

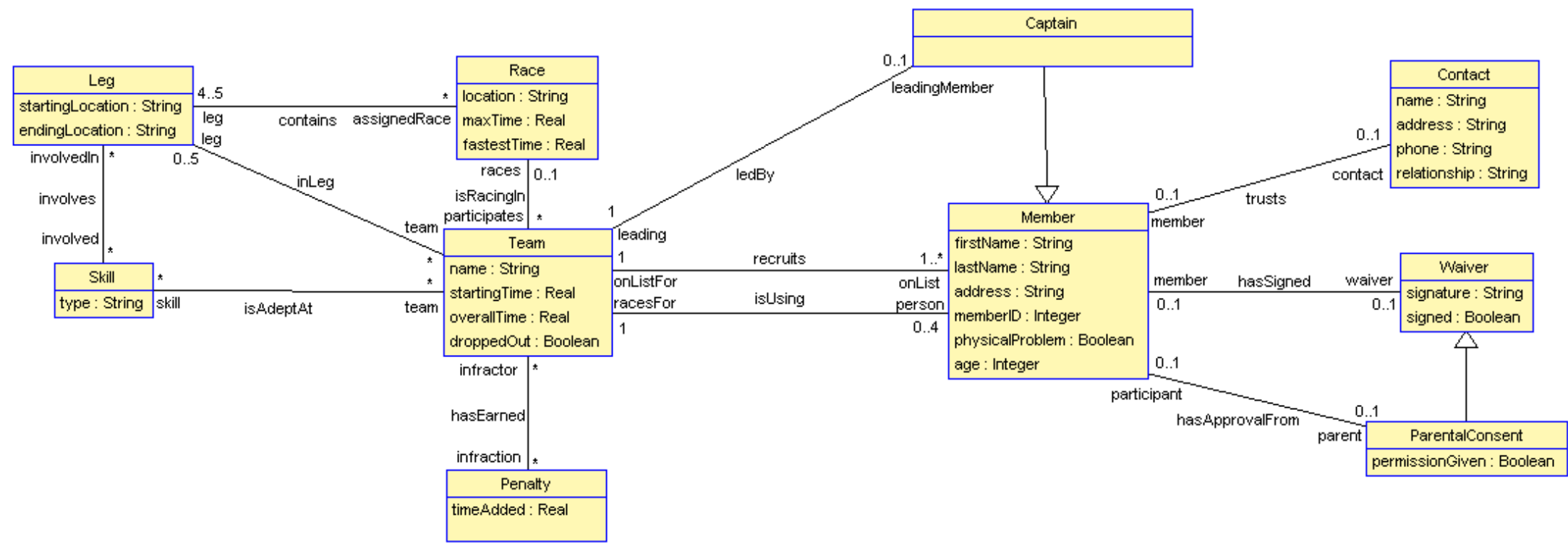
SEG2105  
Introduction to Software Engineering  
Assignment Three

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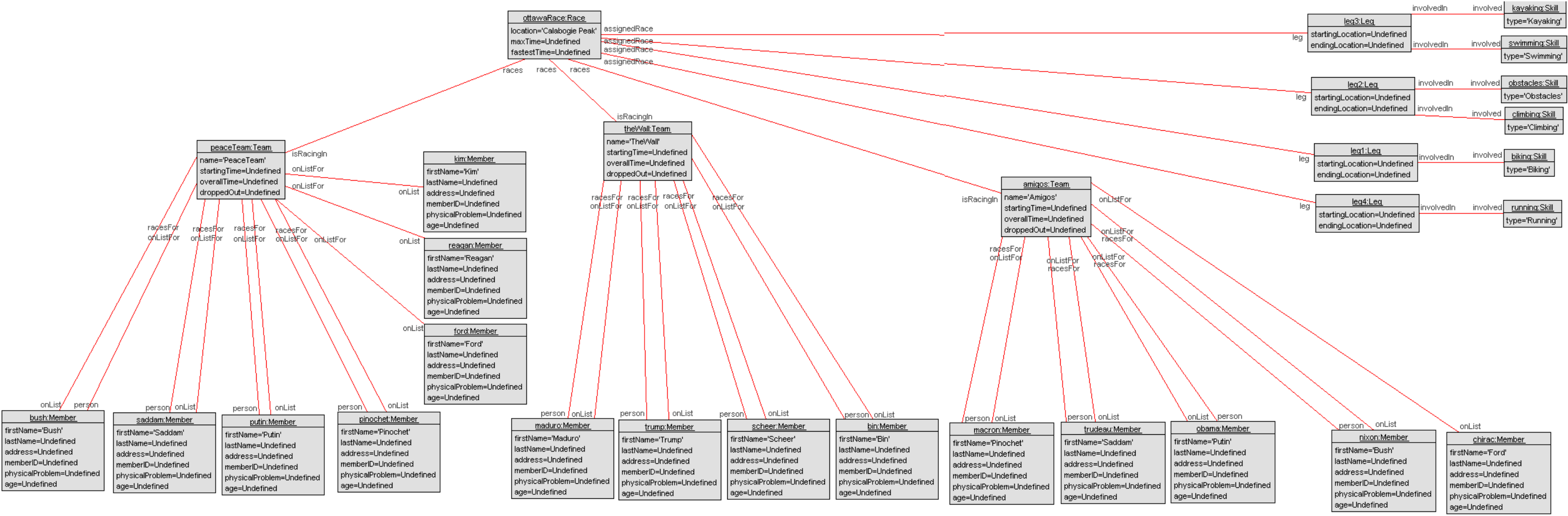
# Operations

<div><div>Team Class</div><div>updateTime(third: Real) Receives the time which the third member crosses the finish line. Received this from the Leg class, and is called from within the Leg class to the associated team participating</div><div>dropOut() called to remove the team from participation in the race. This removes the team-race association, and deletes its corresponding member connections.</div></div>	<div><div>Leg Class</div><div>giveStartTime(team : Team) Provides a time for the team to start, updating the team's startingTime attribute. This is called for each team participating, spreading out their starting time by 10 minutes each time</div></div>	<div><div>Captain Class</div><div>changeID(newID: int) Takes a int representing the ID of the new captain, which is used to determine which member on the team has been chosen as captain.</div><div>addMember(member : Member) Creates a new member object, and adds it to the team's roster</div><div>removeMember(member : Member) Removes a Member object association from the team's roster</div></div>
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# UML Diagram



# Object Diagram



Invariant Costraints

Class invariants				
Invariant	Loaded	Active	Negate	Satisfied
Leg::skillQuantity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	true
Leg::startTimes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	true
Member::oneTeam	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	true
Race::checkScore	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	false
Race::checkTeamNames	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	true
Race::legCheck	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	true
Team::checkID	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	false
Team::numbersActive	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	true
Team::validName	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	true
2 cnstrs. failed. Inherent cnstrs. failed. (2ms)				
100%				

```
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----- Constraints -----
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constraints
context Team
  inv validName: self.onList -> forAll(current | current.firstName <> null)
context Race
  inv legCheck: self.leg -> size() >= 4
context Leg
  inv skillQuantity: self.involved-> forAll(skill1, skill2 | skill1 <> skill2 implies skill1.type <>
    skill2.type)
context Race
  inv checkScore: self.isRacingIn -> forAll(current | current.overallTime <= maxTime)
context Member
  inv oneTeam: self.onListFor -> size() <=1
context Team
  inv checkID: self.onList -> forAll(MEM1, MEM2 | MEM1 <> MEM2 implies MEM1.memberID <> MEM2.memberID)
context Race
  inv checkTeamNames: self.isRacingIn -> forAll(team1, team2 | team1 <> team2 implies team1.name <> team2.name)
context Team
  inv numbersActive: self.person -> size() <= 4
context Leg
  inv startTimes: self.team -> forAll(start1, start2 | start1 <> start2 implies start1.startingTime <>
    start2.startingTime)
```

Team:: checkID failed due to lack of Id being initialized

Team:: checkScore failed due to no legs being run yet.