EXPERIMENT- 01: POLY ALPHABETIC(VIGENERE CIPHER)

PROGRAM:

```
#include <stdio.h>
#include <string.h>
#include <ctype.h>

void encrypt(char *plaintext, char *key, char *ciphertext) {
    int i, j = 0;
    int keyLength = strlen(key);
    for (i = 0; plaintext[i] != '\0'; i++) {
        if (isalpha(plaintext[i])) {
            char shift = toupper(key[j % keyLength]) - 'A';
            ciphertext[i] = (toupper(plaintext[i]) - 'A' + shift) % 26 + 'A';
            j++;
        } else {
            ciphertext[i] = plaintext[i];
        }
    }
    ciphertext[i] = '\0';
}

void decrypt(char *ciphertext, char *key, char *plaintext) {
    int i, j = 0;
    int keyLength = strlen(key);
    for (i = 0; ciphertext[i] != '\0'; i++) {
        if (isalpha(ciphertext[i])) {
            char shift = toupper(key[j % keyLength]) - 'A';
            plaintext[i] = (toupper(ciphertext[i]) - 'A' - shift + 26) % 26 + 'A';
            j++;
        } else {
            plaintext[i] = ciphertext[i];
        }
    }
    plaintext[i] = '\0';
}

int main() {
    char text[100], key[100], result[100];
    int choice;

    printf("Choose 1 for Encryption or 2 for Decryption: ");
    scanf("%d", &choice);
    getchar(); // Consume newline character

    printf("Enter text: ");
    fgets(text, sizeof(text), stdin);
    printf("Enter key: ");
    fgets(key, sizeof(key), stdin);

    // Remove newline characters
    text[strcspn(text, "\n")] = 0;
    key[strcspn(key, "\n")] = 0;

    if (choice == 1) {
        encrypt(text, key, result);
        printf("Encrypted: %s\n", result);
    } else if (choice == 2) {
        decrypt(text, key, result);
```

```
        printf("Decrypted: %s\n", result);
    } else {
        printf("Invalid choice.\n");
    }

    return 0;
}
```

output: