**PROGRAM-3**

**Write a program to implement Hill cipher in C++.**

#include<iostream>

#include<string.h>

using namespace std;

int main()

{ char ch,str[50],key[50];

int n,i,j,pt[3][3],count=0,keym[3][3],ct[3][3],k,hmph;

cout<<"Enter plaintext 9 characters\n";

cin>>str;

i=strlen(str);

if(strlen(str)<9)

{while(i<9)

str[i]='x';

i++;

}

for(i=0;i<3;i++)

for(j=0;j<3;j++)

{pt[j][i]=str[count]-65;

count++;}

for(i=0;i<3;i++)

{cout<<"\n";

for(j=0;j<3;j++)

{cout<<pt[i][j]<<"\t";}

}

cout<<"\n enter key (9 characters)\n";

cin>>key;

count=0;

for(i=0;i<3;i++)

for(j=0;j<3;j++)

{keym[i][j]=key[count]-65;

count++;}

for(i=0;i<3;i++)

{cout<<"\n";

for(j=0;j<3;j++)

{cout<<keym[i][j]<<"\t";}

}

hmph=0;

while(hmph<3)

{for(i=0;i<3;i++)

{

for(j=hmph;j <hmph+1;j++)

{

ct[i][j] = 0;

for(k=0;k< 3;k++)

{

ct[i][j] = ct[i][j] + keym[i][k] \* pt[k][j];

}

}

}

hmph++; }

cout<<"\n ENCRYPTED TEXT IS : ";

for(i=0;i<3;i++)

{

for(j=0;j<3;j++)

{ ct[j][i]=ct[j][i]%26+65;

ch=(char)ct[j][i];

cout<<ch;}

}

return 0;

}

**OUTPUT-**

Enter plaintext 9 characters

computing

34 47 40

46 52 45

44 51 38

enter key (9 characters)knowledge

42 45 46

54 43 36

35 38 36

ENCRYPTED TEXT IS : KQYEGXTDG