

TM470 Project

Report

A Fencing Competition Results Web Service

*Submitted in partial fulfillment of
the requirements for the award of the degree of*

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in
Computing and IT**

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BRITISH FENCING

British Fencing
London, United Kingdom

Abstract

This project will create a web service capable of storing and serving up the results of fencing competitions.

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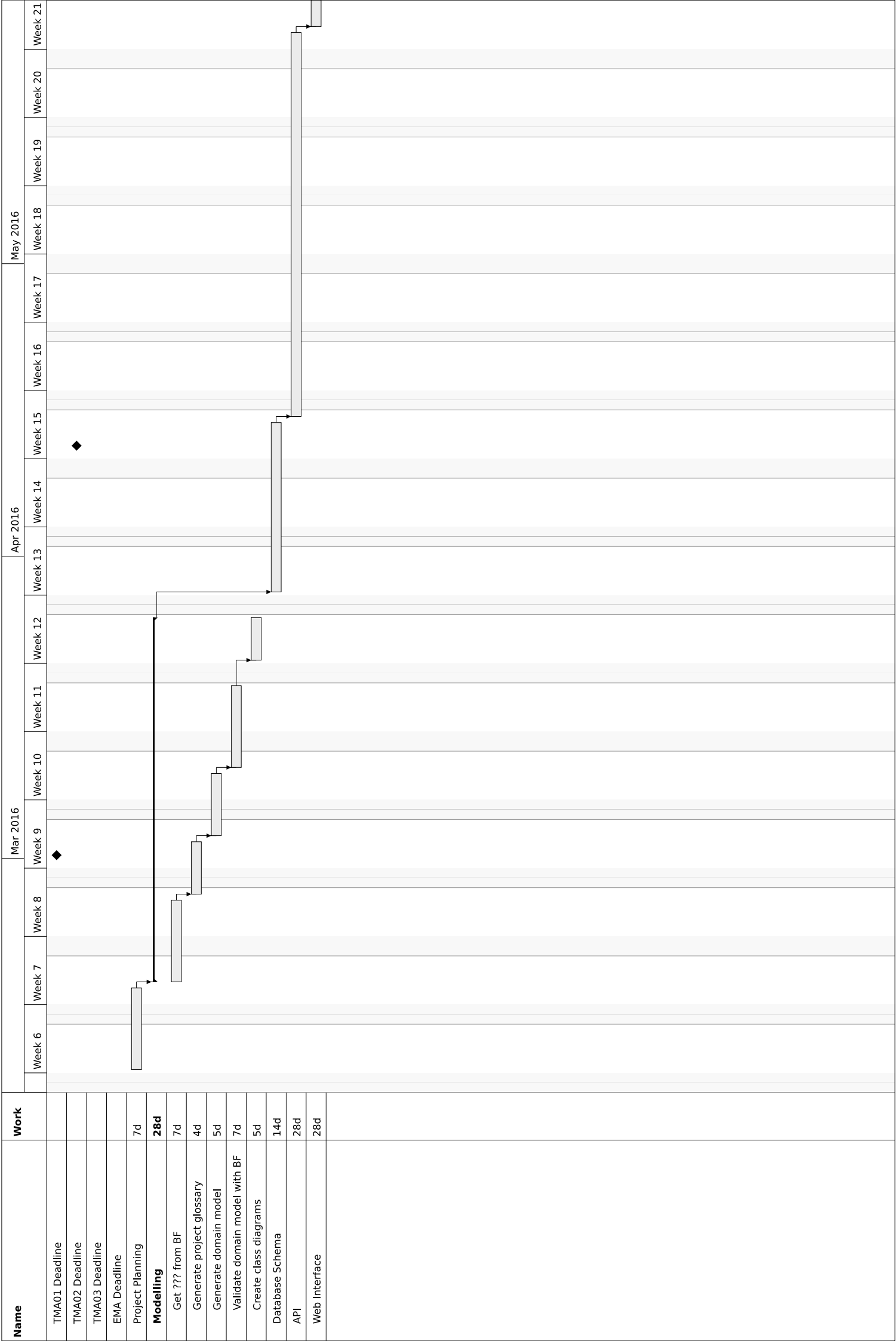
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Problem Definition

The sport of Fencing has a fairly small but loyal following in the UK. As such, the support systems around the sport are not as developed as they are in other sports. The National Governing Body of Fencing in the UK, British Fencing, host the results of fencing competitions on their website. The results are represented as static HTML files and there is no way to present the data other than as a list of the results of each competition (i.e. you can't view all of the results of a particular fencer).

Project Plan



[illegible]

Models

3.1 Grammatical Analysis

After consultation with British Fencing, I was directed to a useful resource which describes how fencing competitions operate (British Fencing, 2010). Not all of this document is relevant but the sections that are reproduced below, with **nouns** in bold and verbs underlined.

Check In: All **competitions** start by **fencers** visiting the **check in desk** to confirm that they are present. Dont miss this bit out your **entry** will be scratched. When checking in, **fencers** are required to show their **British Fencing card**. See the box (right) for details. This carries **insurance**. Without it, you may not fence. Fencing usually starts about 30 60 minutes after **check in** closes. Pools: After **check in**, **competitors** are divided into **pools** groups of 5 7 **fencers** who all fence each other up to 5 **hits**. (4 **hits** for some under 9 **competitions**). **Time** is limited to 2 or 3 minutes. Sometimes there may be two rounds of **pools**, particularly in **age group competitions**. Direct Elimination: The **results** of the **pools** are used to seed the **knockout phase** of the **competition**. In some **competitions**, up to 30of the **fencers** who did worst are eliminated, but in most cases all **fencers** go through to the **direct elimination (DE)** stage. The **DE** rewards **fencers** who do well in the **pool** stages, and keeps the strong **fencers** apart until near the end of the **competition**. In a **competition** with 64 **entrants**, the first round of DEs would see 1st place fence 64th, 2nd place fence 63rd and so on. If the number of **entrants** is not a power of 2, (ie 8, 16, 32, 64 etc) then those **fencers** who did best in the **pools** will get a **bye** through the first **DE** round. After several **DE** rounds, there will only be two **fencers** left the **finalists**. **Direct elimination** fights are up to 15 **hits** (adults) 10 **hits** (under 13s) or 8 **hits** (under 9s). **DE fights** are normally 3 x 3 minutes (sometimes less for **younger fencers**) with a 60 second break between **periods**.

3.2 Glossary

Fencer	An individual (human being) who competes in a fencing competition
Bout	An individual fencing match between two fencers
Poule	A small grouping of fencers who all fence against one another in a series of bouts.
Competition	An over-arching event at which one or more events take place
Event	A tournament in which fencers of the same gender, age group and weapon fence

3.3 Domain Model

3.4 Class Diagram

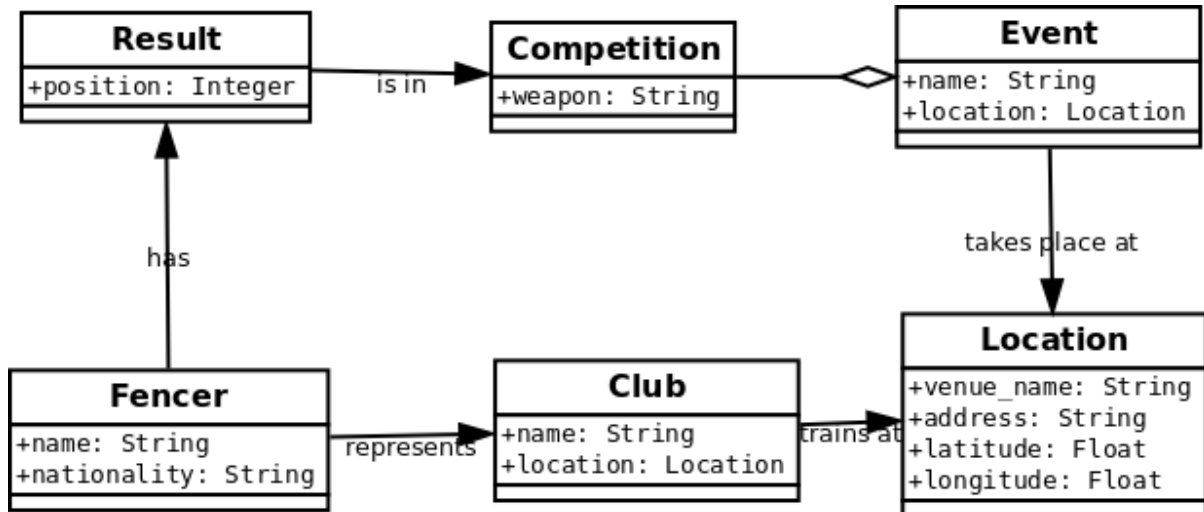


Figure 3.1: Class Diagram

Work Done

4.1 Section title

4.1.1 Sub-section title

4.1.2 Sub-section title

some text(Einstein, 1905), some more text

4.1.3 Sub-section title

4.1.4 Sub-section title

Refer figure 4.1.

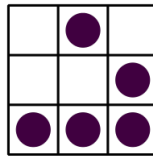


Figure 4.1: Caption here

4.1.5 Sub-section title

4.2 Section title

4.3 Source Code

```
1 /**
2  * Testing block comments
3  *
4  * On multiple lines
5  *
6  */
7
8
9 class Dummy
10 {
11     private String name = "Dummy";
12     public Dummy()
13     {
14
15     }
```

```

16
17 @Deprecated
18 public void test()
19 {
20
21 }
22 }

```

dummy_source.java

```

1 <?xml version="1.0" encoding="iso-8859-1"?>
2 <sports-content xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
3   xmlns="http://iptc.org/std/SportsML/2008-04-01/"
4   >
5   <!--
6     This sample competition is loosely based on the data available in
7     human-readable format at
8     http://www.britishfencing.com/uploads/files/
9     scottish-open-2016-mens-foil.htm
10
11     Ignore all IDs and timestamps – these are made up for this example
12
13     Many of the repeated sections are omitted for brevity
14
15     The data is not necessarily consistent, no weight should be given to
16     the actual values, these
17     are representative only.
18   -->
19   <sports-metadata doc-id="XYZ">
20     <sports-title>Scottish Open</sports-title>
21   </sports-metadata>
22   <tournament>
23     <tournament-metadata tournament-status="post-event" tournament-name="
24       Scottish Open">
25       <site>
26         <site-metadata>
27           <home-location country="UK" city="Edinburgh"/>
28         </site-metadata>
29       </site>
30       <sports-content-codes>
31         <!-- Fencing seasons follow the UK academic year, running from Sept
32         1st to Aug 31st the following year -->
33         <sports-content-code code-type="season" code-name="2015-16"/>
34       </sports-content-codes>
35     </tournament-metadata>
36     <!--
37       The first level of division refers to the age-group/weapon/gender
38       combination of the competition
39       This is the Open, Foil, Male one
40     -->
41     <tournament-division>
42       <!--
43         In the context of fencing, Open refers to an 'age category',
44         others might be u15, u17, veteran etc.
45         Younger age categories may also be referred to by a french name
46         such as 'poussin' for u9.
47         The full list is here: https://fr.wikipedia.org/wiki/Cat%C3%A9
48         gorie_(sports)#Cat.C3.A9gories_en_atl.C3.A9tisme

```

It is possible to have multiple age groups in a competition although this example only has one.

```

-->
<tournament-division-metadata division-name="Open">
  <!--
    TODO: add qualifier for weapon
    <sports-content-qualifier weapon="foil" />

    Will sports-content-code work?

    <sports-content-codes>
      <sports-content-code code-type="weapon" code-key="foil" code-
name="Foil" />
    </sports-content-codes>

-->
    <sports-content-qualifier gender="male" />
  </tournament-division-metadata>
  <!--
    A tournament round is e.g. the first round of poules, second
    round of poules, first round of DE etc.
    There may or may not be elimination after each round of poules
    but will be elimination after each round
    of DE. (Note though, need to take into account plate competitions
    and repechage)

-->
  <!--
    Note: is it worth splitting the stages between poules and DE?
    There are different rules for each (e.g.
    score needed to win)

-->
    <tournament-stage>
      <tournament-stage-metadata stage-status="post-event" stage-key="1"
stage-name="Poules Round 1" />
    <!--
      Standings are the results at the END of this round, however
      they must come before the bouts data to
      conform with the schema

-->
      <standing content-label="Poules Round 1">
        <!-- Is this an error in the XSD? Do I really need an empty
        metadata element here?
        See sportsml-core.xsd Line 2982, no minOccurs attribute -->
      <standing-metadata/>

      <player>
        <player-metadata player-key="fencing.fencer:1" team-key="
fencing.club:1" team-idref="HOLY">
          <name last="Cook" first="Keith" full="Keith Cook" />
          <home-location country="GBR" />
        </player-metadata>
        <player-stats>
          <rank value="1" />
          <sports-property formal-name="victories" value="6" />
          <sports-property formal-name="victories-rate" value="1.00" />
          <sports-property formal-name="hits-scored" value="30" />
          <sports-property formal-name="hits-received" value="6" />
        </player-stats>
      </standing>
    </tournament-stage>
  </!--

```

Indicator can be positive and negative, and is normally displayed with a leading plus(+) or minus(-) sign. Should the plus (+) sign be included here? Also, indicator can always be calculated from the two elements above, should it even be included here?

```

    -->
    <sports-property formal-name="indicator" value="24" />
  </player-stats>
</player>

<player>
  <player-metadata player-key="fencing.fencer:23" team-key="
fencing.club:23" team-idref="WALL">
    <name last="Woollard" first="Jonathan" full="Jonathan
Woollard" />
    <home-location country="GBR" />
  </player-metadata>
  <player-stats>
    <rank value="2" />
    <sports-property formal-name="victories" value="5" />
    <sports-property formal-name="victories-rate" value="1.00" />
    <sports-property formal-name="hits-scored" value="25" />
    <sports-property formal-name="hits-received" value="3" />
    <sports-property formal-name="indicator" value="22" />
  </player-stats>
</player>

<player>
  <player-metadata player-key="fencing.fencer:24" team-key="
fencing.club:24" team-idref="SALEH">
    <name last="Russell" first="Iain" full="Iain Russell" />
    <home-location country="GBR" />
  </player-metadata>
  <player-stats>
    <rank value="3" />
    <sports-property formal-name="victories" value="5" />
    <sports-property formal-name="victories-rate" value="1.00" />
    <sports-property formal-name="hits-scored" value="25" />
    <sports-property formal-name="hits-received" value="7" />
    <sports-property formal-name="indicator" value="18" />
  </player-stats>
</player>

<player>
  <player-metadata player-key="fencing.fencer:26" team-key="
fencing.club:26" team-idref="SALLH">
    <name last="Douglas" first="Jack" full="Jack Douglas" />
  </player-metadata>
  <player-stats>
    <rank value="4" />
    <sports-property formal-name="victories" value="5" />
    <sports-property formal-name="victories-rate" value="1.00" />
    <sports-property formal-name="hits-scored" value="25" />
    <sports-property formal-name="hits-received" value="9" />
    <sports-property formal-name="indicator" value="16" />
  </player-stats>
</player>

```

```

139      <!-- Other fencers omitted for brevity -->
140    </standing>
141
142    <!-- A sports event is one bout within that round -->
143    <!--
144      TODO: Need some way of defining which poule this is for ,
145      encoding it in the event-key just doesn't
146      seem right. Will sports-content-code work?
147    -->
148    <sports-event>
149      <event-metadata start-date-time="yyyymmddThhmmss+hhmm"
150        event-key="XYZ.poule-1.bout-1"
151        event-name="Scottish Open Mens Foil 2016"
152        date-coverage-type="event" event-status="post-event" season-key
153        ="2015-16"/>
154      <player>
155        <player-metadata player-key="fencing.fencer:519" team-key="
156        fencing.club:26" team-idref="SALLH">
157          <name last="McEwan" first="Mike" full="Mike McEwan"/>
158        </player-metadata>
159        <!-- In fencing the victor's score is ordinarily marked as 'V',
160        rather than the actual score they got.
161        This is to cope with the situation in epee where the score
162        is 4-4 (or 14-14) and a double is scored ,
163        giving both fencers the maximum score. Another point is
164        fenced and the winner gets 'V' and the looser
165        5 (or 15). This does have an impact on calculations used
166        to determine positions. -->
167        <player-stats score="3"/>
168      </player>
169      <player>
170        <player-metadata player-key="fencing.fencer:16275" team-key="
171        fencing.club:26" team-idref="SALLH">
172          <name last="Bradie" first="Angus" full="Angus Bradie"/>
173        </player-metadata>
174        <player-stats score="V"/>
175      </player>
176    </sports-event>
177
178    <sports-event>
179      <event-metadata start-date-time="yyyymmddThhmmss+hhmm"
180        event-key="XYZ.poule-1.bout-2"
181        event-name="Scottish Open Mens Foil 2016"
182        date-coverage-type="event" event-status="post-event" season-key
183        ="2015-16"/>
184      <player>
185        <player-metadata player-key="fencing.fencer:519" team-key="
186        fencing.club:26" team-idref="SALLH">
187          <name last="McEwan" first="Mike" full="Mike McEwan"/>
188        </player-metadata>
189        <player-stats score="V"/>
190      </player>
191      <player>
192        <player-metadata player-key="fencing.fencer:16275" team-key="
193        fencing.club:26" team-idref="SALLH">
194          <name last="Crawford" first="Angus" full="Angus Crawford"/>
195        </player-metadata>
196        <player-stats score="0"/>

```

```

186     </player>
187 </sports-event>
188
189     <!-- other bouts omitted for brevity -->
190 </tournament-stage>
191
192     <!-- This particular competition only had one round of poules so the
193 next round is the DE -->
194     <tournament-stage>
195         <!-- This is an example of a DE round -->
196         <tournament-stage-metadata stage-status="post-event" stage-key="2"
197 stage-name="DE Last 32" />
198         <!--
199             These are the standings at the END of this round of DE, as such
200             fencers that have already been
201             eliminated will not change position (i.e. if we're at the
202             quarter final, 8 fencers are left in
203             the competition so their positions can change, but everything
204             from 9 down will be the same as
205             it was for the last round.
206         -->
207         <standing content-label="Semi-Final">
208             <standing-metadata/>
209
210             <player>
211                 <player-metadata player-key="fencing.fencer:1" team-key="
212 fencing.club:1" team-idref="HOLY">
213                     <name last="Cook" first="Keith" full="Keith Cook" />
214                     <home-location country="GBR" />
215                 </player-metadata>
216                 <player-stats>
217                     <rank value="1" />
218                 </player-stats>
219             </player>
220
221             <player>
222                 <player-metadata player-key="fencing.fencer:23" team-key="
223 fencing.club:23" team-idref="WALL">
224                     <name last="Woollard" first="Jonathan" full="Jonathan
225 Woollard" />
226                     <home-location country="GBR" />
227                 </player-metadata>
228                 <player-stats>
229                     <rank value="2" />
230                 </player-stats>
231             </player>
232
233             <player>
234                 <player-metadata player-key="fencing.fencer:24" team-key="
235 fencing.club:24" team-idref="SALEH">
236                     <name last="Russell" first="Iain" full="Iain Russell" />
237                     <home-location country="GBR" />
238                 </player-metadata>
239                 <player-stats>
240                     <rank value="3" />
241                 </player-stats>
242             </player>

```



```

235     <player>
236       <player-metadata player-key="fencing.fencer:26" team-key="
fencing.club:26" team-idref="SALLH">
237         <name last="Douglas" first="Jack" full="Jack Douglas"/>
238       </player-metadata>
239       <player-stats>
240         <rank value="4"/>
241       </player-stats>
242     </player>
243     <!-- Other fencers omitted for brevity -->
244
245   </standing>
246
247   <sports-event>
248     <event-metadata start-date-time="yyyymmddThhmmss+hhmm"
249       event-key="XYZ.de-last16.bout-1"
250       event-name="Scottish Open Mens Foil 2016"
251       date-coverage-type="event" event-status="post-event" season-key
="2015-16"/>
252     <player>
253       <player-metadata player-key="fencing.fencer:1" team-key="
fencing.club:1" team-idref="HOLY">
254         <name last="Cook" first="Keith" full="Keith Cook"/>
255         <home-location country="GBR"/>
256       </player-metadata>
257       <player-stats score="V"/>
258     </player>
259     <player>
260       <player-metadata player-key="fencing.fencer:26" team-key="
fencing.club:26" team-idref="SALLH">
261         <name last="Douglas" first="Jack" full="Jack Douglas"/>
262       </player-metadata>
263       <player-stats score="10"/>
264     </player>
265   </sports-event>
266
267   <sports-event>
268     <event-metadata start-date-time="yyyymmddThhmmss+hhmm"
269       event-key="XYZ.de-last16.bout-1"
270       event-name="Scottish Open Mens Foil 2016"
271       date-coverage-type="event" event-status="post-event" season-key
="2015-16"/>
272     <player>
273       <player-metadata player-key="fencing.fencer:23" team-key="
fencing.club:23" team-idref="WALL">
274         <name last="Woollard" first="Jonathan" full="Jonathan
Woollard"/>
275         <home-location country="GBR"/>
276       </player-metadata>
277       <player-stats score="3"/>
278     </player>
279     <player>
280       <player-metadata player-key="fencing.fencer:24" team-key="
fencing.club:24" team-idref="SALEH">
281         <name last="Russell" first="Iain" full="Iain Russell"/>
282         <home-location country="GBR"/>
283       </player-metadata>
284       <player-stats score="V"/>

```

```

285     </player>
286 </sports-event>
287
288     <!-- Semi-final so only two bouts -->
289
290     </tournament-stage>
291     <!-- Final would feature here, along with the final standing that is
the overall result of the competition. -->
292
293 </tournament-division>
294 <!--
295     Additional tournament-division elements would feature here, in this
particular competition they would be for:
296     Womens Foil
297     Mens Epee
298     Womens Epee
299     Mens Sabre
300     Womens Sabre
301     -->
302 </tournament>
303 </sports-content>

```

../SportsML-G2/testing/example-2-open.xml

4.4 Acknowledgments

I would like to acknowledge the assistance of the many people that have helped me with this project, including my tutor Prof Peter Smith, Katie Rhodes from British Fencing, members of the SportsML Yahoo mailing list and, most of all my long-suffering wife Abby and our dog Dotty - I'll start paying a bit more attention to you both again now!

Matt Carus
Sept 2016
The Open University

References

- British Fencing. *Competitive Fencing*. 2010. URL http://www.surreyfencing.com/files/BFA_Competitive_Fencing_Guide_Nov2010.pdf.
- A. Einstein. Zur Elektrodynamik bewegter Körper. (German) [On the electrodynamics of moving bodies]. *Annalen der Physik*, 322(10):891–921, 1905.