

hw2

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```
deck <- read.csv("./deck.csv")
```

```
dealer <- data.frame()
```

```
me <- data.frame()
```

```
shuffle_deck <- function() {  
  deck <-> deck[sample(1:nrow(deck)),]  
}
```

```
give_card_dealer <- function() {  
  dealer <-> rbind(dealer, deck[1, ])  
  deck <-> deck[2:nrow(deck), ]  
}
```

```
give_card_me <- function() {  
  me <-> rbind(me, deck[1, ])  
  deck <-> deck[2:nrow(deck), ]  
}
```

```
calc_chances <- function() {  
  sum_dealer <- sum(dealer["value"])  
  sum_me <- sum(me["value"])  
  if (sum_me > 21) {  
    return(0)  
  } else if (sum_me >= sum_dealer) {  
    return(100)  
  } else {  
    possible_sum <- deck["value"] + sum_me  
    return(mean(possible_sum <= 21 & possible_sum >= sum_dealer) * 100)  
  }  
}
```

```
print_state <- function() {  
  cat("Dealer\'s hand:", "\n")  
  for (i in 1:nrow(dealer)) {  
    cat(dealer[i, "face"], " ")  
    cat(dealer[i, "suit"], " ")  
    cat(dealer[i, "value"], "\n")  
  }  
  cat(paste("sum", sum(dealer["value"])), "\n\n")  
  
  cat("My hand:", "\n")  
  for (i in 1:nrow(me)) {
```

```

    cat(me[i, "face"], " ")
    cat(me[i, "suit"], " ")
    cat(me[i, "value"], "\n")
  }
  cat(paste("sum", sum(me["value"])), "\n\n")

  chance <- calc_chances()
  cat("chances", " ")
  cat(paste(chance, "%", sep=""), "\n\n")
}

```

```

start_game <- function() {
  shuffle_deck()
  dealer <- data.frame()
  me <- data.frame()

  give_card_dealer()
  give_card_me()
  give_card_dealer()
  give_card_me()

  print_state()
}

```

```

deal <- function() {
  give_card_me()
  print_state()
}

```

```

stop_game <- function(chance) {
  if (chance == 0) {
    cat("LOOSE!")
  } else if (chance == 100) {
    cat("WIN!")
  } else {
    cat("error: game not over")
  }
  cat("\n")
}

```

```

game <- function(N) {
  cat(paste("GAME", N), "\n\n")
  start_game()
  chance <- calc_chances()
  while (chance > 0 & chance < 100) {
    deal()
    chance <- calc_chances()
  }
  stop_game(chance)
}

```

```
game(1)
```

```
## GAME 1
##
## Dealer's hand:
## five hearts 5
## nine diamonds 9
## sum 14
##
## My hand:
## six clubs 6
## two diamonds 2
## sum 8
##
## chances 62.5%
##
## Dealer's hand:
## five hearts 5
## nine diamonds 9
## sum 14
##
## My hand:
## six clubs 6
## two diamonds 2
## three hearts 3
## sum 11
##
## chances 85.1063829787234%
##
## Dealer's hand:
## five hearts 5
## nine diamonds 9
## sum 14
##
## My hand:
## six clubs 6
## two diamonds 2
## three hearts 3
## six diamonds 6
## sum 17
##
## chances 100%
##
## WIN!
```

```
game(2)
```

```
## GAME 2
##
## Dealer's hand:
## queen clubs 10
## ten diamonds 10
```

```
## sum 20
##
## My hand:
## ace hearts 1
## four diamonds 4
## sum 5
##
## chances 0%
##
## LOOSE!
```