**Trie**

**Tested on: LOJ\_DNA Prefix**

LL mx;

map<char, int>mp;

struct Trie{

LL cnt;

Trie \*child[4];

Trie()

{

cnt=0;

child[0]=child[1]=child[2]=child[3]=NULL;

}

};

void delete\_memory(Trie \*ob)

{

for(int i=0;i<4;i++)

if(ob->child[i]!=NULL)

delete\_memory(ob->child[i]);

delete ob;

}

void insert(string s, Trie \*ob)

{

int sLength,i,j,value;

LL temp;

sLength=s.length();

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

{

value=mp[s[j]];

for(int i=0;i<value;i++)

if(ob->child[i]!=NULL)

{

delete\_memory(ob->child[i]);

ob->child[i]=NULL;

}

if(ob->child[value]==NULL)

ob->child[value]=new Trie();

ob->child[value]->cnt++;

temp=(ob->child[value]->cnt)\*(j+1);

mx=max(mx,temp);

ob=ob->child[value];

}

}

int main()

{

string s[50000+10];

char ss[50+10];

int n,i,t,kk=1;

mp['A']=0; mp['C']=1; mp['G']=2; mp['T']=3;

cin>>t;

while(t--)

{

cin>>n;

Trie \*root=new Trie();

mx=0;

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

{

scanf("%s",&ss);

s[i]=ss;

}

sort(s,s+n);

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

insert(s[i],root);

cout<<"Case "<<kk++<<": "<<mx<<endl;

delete\_memory(root);

}

return 0;

}