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## Class Hierarchy

Secret is the base class. It is abstract.

Caesar, Vigenere and Autokey are non-abstract derived classes of Secret.

## secret.hpp

```
// Secret Abstract base class
#include<iostream>
using std::string;
class Secret {
  protected:
     string key;
     string message;
     bool encrypted;
  public:
    Secret(std::string m)
      key = "";
       message = m;
        encrypted = false;
    }
      Secret()
        key = "";
        message = "";
        encrypted = false;
    }
      ~Secret() {
            delete &key;
            delete &message;
            delete &encrypted;
      }
      virtual void encrypt(string key) = 0;
      virtual void decrypt(string key) = 0;
      void display();
      void setMessage(string m);
};
```

## main()

```
#include<iostream>
#include"caesar.hpp"
#include"vigenere.hpp"
#include"autokey.hpp"
using std::cout;
using std::endl;
const int SECRETS = 6;
int main() {
      Secret * secrets[SECRETS];
      secrets[0] = new Autokey("Faysal Autokey");
      secrets[1] = new Autokey("Faysal Autokey the Second");
      secrets[2] = new Vigenere("Faysal Vigenere");
      secrets[3] = new Vigenere("Faysal Vigenere the Second");
      secrets[4] = new Caesar("Faysal Caesar");
      secrets[5] = new Caesar("Faysal Caesar the Second");
      cout << endl << "Printing Secret Messages" << endl;</pre>
      for (int i=0; i<SECRETS; i++) {</pre>
            secrets[i]->display();
      }
      cout << endl << "Printing Encrypted Messages" << endl;</pre>
      for (int i=0; i<SECRETS; i++) {</pre>
            secrets[i]->encrypt("ABC");
            secrets[i]->display();
      }
      cout << endl << "Printing Decrypted Messages" << endl;</pre>
      for (int i=0; i<SECRETS; i++) {</pre>
            secrets[i]->decrypt("ABC");
            secrets[i]->display();
      }
}
```

## Sample Output

Printing Secret Messages

Faysal Autokey

Faysal Autokey the Second

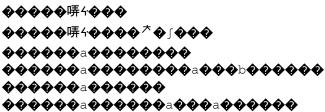
Faysal Vigenere

Faysal Vigenere the Second

Faysal Caesar

Faysal Caesar the Second

Printing Encrypted Messages



Printing Decrypted Messages

Faysal Autokey

Faysal Autokey the Second

Faysal Vigenere

Faysal Vigenere the Second

Faysal Caesar

Faysal Caesar the Second