HW2

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##1.create suitable objects for casino deck, dealer hand, and your hand

```
### 0) create suitable objects for casino deck, dealer hand, and your hand.
deck <- do.call('rbind', list(deck, deck, deck, deck))

player_hand <- data.frame(matrix(ncol=3, nrow=0,
                  dimnames=list(NULL, c("face",  "suit",  "value"))))

dealer_hand<- data.frame(matrix(ncol=3, nrow=0,
                  dimnames=list(NULL, c("face",  "suit",  "value"))))
mixed <- deck
```

##2.implement shuffle_deck() function

```
### 1) implement shuffle_deck() function
shuffle_deck <-  function(deck) deck[sample(nrow(deck)), ]
shuffle_deck(deck) %>% head()
```

```
##      face   suit value
## 162 eight spades     8
## 173   ten  clubs    10
## 103   two hearts     2
## 200  nine hearts     9
## 156   ace hearts     1
## 23   four  clubs     4
```

##3.implement start_game() function that shuffles deck

```
### 2) implement start_game() function that shuffles deck,
# deals 2 cards for you and dealer. and prints state
state <- function(mixed, dealer_hand, player_hand) {
## output
  cat("Dealer's hand:", fill = TRUE)
  print(dealer_hand, row.names = FALSE)
  print(paste0("Sum: ", sum(dealer_hand$value)))
  cat("Yours hand:", fill = TRUE)
  print(player_hand, row.names = FALSE)
  print(paste0("Sum: ", sum(player_hand$value)))
## chances
  if(sum(player_hand$value) %in% c(sum(dealer_hand$value):21)) {
```

```
    print("chances 100 %")
  } else if (sum(player_hand$value) > 21) {
    print("chances 0 %")
  } else {
    lrange <- sum(dealer_hand$value) - sum(player_hand$value)
    hrange <- 21 - sum(player_hand$value)
    limit <- c(lrange:hrange)
    count <- sum(mixed$value %in% limit)
    ifelse(hrange - lrange > 10, 'The difference between sum of a player and dealer more than 10',
           print(paste0("chances: ", (count/nrow(mixed))*100, " %")))
  }

}
```

```
start_game <- function(deck) {
  mixed <- shuffle_deck(deck)
  dealer_hand <- mixed[c(1:2), ]
  mixed <- mixed[-c(1:2), ]
  player_hand <- mixed[c(1:2), ]
  mixed <- mixed[-c(1:2), ]
  state(mixed, dealer_hand, player_hand)
}
```

##3.implement deal() function that deals you a card and prints state

```
### 3) implement deal() function that deals you a card and prints state
deal <- function() {
  card <- mixed[1,]
  player_hand <- rbind(player_hand, card)
  mixed <<- mixed[-c(1), ]
  state(mixed, dealer_hand, player_hand)
}
```

##4.implement stop_game() function that prints result: win or loose

```
### 4) implement stop_game() function that prints result: win or loose
stop_game <- function() {
  ifelse(sum(player_hand$value) %in% c(sum(dealer_hand$value):21), 'win', 'lose')
}
```

##5.test one

```
### 5) Test 1
start_game(deck)
```

```
## Dealer's hand:
##  face     suit value
##  jack diamonds    10
##  king   spades    10
## [1] "Sum: 20"
## Yours hand:
##   face     suit value
```

```
##  queen    clubs    10
##  queen diamonds    10
## [1] "Sum: 20"
## [1] "chances 100 %"
```

```
deal()
```

```
## Dealer's hand:
## [1] face  suit  value
## <0 rows> (or 0-length row.names)
## [1] "Sum: 0"
## Yours hand:
##  face   suit value
##  king spades    10
## [1] "Sum: 10"
## [1] "chances 100 %"
```

```
stop_game()
```

```
## [1] "win"
```

##5.test two

```
start_game(deck)
```

```
## Dealer's hand:
##  face  suit value
##   six clubs     6
##  four clubs     4
## [1] "Sum: 10"
## Yours hand:
##  face     suit value
##  four    clubs     4
##   ten diamonds    10
## [1] "Sum: 14"
## [1] "chances 100 %"
```

```
deal()
```

```
## Dealer's hand:
## [1] face  suit  value
## <0 rows> (or 0-length row.names)
## [1] "Sum: 0"
## Yours hand:
##   face   suit value
##  queen spades    10
## [1] "Sum: 10"
## [1] "chances 100 %"
```

```
stop_game()
```

```
## [1] "win"
```