TM470 Project
Report

A Fencing Competition Results Web Service

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

Bachelor of Science
in
Computing and IT

Submitted by

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Abstract

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

Contents

1 Problem Definition **1**

2 Project Plan **2**

3 Models **5**
3.1 Grammatic Analysis 5
3.2 Domain Model 5
3.3 Class Diagram 5

4 Work Done **6**
4.1 ¡Section title¿ 6
4.1.1 ¡Sub-section title¿ 6
4.1.2 ¡Sub-section title¿ 6
4.1.3 ¡Sub-section title¿ 6
4.1.4 ¡Sub-section title¿ 6
4.1.5 ¡Sub-section title¿ 6
4.2 ¡Section title¿ 6
4.3 Source Code 6

Acknowledgements **14**
4.4 Acknowledgments 14

References **15**

List of Figures

3.1 Class Diagram 5

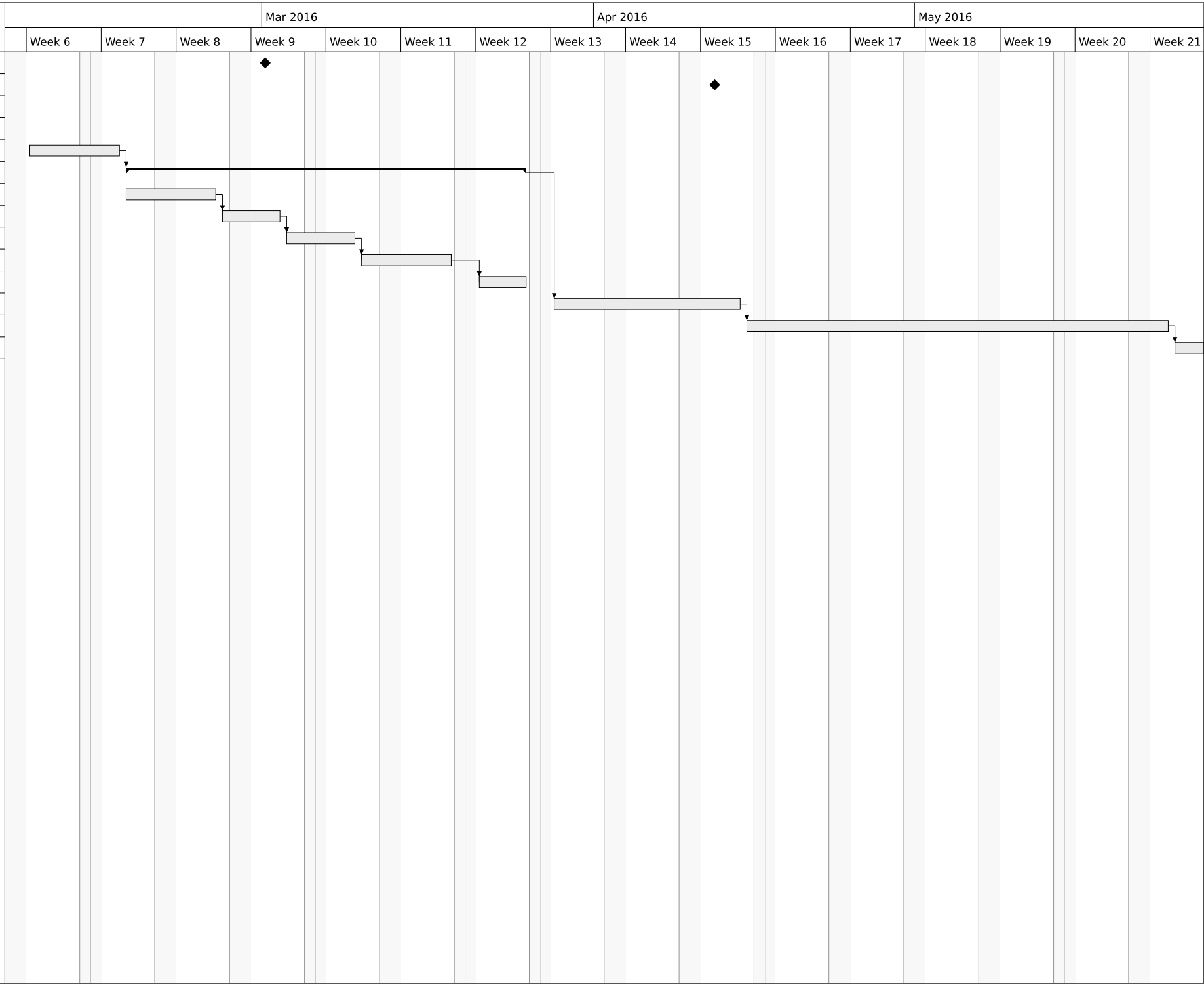
4.1 ¡Caption here¿ 6

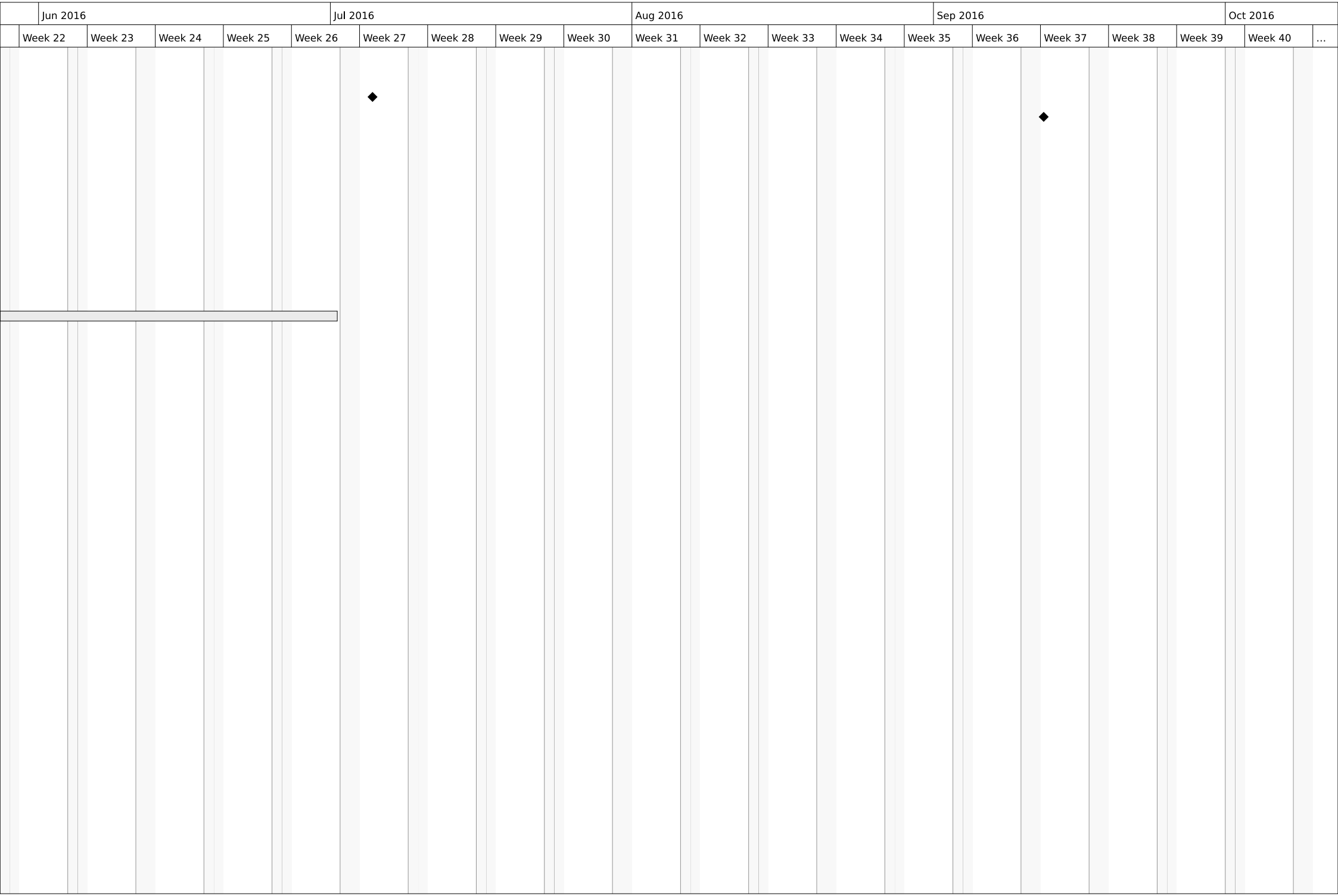
Problem Definition

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

Name	Work
TMA01 Deadline	
TMA02 Deadline	
TMA03 Deadline	
EMA Deadline	
Project Planning	7d
Modelling	**28d**
Get ??? from BF	7d
Generate project glossary	4d
Generate domain model	5d
Validate domain model with BF	7d
Create class diagrams	5d
Database Schema	14d
API	28d
Web Interface	28d




Jun 2016
Jul 2016
Aug 2016
Sep 2016
Oct 2016
Week 22
Week 23
Week 24
Week 25
Week 26
Week 27
Week 28
Week 29
Week 30
Week 31
Week 32
Week 33
Week 34
Week 35
Week 36
Week 37
Week 38
Week 39
Week 40
...

Models

3.1 Grammatic Analysis

(Fencing, 2010)

3.2 Domain Model

3.3 Class Diagram

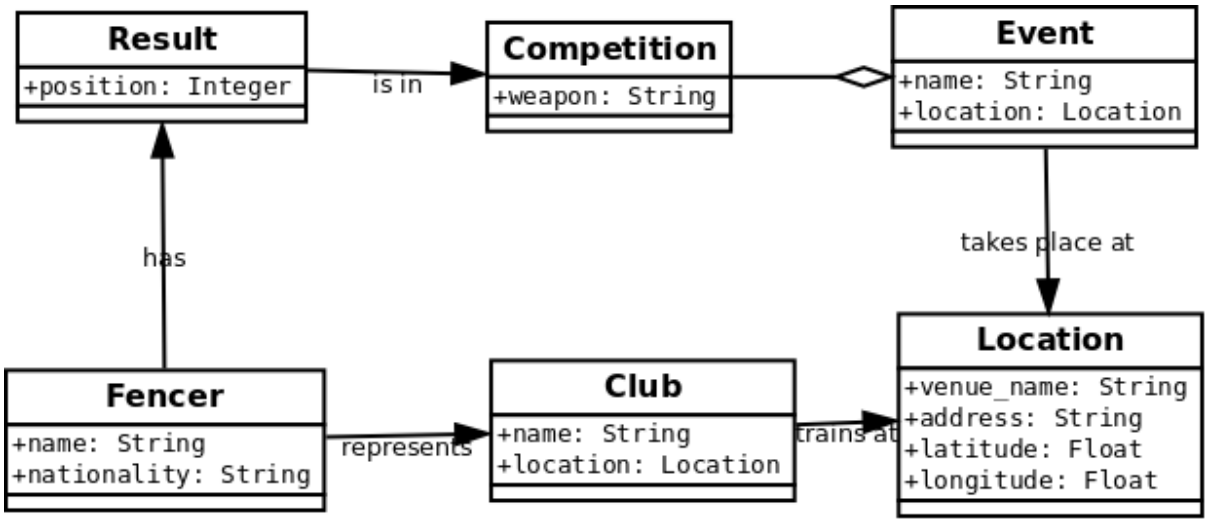


Figure 3.1: Class Diagram

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.

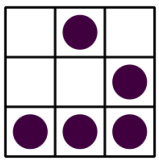


Figure 4.1: ¡Caption here¿

4.1.5 ¡Sub-section title¿

4.2 ¡Section title¿

4.3 Source Code

```
/**
 * Testing block comments
 *
 * On multiple lines
 *
 */


class Dummy
{
  private String name = "Dummy";
  public Dummy()
  {

  }
```

```
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
       human-readable format at
7          http://www.britishfencing.com/uploads/files/
       scottish_open_2016_mens_foil.htm
8
9        Ignore all IDs and timestamps - these are made up for this example
10
11       Many of the repeated sections are omitted for brevity
12
13       The data is not necessarily consistent, no weight should be given to
       the actual values, these
14       are representative only.
15   -->
16   <sports-metadata doc-id="XYZ">
17     <sports-title>Scottish Open</sports-title>
18   </sports-metadata>
19   <tournament>
20     <tournament-metadata tournament-status="post-event" tournament-name="
       Scottish Open">
21       <site>
22         <site-metadata>
23           <home-location country="UK" city="Edinburgh"/>
24         </site-metadata>
25       </site>
26       <sports-content-codes>
27         <!-- Fencing seasons follow the UK academic year, running from Sept
        1st to Aug 31st the following year -->
28         <sports-content-code code-type="season" code-name="2015-16"/>
29       </sports-content-codes>
30     </tournament-metadata>
31     <!--
32         The first level of division refers to the age-group/weapon/gender
       combination of the competition
33         This is the Open, Foil, Male one
34     -->
35     <tournament-division>
36       <!--
37           In the context of fencing, Open refers to an 'age category',
       others might be u15, u17, veteran etc.
38           Younger age categories may also be referred to by a french name
       such as 'poussin' for u9.
39           The full list is here: https://fr.wikipedia.org/wiki/Cat%C3%
       A9gorie_(sports)#Cat.C3.A9gories_en_athl.C3.A9tisme
```

```
40          It's possible to have multiple age groups in a competition
    although this example only has one.
41      -->
42      <tournament-division-metadata division-name="Open">
43        <!--
44            TODO: add qualifier for weapon
45            <sports-content-qualifier weapon="foil"/>
46
47            Will sports-content-code work?
48
49            <sports-content-codes>
50              <sports-content-code code-type="weapon" code-key="foil" code-
    name="Foil"/>
51            </sports-content-codes>
52
53        -->
54        <sports-content-qualifier gender="male"/>
55      </tournament-division-metadata>
56      <!--
57          A tournament round is e.g. the first round of poules, second
    round of poules, first round of DE etc.
58          There may or may not be elimination after each round of poules
    but will be elimination after each round
59          of DE. (Note though, need to take into account plate competitions
     and repechage)
60      -->
61      <!--
62          Note: is it worth splitting the stages between poules and DE?
    There are different rules for each (e.g.
63          score needed to win)
64      -->
65      <tournament-stage>
66        <tournament-stage-metadata stage-status="post-event" stage-key="1"
    stage-name="Poules Round 1"/>
67        <!--
68            Standings are the results at the END of this round, however
    they must come before the bouts data to
69            conform with the schema
70        -->
71        <standing content-label="Poules Round 1">
72          <!-- Is this an error in the XSD? Do I really need an empty
    metadata element here?
73               See sportsml-core.xsd Line 2982, no minOccurs attribute -->
74          <standing-metadata/>
75
76          <player>
77            <player-metadata player-key="fencing.fencer:1" team-key="
    fencing.club:1" team-idref="HOLY">
78              <name last="Cook" first="Keith" full="Keith Cook"/>
79              <home-location country="GBR"/>
80            </player-metadata>
81            <player-stats>
82              <rank value="1"/>
83              <sports-property formal-name="victories" value="6"/>
84              <sports-property formal-name="victories-rate" value="1.00"/>
85              <sports-property formal-name="hits-scored" value="30"/>
86              <sports-property formal-name="hits-received" value="6"/>
87              <!--
```

```
88                  Indicator can be positive and negative, and is normally
    displayed with a leading plus(+)
89                  or minus(-) sign. Should the plus (+) sign be included
    here? Also, indicator can always
90                  be calculated from the two elements above, should it even
     be included here?
91                -->
92                <sports-property formal-name="indicator" value="24"/>
93              </player-stats>
94            </player>
95
96            <player>
97              <player-metadata player-key="fencing.fencer:23" team-key="
    fencing.club:23" team-idref="WALL">
98                <name last="Woollard" first="Jonathan" full="Jonathan
    Woollard"/>
99                <home-location country="GBR"/>
100             </player-metadata>
101             <player-stats>
102               <rank value="2"/>
103               <sports-property formal-name="victories" value="5"/>
104               <sports-property formal-name="victories-rate" value="1.00"/>
105               <sports-property formal-name="hits-scored" value="25"/>
106               <sports-property formal-name="hits-received" value="3"/>
107               <sports-property formal-name="indicator" value="22"/>
108             </player-stats>
109           </player>
110
111           <player>
112             <player-metadata player-key="fencing.fencer:24" team-key="
    fencing.club:24" team-idref="SALEH">
113               <name last="Russell" first="Iain" full="Iain Russell"/>
114               <home-location country="GBR"/>
115             </player-metadata>
116             <player-stats>
117               <rank value="3"/>
118               <sports-property formal-name="victories" value="5"/>
119               <sports-property formal-name="victories-rate" value="1.00"/>
120               <sports-property formal-name="hits-scored" value="25"/>
121               <sports-property formal-name="hits-received" value="7"/>
122               <sports-property formal-name="indicator" value="18"/>
123             </player-stats>
124           </player>
125
126           <player>
127             <player-metadata player-key="fencing.fencer:26" team-key="
    fencing.club:26" team-idref="SALLH">
128               <name last="Douglas" first="Jack" full="Jack Douglas"/>
129             </player-metadata>
130             <player-stats>
131               <rank value="4"/>
132               <sports-property formal-name="victories" value="5"/>
133               <sports-property formal-name="victories-rate" value="1.00"/>
134               <sports-property formal-name="hits-scored" value="25"/>
135               <sports-property formal-name="hits-received" value="9"/>
136               <sports-property formal-name="indicator" value="16"/>
137             </player-stats>
138           </player>
```

```
        <!-- Other fencers omitted for brevity -->
      </standing>

      <!-- A sports event is one bout within that round -->
      <!--
          TODO: Need some way of defining which poule this is for, encoding it in the event-key just doesn't
          seem right. Will sports-content-code work?
      -->
      <sports-event>
        <event-metadata start-date-time="yyyymmddThhmmss+hhmm"
          event-key="XYZ.poule-1.bout-1"
          event-name="Scottish Open Mens Foil 2016"
          date-coverage-type="event" event-status="post-event" season-key="2015-16"/>
        <player>
          <player-metadata player-key="fencing.fencer:519" team-key="fencing.club:26" team-idref="SALLH">
            <name last="McEwan" first="Mike" full="Mike McEwan"/>
          </player-metadata>
          <!-- In fencing the victor's score is ordinarily marked as 'V', rather than the actual score they got.
              This is to cope with the situation in epee where the score is 4-4 (or 14-14) and a double is scored,
              giving both fencers the maximum score. Another point is fenced and the winner gets 'V' and the looser
              5 (or 15). This does have an impact on calculations used to determine positions. -->
          <player-stats score="3"/>
        </player>
        <player>
          <player-metadata player-key="fencing.fencer:16275" team-key="fencing.club:26" team-idref="SALLH">
            <name last="Bradie" first="Angus" full="Angus Bradie"/>
          </player-metadata>
          <player-stats score="V"/>
        </player>
      </sports-event>

      <sports-event>
        <event-metadata start-date-time="yyyymmddThhmmss+hhmm"
          event-key="XYZ.poule-1.bout-2"
          event-name="Scottish Open Mens Foil 2016"
          date-coverage-type="event" event-status="post-event" season-key="2015-16"/>
        <player>
          <player-metadata player-key="fencing.fencer:519" team-key="fencing.club:26" team-idref="SALLH">
            <name last="McEwan" first="Mike" full="Mike McEwan"/>
          </player-metadata>
          <player-stats score="V"/>
        </player>
        <player>
          <player-metadata player-key="fencing.fencer:16275" team-key="fencing.club:26" team-idref="SALLH">
            <name last="Crawford" first="Angus" full="Angus Crawford"/>
          </player-metadata>
          <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
    next round is the DE -->
193       <tournament-stage>
194         <!-- This is an example of a DE round -->
195         <tournament-stage-metadata stage-status="post-event" stage-key="2"
    stage-name="DE Last 32"/>
196         <!--
197             These are the standings at the END of this round of DE, as such
     fencers that have already been
198             eliminated will not change position (i.e. if we're at the
    quarter final, 8 fencers are left in
199             the competition so their positions can change, but everything
    from 9 down will be the same as
200             it was for the last round.
201         -->
202         <standing content-label="Semi-Final">
203           <standing-metadata/>
204
205           <player>
206             <player-metadata player-key="fencing.fencer:1" team-key="
    fencing.club:1" team-idref="HOLY">
207               <name last="Cook" first="Keith" full="Keith Cook"/>
208               <home-location country="GBR"/>
209             </player-metadata>
210             <player-stats>
211               <rank value="1"/>
212             </player-stats>
213           </player>
214
215           <player>
216             <player-metadata player-key="fencing.fencer:23" team-key="
    fencing.club:23" team-idref="WALL">
217               <name last="Woollard" first="Jonathan" full="Jonathan
    Woollard"/>
218               <home-location country="GBR"/>
219             </player-metadata>
220             <player-stats>
221               <rank value="2"/>
222             </player-stats>
223           </player>
224
225           <player>
226             <player-metadata player-key="fencing.fencer:24" team-key="
    fencing.club:24" team-idref="SALEH">
227               <name last="Russell" first="Iain" full="Iain Russell"/>
228               <home-location country="GBR"/>
229             </player-metadata>
230             <player-stats>
231               <rank value="3"/>
232             </player-stats>
233           </player>
234
```

```
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, inluding 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

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