



## Intro to Java Week 6 Coding Assignment

Points possible: 70

| Category      | Criteria  | % of Grade |
|---------------|---|------------|
| Functionality | Does the code work?   | 25         |
| Organization  | Is the code clean and organized? Proper use of white space, syntax, and consistency are utilized. Names and comments are concise and clear. | 25         |
| Creativity    | Student solved the problems presented in the assignment using creativity and out of the box thinking.                                       | 25         |
| Completeness  | All requirements of the assignment are complete.  | 25         |

**Instructions:** In Eclipse, or an IDE of your choice, write the code that accomplishes the objectives listed below. Ensure that the code compiles and runs as directed. Take screenshots of the code and of the running program (make sure to get screenshots of all required functionality) and paste them in this document where instructed below. Create a new repository on GitHub for this week's assignments and push this document, with your Java project code, to the repository. Add the URL for this week's repository to this document where instructed and submit this document to your instructor when complete.

### Coding Steps:

For the final project you will be creating an automated version of the classic card game *WAR*.

1. Create the following classes.
  - a. Card
    - i. Fields
      1. **value** (contains a value from 2-14 representing cards 2-Ace)
      2. **name** (e.g. `Two of Hearts`)
    - ii. Methods
      1. Getters and Setters
      2. **describe** (prints out information about a card)
  - b. Deck
    - i. Fields
      1. **cards** (List of Card)
    - ii. Methods



# PROMINEO TECH

1. **shuffle** (randomizes the order of the cards)
  2. **draw** (removes and returns the top card of the Cards field)
  3. In the constructor, when a new Deck is instantiated, the Cards field should be populated with the standard 52 cards.
- c. Player
- i. Fields
    1. **hand** (List of Card)
    2. **score** (set to 0 in the constructor)
    3. **name**
  - ii. Methods
    1. **describe** (prints out information about the player and calls the describe method for each card in the Hand List)
    2. **flip** (removes and returns the top card of the Hand)
    3. **draw** (takes a Deck as an argument and calls the draw method on the deck, adding the returned Card to the hand field)
    4. **incrementScore** (adds 1 to the Player's score field)
2. Create a class called App with a main method.
  3. Instantiate a Deck and two Players, call the shuffle method on the deck.
  4. Using a traditional for loop, iterate 52 times calling the Draw method on the other player each iteration using the Deck you instantiated.
  5. Using a traditional for loop, iterate 26 times and call the flip method for each player.
    - a. Compare the value of each card returned by the two player's flip methods. Call the incrementScore method on the player whose card has the higher value.
  6. After the loop, compare the final score from each player.
  7. Print the final score of each player and either "Player 1", "Player 2", or "Draw" depending on which score is higher or if they are both the same.

**Screenshots of Code / Screenshots of Running Application:**



# PROMINEO TECH

```
Card.java Deck.java Player.java App.java
1 package FinalProject;
2
3 12 references
4 public class Card {
5     4 references
6     private String name;
7     3 references
8     private int value;
9     1 reference
10    public Card(String name, int value) {
11        this.name = name;
12        this.value = value;
13    }
14    1 reference
15    public void describe() {
16        System.out.println("Card : " + name + " - " + value);
17    }
18    public int getValue() {
19        return value;
20    }
21
22    public String getName() {
23        return name;
24    }
25    public void setName(String name) {
26        this.name = name;
27    }
28
29
30
31 }
32
```

Console

No consoles to display at this time.



# PROMINEO TECH

Card.javaDeck.javaPlayer.javaApp.java

```
1 package FinalProject;
2
3 import java.util.ArrayList;
4 import java.util.Collections;
5 import java.util.List;
6
7 import FinalProject.Card;
8
9 3 references
10 public class Deck {
11
12 4 references
13 private List<Card> cards = new ArrayList<Card>();
14
15 1 reference
16 public Deck() {
17     String[] cardNames = {"Ace of Clubs", "Ace of Spades", "Ace of Hearts", "Ace of Diamonds",
18         "Two of Clubs", "Two of Spades", "Two of Hearts", "Two of Diamonds",
19         "Three of Clubs", "Three of Spades", "Three of Hearts", "Three of Diamonds",
20         "Four of Clubs", "Four of Spades", "Four of Hearts", "Four of Diamonds",
21         "Five of Clubs", "Five of Spades", "Five of Hearts", "Five of Diamonds",
22         "Six of Clubs", "Six of Spades", "Six of Hearts", "Six of Diamonds",
23         "Seven of Clubs", "Seven of Spades", "Seven of Hearts", "Seven of Diamonds",
24         "Eight of Clubs", "Eight of Spades", "Eight of Hearts", "Eight of Diamonds",
25         "Nine of Clubs", "Nine of Spades", "Nine of Hearts", "Nine of Diamonds",
26         "Ten of Clubs", "Ten of Spades", "Ten of Hearts", "Ten of Diamonds",
27         "Jack of Clubs", "Jack of Spades", "Jack of Hearts", "Jack of Diamonds",
28         "Queen of Clubs", "Queen of Spades", "Queen of Hearts", "Queen of Diamonds",
29         "King of Clubs", "King of Spades", "King of Hearts", "King of Diamonds"};
30     Integer[] cardValues = {2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14};
31
32     for (String cardName : cardNames) {
33         for (int i = 0; i < cardValues.length; i++) {
34             cards.add(new Card(cardName, cardValues[i]));
35         }
36     }
37 }
38 1 reference
39 public void shuffle() {
40     Collections.shuffle(cards);
41 }
42 1 reference
43 public Card draw() {
44     return cards.remove(0);
45 }
46 public void describeCards() {
47     for (Card card : cards) {
48         card.describe();
49     }
50 }
51
52 public Card remove() {
53     // TODO Auto-generated method stub
54     return null;
55 }
```

Console

```
<terminated> App (3) [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_201.jdk/Contents/Home/bin/java (Jul 26, 2019, 11:55:17 PM)
Exception in thread "main" java.lang.IndexOutOfBoundsException: Index: 0, Size: 0
    at java.util.ArrayList.rangeCheck(ArrayList.java:657)
    at java.util.ArrayList.remove(ArrayList.java:496)
    at FinalProject.Player.flip(Player.java:24)
    at FinalProject.App.main(App.java:28)
```



# PROMINEO TECH

Card.javaDeck.javaPlayer.javaApp.java

```
1 package FinalProject;
2
3 import java.util.ArrayList;
4 import java.util.List;
5
6 references
7 public class Player {
8     Player(int score) {
9         score = 0;
10    }
11
12    2 references
13    public Player() {
14        // TODO Auto-generated constructor stub
15    }
16
17    4 references
18    private static List<Card> hand = new ArrayList<Card>();
19
20    3 references
21    private String playerName;
22
23    public void describe() {
24        System.out.println("Player : " + playerName + " - " + hand);
25    }
26
27    1 reference
28    public static Card flip() {
29        return hand.remove(0);
30    }
31
32    public Card draw() {
33        return hand.remove(0);
34    }
35
36    public void incrementScore(int score) {
37        System.out.println(score + 1);
38    }
39
40    public void setHand(List<Card> hand) {
41        this.hand = hand;
42    }
43
44    public String getPlayerName() {
45        return playerName;
46    }
47
48    public void setPlayerName(String playerName) {
49        this.playerName = playerName;
50    }
51
52    4 references
53    public int getValue() {
54        // TODO Auto-generated method stub
55        return 0;
56    }
57 }
```

Console

```
<terminated> App (3) [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_201.jdk/Contents/Home/bin/java (Jul 26, 2019, 11:55:17 PM)
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```



# PROMINEO TECH

```
Card.java Deck.java Player.java App.java
7
8 public static void main(String[] args) {
9     // TODO Auto-generated method stub
10    Deck deck = new Deck();
11    deck.shuffle();
12    // card.describePlayers();
13    // teams.draft().describe();
14    Player player1 = new Player();
15    Player player2 = new Player();
16
17
18    for (int i = 0; i <= 52; i++) {
19    }
20
21    deck.draw();
22
23    for (int i = 0; i <= 26; i++) {
24    }
25
26    Player.flip();
27
28    incrementScore();
29
30    if (player1.getValue() == player2.getValue()) {
31        System.out.println("Draw");
32    } else if (player1.getValue() > player2.getValue()) {
33        System.out.println("Player 1 wins!");
34    } else {
35        System.out.println("Player 2 wins!");
36    }
37
38    }
39
40
41    1 reference
42    private static void incrementScore() {
43        // TODO Auto-generated method stub
44    }
45
46 }
```

```
Console
<terminated> App (3) [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0_201.jdk/Contents/Home/bin/java (Jul 26, 2019, 11:55:17 PM)
Exception in thread "main" java.lang.IndexOutOfBoundsException: Index: 0, Size: 0
    at java.util.ArrayList.rangeCheck(ArrayList.java:657)
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    at FinalProject.App.main(App.java:28)
```

URL to GitHub Repository: <https://github.com/danielleyokley/finalProject.git>