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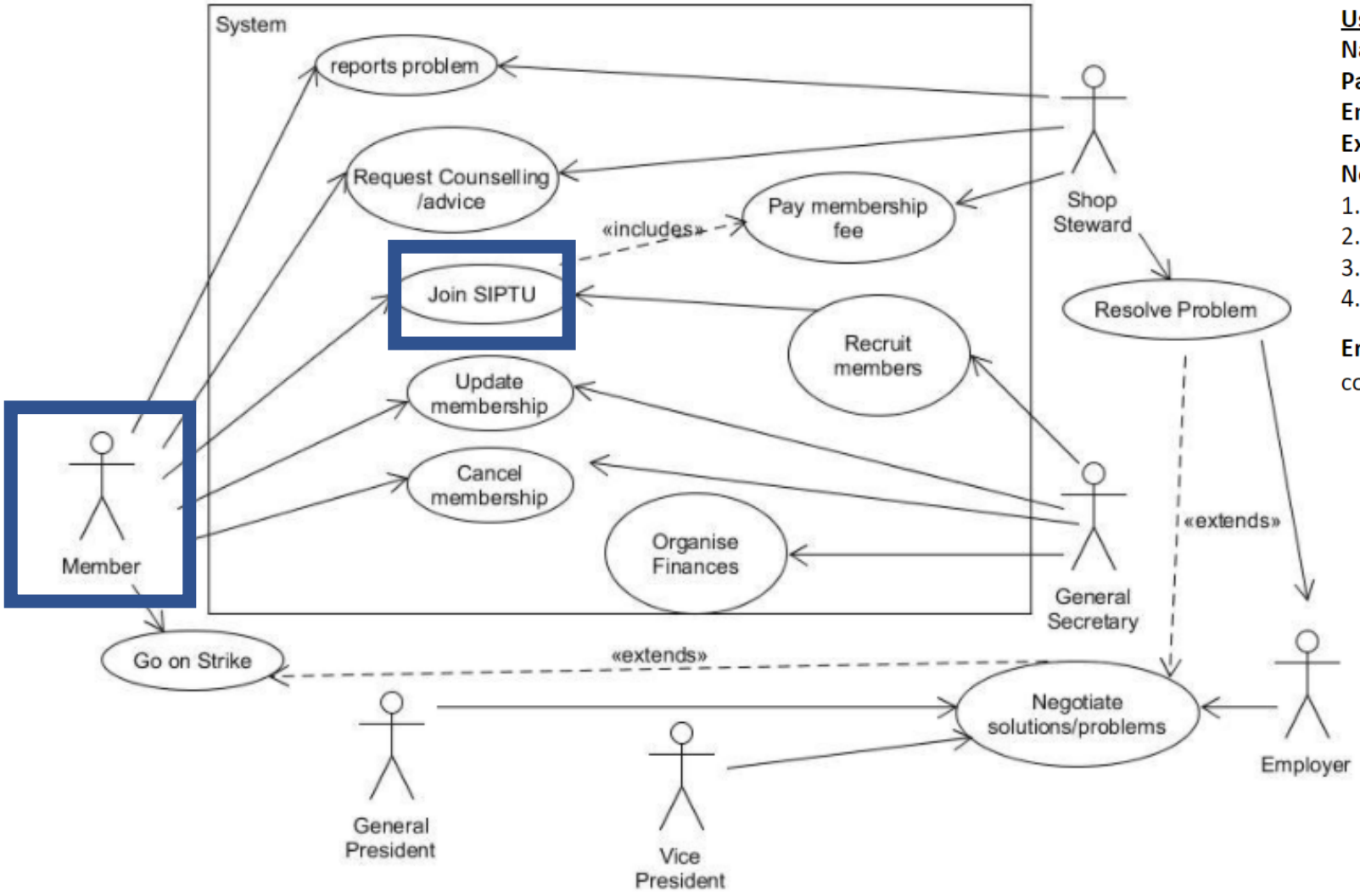
UML to XML

Example: Trade Union SIPTU

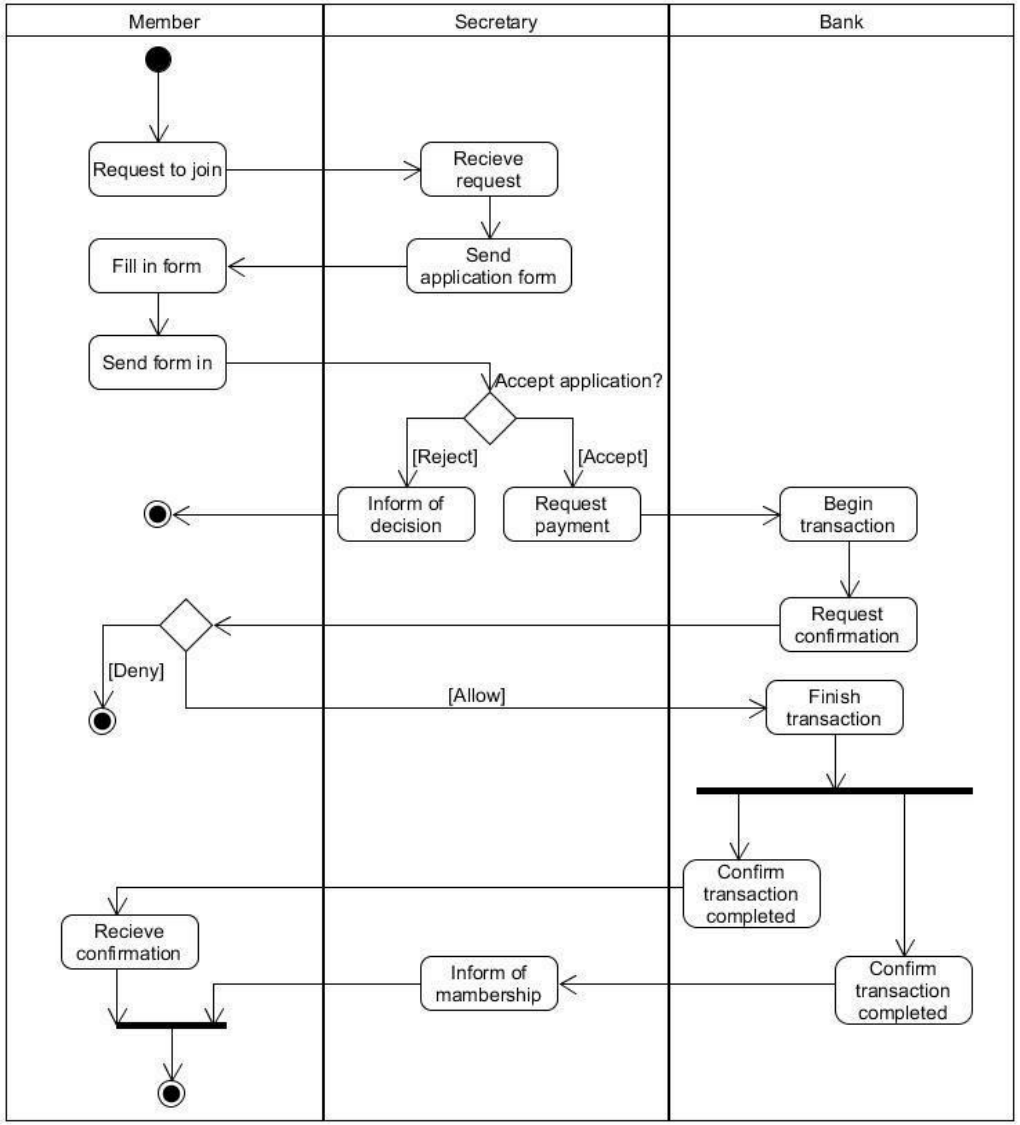
UML Use Case Diagram – Trade Union SIPTU



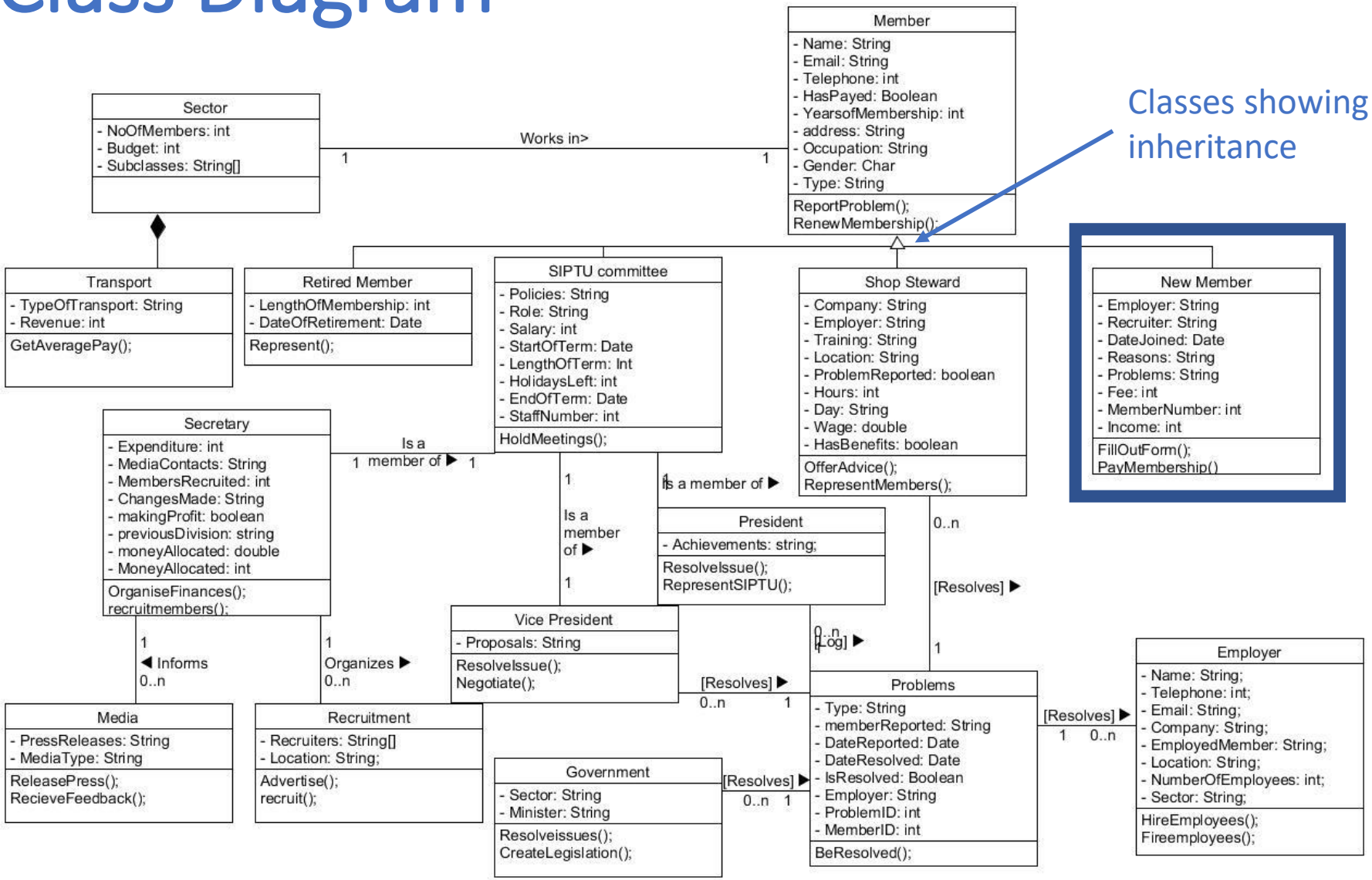
Use Case 1
Name: Join SIPTU
Participating Actor: Member
Entry condition: Potential member wants to join SIPTU
Exit condition: Member has successfully joined SIPTU
Normal Scenario:
1. Potential Member goes online to SIPTU's website
2. They fill out and submit the application form
3. SIPTU receives the application and decide to let them join
4. Member meets the criteria and joins SIPTU

Error Scenario: The application is rejected as applicant does not meet the correct criteria.

UML Activity Diagram – Join SIPTU

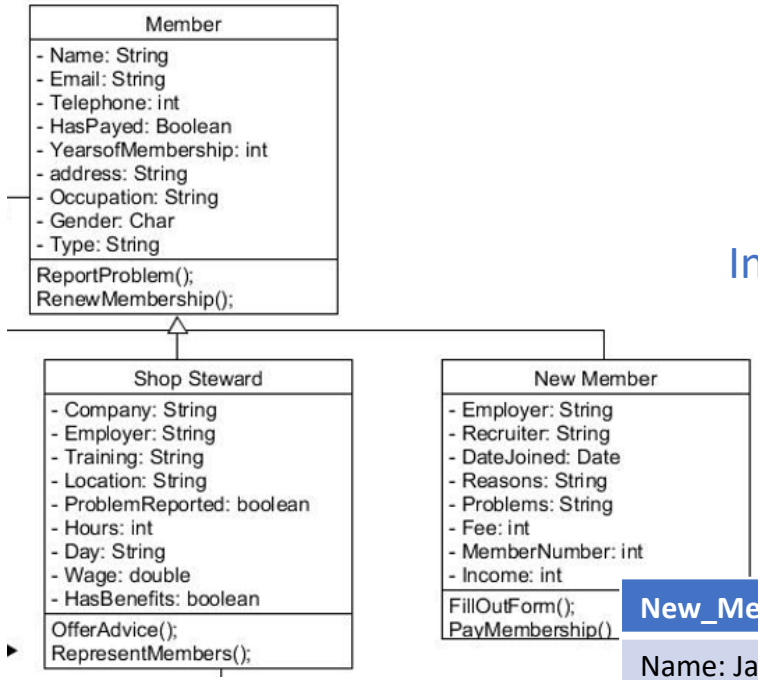


UML Class Diagram



XML Document

Member <- New Member



Instantiation of New Member class

```
<Member_Info>
<New_Member Income="200">
        <Member Age="20">
        <Member.Name>Jack Douglas</Member.Name>
        <Member.Email>douglasj@tcd.ie</Member.Email>
        <Member.Telephone>0871234567</Member.Telephone>
        <Member.yearsOfMembership>0</Member.yearsOfMembership>
        <Member.EirCode>D1</Member.EirCode>
        <Member.Occupation>Train Driver</Member.Occupation>
        <Member.Gender>M</Member.Gender>
        <Member.typeOfMembership>New Member</Member.typeOfMembership>
        <Member.haspaid Iban="20">True</Member.haspaid>
        </Member>
        <New_Member.Employer> Irish Rail </New_Member.Employer>
        <New_Member.Recruiter RecruitedMemberNumber = "264">Martha Kelly</New_Member.Recruiter>
        <New_Member.Date_Joined>05/12/2017</New_Member.Date_Joined>
        <New_Member.Reasons_For_Joining> Compensation </New_Member.Reasons_For_Joining>
        <New_Member.Problem_Reported> Discrimination at work </New_Member.Problem_Reported>
        <New_Member.Subscription_Fees>20</New_Member.Subscription_Fees>
</New_Member>
</Member_Info>
```

New_Member

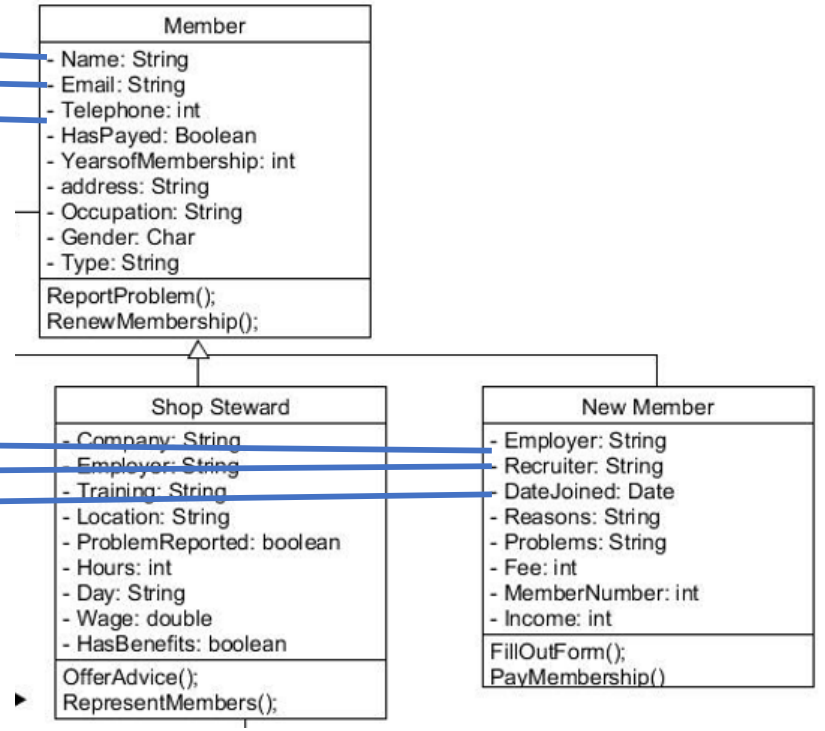
Name: Jack Douglas
Email: douglasj@tcd.ie
Telephone: 0871234567
haspaid:False
yearsOfMembership: 0
Eircode: D1 *
Occupation: Train Driver
Gender: Male
typeOfMembership: New Member
Employer: Irish Rail
Recruiter: Martha Kelly
DateJoined: 05/12/2017
Reasons_For_Joining: Compensation
Problems_Reported: Discrimination at work
Subscription_Fees: 20
MemberNumber 264
Income: 30000
Age= 20 *

*changed from/added to UML

DTD Document

Member <- New Member

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE Member_Info
[<!ELEMENT Member_Info (New_Member*)>
<!ELEMENT New_Member
(Member.Name,Member.Email,Member.Telephone,Member.yearsOfMembership,Member.EirCode,Member.Occupation,Member.Gender,Member.typeOfMembership,Member.haspaid,Ne
w_Member.Employer,New_Member.Recruiter,New_Member.Date_Joined,New_Member.Reasons_For_Joining,New_Member.Problem_Reported,New_Member.Subscription_Fees)>
<!ELEMENT Member.Name (#PCDATA)>
<!ELEMENT Member.Email (#PCDATA)>
<!ELEMENT Member.Telephone (#PCDATA)>
<!ELEMENT Member.yearsOfMembership (#PCDATA)>
<!ELEMENT Member.EirCode (#PCDATA)>
<!ELEMENT Member.Occupation (#PCDATA)>
<!ELEMENT Member.Gender (#PCDATA)>
<!ELEMENT Member.typeOfMembership (#PCDATA)>
<!ELEMENT Member.haspaid (#PCDATA)>
<!ATTLIST New_Member Age CDATA #REQUIRED>
<!ATTLIST Member.haspaid Iban CDATA #REQUIRED>
<!ELEMENT New_Member.Employer (#PCDATA)>
<!ELEMENT New_Member.Recruiter (#PCDATA)>
<!ELEMENT New_Member.Date_Joined (#PCDATA)>
<!ELEMENT New_Member.Reasons_For_Joining (#PCDATA)>
<!ELEMENT New_Member.Problem_Reported (#PCDATA)>
<!ELEMENT New_Member.Subscription_Fees (#PCDATA)>
<!ATTLIST New_Member.Recruiter RecruitedMemberNumber CDATA #REQUIRED>
<!ATTLIST New_Member Income CDATA #REQUIRED>]>
```



XQuery

```
declare function local:all_members($c as xs:string?)
{for $s in
doc("C:\Users\gstephen\Desktop\WIP\information
Management\2021\XML\SethsXML\Seth's
ExampleRevised.xml")/Member_Info/New_Member
where contains($s,$c)
return
<New_Member>
{$s/Member.Name}
{$s/Member.Email}
{$s/Member.yearsOfMembership}
{$s/Member.Occupation}
{$s/Member.Gender}
{$s/Member.typeOfMembership}
{$s/Member.haspaid}
{$s/New_Member.Employer}
{$s/New_Member.Recruiter}
{$s/New_Member.DateJoined}
</New_Member>
};

<all>{local:all_members("Jack Douglas")}</all>
```

Result:

```
<all>
 <New_Member>
  <Member.Name>Jack Douglas</Member.Name>
  <Member.Email>douglasj@tcd.ie</Member.Email>
  <Member.yearsOfMembership>0</Member.yearsOfMembership>
  <Member.Occupation>Train Driver</Member.Occupation>
  <Member.Gender>M</Member.Gender>
  <Member.typeOfMembership>New Member</Member.typeOfMembership>
  <Member.haspaid Iban="20">True</Member.haspaid>
  <New_Member.Employer>Irish Rail</New_Member.Employer>
  <New_Member.Recruiter RecruitedMemberNumber="264">Martha Kelly</New_Member.Recruiter>
 </New_Member>
</all>
```

Thank You!