Lab Goal : This lab was designed to teach you more about objects, interfaces, and the String class. While at the same time, you will be learning about ciphers and codes. You will create a class that implements the Cipher interface shown below.

```
public interface Cipher
{
  public String encode(String original);
  public String decode(String encoded);
}
```

Lab Description : Take a word or phrase and apply the idea of a Caesar cipher to the word or phrase. A Caesar cipher is a substitution cipher. Substitution ciphers use a rotated alphabet String to encode words and phrases.

```
alpha = "ABCDEFGHIJKLMNOPQRSTUVWXYZ"
shift = "XYZABCDEFGHIJKLMNOPQRSTUVW"
```

Use a random number to determine the amount of the shift. This will make the encoded words and phrases harder to break. You will need a constructor to set the amount to rotate.

```
howFar = (int)(Math.random()*26)
```

Sample Data :

```
friendly
abc
dnadoublehelix
cipherscodesandstrings
elvissoundgardenhinderseetherbeatles
```

Files Needed ::
Cipher.java
Caesar.java
CipherRunner.java

Sample Output :

```
friendly
COFBKAIV
FRIENDLY

abc
XYZ
ABC

dnadoublehelix
AKXALRYIBEBIFU
DNADOUBLEHELIX

cipherscodesandstrings
ZFMEBOPZLABPXKAPQOFKDP
CIPHERSCODESANDSTRINGS

elvissoundgardenhinderseetherbeatles
BISFPPLRKADXOABKEFKABOPBBQEBOYBXQIBP
ELVISSOUNDGARDENHINDERSEETHERBEATLES
```