Contract-based Software Development

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January 2015

Overview

1. Informal & Formal Specification

Informal Specification

```
public interface ISimpleDictionary {
    /* Put 'key' into the dictionary with associated
        'value' */
    void Put(string key, object value);

    /* Remove 'key' from the dictionary */
    void Remove(string key);

    /* Does the dictionary contain 'key'? */
    bool ContainsKey(string key);
}
```

Formal Specification

```
public interface ISimpleDictionary {
    /* Pre: key != null && !ContainsKey(key)
       Post: ContainsKey(key) */
    void Put(string key, object value);

    /* Pre: key != null && ContainsKey(key)
       Post: !ContainsKey(key) */
    void Remove(string key);

    /* Pre: key != null */
    [Pure]
    bool ContainsKey(string key);
}
```

The End

"Testing shows the presence, not the absence of bugs."
— Edsger W. Dijkstra