00_proc_Counting

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```
library(tidyverse)
library(ggplot2)
```

```
X = c(0, 1, 1.5, 3, 5, 8, 9.5, 10)
```

```
df_Counting = tibble(
  x = X,
  y = 0:(length(X) - 1) #1:(length(X)) #
)

p_Counting <- ggplot(data=df_Counting, mapping=aes(x=x, y=y)) +
  geom_step() +
  labs(title = "Counting Process",
       x = "t",
       y = "N(t)") +
  scale_x_continuous(limits = c(0, 10), breaks = df_Counting$x) +
  scale_y_continuous(limits = c(0, length(df_Counting$x) - 1), breaks = seq(0, 10, by = 1))
#p_Counting
```

```
# Plot time plot
df_Counting <- df_Counting %>% add_column(
  t_fix = c(0, rep(2, length(df_Counting$x) - 1)) # so that no point at t = 0
  #t_fix = rep(2, length(df_HPP$x))
)

p_Counting_time <- ggplot(data=df_Counting, mapping=aes(x=x, y=t_fix)) +
  geom_point(size=0.5) +
  ylim(c(1,3)) +
  labs(title = "Corresponding Inter-Arrivial Times",
       x = "t",
       y = "y-axis has no meaning") +
  scale_x_continuous(limits = c(0, 10), breaks = seq(0, 10, by = 1))
#p_Counting_time
```

```
require(gridExtra)
```

```
## Loading required package: gridExtra
```

```
##
## Attaching package: 'gridExtra'
```

```
## The following object is masked from 'package:dplyr':
##
##     combine
```

```
grid.arrange(p_Counting, p_Counting_time)
```

```
## Warning: Removed 1 rows containing missing values (geom_point).
```