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## **IMPLEMENTATION OF PLAYFAIR CIPHER**

### **ALGORITHM**

This cipher is one which has primary key as a text and no repetition of letters in a 5X5 matrix which permits us to decrypt the message.

- Firstly, choose a key for encryption and decryption.
- No repeating allowed and on to that J is left out. If J is found in the key then, in the matrix I replaces it and same goes for I.
- A plaintext message is split into pairs of two letters (digraphs). If there is an odd number of letters, an X is added to the last letter. Let us say we want to encrypt the message "Programming". It will be written as - Pr og ra mm in gX
- The rules of encryption are -
  - 1) If both the letters are in the same column, take the letter below each one (going back to the top if at the bottom)
  - 2) If both letters are in the same row, take the letter to the right of each one (going back to the left if at the farthest right)
  - 3) If neither of the preceding two rules are true, form a rectangle with the two letters and take the letters on the horizontal opposite corner of the rectangle.

### **WORKING PRINCIPLE**

Using these rules, the result of the encryption of 'Programming' with the key of 'Algorithm' would be – **UlroalkkcvhG**

Decrypting the Playfair cipher is as simple as doing the same process in reverse. Receiver has the same key and can create the same key table, and then decrypt any messages made using that key.

## EXECUTION

```
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Playfair Cipher Encryption and Decryption  
-----  
1: Encryption  
2: Decryption  
3: Exit  
  
Enter your choice : 1  
  
Enter key : algorithm  
Enter the text : programming  
A L G O R  
I T H M B  
C D E F K  
N P Q S U  
V W X Y Z  
Your text is : PROGRAMMING  
The Encrypted text is : ULROALHYBTQA  
Enter your choice : 2  
  
Enter key : algorithm  
Enter the text : ULROALHYBTQA  
A L G O R  
I T H M B  
C D E F K  
N P Q S U  
V W X Y Z  
Your text is : ULROALHYBTQA  
The Encrypted text is : PROGRAMXMING (Remove unnecessary X)  
Enter your choice : 3
```