1. Explain how a hash function is used.

A hash function is used to retrieve data and to verify data integrity.

1. How might a string hash function be written?

A string hash can be written by taking a string as an input and generating a numeric hash code to represent the contents of the string.

First you need to define a hash method that will take a string input and calculate the hash code, then iterate through each character in the string using a for loop,

For each hash value update the value by adding the current character

Then return the final hash value for the input string.

1. Explain why we might choose to use a hash function rather than search for a key.

Hash functions are more efficient in storing and retrieving data and directly map keys to indexes in a data structure.

1. What hash function does the Java Util HashMap use for hashing strings?

HashMap uses hashCode() and equals() method on key for get and put operations.