Random 4 - Ski Jumping

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Ski Jumping

Events	Men's Individual	Women's Individual	Men's Team
#Athlets	1		4

Phases	Qualifying Phase	Final Phase	
Performances	1st Round	1st Round	2nd Round
Participating Teams	50	50	30
Transition	Best 40 + 10 Prequalified	Best 30	
Winner		Best of 1st and 2nd Round combined	

What means 'best'?

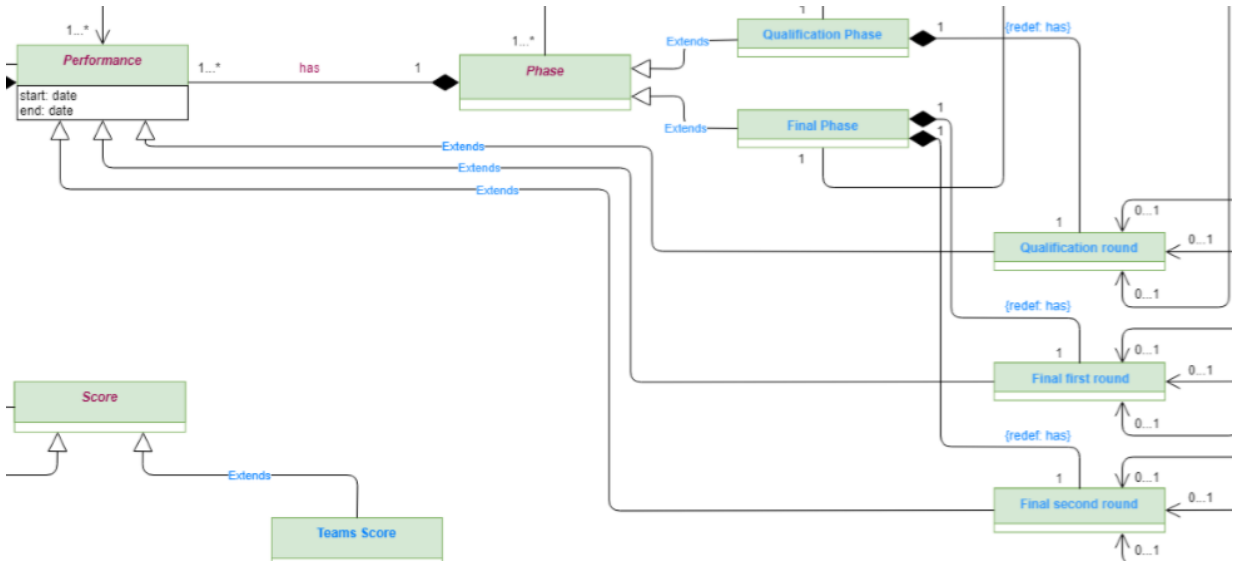
- Most Total Points, where Total Points = distance + points by judges

Special:

- Points in Men's Team are summed up
- Score is a ranked list, mapping Teams to Points

Team	Points
C	100
A	78

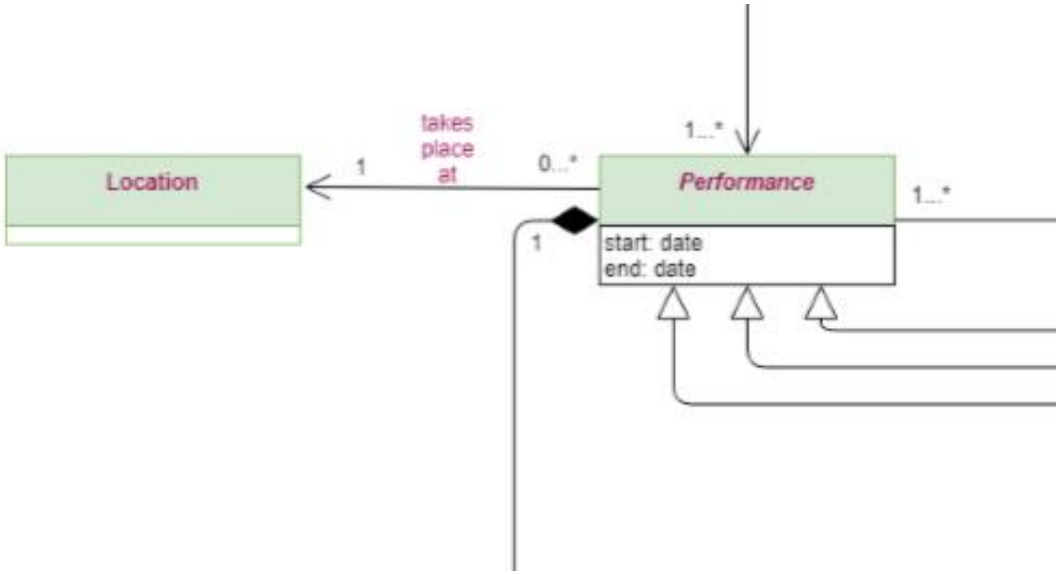
Alternative UML decisions



Rounds

- Each round directly inherits from Performance
- Alternative: Instance of 1st or 2nd round

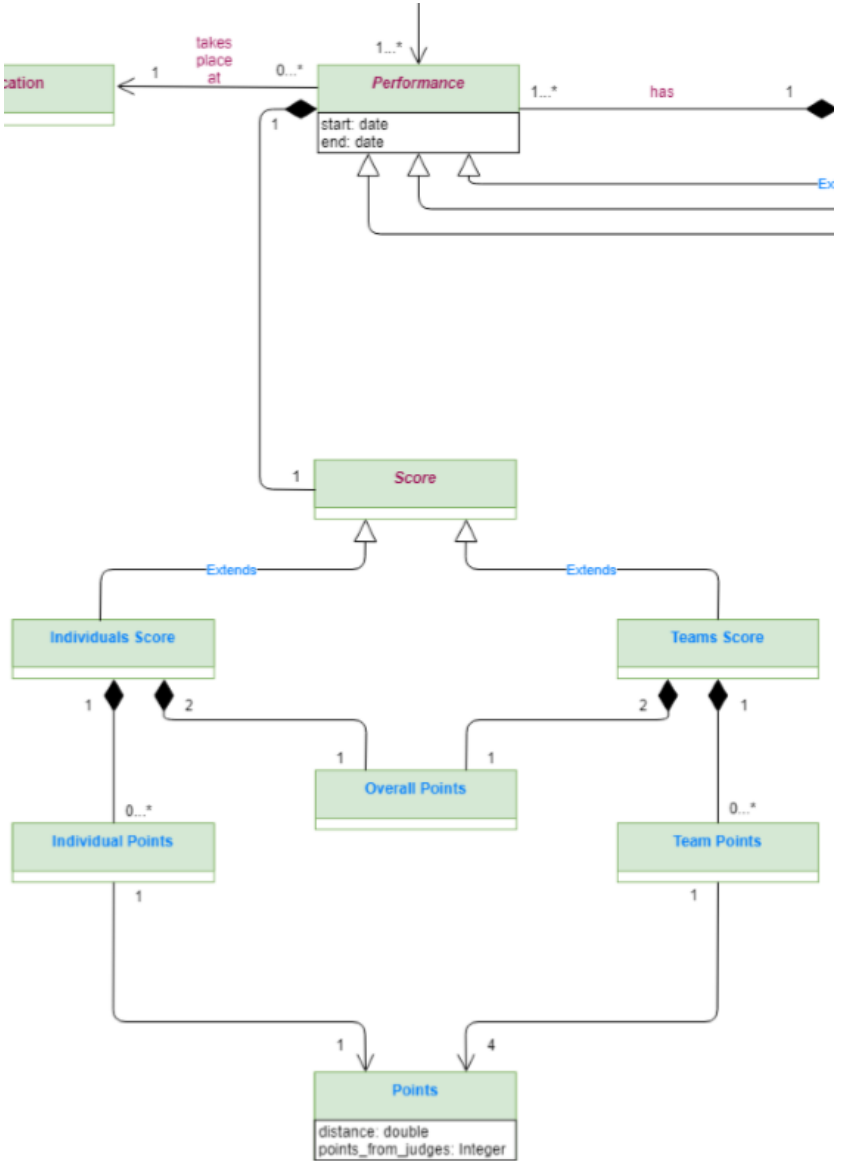
Alternative UML decisions



Time

- No separate class Time
- Alternative: start and end are instances of class Time

Alternative UML decisions



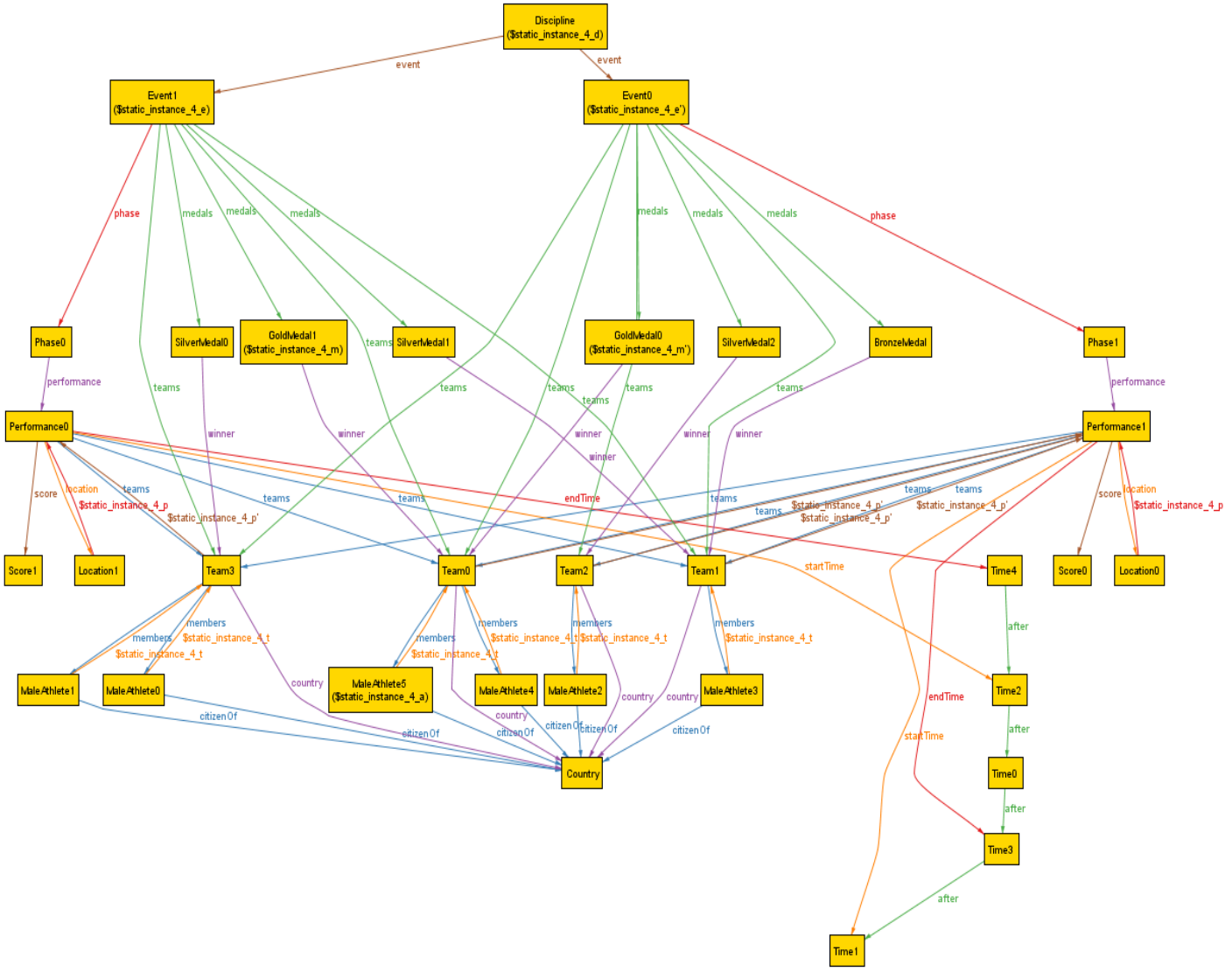
Score

- We specified as much as possible, as how the points are composed
- Alternative: Score only gets instances of points

Requirements not in UML but Alloy

- Team and it's members must be from the same Country
- Time Constraints:
  - At most one performance at a location at the same time
  - A team can't have multiple performances at the same time
- Ordering of the phases
- Summing up points and assigning them to a team
- Specific cases how medals are distributed

One we could generate: Instance 4



One we could not: Instance 1

An Instance with exactly:

- 7 Performances
- 2 Locations
- 4 Times

→ No two Performances at the same place at the same time
→ we should not be able to generate this!!

Simplifications

No bidirectional associations:

- Relations were the UML would imply bidirectional association (i.e. participant for Team and Event) were modelled unidirectional
- Facts model the multiplicity of the relation
- Less Instances of Sigs Alloy needs to generate

→ With correct facts, no change of the model

Simplifications

Generate Instances with different sizes of Sets for the Sigs

- I.e. Ski Jumping requires 50 Teams in qualification round, running Alloy with a maximum of 50 Instances per Sig will take a long time...

→ Give a lower bound to Sigs of which we know we won't need that many to check our model (i.e. 2 Events)

→ Way less computation for Alloy with no change in the model (if the bounds are carefully picked)

Teamwork

- UML: 1st draft each one for himself, then merged it together
- Alloy: Most part we sat together and distributed ad hoc
- Presentation: General, UML, Alloy
- Rest: Questions, Administrative, Clean-up

Challenges

- Finding out in Alloy which facts contradict each other – in other words: finding out why no model can be generated

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