**Properties:**

1. Alice’s randomly generated message is an array of 1’s and 0’s
2. Alice’s randomly generated message is equal to the length specified, in the parameter for the function
3. The length of the encoded message (array of encoded qubits) is the same length as the array of bits/basis to encode
4. A message that has been decoded is the same length as the encoded message array/original random bit array/basis
5. A message that has been decoded (measured) is an array of 1’s and 0’s
6. An encoded message that is decoded with the same basis array that it was encoded by, should return an array of the exact original bits that were used to encode the array.
7. Two encoded messages, decoded with their original basis are return equal outputs
8. The output key length with never be larger than length of original bits
9. The two generated keys should be equal
10. The Keys that have been generated at the end is an array of 1’s and 0’s