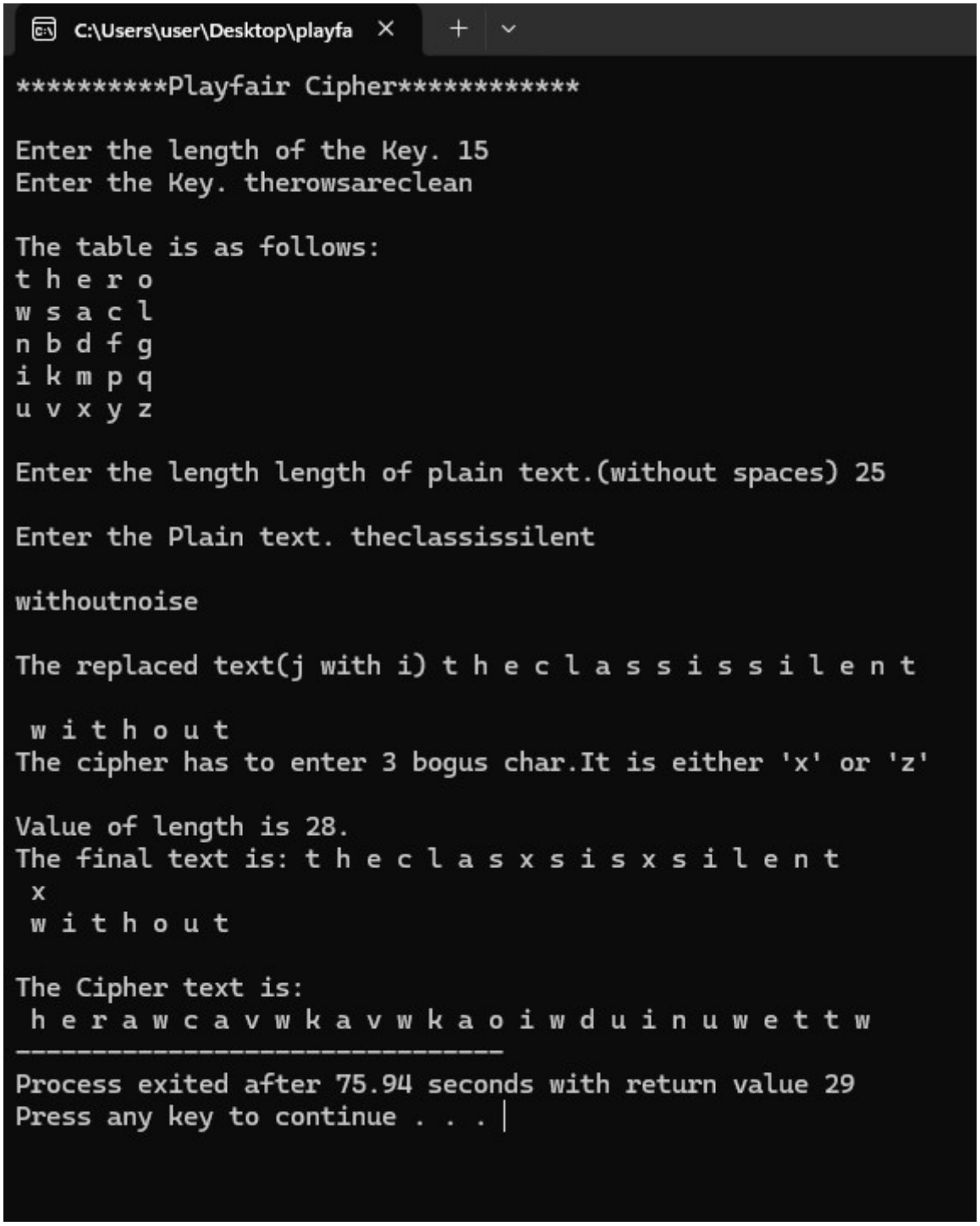
AIM:

ALGORITHM:

OUTPUT:


C:\Users\user\Desktop\playfa
**********Playfair Cipher**********
Enter the length of the Key. 15
Enter the Key. therowsareclean
The table is as follows:
t h e r o
w s a c l
n b d f g
i k m p q
u v x y z
Enter the length length of plain text.(without spaces) 25
Enter the Plain text. theclassissilent
withoutnoise
The replaced text(j with i) t h e c l a s s i s s i l e n t
w i t h o u t
The cipher has to enter 3 bogus char.It is either 'x' or 'z'
Value of length is 28.
The final text is: t h e c l a s x s i s x s i l e n t
x
w i t h o u t
The Cipher text is:
h e r a w c a v w k a v w k a o i w d u i n u w e t t w
Process exited after 75.94 seconds with return value 29
Press any key to continue . . .

PROGRAM:

```
#include<stdio.h>
int check(char table[5][5], char k)
   {int i, j;
   for (i = 0; i < 5; ++i)
      for (j = 0; j < 5; ++j)
         {if (table[i][j] == k)
            return 0;
      }
   return 1;
}
void main() {
   int i, j, key_len;
   char table[5][5];
   for (i = 0; i < 5; ++i)
      for (j = 0; j < 5; ++j)
        table[i][j] = '0';

   printf("**********Playfair Cipher**********\n\n");

   printf("Enter the length of the Key. ");
   scanf("%d", &key_len);
```

```
char key[key_len];
printf("Enter the Key. ");
   for (i = -1; i < key_len; ++i)
      {scanf("%c", &key[i]);
      if (key[i] == 'j')
         key[i] = 'i';
   }
int flag;
   int count = 0;

   for (i = 0; i < 5; ++i)
      { for (j = 0; j < 5; ++j)
      {
         flag = 0;
         while (flag != 1) {
            if (count > key_len)
               goto l1;

            flag = check(table, key[count]);
            ++count;
         }
         table[i][j] = key[(count - 1)];
      }
   }
```

```
 l1: printf("\n");
int val = 97;


   for (i = 0; i < 5; ++i)
      { for (j = 0; j < 5; ++j)
      {
         if (table[i][j] >= 97 && table[i][j] <= 123) {
         } else {
            flag = 0;
            while (flag != 1) {
               if ('j' == (char) val)
                  ++val;
               flag = check(table, (char) val);
               ++val;
            }
            table[i][j] = (char) (val - 1);
         }
      }
   }

   printf("The table is as follows:\n");
   for (i = 0; i < 5; ++i) {
      for (j = 0; j < 5; ++j)
         { printf("%c ",
         table[i][j]);
      }
```

```
printf("\n");
   }

   int l = 0;
   printf("\nEnter the length length of plain text.(without spaces) ");
   scanf("%d", &l);

   printf("\nEnter the Plain text. ");
   char p[l];
   for (i = -1; i < l; ++i) {
      scanf("%c", &p[i]);
   }

   for (i = -1; i < l; ++i) {
      if (p[i] == 'j')
         p[i] = 'i';
   }

   printf("\nThe replaced text(j with i)");
   for (i = -1; i < l; ++i)
      printf("%c ", p[i]);

   count = 0;
   for (i = -1; i < l; ++i) {
```

```
 if (p[i] == p[i + 1])
        count = count + 1;
   }

   printf("\nThe cipher has to enter %d bogus char.It is either 'x' or
'z'\n",
        count);

   int length = 0;
   if ((l + count) % 2 != 0)
      length = (l + count + 1);
   else
      length = (l + count);

   printf("\nValue of length is %d.\n", length);
   char p1[length];

   char temp1;
   int count1 = 0;
   for (i = -1; i < l; ++i) {
      p1[count1] = p[i];
      if (p[i] == p[i + 1])
         { count1 = count1 +
         1;if (p[i] == 'x')
```

```
p1[count1] = 'z';
          else
             p1[count1] = 'x';
       }
       count1 = count1 + 1;
    }



    char bogus;
    if ((l + count) % 2 != 0) {
       if (p1[length - 1] == 'x')
          p1[length] = 'z';
       else
          p1[length] = 'x';
    }

    printf("The final text is:");
    for (i = 0; i <= length; ++i)
       printf("%c ", p1[i]);

    char cipher_text[length];
    int r1, r2, c1, c2;
    int k1;
```

```
for (k1 = 1; k1 <= length; ++k1)
      {for (i = 0; i < 5; ++i) {
         for (j = 0; j < 5; ++j) {
            if (table[i][j] == p1[k1])
               {r1 = i;
               c1 = j;
            } else if (table[i][j] == p1[k1 + 1])
               {r2 = i;
               c2 = j;
            }
         }//end of for with j
      }//end of for with i

      if (r1 == r2) {
         cipher_text[k1] = table[r1][(c1 + 1) % 5];
         cipher_text[k1 + 1] = table[r1][(c2 + 1) % 5];
      }

      else if (c1 == c2) {
         cipher_text[k1] = table[(r1 + 1) % 5][c1];
         cipher_text[k1 + 1] = table[(r2 + 1) % 5][c1];
      } else {
         cipher_text[k1] = table[r1][c2];
         cipher_text[k1 + 1] = table[r2][c1];
```

```
}
 k1 = k1 + 1;
   }

   printf("\n\nThe Cipher text is:\n ");
   for (i = 1; i <= length; ++i)
      printf("%c ", cipher_text[i]);

}
```

RESULT: