Lab – Message Digests

Q1.

Write a Java program to find the SHA-256 hash of a String. Print out the Base64 encoding of the hash value. Show that if the String changes by just 1 character, the digest value changes completely.

Q2.

Write a program to find the SHA-256 hash of a file. Print out the Base64 encoding of the hash value. Use the MessageDigest method

```
void update(byte[] input, int offset, int len)
```

and the InputStream method

```
int read(byte[] b)
```

Use:-

```
InputStream is = new FileInputStream("data/test.txt");
byte[] buffer = new byte[64];
int bytesRead = 0;
while ((bytesRead = is.read(buffer)) > 0) {
      System.out.println(bytesRead);
}
```

Q3.

Look up the documentation on Apache Commons Codec API . (http://commons.apache.org/codec/).
Write a program to hash some text using this library and different hashing algorithms.

Q4.

Write a program to hash a file using the Apache Commons Codec library.