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CODE-

```
import java.util.*;

public class PrecisionRecallCalculator {

   public static void main(String[] args) {
      // Sample input: Retrieved documents (Answer Set A)
      Set<String> retrievedDocs = new HashSet<>(Arrays.asList("D1", "D2", "D3", "D4"));

      // Relevant documents for query q1 (Rq1)
      Set<String> relevantDocs = new HashSet<>(Arrays.asList("D2", "D3", "D5", "D6"));

      // Calculate precision and recall
      double precision = calculatePrecision(retrievedDocs, relevantDocs);
      double recall = calculateRecall(retrievedDocs, relevantDocs);

      // Print results
      System.out.printf("Precision: %.2f\n", precision);
      System.out.printf("Recall: %.2f\n", recall);
   }

   public static double calculatePrecision(Set<String> retrieved, Set<String> relevant)
      { Set<String> intersection = new HashSet<>(retrieved);
      intersection.retainAll(relevant);  // A ∩ R
      if (retrieved.isEmpty()) return 0.0;
      return (double) intersection.size() / retrieved.size();
   }

   public static double calculateRecall(Set<String> retrieved, Set<String> relevant) {
```

```
        Set<String> intersection = new HashSet<>(retrieved);
        intersection.retainAll(relevant);  // A ∩ R
        if (relevant.isEmpty()) return 0.0;
        return (double) intersection.size() / relevant.size();
    }
}
```

OUTPUT:-