

## Assignment: Poker Hand Evaluation (High Card and Pair)

**Objective:** The objective of this assignment is to create a simplified poker hand evaluation program that focuses on creating a hand of cards and evaluating it for high cards and pairs.

**Task:** You are tasked with developing a Java program that simulates a poker hand evaluation. Your program should perform the following tasks:

1. Create a **Deck** class that represents a standard deck of 52 cards, each with a rank (2 to Ace) and a suit (Hearts, Diamonds, Clubs, Spades).
2. Create a **Hand** class that represents a player's hand. The hand should be able to hold exactly 5 cards.
3. Implement a method in the **Hand** class called **evaluate** that evaluates the hand for high cards and pairs. For this assignment, we will define high cards as cards with ranks of 10, Jack, Queen, King, or Ace. A pair is defined as two cards with the same rank. You need to find all pairs.
4. In the **Main** class, create a deck, draw 5 cards from the deck, and add them to a hand.
5. Call the **evaluate** method on the hand to display the cards in the hand and determine if it contains high cards and/or a pair.

**Example Output:** Below is an example of the expected console output for your program:

```
--- Poker Hand Evaluation ---
Your Hand:
7 of Hearts
Ace of Spades
King of Diamonds
2 of Clubs
Ace of Clubs

Evaluation Result:
High Cards: Ace of Spades, King of Diamonds, Ace of Clubs
Pair: Ace
```

or

```
--- Poker Hand Evaluation ---
Your Hand:
NINE of HEARTS
TWO of SPADES
TWO of HEARTS
SIX of HEARTS
NINE of DIAMONDS

Evaluation Result:
```

```
High Cards: None  
Pair: NINE, TWO
```

**Grading Criteria:**

- Properly implemented `Deck`, `Hand`, and `Main` classes.
- The `evaluate` method correctly identifies high cards and pairs.
- The program produces output that displays the hand's cards and evaluation results.

**Bonus Challenges (Optional):**

1. Implement additional hand evaluation criteria, such as two pairs or three of a kind.
2. Extend the program to allow multiple players to have hands and evaluate each player's hand.
3. Create a graphical user interface (GUI) for the program to display cards and evaluation results.

**Submission:** Submit your Java source code files (`.java`) along with any additional documentation or comments that explain your code. Follow the instructions on Canvas for CodeGrade submission.

**Hints:**

- to get hold of all values in an `enum`, use the method `values()` on the `enum` you've created
- in order to compare enum values, use to method `ordinal()` on the values to get hold of their positions in the enum
- if you want to create a string from a list, you could use the method `String.join()`. For example: `String.join(",", List.of("One", "Two", "Three"))` will create the string `"One,Two,Three"`.
- to check whether a list is empty or not, use `list.isEmpty()`
- to check if a list contains a certain object, use the `list.contains()` method which returns `true` or `false`. For example `List.of("One", "Two", "Three").contains("One")` returns `true`.