Homework 2

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```
deck <- read.csv('~/deck.csv')
totalNumOfDecks <- 4
deck <- deck[rep(seq(nrow(deck)), totalNumOfDecks),]

head(deck)
```

```
##    face   suit value
## 1  king spades    10
## 2 queen spades    10
## 3  jack spades    10
## 4   ten spades    10
## 5  nine spades     9
## 6 eight spades     8
```

Dealer's hand

```
dealer_hand <- data.frame(
  face = character(),
  suit = character(),
  value = numeric()
)
```

Player's hand

```
player_hand <- data.frame(
  face = character(),
  suit = character(),
  value = numeric()
)
```

##Shuffle deck function

```
shuffle_deck <- function(deck){
  random <- sample(1:208, size = 208)
  deck <- deck[random, ]
}
```

##Start game function

```
chances <- function(dealer_hand, player_hand, cur_deck){
    dealer_sum <- sum(dealer_hand$value)
    player_sum <- sum(player_hand$value)


    cat("Dealer's hand:", fill = T)
    print(dealer_hand, row.names = F)
    cat(c("sum", dealer_sum), fill = T)
    cat("Your hand:", fill = T)
    print(player_hand, row.names = F)
    cat(c("sum", player_sum,"\n"))


    if (dealer_sum <= player_sum && player_sum < 21) {
        cat("chances 100%")
        }
    else if (player_sum > 21) {
        cat("chances 0%")
        }
    else {
        max_lim <- 21 - player_sum
        min_lim <- dealer_sum - player_sum

        cards <- sum(cur_deck$value <= max_lim & cur_deck$value >= min_lim)
        cat('chances', round(cards/nrow(deck)*100), '%')
    }

  }


start_game <- function(dealer_hand, player_hand,cur_deck){

  cur_deck <- shuffle_deck(cur_deck)

  player_hand <<- cur_deck[1:2,]
  cur_deck <- cur_deck[-(1:2),]
  dealer_hand <<- cur_deck[1:2,]
  cur_deck <- cur_deck[-(1:2),]
  chances(dealer_hand, player_hand, cur_deck)
}
```

Deal function

```
deal <- function() {
  new_card <- cur_deck[1,]
  player_hand[nrow(player_hand) + 1,] <<- new_card
  cur_deck <<- cur_deck[-c(1), ]

  dealer_hand <<- dealer_hand

  chances(dealer_hand, player_hand, cur_deck)
}
```

Stop game function

```
stop_game<-function(player_hand, dealer_hand, cur_deck) {
  dealer_sum <- sum(dealer_hand$value)
  player_sum <- sum(player_hand$value)

  if (player_sum >= dealer_sum & player_sum <= 21) {
  cat("Result: Win")
  }
  else {
  cat("Result: Loose")
  }
}
```

Test 1

```
cur_deck <- deck
start_game(dealer_hand, player_hand,deck)
```

```
## Dealer's hand:
##   face     suit value
##  seven diamonds     7
##   king diamonds    10
## sum 17
## Your hand:
##   face     suit value
##   king diamonds    10
##  seven   hearts     7
## sum 17
## chances 100%
```

```
deal()
```

```
## Dealer's hand:
##   face     suit value
##  seven diamonds     7
##   king diamonds    10
## sum 17
## Your hand:
##   face     suit value
##   king diamonds    10
##  seven   hearts     7
##   king   spades    10
## sum 27
## chances 0%
```

```
stop_game(player_hand, dealer_hand, deck)
```

```
## Result: Loose
```

Test 2

```
start_game(player_hand, dealer_hand, deck)
```

```
## Dealer's hand:
##   face     suit value
##  eight   spades     8
##    ace diamonds     1
## sum 9
## Your hand:
##   face   suit value
##   five  clubs     5
##  three spades     3
## sum 8
## chances 98 %
```

```
deal()
```

```
## Dealer's hand:
##   face   suit value
##   five  clubs     5
##  three spades     3
## sum 8
## Your hand:
##   face     suit value
##  eight   spades     8
##    ace diamonds     1
##  queen   spades    10
## sum 19
## chances 100%
```

```
stop_game(player_hand, dealer_hand, cur_deck)
```

```
## Result: Win
```