**Stable Marriage Problem, O(n^2)**

bool is\_man\_paired[MX], is\_woman\_paired[MX], is\_woman\_proposed[MX][MX];

int men\_pref[MX][MX], women\_pref[MX][MX];

int man\_partner[MX], num\_women\_proposed[MX], woman\_partner[MX];

void stableMarriage(int n)

{

int i,j,m,mm,m\_preferred,w;

CLR(is\_man\_paired), CLR(is\_woman\_paired);

CLR(is\_woman\_proposed), CLR(num\_women\_proposed);

while(1)

{

for(m=0; m<n; m++) if((!is\_man\_paired[m]) && (num\_women\_proposed[m]!=n)) break;

if(m==n) break;

for(i=0; i<n; i++) if(!is\_woman\_proposed[m][i]) break;

w=men\_pref[m][i];

if(!is\_woman\_paired[w])

{

man\_partner[m]=w, woman\_partner[w]=m;

is\_man\_paired[m]=1, is\_woman\_paired[w]=1;

}

else

{

mm=woman\_partner[w], m\_preferred=0;

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

if(women\_pref[w][j]==m)

{

m\_preferred=1;

break;

}

else if(women\_pref[w][j]==mm) break;

if(m\_preferred)

{

man\_partner[m]=w, woman\_partner[w]=m;

is\_man\_paired[m]=1, is\_man\_paired[mm]=0;

}

}

num\_women\_proposed[m]++;

is\_woman\_proposed[m][i]=1;

}

return;

}