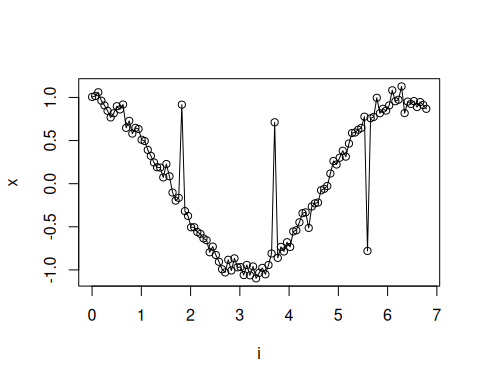
Objective: Augment data with temporal awareness and progressive smoothing, reducing noise and prioritizing recent samples.

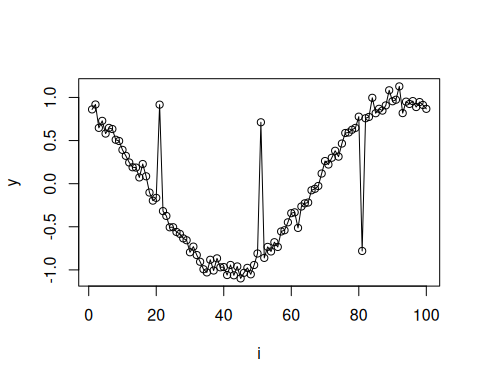
# Installing the package (if needed)  
#install.packages("tspredit")

# Loading the packages  
library(daltoolbox)  
library(tspredit)

# Cosine series with noise for study  
  
i <- seq(0, 2\*pi+8\*pi/50, pi/50)  
x <- cos(i)  
noise <- rnorm(length(x), 0, sd(x)/10)  
  
x <- x + noise  
x[30] <- rnorm(1, 0, sd(x))  
  
x[60] <- rnorm(1, 0, sd(x))  
  
x[90] <- rnorm(1, 0, sd(x))  
  
  
options(repr.plot.width=6, repr.plot.height=5)   
par(mfrow = c(1, 1))  
plot(i, x)  
lines(i, x)



# Sliding windows  
  
sw\_size <- 10  
xw <- ts\_data(x, sw\_size)  
i <- 1:nrow(xw)  
y <- xw[,sw\_size]  
  
plot(i, y)  
lines(i, y)



# Augmentation (awareness + smoothing)  
  
filter <- tspredit::ts\_aug\_awaresmooth(0.25)  
xa <- transform(filter, xw)  
idx <- attr(xa, "idx")

# Plot (original vs augmented windows)  
  
plot(x = i, y = y, main = "cosine")  
lines(x = i, y = y, col="black")  
for (j in 1:nrow(xa)) {  
 lines(x = (idx[j]-sw\_size+1):idx[j], y = xa[j,1:sw\_size], col="green")  
}

