```
# 108-1 R exam3
# ex1(a)
rock.paper.scissors <- c("剪刀", "石頭", "布")
computer <- sample(rock.paper.scissors, 1)
computer

# ex1(b)
cat("請輸入你要出的拳頭(a: 剪刀, b: 石頭, c: 布, d: 不玩了):")
myin <- scan(what="character", nmax=1, quiet=T)
player <- switch(myin, a ="剪刀", b = "石頭", c = "布", d = "不玩了")
cat("玩家出:", player)

# ex1(c)
game <- function(){

  cat("### 剪刀石頭布遊戲開始 ###\n")
  repeat{

    rock.paper.scissors <- c("剪刀", "石頭", "布")
    computer <- sample(rock.paper.scissors, 1)

    cat("請輸入你要出的拳頭(a: 剪刀, b: 石頭, c: 布, d: 不玩了):")
    myin <- scan(what="character", nmax=1, quiet=T)
    player <- switch(myin, a ="剪刀", b = "石頭", c = "布", d = "不玩了")

    is.win <- "輸"
    if((computer=="剪刀" & player=="石頭") |
       (computer=="石頭" & player=="布") |
       (computer=="布" & player=="剪刀")){
      is.win <- "贏"
    }else if((computer=="剪刀" & player=="剪刀") |
       (computer=="石頭" & player=="石頭") |
       (computer=="布" & player=="布")){
      is.win <- "平手"
    }

    if(player == "不玩了"){
      cat("謝謝再會!")
      break
    }else{
      cat("電腦出[", computer, "], 你出[",
          player, "], 你[", is.win, "]了!\n\n")
    }
  }
}

game()
```

```
# ex2
poisson <- function(k, lambda){
  pmf <- lambda^k * exp(-lambda)/factorial(k)
}

k <- 1:20
plot(k, poisson(k, 1), xlab="k", ylab="P(X=k)",
     main="Poisson probability mass function",
     type="b", lty=1, lwd=2, col="orange")
lines(k, poisson(k, 4), type="b", lty=2, lwd=2, col="purple")
points(k, poisson(k, 10), type="b", lty=3, lwd=2, col="lightblue")


legend("top", legend=c(expression(lambda==1),
                       expression(lambda==4),
                       expression(lambda==10)), lty=1:3,
       pch=1, col=c("orange", "purple", "lightblue"), cex=1.5)

text(12, 0.2, "See https://en.wikipedia.org/wiki/Poisson_distribution", col="blue")


library(jpeg)
wiki <- readJPEG("wiki.jpg")
(dims <- dim(wiki))
rasterImage(wiki, 15, 0.05, 18.5, 0.18)
```