***Maps***

* *An object that maps keys to values. A map cannot contain duplicate keys; each key can map to at most one value.*
* *It can have one null key (preffered) but can have many null values*
* *There are 2 types of maps*

1. *HashMap*
2. *Linked HashMap*
3. *Tree Map*

* *HashMap and TreeMap works in same on concept of HashSet and TreeSet*

***Important Functions/Operations of Map interface***

|  |  |
| --- | --- |
| *Return Type* | **Methods** |
| V | [put](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#put-K-V-)([K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) key, [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) value) |
| void | [putAll](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#putAll-java.util.Map-)([Map](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html)<? extends [K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html),? extends [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html)> m) |
| default V | [putIfAbsent](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#putIfAbsent-K-V-)([K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) key, [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) value) |
| V | [get](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#get-java.lang.Object-)([Object](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html) key) |
| V | [remove](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#remove-java.lang.Object-)([Object](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html) key) |
| default boolean | [remove](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#remove-java.lang.Object-java.lang.Object-)([Object](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html) key, [Object](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html) value) |
| boolean | [containsKey](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#containsKey-java.lang.Object-)([Object](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html) key) |
| boolean | [containsValue](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#containsValue-java.lang.Object-)([Object](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html) value) |
| int | [size](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#size--)() |
| boolean | [isEmpty](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#isEmpty--)() |
| void | [clear](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#clear--)() |
| default V | [replace](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#replace-K-V-)([K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) key, [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) value) |
| default boolean | [replace](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#replace-K-V-V-)([K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) key, [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) oldValue, [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) newValue) |
| [Set](https://docs.oracle.com/javase/8/docs/api/java/util/Set.html)<[K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html)> | [keySet](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#keySet--)() |
| [Collection](https://docs.oracle.com/javase/8/docs/api/java/util/Collection.html)<[V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html)> | [values](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#values--)() |
| [Set](https://docs.oracle.com/javase/8/docs/api/java/util/Set.html)<[Map.Entry](https://docs.oracle.com/javase/8/docs/api/java/util/Map.Entry.html" \o "interface in java.util)<[K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html),[V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html" \o "type parameter in Map)>> | [entrySet](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#entrySet--)() |
| int | [hashCode](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#hashCode--)() |
| K | getKey() |
| V | getValue() |
| V | setValue(V value) |
| default [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) | [compute](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#compute-K-java.util.function.BiFunction-)([K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) key, [BiFunction](https://docs.oracle.com/javase/8/docs/api/java/util/function/BiFunction.html" \o "interface in java.util.function)<? super [K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html),? super [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html),? extends [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html)> remappingFunction) |
| default [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) | [computeIfAbsent](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#computeIfAbsent-K-java.util.function.Function-)([K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) key, [Function](https://docs.oracle.com/javase/8/docs/api/java/util/function/Function.html)<? super [K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html),? extends [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html)> mappingFunction) |
| default [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) | [computeIfPresent](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#computeIfPresent-K-java.util.function.BiFunction-)([K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) key, [BiFunction](https://docs.oracle.com/javase/8/docs/api/java/util/function/BiFunction.html" \o "interface in java.util.function)<? super [K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html),? super [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html),? extends [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html)> remappingFunction) |
| default void | [forEach](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#forEach-java.util.function.BiConsumer-)([BiConsumer](https://docs.oracle.com/javase/8/docs/api/java/util/function/BiConsumer.html" \o "interface in java.util.function)<? super [K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html),? super [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html)> action) |
| default [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) | [getOrDefault](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#getOrDefault-java.lang.Object-V-)([Object](https://docs.oracle.com/javase/8/docs/api/java/lang/Object.html) key, [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) defaultValue) |
| default [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) | [merge](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html#merge-K-V-java.util.function.BiFunction-)([K](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) key, [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html) value, [BiFunction](https://docs.oracle.com/javase/8/docs/api/java/util/function/BiFunction.html" \o "interface in java.util.function)<? super [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html),? super [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html),? extends [V](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html)> remappingFunction) |

*Refer:* [*https://docs.oracle.com/javase/8/docs/api/java/util/Map.html*](https://docs.oracle.com/javase/8/docs/api/java/util/Map.html)