Exercise – Hashing

Try and implement your own HashFunction namespace that contains Hash Functions.

Use the following as a starting point:

HashFunction.h:

```cpp
#include <functional>

namespace HashFunction {

    typedef std::function< unsigned int(const char*, unsigned int)> HashFunc;

    // implementation of a basic addition hash
    unsigned int badHash( const char* data, unsigned int length );

    // ADD YOUR FUNCTIONS HERE

    // a helper to access a default hash function
    static HashFunc default = badHash;
}
```

HashFunction.cpp:

```cpp
#include "HashFunction.h"

namespace HashFunction {

    // implementation of a basic addition hash
    unsigned int badHash( const char* data, unsigned int length ) {
        unsigned int hash = 0;

        for (unsigned int i = 0 ; i < length ; ++i)
            hash += data[ i ];

        return hash;
    }
}
```

Add additional Hash Functions to your namespace and set the default to an improved method rather than badHash. Use http://www.partow.net/programming/hashfunctions/ for reference if needed.

To replace the default simply assign HashFunction::default to a function other than badHash.