PRACTICAL - 01

Code:

```
// Ashwin Navange A-38 CSE
#include <bits/stdc++.h>
using namespace std;

string RandomString(int len)
{
   char alpha[26] = { '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' };

   string key = "";

   for (int i = 0; i<len; i++)
      key = key + alpha[rand() % 26];

   return key;
}

string stringEncryption(string text, string key)
{

   string cipherText = "";

   int cipher[key.length()];

   for (int i = 0; i < key.length(); i++) {
      cipher[i] = text.at(i) - 'A' + key.at(i) - 'A';
      cipher[i] = cipher[i] % 26;
   }

   for (int i = 0; i < key.length(); i++) {
      int x = cipher[i] + 'A';
      cipherText += (char)x;
   }

   return cipherText;
}

string stringDecryption(string s, string key)
{
   string plainText = "";

   int plain[key.length()];

   for (int i = 0; i < key.length(); i++) {
      plain[i] = s.at(i) - 'A' - (key.at(i) - 'A');
   }
```

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    for (int i = 0; i < key.length(); i++) {
        if (plain[i] < 0) {
            plain[i] = plain[i] + 26;
        }
    }

    for (int i = 0; i < key.length(); i++) {
        int x = plain[i] + 'A';
        plainText += (char)x;
    }
    return plainText;
}

int main()
{
    cout << "Ashwin Navange A-38 CSE " << endl << endl;

    string plainText;
    cout<<"Enter Plain Text: ";
    getline(cin,plainText);

    int len = plainText.length();

    for(int i=0; i<len; i++) {
        plainText[i] = toupper(plainText[i]);
    }

    string key = RandomString(len);
    cout << "Key Generated: " << key << endl;

    string encryptedText = stringEncryption(plainText,key);

    cout << "Cipher Text: " << encryptedText << endl;

    cout << "Original Message: " << stringDecryption(encryptedText, key);

    cout<<endl;

    return 0;
}
```

Output: