```
/*************************************************************************
* Program:
*    Midterm, problem #3
* Summary:
*    This program will store and retrieve confidential data in a file
*************************************************************************/

#include <iostream>
#include <fstream>
using namespace std;

#define SECRET_KEY  3
const char * STUDENT_FILE   = "studentFile.txt";
const char * PROFESSOR_FILE = "professorFile.txt";

/*************************************************************
 * READ SECRET
 *************************************************************/
void readSecret(const char * filename, char * plainText)
{
   char cipherText[256];

   // read
   ifstream fin(filename);
   fin >> cipherText;
   fin.close();

   // decipher
   for (char * p = cipherText; *p; p++, plainText++)
      *plainText = *p - SECRET_KEY;
   *plainText = '\0';
}

/*************************************************************
 * WRITE SECRET
 *************************************************************/
void writeSecret(const char * filename, const char * plainText)
{
   // cipher
   char * cipherText = new char[256];
   int i = 0;
   for (const char * p = plainText; *p; p++, i++)
      cipherText[i] = *p + SECRET_KEY;
   cipherText[i] = '\0';

   // write
   ofstream fout(filename);
   fout << cipherText << endl;
   fout.close();

   delete [] cipherText;
}

/*************************************************
 * EDIT SECRET
 *************************************************/
void editSecret(char * plainText)
{
   // instructions
   cout << "Which letter would you like to change?\n"
        << "'" << plainText << "'\n";

   // change the letter
   int index;
   cin  >> index;
   cout << "What letter will replace '" << plainText[index] << "'?\n";
   cin  >> plainText[index];
   cout << "New message: '" << plainText << "'\n";
}

const char * MENU = "Options:\n\tR Read\n\tW Write\n\tD Display\n\tE Edit\n";

/*************************************************
 * MAIN
 *************************************************/
int main()
{
   char * plainText = new char[256];
   char option[4] = {};
   const char * filename = STUDENT_FILE;

   cout << MENU;
   while (*option != 'Q')
   {
      cout << "> ";
      cin  >> option;
      switch (*option)
      {
         case 'R':
            readSecret(filename, plainText);
            break;
         case 'D':
            cout << "Secret: '" << plainText << "'\n";
            break;
         case 'W':
            writeSecret(filename, plainText);
            break;
         case 'E':
            editSecret(plainText);
            break;
      }
   }

   delete [] plainText;
   return 0;
}
```