

The Java BiFunction Functional Interface: Case Study ex11

Douglas C. Schmidt

d.schmidt@vanderbilt.edu

www.dre.vanderbilt.edu/~schmidt

Professor of Computer Science

Institute for Software
Integrated Systems

Vanderbilt University
Nashville, Tennessee, USA



Learning Objectives in this Part of the Lesson

- Know how the Java BiFunction functional interface can be used to replace all the values of all keys in a ConcurrentHashMap

```
var stoogeMap = makeMap();  
  
System.out.println(stoogeMap);  
  
for (Map.Entry<String, Integer>  
      entry : stoogeMap.entrySet())  
    entry.setValue  
      (entry.getValue() - 30);  
  
System.out.println(stoogeMap);  
  
stoogeMap = makeMap();  
  
stoogeMap.replaceAll  
  ((k, v) -> v - 30);
```

Applying the Java BiFunction Functional Interface

Applying the Java BiFunction Functional Interface

The screenshot shows an IDE interface with the following details:

- Project Structure:** The project is named "ex8" and contains a "gradle" directory with "build", "src", and "main" sub-directories. "main/java/utils" contains classes like "Options", "RandomUtils", "RunTimer", and "PrimeUtils".
- Code Editor:** The file "PrimeUtils.java" is open, showing the implementation of the `checkIfPrime` method.
- Code Content:**

```
/*
 * Check if {@code primeCandidate} is prime or not.
 *
 * @param primeCandidate The number to check for primality
 * @param primeCache A cache that avoids rechecking if a number is prime
 * @return A {@link PrimeResult} record that contains the original
 *         {@code primeCandidate} and either 0 if it's prime or
 *         its smallest factor if it's not prime.
 */
@NotNull
public static PrimeResult checkIfPrime
    (Integer primeCandidate,
     @NotNull Map<Integer, Integer> primeCache) {
    var smallestFactor: Integer = primeCache
        .computeIfAbsent(key: primeCandidate,
                         mappingFunction: PrimeUtils::isPrime);

    // Return a record containing the prime candidate and the
    // result of checking if it's prime.
    return new PrimeResult(primeCandidate, smallestFactor);
}
```
- Toolbars and Status Bar:** The status bar at the bottom shows "Gradle sync finished in 9 s 831 ms (10 minutes ago)". The bottom right corner shows "AWS: No credentials selected" and "CodeWhisperer 19:34 CRLF UTF-8 4 spaces".

See github.com/douglasraigschmidt/ModernJava/tree/main/FP/ex11

End of the Java BiFunction Functional Interface: Case Study ex10