DAY 23:

ASIGNMENT 8:

Task 8: Generics and Type Safety

Create a generic Pair class that holds two objects of different types, and write a method to return a reversed version of the pair."

ANSWER:

To create a generic Pair class in Java that holds two objects of different types, and a method to return a reversed version of the pair, you can follow the steps below:

1. Define the Pair class with two generic type parameters.
2. Implement the constructor and getter methods.
3. Add a method to return a new Pair object with the elements reversed.

Here's the complete code for the Pair class:

```
// Define the Pair class with two generic type parameters
public class Pair<T1, T2> {
    private T1 first;
    private T2 second;

    // Constructor to initialize the Pair
    public Pair(T1 first, T2 second) {
        this.first = first;
        this.second = second;
    }

    // Getter for the first element
    public T1 getFirst() {
        return first;
    }
```

```
    // Getter for the second element
    public T2 getSecond() {
        return second;
    }

    // Method to return a new Pair with the elements reversed
    public Pair<T2, T1> reversed() {
        return new Pair<>(second, first);
    }

    // Main method to test the Pair class
    public static void main(String[] args) {
        // Create a Pair object with a String and an Integer
        Pair<String, Integer> originalPair = new Pair<>("Hello", 123);

        // Print the original Pair
        System.out.println("Original Pair: (" + originalPair.getFirst() + ", " + originalPair.getSecond() + ")");

        // Get the reversed Pair
        Pair<Integer, String> reversedPair = originalPair.reversed();

        // Print the reversed Pair
        System.out.println("Reversed Pair: (" + reversedPair.getFirst() + ", " + reversedPair.getSecond() +
")");
    }
}
```

Explanation:

1. Generic Type Parameters: The Pair class is defined with two type parameters, T1 and T2, representing the types of the first and second elements, respectively.

2. Constructor: The constructor initializes the first and second fields with the provided values.

3. Getters: The getFirst and getSecond methods return the first and second elements of the pair, respectively.

4. Reversed Method: The reversed method creates and returns a new Pair object with the types and values of the elements swapped.

5. Main Method: The main method demonstrates the usage of the Pair class by creating a pair, printing it, reversing it, and printing the reversed pair.