

Nupur, BSc IT VI, 1022746 (36) Information Security

① Playfair Cipher

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

int removerepeated(int size,
        int a []);

int insertelementat(int position,
        int a [], int size);
```

main()

```
{
```

int i, j, k, numstr[100], num
cipher[100], numkey[100], lenkey,
templen, tempkey[100], flag=-1,
Size, cipherkey[5][5], lennumstr,
row1, row2, ~~col1~~, col2;

```
char str[100], key[100];
```

```
printf("Enter a string\n");
gets(str);
```

```
for(i=0; j=0; i<strlen(str);
    i++)
{
    if(str[i] != ' ')
{
    str[j] = toupper(str[i]);
    j++;
}
```

①

```
str[j] = '\0';
printf("Entered String is %s
        \n", str);
```

```
size = strlen(str);
for(i=0; i<size; i++)
{
    if(str[i] != ' ')
        numstr[i] = str[i] - 'A';
}
lennumstr = i;
printf("Enter the Key (Non
repeated elements if possible)
        \n");
gets(key);
for(i=0, j=0; i < strlen(key);
    i++)
{
    if(key[i] != ' ')
    {
        key[j] = toupper(key[i]);
        j++;
    }
}
key[j] = '\0';
printf("%s\n", key);
```

Playfair Cipher

```
#include < stdio.h >
#include < string.h >
#include < ctype.h >
int removerepeated(int size,
        int a [] );
int insertelementat( int position,
        int a [], int size );
```

main()

```
{
```

int i, j, k, numstr[100], num
cipher[100], numkey[100], lenkey,
tempkey, tempkey[100], flag=-1,
Size, cipherkey[S][S], lennumstr,
row1, row2, col1, col2; ~~char~~
char str[100], key[100];
printf("Enter a string \n");
gets(str);

for (i=0; j=0; i<strlen(str);
 i++)
{
 if (str[i] != ' '){
 str[j] = toupper(str[i]);
 j++;
 }
}

```
str[j] = '\0';
printf("Entered string is %s
\n", str);
size = strlen(str);
for (i=0; i<size; i++)
{
    if (str[i] != ' ')
        numstr[i] = str[i] - 'A';
}
lennumstr = i;
printf("Enter the key (Non
repeated elements if possible)
\n");
gets(key);
for (i=0; j=0; i<strlen(key);  
     i++)  
{  
    if (key[i] != ' '){  
        key[j] = toupper(key[i]);
        j++;
    }
}
key[j] = '\0';
printf("%s\n", key);
```

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⑦

```
K=0;
for(i=0; i<strlen(Key)+26; i++)
{
if(i<strlen(Key))
{
    if(
        Flag = 8;
        printf("odd",Flag);
    }
    numkey[i] = Key[i] - 'A';
}
else
{
    if(K == 9 && K != Flag)
    {
        numkey[i] = K;
    }
    K++;
}
templen = i;
lenkey = removeextra
(templen, numkey);
printf("Entered key converted
according to play fair cipher
rule\n");
for(i=0; i<lenkey; i++)
{}
```

```
printf("\n",numkey[i]+ 'A');
printf("\n");
K=0;
for(i=0; i<5; i++)
{
    for(j=0; j<5; j++)
    {
        cipherkey[i][j] = numkey[K];
        K++;
    }
}
printf("Arranged Key\n");
for(i=0; i<5; i++)
{
    for(j=0; j<5; j++)
    {
        printf("\t", cipherkey[i][j]
            + 'A');
    }
}
printf("\n");
for(i=0; i<lennumstr; i+=2)
{}
```

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```
ReIf (numstr[i] == numstr  
[i+1])  
{  
insertelement(i+1, numstr, len  
numstr); lennumstr++;  
}  
if (lennumstr % 2 != 0)  
{  
insertelementat(lennumstr, numstr,  
lennumstr); lennumstr++;  
}
```

printf("Entered String/Message

After processing according to

Play Fair cipher rule ("));

```
for (i=0; i<lennumstr; i++)
```

```
printf("%c", numstr[i] + 'A');  
}
```

```
for (K=0; K<lennumstr;  
K+=2)
```

```
{
```

```
for (K=0; K<lennumstr;  
K+=2)
```

```
{
```

```
for (i=0; i<5; i++)  
{  
for (j=0; j<5; j++)  
{  
if (numstr[K] == cipherkey  
[i][j])  
{  
row1 = i;  
col2 = j;  
}  
}  
}
```

if (row1 == row2)

col1 = (col1 + 1) % 5;

col2 = (col2 + 2) % 5;

if (col1 < 0)

```
{
```

col1 = 5 + col1;

```
{
```

if (col2 < 0)

```
{
```

col2 = 5 + col2;

```
}
```

numcipher[K] = CipherKey
[row1][col1];

~~numcipher~~ numcipher[K+1] =
Cipher [row2][col2];
}

if (col1 == col2)

{

row1 = (row1 + 1) * 5;

row2 = (row2 + 1) * 5;

if (row1 < 0)

{

row1 = 5 + row1;

}

if (row2 < 0)

{

row2 = 5 + row2

}

numcipher[K] = Cipher
Key [row1][col1];

numcipher[K+1] =
Cipher key [row2]
[col2];

}

```
Enter a string  
go with the flow  
Entered String is GOWITHTHEFLOW  
Enter the key (Non repeated elements if possible)  
key  
KEY  
Entered key converted according to Play Fair Cipher rule
```

```
KEYABCDEFGHI||LMNOPQRSTUVWXYZ
```

```
Arranged key
```

```
K E Y A B  
C D F G H  
I || L M N  
O P Q R S  
T U V W X
```

```
Entered String/Message After Processing according to Play fair cipher rule  
GOWITHTHEFLOWX
```

```
Cipher Text is  
CRTMCCYDIQT
```

```
-----  
Process exited after 10.69 seconds with return value 0  
Press any key to continue . . .
```