2020/1/15(五), 109學年第一學期 資料科學應用R期末考

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ex1.1

LIN <- c(“白球”, “白球”, “紅球”,“紅球”) W <- 0 R <- 0 for (i in 1:3){ if (La[i] == “白球”){ W = W + 1 } else{ R = R + 1 } } Prob.Ar <- choose(4,length(R)) * (5/8)^2 * (3/8)^2 Prob.Aw <- (choose(5,length(R)) * choose(3,length(W))) / choose(8,4) cat(“Prob.Ar：”, Prob.Ar,“”) cat(“Prob.Aw：”, Prob.Aw)

ex1.2

set.seed(123456) ball <- c(“白球”, “紅球”) bag <- rep(ball, c(3, 5)) Prob.Ar <- sample(bag, 4,replace = T) table(Prob.Ar)

set.seed(123456) ball <- c(“白球”, “紅球”) bag <- rep(ball, c(3, 5)) Prob.Aw <- sample(bag, 4) table(Prob.Aw)

ex1.3

Draw_Ball.Ar <- function(){ ball <- c(“白球”, “紅球”) bag <- rep(ball, c(3, 5)) Prob.Aw <- sample(bag, 4, replace = T) table(factor(Prob.Aw, levels=ball)) } Draw_Ball.Aw <- function(){ ball <- c(“白球”, “紅球”) bag <- rep(ball, c(3, 5)) Prob.Aw <- sample(bag, 4) table(factor(Prob.Aw, levels=ball)) }

set.seed(123456) DrawResult.Prob.Ar <- as.data.frame(t(replicate(10, Draw_Ball.Ar()))) DrawResult.Prob.Aw <- as.data.frame(t(replicate(10, Draw_Ball.Aw()))) DrawResult.Prob.Ar DrawResult.Prob.Aw

ex1.4

n <- 100 set.seed(123456) DrawResult.Prob.Ar1 <- as.data.frame(t(replicate(1000, Draw_Ball.Ar()))) DrawResult.Prob.Aw1 <- as.data.frame(t(replicate(1000, Draw_Ball.Aw()))) sum((DrawResult.Prob.Ar1 "白球"==2) & (DrawResult.Prob.Ar1“紅球”==2))/n sum((DrawResult.Prob.Aw1 "白球"==2) & (DrawResult.Prob.Aw1“紅球”==2))/n # ex2.1 library(readxl) xlsx_file <- “award-list.xlsx” mydata <- read_excel(xlsx_file, na = “NA”) mydata