

**PROGRAM:***CaesarCipher.java*

```
class caesarCipher {
    public static String encode(String enc, int offset) {
        offset = offset % 26 + 26;
        StringBuilder encoded = new StringBuilder();
        for (char i : enc.toCharArray()) {
            if (Character.isLetter(i)) {
                if (Character.isUpperCase(i)) {
                    encoded.append((char) ('A' + (i - 'A' + offset) % 26));
                } else {
                    encoded.append((char) ('a' + (i - 'a' + offset) % 26));
                }
            } else {
                encoded.append(i);
            }
        }
        return encoded.toString();
    }

    public static void main(String[] args) throws java.lang.Exception {
        String msg = "Anna University";
        System.out.println("Simulating Caesar Cipher\n ----- ");
        System.out.println("Input : " + msg);
        System.out.printf("Encrypted Message : ");
        System.out.println(caesarCipher.encode(msg, 3));
        System.out.printf("Decrypted Message : ");
        System.out.println(caesarCipher.decode(caesarCipher.encode(msg, 3),
3));
    }
}
```

## OUTPUT:

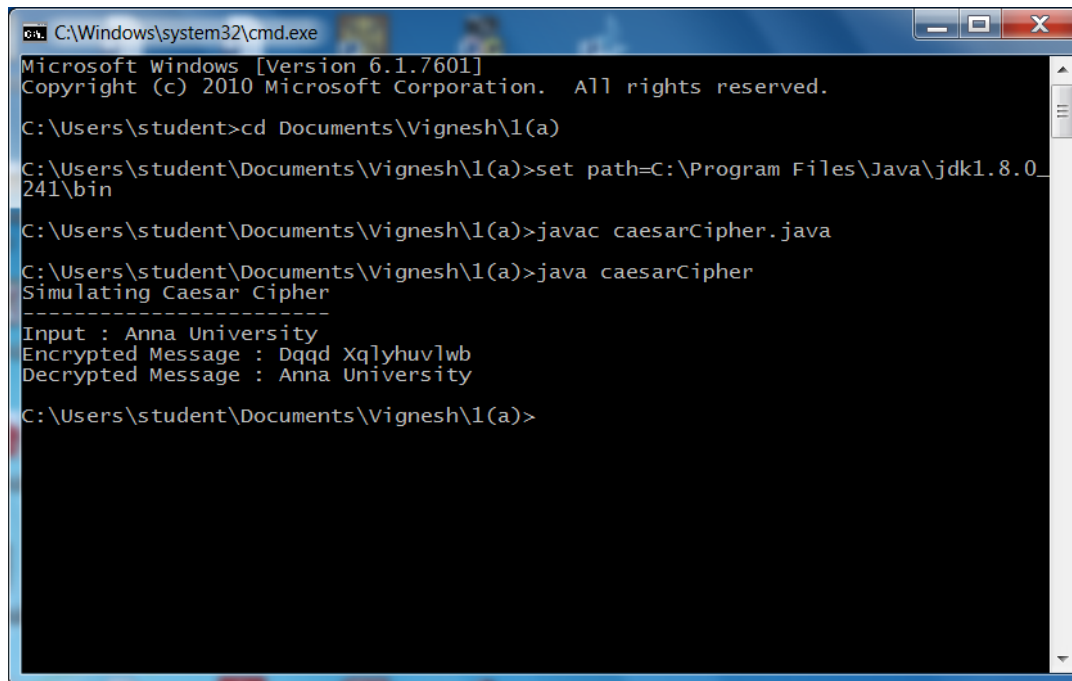
### Simulating Caesar Cipher

-----

Input : Anna University

Encrypted Message : Dqqd Xqlyhuvlwb

Decrypted Message : Anna University



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
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C:\Users\student>cd Documents\Vignesh\1(a)
C:\Users\student\Documents\Vignesh\1(a)>set path=C:\Program Files\Java\jdk1.8.0_241\bin
C:\Users\student\Documents\Vignesh\1(a)>javac caesarCipher.java
C:\Users\student\Documents\Vignesh\1(a)>java caesarCipher
Simulating Caesar Cipher
-----
Input : Anna University
Encrypted Message : Dqqd Xqlyhuvlwb
Decrypted Message : Anna University
C:\Users\student\Documents\Vignesh\1(a)>
```

## **PROGRAM:**

*playfairCipher.java*

```
import java.awt.Point;

class playfairCipher {
    private static char[][] charTable;
    private static Point[] positions;

    private static String prepareText(String s, boolean chgJtoI) {
        s = s.toUpperCase().replaceAll("[^A-Z]", "");
        return chgJtoI ? s.replace("J", "I") : s.replace("Q", "");
    }

    private static void createTbl(String key, boolean chgJtoI) {
        charTable = new char[5][5];
        positions = new Point[26];
        String s = prepareText(key +
            "ABCDEFGHIJKLMNOPQRSTUVWXYZ", chgJtoI);
        int len = s.length();
        for (int i = 0, k = 0; i < len; i++) {
            char c = s.charAt(i);
            if (positions[c - 'A'] == null) {
                charTable[k / 5][k % 5] = c;
                positions[c - 'A'] = new Point(k % 5, k / 5);
                k++;
            }
        }
    }

    private static String codec(StringBuilder txt, int dir) {
        int len = txt.length();
        for (int i = 0; i < len; i += 2) {
            char a = txt.charAt(i);
            char b = txt.charAt(i + 1);
            int row1 = positions[a - 'A'].y;
            int row2 = positions[b - 'A'].y;
            int col1 = positions[a - 'A'].x;
            int col2 = positions[b - 'A'].x;
            if (row1 == row2) {
                col1 = (col1 + dir) % 5;
                col2 = (col2 + dir) % 5;
            }
        }
    }
}
```

```

        } else if (col1 == col2) {
            row1 = (row1 + dir) % 5;
            row2 = (row2 + dir) % 5;
        } else {
            int tmp = col1;
            col1 = col2;
            col2 = tmp;
        }
        txt.setCharAt(i, charTable[row1][col1]);
        txt.setCharAt(i + 1, charTable[row2][col2]);
    }
    return txt.toString();
}

private static String encode(String s) {
    StringBuilder sb = new StringBuilder(s);
    for (int i = 0; i < sb.length(); i += 2) {
        if (i == sb.length() - 1) {
            sb.append(sb.length() % 2 == 1 ? 'X' : "");
        } else if (sb.charAt(i) == sb.charAt(i + 1)) {
            sb.insert(i + 1, 'X');
        }
    }
    return codec(sb, 1);
}

private static String decode(String s) {
    return codec(new StringBuilder(s), 4);
}

public static void main(String[] args) throws java.lang.Exception {
    String key = "CSE";
    String txt = "Balloon"; /* make sure string length is even */ /* change J to
I */
    boolean chgJtoI = true;
    createTbl(key, chgJtoI);
    String enc = encode(prepareText(txt, chgJtoI));
    System.out.println("Simulating Playfair Cipher\n -----");
    System.out.println("Input Message : " + txt);
    System.out.println("Encrypted Message : " + enc);
    System.out.println("Decrypted Message : " + decode(enc));
}
}

```

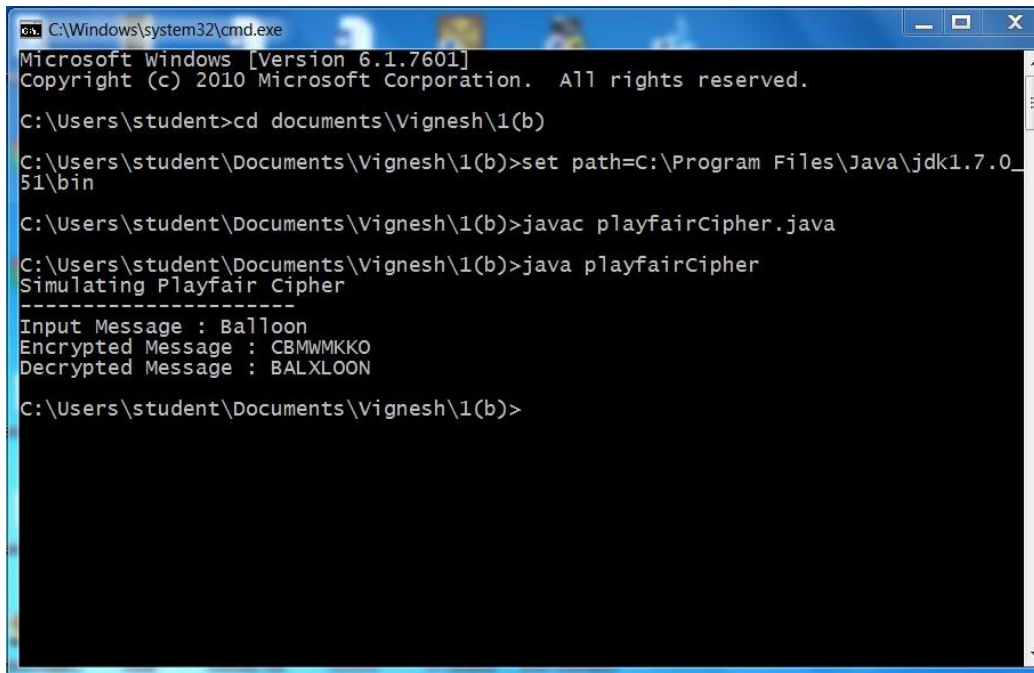
## OUTPUT:

Simulating Playfair Cipher

-----  
Input Message : Balloon

Encrypted Message : CBMWMKKO

Decrypted Message : BALXLOON



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
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C:\Users\student>cd documents\Vignesh\1(b)

C:\Users\student\Documents\Vignesh\1(b)>set path=C:\Program Files\Java\jdk1.7.0_51\bin

C:\Users\student\Documents\Vignesh\1(b)>javac playfairCipher.java

C:\Users\student\Documents\Vignesh\1(b)>java playfairCipher
Simulating Playfair Cipher
-----
Input Message : Balloon
Encrypted Message : CBMWMKKO
Decrypted Message : BALXLOON

C:\Users\student\Documents\Vignesh\1(b)>
```