Program: 1 **Caesar Cipher**

Date:

AIM

ALGORITHM

CODE

```
#include <iostream>
#include <string>
using namespace std;
class CaesarCipher {
    void getStartAndEnd(int code, int &start, int &end) {
        if (code >= 65 && code <= 90) {
            start = 65;
            end = 90;
        } else if (code >= 97 && code <= 122) {
            start = 97;
            end = 122;
        } else {
            start = end = 0;
        }
    }
    public:
    int key;
    CaesarCipher(int key) {
        this->key = key % 26;
    }
    string encrypt(string text) {
        int start;
        int end;
        string cipher;
        for (int i=0; i<text.length(); i++) {
            int code = (char) text[i];
            this->getStartAndEnd(code, start, end);
            if (start != 0) {
                code = start + (((code + this->key) - start) % 26);
}
            cipher.push_back((char) code);
        }
        return cipher;
```

```
    }
    string decrypt(string text) {
        int start;
        int end;
        string plaintext;
        for (int i=0; i<text.length(); i++) {
            int code = (char) text[i];
            this->getStartAndEnd(code, start, end);
            if (start != 0) {
                code = end - ((end - (code - this->key)) % 26);
            }
            plaintext.push_back((char) code);
        }
        return plaintext;
    }
};

int main() {
    int choice;
    int key;
    cout << "\nEnter key: ";
    cin >> key;
    CaesarCipher cc(key);
    while (1) {
        cout << "\n1. Encrypt" << endl;
        cout << "2. Decrypt" << endl;
        cout << "3. Exit" << endl;

        cout << "Enter Choice: ";
        cin >> choice;
        string text;
        if (choice == 1) {
            cout << "\nEnter plaintext: ";
            std::getline(std::cin >> std::ws, text);
```

```
            cout << "Cipher: " << cc.encrypt(text) << endl;
        } else if (choice == 2) {
            cout << "\nEnter cipher: ";
            std::getline(std::cin >> std::ws, text);
            cout << "Plaintext: " << cc.decrypt(text) << endl;
        } else if (choice == 3) {
            cout << "Exiting.." << endl;
            break;
        } else {
            cout << "Invalid Choice" << endl;
        }
    }
    return 0;
}
```

OUTPUT

```
Enter key: 4

1. Encrypt
2. Decrypt
3. Exit
Enter Choice: 1

Enter plaintext: Ali Shazin
Cipher: Epm Wledmr

1. Encrypt
2. Decrypt
3. Exit
Enter Choice: 2

Enter cipher: Epm Wledmr
Plaintext: Ali Shazin

1. Encrypt
2. Decrypt
3. Exit
Enter Choice: 3
Exiting..
```

RESULT

Thus, the program to implement encryption and decryption using Caesar cipher is successfully completed.