

# CSIC Computing Project

## Vigenere Cipher

Final Presentation



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Team members:

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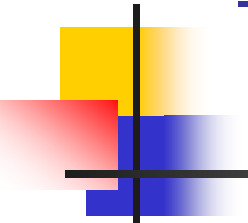
Masood Khosroshahy

Yong Wu

December 09, 2005

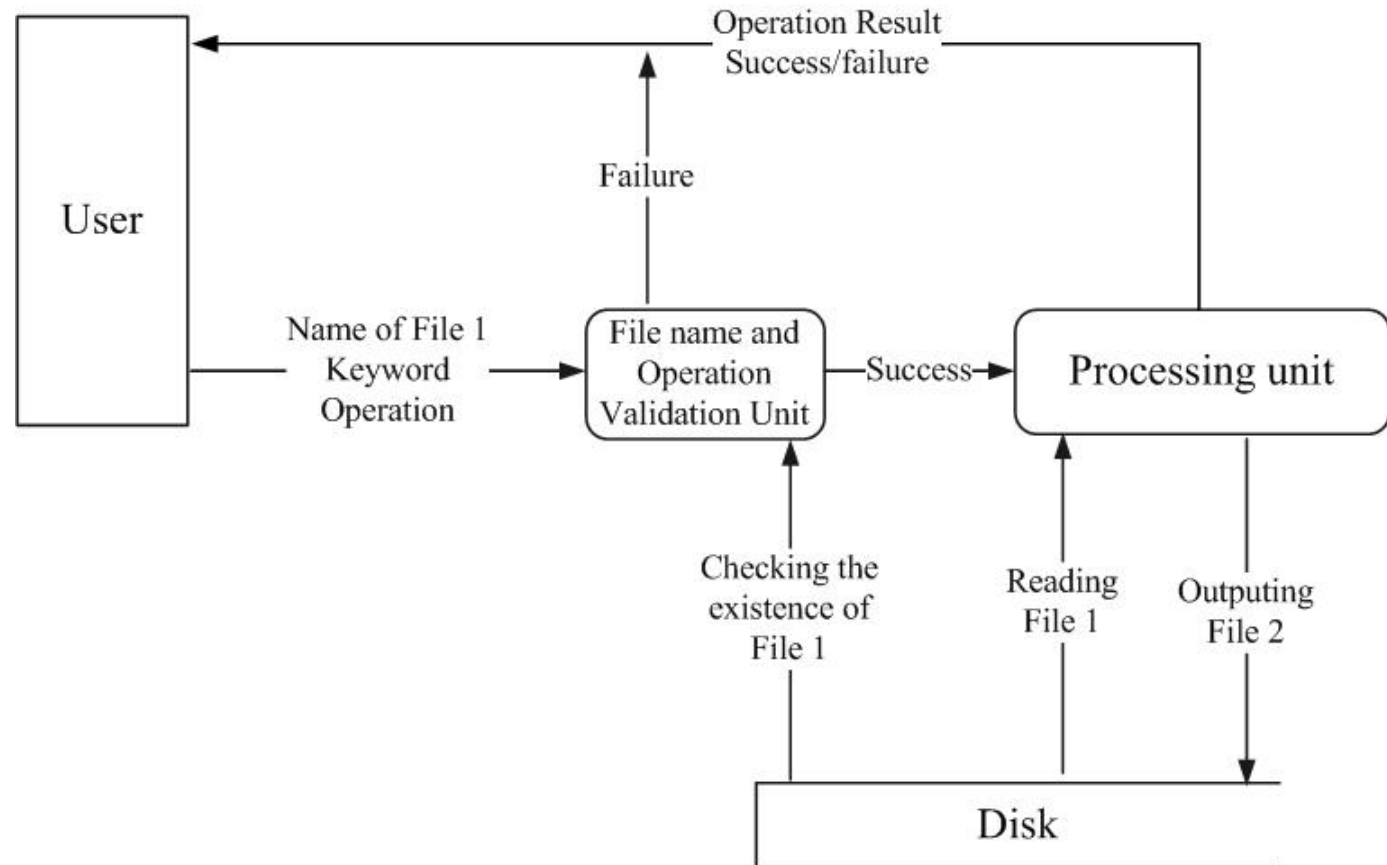
# Requirements Capture

-Major issues to consider:

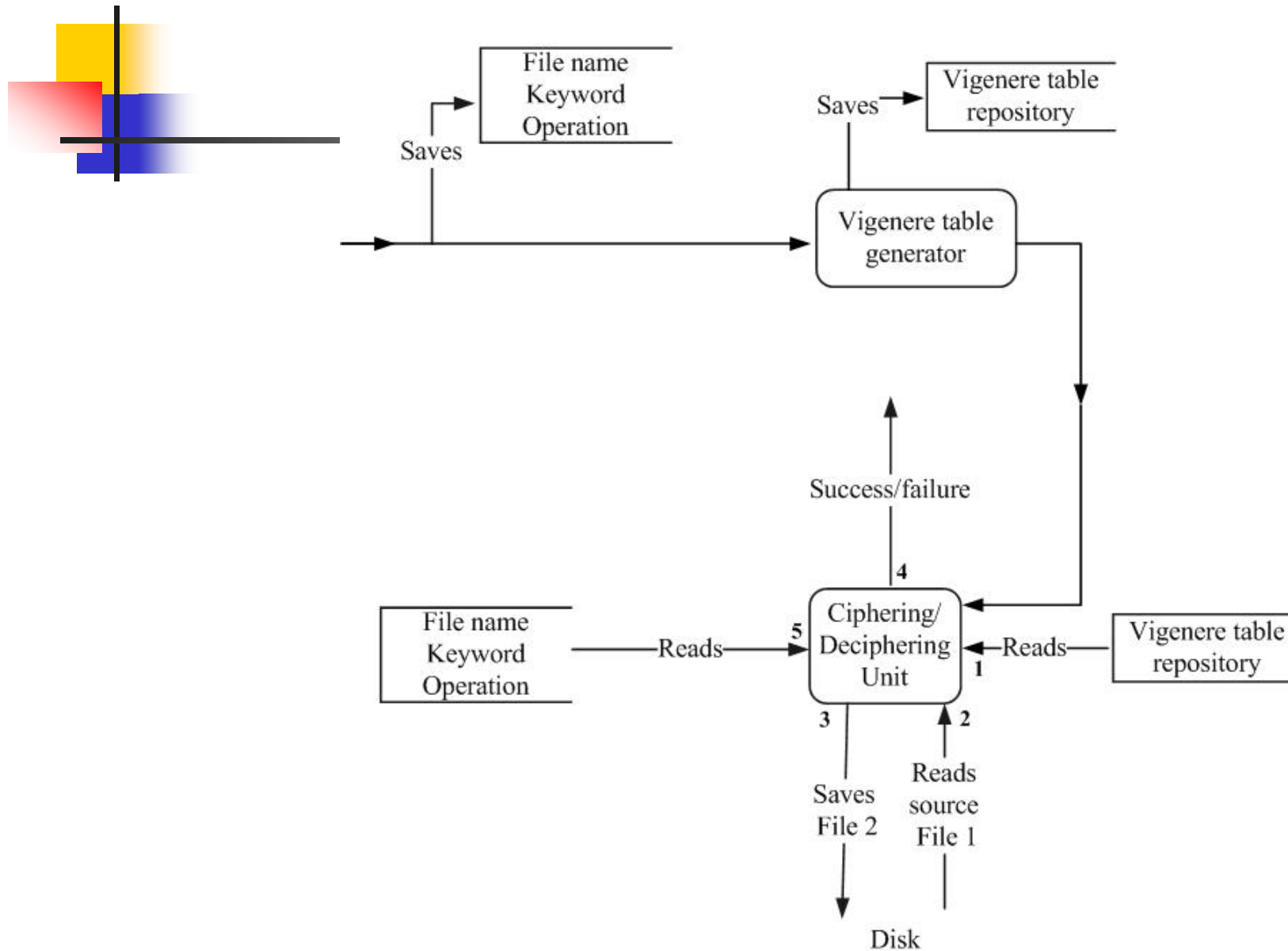
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- Regardless of which method of ciphering/deciphering is going to be utilized, here are the Functional Requirements of the system:
    - 1-An input interface which accepts a source file, a keyword and the intended operation (Ciphering/Deciphering)
    - 2-Outputting the file (Saving on disk) after performing the intended operation

# A quick overview of the DFD modifications:

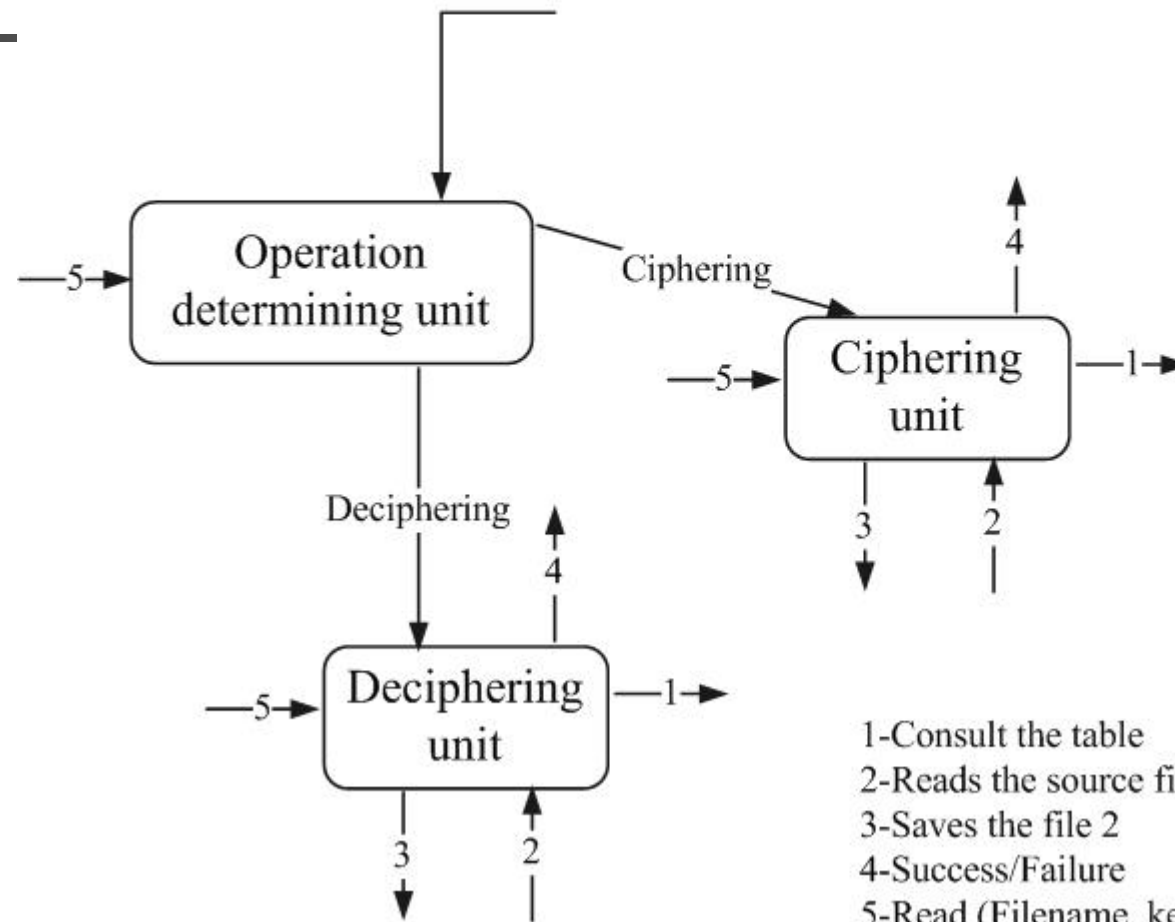
## System Level 0 DFD

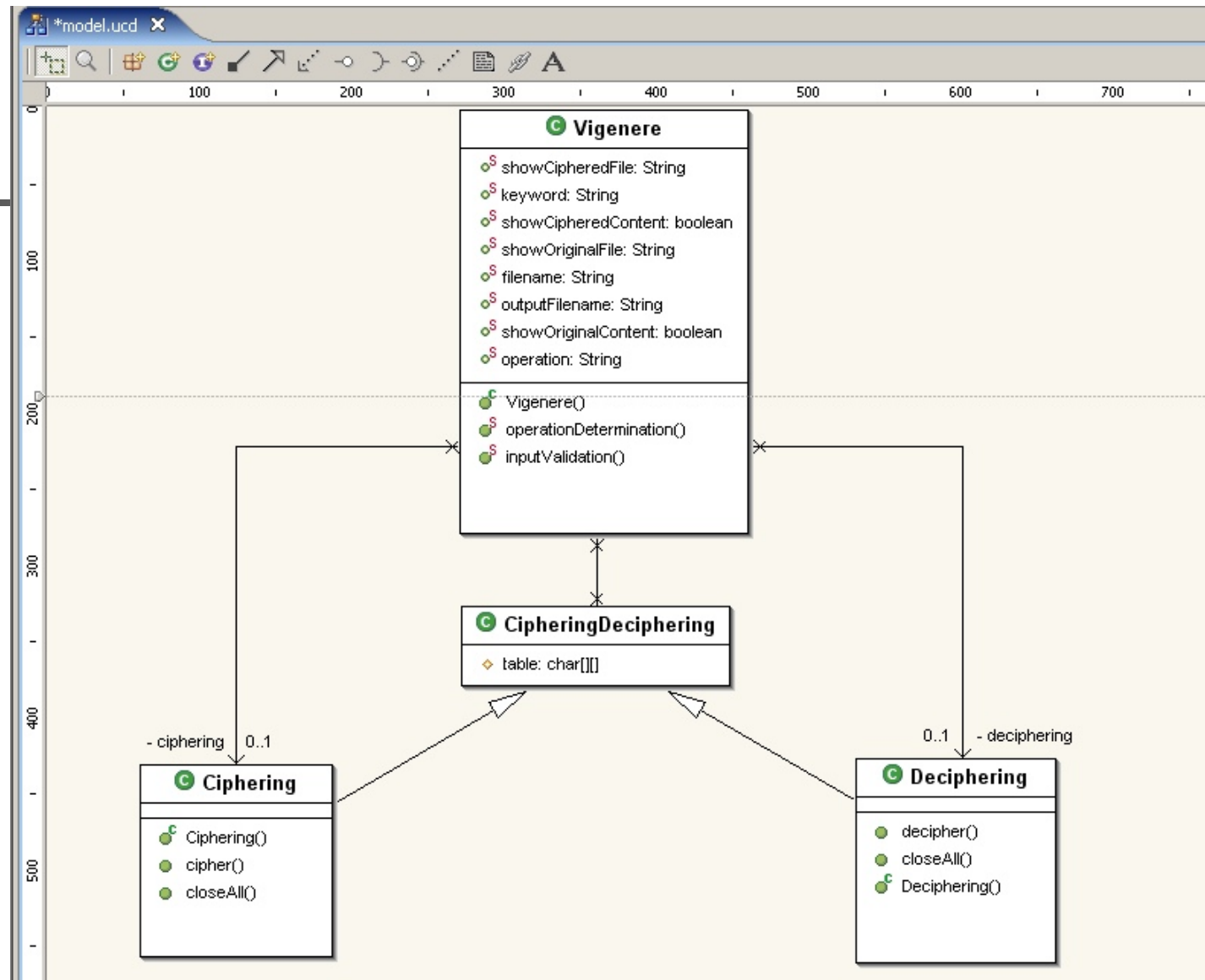
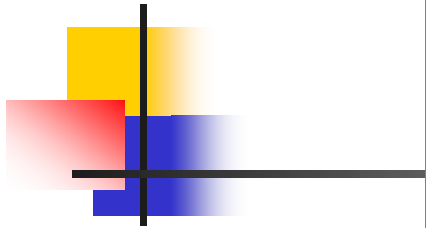


# Processing Unit Level 1 DFD



# Ciphering/Deciphering Unit Level 2 DFD





A detailed UML design diagram

# Our Development Environment:

The screenshot shows the Eclipse IDE interface for a Java project named 'model.ucd'. The main editor displays a UML class diagram with the following structure:

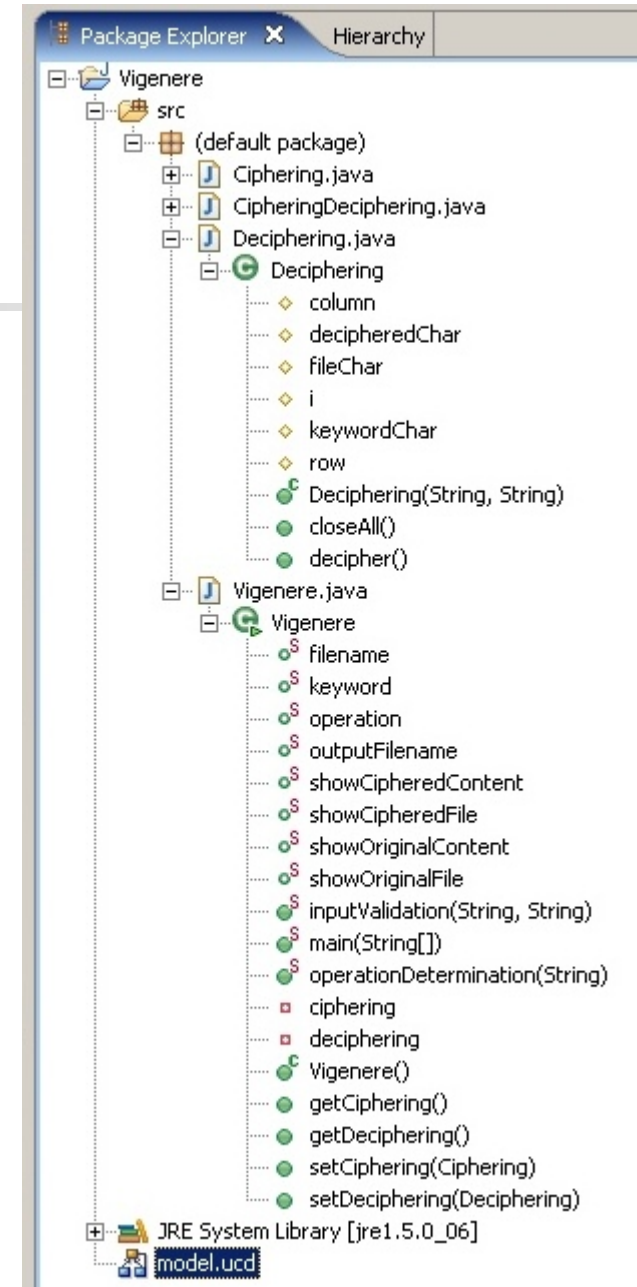
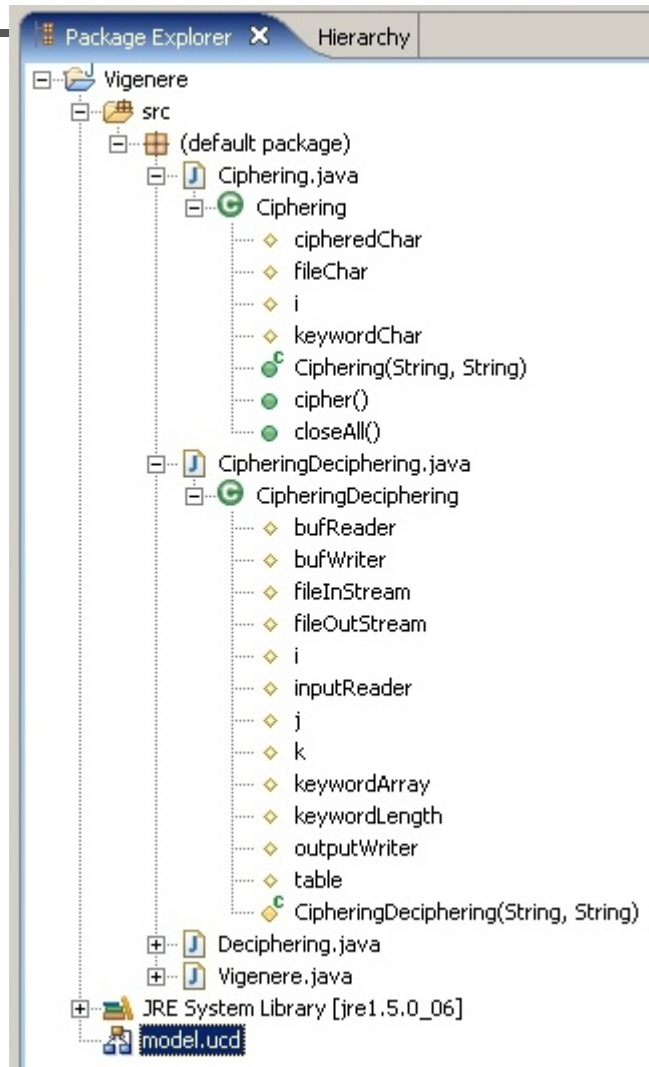
- Vigenere** class:
  - Attributes: showOriginalFile: String, keyword: String, showOriginalContent: boolean, showCipheredContent: boolean, filename: String, outputFilename: String, showOriginalFile: String, showCipheredFile: String, operation: String, operation: String
  - Methods: vigenere(), operationDeciphering(), operationCiphering()
- CipheringDeciphering** class:
  - Attribute: static class
- Ciphering** class (subclass of CipheringDeciphering):
  - Methods: ciphering(), cipher(), closeAll()
- Deciphering** class (subclass of CipheringDeciphering):
  - Methods: decipher(), closeAll(), deciphering()

The bottom editor shows the source code for `Vigenere.java`:

```
public class Vigenere {  
  
    public static String filename;  
    public static String operation;  
    public static String keyword;  
    public static String outputFilename;  
    public static String showOriginalFile;  
    public static String showCipheredFile;  
    public static boolean showOriginalContent;  
    public static boolean showCipheredContent;  
  
}
```

# Classes, their methods and variables

## As depicted in Eclipse:





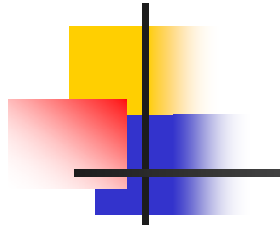
# Program Behavior:



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- `java Vigenere filename.txt operation keyword`
- Several checks before execution:
  - Correct number of arguments
  - File existence
  - Operation validity
  - Asking whether or not the user likes to see the file on screen before processing (In both modes of Ciphering and Deciphering)
- Since each module does the opposite of the other module, each can be considered as the *test-module* of the other one.

# How the Vigenere table is utilized: (A trimmed down version)

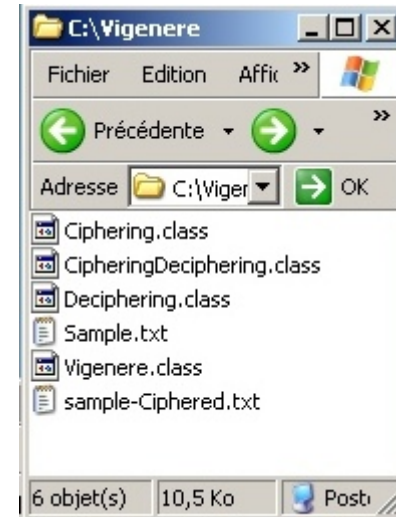


A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A
C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B
D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C
E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D
F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E
G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F
H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G
I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H
J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I
K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J
L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K
M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L
N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M
O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N
P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y

Keyword	J	U	N	G	L		E	J	U	N	G		L	E	J
Original text	Q	U	I	C	K		B	R	O	W	N		F	O	X
Ciphered text	Z	O	V	I	V		F	A	I	J	T		Q	S	G

# Program Execution: *-Ciphering*

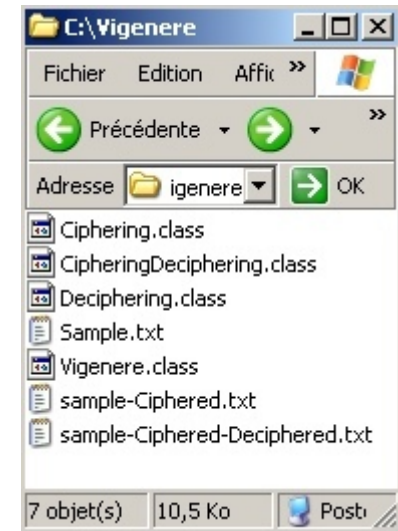
```
C:\Vigenere>java Vigenere sample.txt ciphering sampleKeyword
The operation is valid!
The input file is valid!
Would you like to see the content of the original text file on the screen? [y/n]
y
*****
Here is the content of the input file:
This is the content of the sample file!
*****
The operation has been successfully completed!
C:\Vigenere>_
```

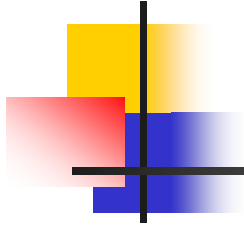


# Program Execution: *-Deciphering*

```
C:\Vigenere>java Vigenere sample-Ciphered.txt deciphering sampleKeyword
The operation is valid!
The input file is valid!
Would you like to see the content of the ciphered file on the screen? [y/n]y
*****
Here is the content of the input file:
GIUcφN>αm_T†Gb0aUZyKt_†cZI!!TN]\Q0α_`[Wα
*****
The operation has been successfully completed!

C:\Vigenere>_
```





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Thank you for your attention.

- Live testing

- Q & A