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Date - 17/6/21
Sign -

5)
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#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#define SIZE 30
void toLowerCase(char plain[], int ps)
{
int i;
for(i=0;i<ps;i++){
if(plain[i] > 64 && plain[i] < 91)
plain[i] += 32;
}
}
int removeSpaces(char* plain, int ps)
{
int i, count=0;
for(i=0; i<ps; i++)
if(plain[i] != ' ')
plain[count++] = plain[i];
plain[count] = '\0';
return count;
}
void generateKeyTable(char key[], int ks, char keyT[5][5])
{
int i, j, k, flag=0, *dict;
dict = (int*) calloc(26, sizeof(int));
for(i=0;i<ks;i++){
if(key[i] != 'j')
dict[key[i]-97] = 2;
}
```

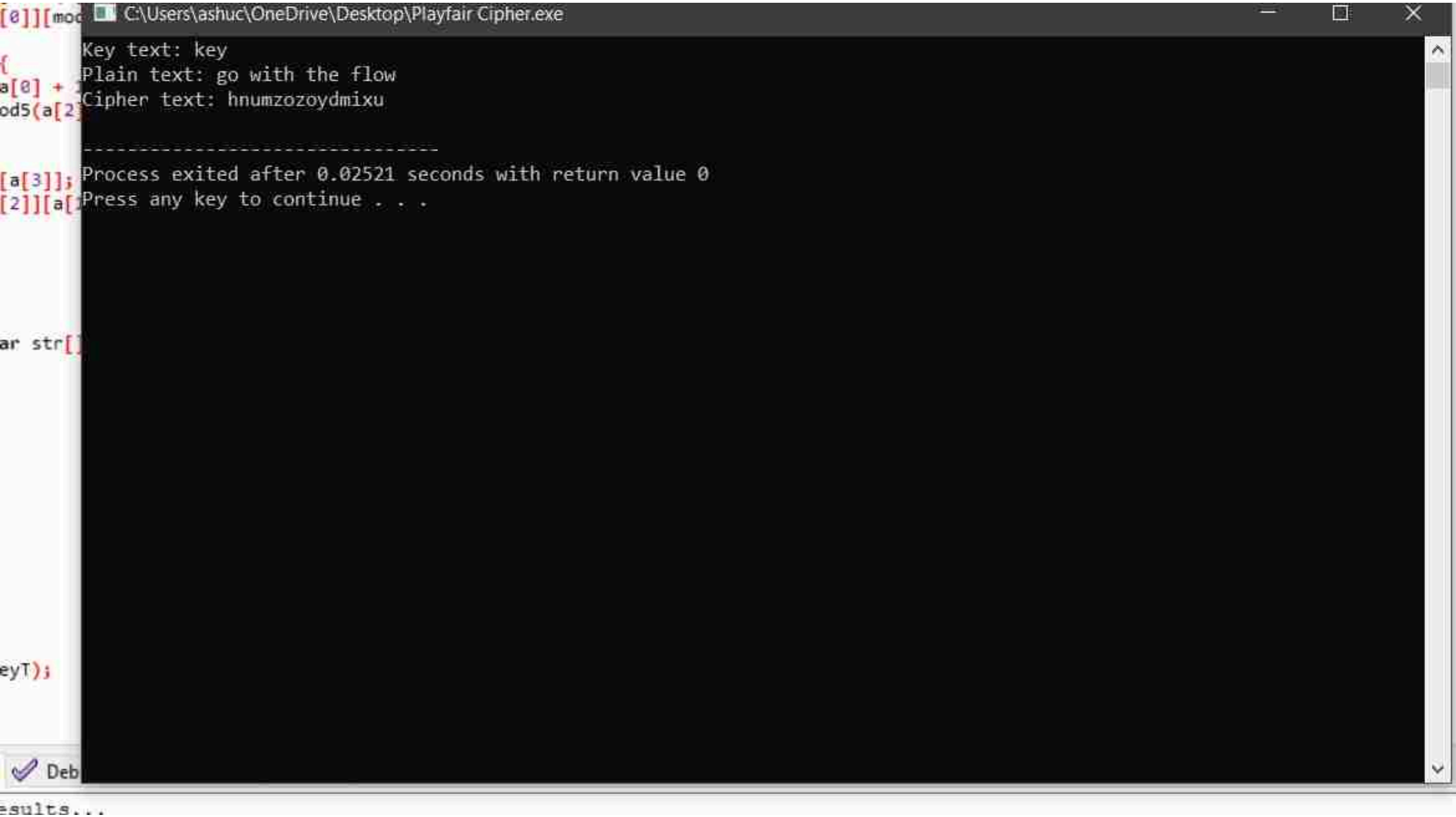
```
    dicty [y' - 97] = 1;
    i=0;
    j=0;
  for (k=0; k<ks; k++) {
  if (dicty[key[k] - 97] == 2) {
   dicty[key[k]-97] = 1;
   key T[i][j] = key[k];
   j++;
   if (j==5) {
     i++;
    j=0;
  }
 }
}
for (k=0; k<26; k++) {
  if(dicty[k]==0) {
    key T[i][j] = (char)(k+97);
    j++;
   if (j==5) {
     i++;
     j=0;
   }
  }
}

void search(char key T[5][5], char a, char b, int arr[])
{
int i, j;
```

```
if(a=='j')
  a='i';
else if(b=='j')
 b='i';
for(i=0;i<5;i++){
for(j=0;j<5;j++){
if(key T[i][j]==a){
  arr[0]=i;
  arr[1]=j;
 }
else if(key T[i][j]==b){
    arr[2]=i;
    arr[3]=j;
     }
   }
 }
}
int mods(int a)
 {return (a%5);
 }
int prepare(char str[],int ptrs)
 {
 if(ptrs%2!=0){
 str[ptrs++]='z';
 str[ptrs]='\0';
 }
 return ptrs;
 }
void encrypt(char str[],char key T[5][5],int ps)
{
int i,a[4];
```

```
for(i=0; i<ps; i+=2){
search(keyT, str[i], str[i-1], a);
if(a[0]==a[2]){
str[i]=keyT[a[0]][(a[1]+1)%5];
str[i+1]=keyT[a[0]][(a[3]+1)%5];
}
else if(a[1]==a[3]){
str[i]=keyT[(a[0]+1)%5][a[1]];
str[i+1]=keyT[(a[2]+1)%5][a[1]];
}
else{
str[i]=keyT[a[0]][a[3]];
str[i+1]=keyT[a[2]][a[1]];
}
}
}
void encryptByPlayfairCipher(char str[], char key[])
{
char ps, ks, keyT[5][5];
ks=strlen(key);
key=removeSpaces(key, ks);
toLowerCase(key, ks);
ps=strlen(str);
toLowerCase(str, ps);
ps=removeSpaces(str, ps);
ps=prepare(str, ps);
generateKeyTable(key, ks, keyT);
encrypt(str, keyT, ps);
}
```

```
int main()
{
char str[SIZE], key[SIZE]
strcpy(key, "key");
printf("key text: %s\n", key);
strcpy(str, "go with the flow");
printf("Plaintext: %s\n", str);
encryptByPlayfairCipher(str, key);
printf("Cipher text: %s\n", str);
return 0;
}
```


C:\Users\ashuc\OneDrive\Desktop\Playfair Cipher.exe
Key text: key
Plain text: go with the flow
Cipher text: hnumzozoydmixu

Process exited after 0.02521 seconds with return value 0
Press any key to continue . . .