1.KMP

#define MAX\_LENGTH 600000

int prefixArray[MAX\_LENGTH+1];

void kmpPrefixFunction(string c){

int length=c.length();

//the j to move in prefix array

int j=0;

prefixArray[j]=0;

for(int i=1;i<length;i++){ //to iterate in string

if(c[i]==c[j]) {

prefixArray[i]=j+1; //one length matching increases

j++;

}

else {

while(true){

//cout<<"dhuke"<<endl;

//cout<<"j = "<<j << endl;

j=j-1; //as j didn't mached went to previous index and character

j=prefixArray[j];

if(j==0) {

if(c[i]==c[j]) {

prefixArray[i]=j+1; // as matched break

j++;

break;

}

else break;

}

else {

if(c[i] == c[j]) {

prefixArray[i]=j+1;

j++;

break;

}

else continue;

}

}

}

}

}