

Lösungen zu den Challenges von Beispiel 1

Challenge 1

Versuche die LEDs in einer anderen Farbe z.B. Grün oder Violett anzuzeigen.

```
input.onButtonPressed(Button.A, function () {
  if (position <= 9) {
    position += 1
  }
})
input.onButtonPressed(Button.B, function () {
  if (position >= 0) {
    position += -1
  }
})
let position = 0
let strip = neopixel.create(DigitalPin.P0, 10,
NeoPixelMode.RGB)
position = 0
basic.forever(function () {
  strip.showColor(neopixel.colors(NeoPixelColors.Black))
  strip.setPixelColor(position,
neopixel.colors(NeoPixelColors.Violet))
  strip.show()
})
```

Code kopieren

```
input.onButtonPressed(Button.A, function () { if (position <= 9) { position += 1 } })
input.onButtonPressed(Button.B, function () { if (position >= 0) { position += -1 } }) let position = 0
let strip = neopixel.create(DigitalPin.P0, 10, NeoPixelMode.RGB) position = 0 basic.forever(function ()
{ strip.showColor(neopixel.colors(NeoPixelColors.Black)) strip.setPixelColor(position,
neopixel.colors(NeoPixelColors.Violet)) strip.show() })
```

Challenge 2

Versuche die Anzahl der LEDs immer um 2 pro Tastendruck zu erhöhen bzw. zu verringern.

```
input.onButtonPressed(Button.A, function () {
  if (position <= 9) {
    position += 2
  }
})
input.onButtonPressed(Button.B, function () {
  if (position >= 0) {
    position += -2
  }
})
let position = 0
let strip = neopixel.create(DigitalPin.P0, 10,
NeoPixelMode.RGB)
position = 0
basic.forever(function () {
  strip.showColor(neopixel.colors(NeoPixelColors.Black))
  strip.setPixelColor(position,
neopixel.colors(NeoPixelColors.Red))
  strip.show()
})
```

Code kopieren

```
input.onButtonPressed(Button.A, function () { if (position <= 9) { position += 2 } })
input.onButtonPressed(Button.B, function () { if (position >= 0) { position += -2 } }) let position = 0
let strip = neopixel.create(DigitalPin.P0, 10, NeoPixelMode.RGB) position = 0 basic.forever(function ()
{ strip.showColor(neopixel.colors(NeoPixelColors.Black)) strip.setPixelColor(position,
neopixel.colors(NeoPixelColors.Red)) strip.show() })
```

Challenge 3

Versuche die LEDs blinken zu lassen, d.h. die LEDs 500 Millisekunden leuchten zu lassen, dann abzdrehen und nach 500 Millisekunden wieder leuchten zu lassen.

```
input.onButtonPressed(Button.A, function () {
  if (position <= 9) {
    position += 1
  }
})
input.onButtonPressed(Button.B, function () {
  if (position >= 0) {
    position += -1
  }
})
let position = 0
let strip = neopixel.create(DigitalPin.P0, 10,
NeoPixelMode.RGB)
position = 0
basic.forever(function () {
  strip.showColor(neopixel.colors(NeoPixelColors.Black))
  strip.setPixelColor(position,
neopixel.colors(NeoPixelColors.Red))
  strip.show()
  basic.pause(500)
  strip.showColor(neopixel.colors(NeoPixelColors.Black))
  strip.show()
  basic.pause(500)
})
```

Code kopieren

```
input.onButtonPressed(Button.A, function () { if (position <= 9) { position += 1 } })
input.onButtonPressed(Button.B, function () { if (position >= 0) { position += -1 } }) let position = 0
let strip = neopixel.create(DigitalPin.P0, 10, NeoPixelMode.RGB) position = 0 basic.forever(function ()
{ strip.showColor(neopixel.colors(NeoPixelColors.Black)) strip.setPixelColor(position,
neopixel.colors(NeoPixelColors.Red)) strip.show() basic.pause(500)
strip.showColor(neopixel.colors(NeoPixelColors.Black)) strip.show() basic.pause(500) })
```

Challenge 4

Versuche alle LEDs beim Drücken von A und B auszuschalten.

```
input.onButtonPressed(Button.A, function () {
  color = neopixel.colors(NeoPixelColors.Red)
  if (position <= 9) {
    position += 1
  }
})
input.onButtonPressed(Button.AB, function () {
  color = neopixel.colors(NeoPixelColors.Black)
})
input.onButtonPressed(Button.B, function () {
  color = neopixel.colors(NeoPixelColors.Red)
  if (position >= 0) {
    position += -1
  }
})
let color = 0
let position = 0
let strip = neopixel.create(DigitalPin.P0, 10,
NeoPixelMode.RGB)
position = 0
color = neopixel.colors(NeoPixelColors.Red)
basic.forever(function () {
  strip.clear()
  strip.setPixelColor(position, color)
  strip.show()
})
```

Code kopieren

```
input.onButtonPressed(Button.A, function () { color = neopixel.colors(NeoPixelColors.Red) if (position <= 9) { position += 1 } }) input.onButtonPressed(Button.AB, function () { color = neopixel.colors(NeoPixelColors.Black) }) input.onButtonPressed(Button.B, function () { color = neopixel.colors(NeoPixelColors.Red) if (position >= 0) { position += -1 } }) let color = 0 let position = 0 let strip = neopixel.create(DigitalPin.P0, 10, NeoPixelMode.RGB) position = 0 color = neopixel.colors(NeoPixelColors.Red) basic.forever(function () { strip.clear() strip.setPixelColor(position, color) strip.show() })
```

Challenge 5

Versuche die LEDs in einer zufälligen Farbe anzuzeigen.

Lösungsvorschlag A zu Challenge 5

Hinweis zu folgender Lösung: Hier wird eine Zufallsfarbe erzeugt, indem pro Farbanteil eine Zufallszahl im Bereich 0 bis 255 erzeugt wird.

```
input.onButtonPressed(Button.A, function () {
  if (position <= 9) {
    position += 1
  }
  color = getRandomColor()
})
function getRandomColor () {
  greenComponent = randint(0, 255)
  blueComponent = randint(0, 255)
  redComponent = randint(0, 255)
  color = neopixel.rgb(redComponent, greenComponent,
blueComponent)
  return color
}
input.onButtonPressed(Button.B, function () {
  if (position >= 0) {
    position += -1
  }
  color = getRandomColor()
})
let redComponent = 0
let blueComponent = 0
let greenComponent = 0
let position = 0
let color = 0
color = getRandomColor()
let strip = neopixel.create(DigitalPin.P0, 10,
NeoPixelMode.RGB)
position = 0
```

```
basic.forever(function () {  
  strip.clear()  
  strip.setPixelColor(position, color)  
  strip.show()  
})
```

[Code kopieren](#)

```
input.onButtonPressed(Button.A, function () { if (position <= 9) { position += 1 } color =  
getRandomColor() }) function getRandomColor () { greenComponent = randint(0, 255)  
blueComponent = randint(0, 255) redComponent = randint(0, 255) color =  
neopixel.rgb(redComponent, greenComponent, blueComponent) return color }  
input.onButtonPressed(Button.B, function () { if (position >= 0) { position += -1 } color =  
getRandomColor() }) let redComponent = 0 let blueComponent = 0 let greenComponent = 0 let  
position = 0 let color = 0 color = getRandomColor() let strip = neoixel.create(DigitalPin.P0, 10,  
NeoPixelMode.RGB) position = 0 basic.forever(function () { strip.clear() strip.setPixelColor(position,  
color) strip.show() })
```

Lösungsvorschlag B zu Challenge 5

```
input.onButtonPressed(Button.A, function () {  
  if (position <= 9) {  
    position += 1  
  }  
  color = getRandomColor()  
})  
function getRandomColor () {  
  colorSelection = randint(0, 7)  
  if (colorSelection == 0) {  
    color = neoixel.colors(NeoPixelColors.Red)  
  } else if (colorSelection == 1) {  
    color = neoixel.colors(NeoPixelColors.Orange)  
  } else if (colorSelection == 2) {  
    color = neoixel.colors(NeoPixelColors.Yellow)  
  } else if (colorSelection == 3) {  
    color = neoixel.colors(NeoPixelColors.Green)  
  } else if (colorSelection == 4) {  
    color = neoixel.colors(NeoPixelColors.Blue)  
  } else if (colorSelection == 5) {  
    color = neoixel.colors(NeoPixelColors.Indigo)  
  } else if (colorSelection == 6) {  
    color = neoixel.colors(NeoPixelColors.Violet)  
  } else if (colorSelection == 7) {  
    color = neoixel.colors(NeoPixelColors.Purple)  
  } else {  
    color = neoixel.colors(NeoPixelColors.Black)  
  }  
  return color  
}
```

```
input.onButtonPressed(Button.B, function () {
  if (position >= 0) {
    position += -1
  }
  color = getRandomColor()
})
let colorSelection = 0
let position = 0
let color = 0
color = getRandomColor()
let strip = neopixel.create(DigitalPin.P0, 10,
NeoPixelMode.RGB)
position = 0
basic.forever(function () {
  strip.clear()
  strip.setPixelColor(position, color)
  strip.show()
})
```

[Code kopieren](#)

```
input.onButtonPressed(Button.A, function () { if (position <= 9) { position += 1 } color =
getRandomColor() }) function getRandomColor () { colorSelection = randint(0, 7) if (colorSelection
== 0) { color = neopixel.colors(NeoPixelColors.Red) } else if (colorSelection == 1) { color =
neopixel.colors(NeoPixelColors.Orange) } else if (colorSelection == 2) { color =
neopixel.colors(NeoPixelColors.Yellow) } else if (colorSelection == 3) { color =
neopixel.colors(NeoPixelColors.Green) } else if (colorSelection == 4) { color =
neopixel.colors(NeoPixelColors.Blue) } else if (colorSelection == 5) { color =
neopixel.colors(NeoPixelColors.Indigo) } else if (colorSelection == 6) { color =
neopixel.colors(NeoPixelColors.Violet) } else if (colorSelection == 7) { color =
neopixel.colors(NeoPixelColors.Purple) } else { color = neopixel.colors(NeoPixelColors.Black) } return
color } input.onButtonPressed(Button.B, function () { if (position >= 0) { position += -1 } color =
getRandomColor() }) let colorSelection = 0 let position = 0 let color = 0 color = getRandomColor() let
strip = neopixel.create(DigitalPin.P0, 10, NeoPixelMode.RGB) position = 0 basic.forever(function () {
strip.clear() strip.setPixelColor(position, color) strip.show() })
```

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