_10 = %s_2" N (uint2bin N)
```

Resumé

I denne video hørte du om:

- Tupler
- Mønstre
- Division-med-2 algoritmen som et program