HW2

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```r
urlfile="https://raw.githubusercontent.com/AntonZamyatin/r-course/main/HW2/deck.csv"
mydata<-read_csv(url(urlfile))
```

```r
rows= c(1:nrow(mydata))
desk <- mydata[rep(rows, 4),]
```

```r
shuffle_data <- function(desk) {
  shuffled_data <- desk[sample(1:nrow(desk)), ]
  return(shuffled_data)
}
```

```r
start_game <- function(desk) {
  shuffled_data <- shuffle_data(desk)
  rand_ind <- sample(nrow(shuffled_data), 2, replace = FALSE)
  dealers <- shuffled_data[rand_ind, ]
  shuffled_data <- shuffled_data[-rand_ind, ]
  print("Dealers hand")
  print(dealers)
  print("sum")
  print(sum(dealers$value))
  print("Your hand")
  rand_ind <- sample(nrow(shuffled_data), 2, replace = FALSE)
  your <- shuffled_data[rand_ind, ]
  shuffled_data <- shuffled_data[-rand_ind, ]
  print(your)
  print("sum")
  print(sum(your$value))
  print("Chances:")
  if (sum(your$value) > sum(dealers$value) && sum(your$value) <= 21)  {
    print("100")
    stop_game(your)
  }
  if (sum(your$value)>21){
    stop_game(your)
  }
  if (sum(your$value) <= sum(dealers$value)) {
    difference = sum(dealers$value)-sum(your$value)
    win_count = 0
    for (row in 1:nrow(shuffled_data)) {
      if (shuffled_data[row,]$value >= difference && shuffled_data[row,]$value <= (21-sum(your$value)))
        win_count = win_count+1}
```

```r
  }

    print(win_count/nrow(shuffled_data)*100)
  }

  return(list(shuffled_data,dealers,your))
}
```

```r
deal <- function(shuffled_data) {
  print("Dealers hand")
  print(dealer)
  print("sum")
  print(sum(dealer$value))
  print("Your hand")
  rand_ind <- sample(nrow(shuffled_data), 1, replace = FALSE)
  your <- shuffled_data[rand_ind, ]
  shuffled_data <- shuffled_data[-rand_ind, ]
  you[nrow(you) + 1,] <- your
  print(you)
  print("sum")
  print(sum(you$value))
  print("Chances:")
  if (sum(you$value) > sum(dealer$value) && sum(you$value) <= 21)  {
    print("100")
    stop_game(you)
  }
  if (sum(you$value)>21){
    stop_game(you)
  }
  if (sum(you$value) <= sum(dealer$value)) {
    difference <- sum(dealer$value)-sum(you$value)
    win_count = 0
    for (row in 1:nrow(shuffled_data)) {
      if (shuffled_data[row,]$value >= difference && shuffled_data[row,]$value <= (21-sum(you$value))){
        win_count = win_count+1}
    }

    print(win_count/nrow(shuffled_data)*100)
  }
  return(list(shuffled_data,you))
}
```

```r
stop_game <- function(player) {
  if (sum(player$value)>21) {
    print("You loose")
  } else {
    print("You win")
  }
}
```

Game 1 (loosing one)

```r
set.seed(1)
ans <- start_game(desk)
```

```
## [1] "Dealers hand"
## # A tibble: 2 x 3
##   face  suit   value
##   <chr> <chr>  <dbl>
## 1 nine  hearts     9
## 2 seven clubs      7
## [1] "sum"
## [1] 16
## [1] "Your hand"
## # A tibble: 2 x 3
##   face  suit      value
##   <chr> <chr>     <dbl>
## 1 king  diamonds     10
## 2 six   spades        6
## [1] "sum"
## [1] 16
## [1] "Chances:"
## [1] 39.21569
```

```r
shuffled_data <- ans[[1]]
dealer <- ans[[2]]
you <- ans[[3]]
```

```r
set.seed(1)
res <- deal(shuffled_data)
```

```
## [1] "Dealers hand"
## # A tibble: 2 x 3
##   face  suit   value
##   <chr> <chr>  <dbl>
## 1 nine  hearts     9
## 2 seven clubs      7
## [1] "sum"
## [1] 16
## [1] "Your hand"
## # A tibble: 3 x 3
##   face  suit      value
##   <chr> <chr>     <dbl>
## 1 king  diamonds     10
## 2 six   spades        6
## 3 eight hearts        8
## [1] "sum"
## [1] 24
## [1] "Chances:"
## [1] "You loose"
```

```r
you <- res[[2]]
shuffled_data <-res[[1]]
```

```r
set.seed(2)
ans <- start_game(desk)
```

```
## [1] "Dealers hand"
## # A tibble: 2 x 3
##   face  suit      value
##   <chr> <chr>     <dbl>
## 1 four  hearts        4
## 2 eight diamonds      8
## [1] "sum"
## [1] 12
## [1] "Your hand"
## # A tibble: 2 x 3
##   face  suit      value
##   <chr> <chr>     <dbl>
## 1 seven hearts        7
## 2 five  diamonds      5
## [1] "sum"
## [1] 12
## [1] "Chances:"
## [1] 68.62745
```

```r
shuffled_data <- ans[[1]]
dealer <- ans[[2]]
you <- ans[[3]]
```

```r
set.seed(2)
res <- deal(shuffled_data)
```

```
## [1] "Dealers hand"
## # A tibble: 2 x 3
##   face  suit      value
##   <chr> <chr>     <dbl>
## 1 four  hearts        4
## 2 eight diamonds      8
## [1] "sum"
## [1] 12
## [1] "Your hand"
## # A tibble: 3 x 3
##   face  suit      value
##   <chr> <chr>     <dbl>
## 1 seven hearts        7
## 2 five  diamonds      5
## 3 three clubs         3
## [1] "sum"
## [1] 15
## [1] "Chances:"
## [1] "100"
## [1] "You win"
```

```
you <- res[[2]]
shuffled_data <-res[[1]]
```