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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;
    for (int i=0; i<SECRETS; i++) {
        secrets[i]->display();
    }

    cout << endl << "Printing Encrypted Messages" << endl;
    for (int i=0; i<SECRETS; i++) {
        secrets[i]->encrypt("ABC");
        secrets[i]->display();
    }

    cout << endl << "Printing Decrypted Messages" << endl;
    for (int i=0; i<SECRETS; i++) {
        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

????? 啁4????
????? 啁4????? * ?j????
?????a?????
?????a?????a????b?????
?????a?????
?????a?????a????a?????

Printing Decrypted Messages

Faysal Autokey
Faysal Autokey the Second
Faysal Vigenere
Faysal Vigenere the Second
Faysal Caesar
Faysal Caesar the Second