Java HashMap

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Java HashMap

In the ArrayList chapter, you learned that Arrays store items as an ordered collection, and you have to access them with an index number (int type). A HashMap however, store items in "**key**/**value**" pairs, and you can access them by an index of another type (e.g. a String).

One object is used as a key (index) to another object (value). It can store different types: String keys and Integer values, or the same type, like: String keys and String values:

Example

Create a HashMap object called **capitalCities** that will store String **keys** and String **values**:

```
import java.util.HashMap; // import the HashMap class

HashMap<String, String> capitalCities = new HashMap<String, String>();
```

Add Items

The `HashMap` class has many useful methods. For example, to add items to it, use the `put()` method:

Example

```
// Import the HashMap class
import java.util.HashMap;

public class Main {
  public static void main(String[] args) {
    // Create a HashMap object called capitalCities
    HashMap<String, String> capitalCities = new HashMap<String, String>();

    // Add keys and values (Country, City)
    capitalCities.put("England", "London");
    capitalCities.put("Germany", "Berlin");
    capitalCities.put("Norway", "Oslo");
    capitalCities.put("USA", "Washington DC");
    System.out.println(capitalCities);
  }
}
```

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Access an Item

To access a value in the `HashMap`, use the `get()` method and refer to its key:

Example

```
capitalCities.get("England");
```

Try it Yourself »

Remove an Item

To remove an item, use the `remove()` method and refer to the key:

Example

```
capitalCities.remove("England");
```

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To remove all items, use the `clear()` method:

Example

```
capitalCities.clear();
```

Try it Yourself »

HashMap Size

To find out how many items there are, use the `size()` method:

Example

```
capitalCities.size();
```

Try it Yourself »

Loop Through a HashMap

Loop through the items of a `HashMap` with a **for-each** loop.

Note: Use the `keySet()` method if you only want the keys, and use the `values()` method if you only want the values:

Example

```
// Print keys
for (String i : capitalCities.keySet()) {
  System.out.println(i);
}
```

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Example

```
// Print values
for (String i : capitalCities.values()) {
  System.out.println(i);
}
```

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Example

```
// Print keys and values
for (String i : capitalCities.keySet()) {
  System.out.println("key: " + i + " value: " + capitalCities.get(i));
}
```

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Other Types

Keys and values in a HashMap are actually objects. In the examples above, we used objects of type "String". Remember that a String in Java is an object (not a primitive type). To use other types, such as int, you must specify an equivalent wrapper class:

`Integer`. For other primitive types, use: `Boolean` for boolean, `Character` for char, `Double` for double, etc:

Example

Create a `HashMap` object called **people** that will store `String` **keys** and `Integer` **values**:

```
// Import the HashMap class
import java.util.HashMap;

public class Main {
  public static void main(String[] args) {

    // Create a HashMap object called people
    HashMap<String, Integer> people = new HashMap<String, Integer>();


    // Add keys and values (Name, Age)
    people.put("John", 32);
    people.put("Steve", 30);
    people.put("Angie", 33);

    for (String i : people.keySet()) {
      System.out.println("key: " + i + " value: " + people.get(i));
    }
  }
}
```

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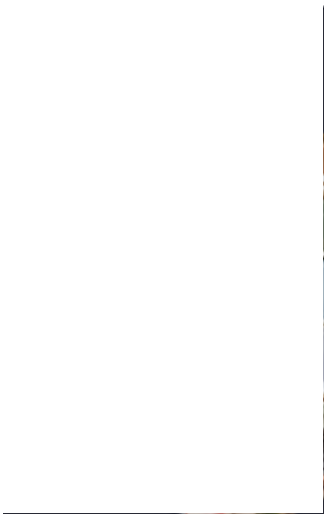

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