Semi-Automatic Decoding

You can write your own functions in Mathematica. The basic syntax for this is the following:

```
FunctionName[variable_]:=output
```

EXPERIMENT 2.1. Try making a few functions:

(a) Use `MyNewFunction[x_]:=x+5` to makes a new function called MyNew-Function. What does `MyNewFunction` do?

(b) Write a function `Trippler` that triples a number y that is given to it.

(c) Write a function that takes a collection of letters and replaces all a's with b's.

EXPERIMENT 2.2. The function `Mod` takes two parameters. Give it some numbers and explain what it does below.

EXPERIMENT 2.3. What do the following commands do?

(a) `ToCharacterCode["abcd"]`

(b) `ToCharacterCode["abcd"]-97`

(c) `Mod[ToCharacterCode["abcd"]-97+5, 26]`

(d) `FromCharacterCode[{104, 101, 108, 108, 111}]`

PROBLEM 2.4. Let's put all this together:

(a) Write a function `DeCaesar3` that decodes text from a 3-letter Caesar cipher.

(b) Use it to decode `"iulhqgv, urpdqv, frxqwubphq, ohqg ph brxu hduv; l frph wr exub fdhvdu, qrw wr sudlvh klp."`

(c) What would improve `DeCaesar3`?

PROBLEM 2.5. Write a function `DeCaesar` that takes two parameters: the shift and the ciphertext (don't worry about the glitch from Problem **??**). Use the following command to quickly decipher the text:

```
Manipulate[DeCaesar[n,"juu pjdu rb mrermnm rwcx cqann yjacb,xwn
xo fqrlq cqn knupjn rwqjkrc,cqn jzdrcjwr jwxcqna,cqxbn fqx rw cqnra
xfw ujwpdjpn jan ljuunm lnucb,rw xda pjdub,cqn cqram.juu cqnbn mroona
oaxv njlq xcqna rw ujwpdjpn,ldbcxvb jwm ujfb."],{n,0,25,1}]
```

to quickly decipher the text. Who is the author?