DELHI TECHNOLOGICAL UNIVERSITY



STOCHASTIC PROCESSES

(MC-303)

PRACTICAL FILE

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EXPERIMENT 2

# AIM

Demonstrating a Stochastic Process with Continuous Index Set with

(a) Discrete State Space

(b) Continuous State Space

## SOURCE CODE

#discrete index set with discrete and continuous state space

#tabulating data

time<- 0:21

name<- c("Hailie", "Lily", "Kathy", "Laylah", "Riya", "Elianna", "Carleigh", "Shayna", "Kianna", "Rory", "Amaris", "Dania", "Naima", "Emmy", "Azaria", "Marin", "Gretchen", "Nyasia", "Denisse", "Anabel", "Joyce", "June")

num\_of\_laps<- c(2,1,3,3,2,1,2,3,1,2,1,3,1,2,1,2,3,3,2,1,2,3)

distance\_covered <-c(21.2,19.8,30.1,30.2,29.2,19.5,28.4,30.3,19.5,26.7,19.3,30.5,19.67,25.23,18.78,28.7,30.76,30.34,28.6,19.6,27.6,30.6)

class.df<- data.frame(time, name, num\_of\_laps, distance\_covered)

class.df

#plotting continuous state space using line graph

plot(time, distance\_covered, type = "l", col = "red", main = "Continuous State Space", xlab = "Time", ylab = "Distance Covered")

#plotting discrete state space using line graph

barplot(num\_of\_laps, names.arg = time, col = "blue", main = "Discrete State Space", xlab = "Time", ylab = "Number of Laps")

## OUTPUT





