

# Introduktion til Programmering og Problemløsning (PoP)

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# Canvas

```
#r "nuget:DIKU.Canvas, 1.0"
```

```
open Canvas
```

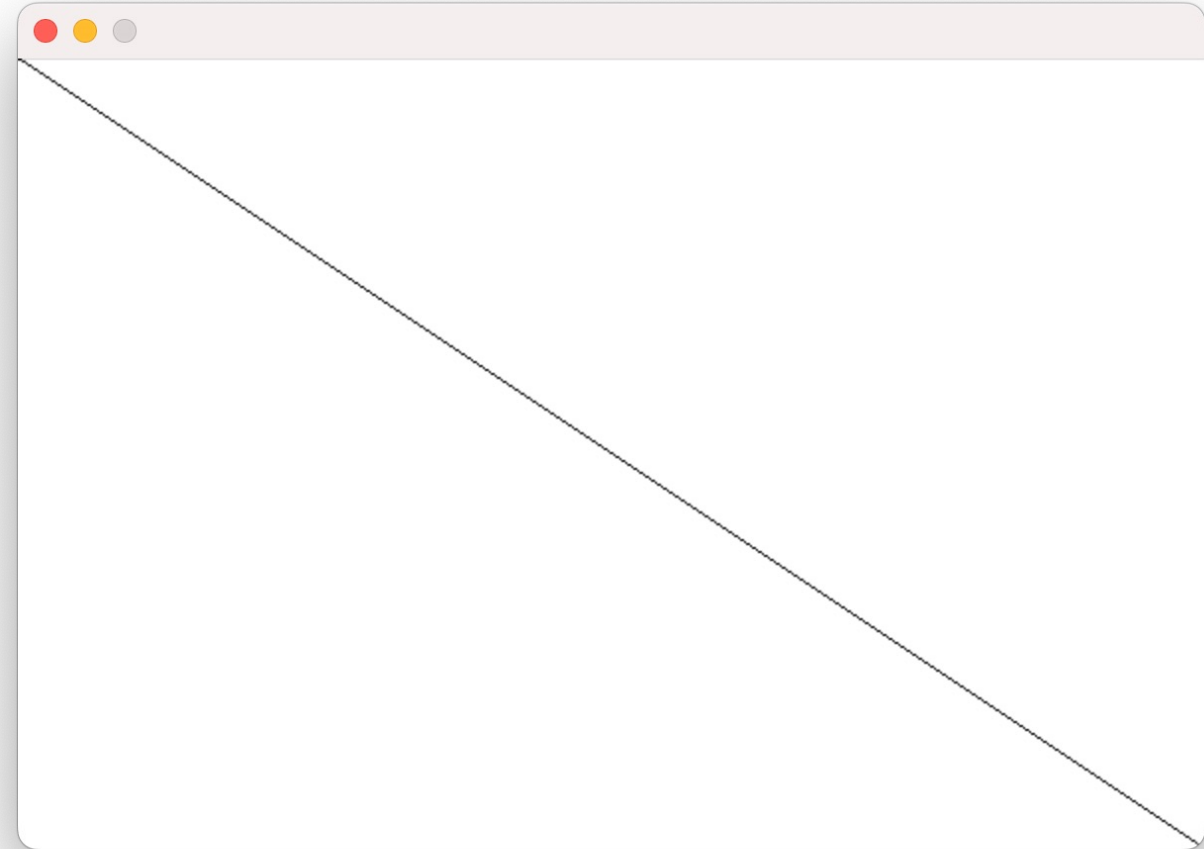
```
let w = 600;
```

```
let h = 400;
```

```
let C = create w h
```

```
do setLine C black (0,0) (w-1,h-1)
```

```
do show C "My First Canvas"
```



# Canvas

## Colors:

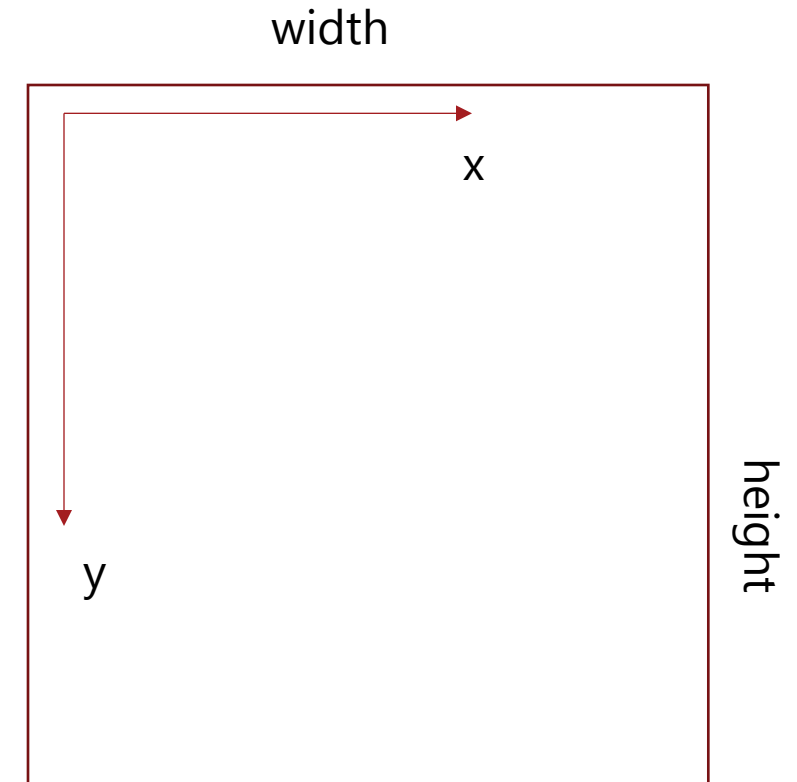
```
fromRgb   : int * int * int -> color  
fromArgb  : int * int * int * int -> color  
fromColor : color -> int * int * int * int
```

## Predefined:

red, blue, green, yellow, lightgrey, white, black

## Functions:

```
create      : int -> int -> canvas  
setPixel    : canvas -> color -> int * int -> unit  
getPixel    : canvas -> int * int -> color  
setLine     : canvas -> color -> int * int -> int * int -> unit  
setBox      : canvas -> color -> int * int -> int * int -> unit  
setFillBox  : canvas -> color -> int * int -> int * int -> unit  
show       : canvas -> string -> unit
```



# Canvas

## Interactive Canvas

```
val runApp    : string -> int -> int
    -> (int -> int -> 's -> canvas)
    -> ('s -> key -> 's option)
    -> 's -> unit
```

```
// runApp sketch
```

```
let runApp txt w h drawFct reactFct initState =
```

```
    let mutable s = initState
    draw w h s
```

```
    while true do
```

```
        let k = userKeyPress () // waits for user to press key
```

```
        s <- react s k
```

```
        draw w h s
```

```
#r "nuget:DIKU.Canvas, 1.0"
```

```
open Canvas
```

```
type state = int
```

```
let draw w h (s:state) =
```

```
    let C = create w h
```

```
    let left = w / 4
```

```
    let right = 3*left
```

```
    do setFillBox C blue (left+s, left) (right+s,right)
```

```
    C
```

```
let react (s:state) (k:key) : state option =
```

```
    match getKey k with
```

```
        LeftArrow -> Some (s-5)
```

```
        | RightArrow -> Some (s + 5)
```

```
        | _ -> None
```

```
do runApp "ColorBoxes" 600 600 draw react 0
```

# Resumé

Denne video fortalte om:

- Hvordan man bruger Canvas biblioteket til at lave simpel grafik
- Hvordan man kan interagere med runApp funktionen vha. tastaturet