Great Moonstone Oxen of the First and Forsaken Oceans

Taylor McKinney   Matt Stringer   Cesar Cantu

Spencer Reynoso   Ben Bowley-Bryant   David Denton

July 10, 2013

INTRODUCTION

What is the problem?

It's often easy to forget the many crises occurring throughout the world. This site is designed to gather the data on every crisis, and present in a simple format. We gather details about victims, and information on organizations and people that want to help.

What are the use cases?

With the increasing availability of telecommunication access and this site makes use of this to share news and help victims. This site can be a good source for anyone looking to get informed and help. We can provide contact information for people and organizations involved in helping the victims of crises around the world. People who want to help can look to our site for the best ways to get involved, whether it be donating to the right charities or volunteering at a local site.

DESIGN

XML Schema

Our class has been divided into separate groups for this project, but most groups have agreed upon a shared schema for XML. The schema as of the latest version is printed here, but the latest version can be found with this link.

Updated schema on Github

```xml
 1 <?xml version="1.0" ?>
 2
 3 <!-- XSD for World Crises database -->
 4
 5 <xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 6     <xsd:element name="WorldCrises">
 7         <xsd:complexType>
 8             <xsd:sequence>
 9                 <xsd:element name="Crisis" type="CrisisType" minOccurs="1" maxOccurs
                        ="unbounded" />
10                 <xsd:element name="Person" type="PersonType" minOccurs="1" maxOccurs
                        ="unbounded" />
11                 <xsd:element name="Organization" type="OrgType" minOccurs="1"
                        maxOccurs="unbounded" />
12             </xsd:sequence>
13         </xsd:complexType>
14
15         <!-- All keys and keyrefs go here -->
16         <xsd:key name="CrisisKey">
17             <xsd:selector xpath="Crisis" />
18             <xsd:field xpath="@ID" />
19         </xsd:key>
20         <xsd:keyref name="CrisisKeyRef_Person" refer="CrisisKey">
21             <xsd:selector xpath="Person/Crises/Crisis" />
22             <xsd:field xpath="@ID" />
23         </xsd:keyref>
24         <xsd:keyref name="CrisisKeyRef_Org" refer="CrisisKey">
25             <xsd:selector xpath="Organization/Crises/Crisis" />
26             <xsd:field xpath="@ID" />
27         </xsd:keyref>
28
29         <xsd:key name="PersonKey">
30             <xsd:selector xpath="Person" />
31             <xsd:field xpath="@ID" />
32         </xsd:key>
33         <xsd:keyref name="PersonKeyRef_Crisis" refer="PersonKey">
34             <xsd:selector xpath="Crisis/People/Person" />
35             <xsd:field xpath="@ID" />
36         </xsd:keyref>
37         <xsd:keyref name="PersonKeyRef_Org" refer="PersonKey">
38             <xsd:selector xpath="Organization/People/Person" />
39             <xsd:field xpath="@ID" />
40         </xsd:keyref>
41
42         <xsd:key name="OrgKey">
43             <xsd:selector xpath="Organization" />
44             <xsd:field xpath="@ID" />
45         </xsd:key>
46         <xsd:keyref name="OrgKeyRef_Crisis" refer="OrgKey">
47             <xsd:selector xpath="Crisis/Organizations/Org" />
48             <xsd:field xpath="@ID" />
49         </xsd:keyref>
50         <xsd:keyref name="OrgKeyRef_Person" refer="OrgKey">
51             <xsd:selector xpath="Person/Organizations/Org" />
52             <xsd:field xpath="@ID" />
53         </xsd:keyref>
54     </xsd:element>
55
56     <!-- Crisis Data Type -->
57     <!-- Required: Name, ID (attributes), People, Orgs (each with ID attributes)-->
```

```xml
58    <xsd:complexType name="CrisisType">
59        <xsd:sequence>
60            <xsd:element name="People" minOccurs="0" maxOccurs="1">
61                <xsd:complexType>
62                    <xsd:sequence>
63                        <xsd:element name="Person" type="PersonWithID" minOccurs="1"
                                maxOccurs="unbounded" />
64                    </xsd:sequence>
65                </xsd:complexType>
66            </xsd:element>
67            <xsd:element name="Organizations" minOccurs="0" maxOccurs="1">
68                <xsd:complexType>
69                    <xsd:sequence>
70                        <xsd:element name="Org" type="OrgWithID" minOccurs="1"
                                maxOccurs="unbounded" />
71                    </xsd:sequence>
72                </xsd:complexType>
73            </xsd:element>
74
75            <xsd:element name="Kind" type="xsd:token" minOccurs="0" maxOccurs="1" />
76            <xsd:element name="Date" type="xsd:date" minOccurs="0" maxOccurs="1" />
77            <xsd:element name="Time" type="xsd:time" minOccurs="0" maxOccurs="1" />
78            <xsd:element name="Locations" type="ListType" minOccurs="0" maxOccurs="1
                    " />
79            <xsd:element name="HumanImpact" type="ListType" minOccurs="0" maxOccurs=
                    "1" />
80            <xsd:element name="EconomicImpact" type="ListType" minOccurs="0"
                    maxOccurs="1" />
81            <xsd:element name="ResourcesNeeded" type="ListType" minOccurs="0"
                    maxOccurs="1" />
82            <xsd:element name="WaysToHelp" type="ListType" minOccurs="0" maxOccurs="
                    1" />
83            <xsd:element name="Common" type="CommonType" minOccurs="0" maxOccurs="1"
                     />
84            <xsd:any minOccurs="0" />
85        </xsd:sequence>
86        <xsd:attribute name="ID" type="CrisisIDType" use="required" />
87        <xsd:attribute name="Name" type="xsd:token" use="required" />
88    </xsd:complexType>
89
90    <!-- Person Data Type -->
91    <!-- Required: Name, ID (attributes), Crises, Orgs (each with ID attributes) -->
92    <xsd:complexType name="PersonType">
93        <xsd:sequence>
94            <xsd:element name="Crises" minOccurs="0" maxOccurs="1">
95                <xsd:complexType>
96                    <xsd:sequence>
97                        <xsd:element name="Crisis" type="CrisisWithID" minOccurs="1"
                                maxOccurs="unbounded" />
98                    </xsd:sequence>
99                </xsd:complexType>
100           </xsd:element>
101           <xsd:element name="Organizations" minOccurs="0" maxOccurs="1">
102               <xsd:complexType>
103                   <xsd:sequence>
104                       <xsd:element name="Org" type="OrgWithID" minOccurs="1"
                               maxOccurs="unbounded" />
105                   </xsd:sequence>
106               </xsd:complexType>
107           </xsd:element>
108
109           <xsd:element name="Kind" type="xsd:token" minOccurs="0" maxOccurs="1" />
110           <xsd:element name="Location" type="xsd:token" minOccurs="0" maxOccurs="1
                    " />
111           <xsd:element name="Common" type="CommonType" minOccurs="0" maxOccurs="1"
                     />
112           <xsd:any minOccurs="0" />
113       </xsd:sequence>
114       <xsd:attribute name="ID" type="PersonIDType" use="required" />
115       <xsd:attribute name="Name" type="xsd:token" use="required" />
116   </xsd:complexType>
117
118   <!-- Person Data Type -->
119   <!-- Required: Name, ID (attributes), Crises, People (each with ID attributes)
           -->
120   <xsd:complexType name="OrgType">
121       <xsd:sequence>
```

```xml
122                    <xsd:element name="Crises" minOccurs="0" maxOccurs="1">
123                        <xsd:complexType>
124                            <xsd:sequence>
125                                <xsd:element name="Crisis" type="CrisisWithID" minOccurs="1"
                                        maxOccurs="unbounded" />
126                            </xsd:sequence>
127                        </xsd:complexType>
128                    </xsd:element>
129                    <xsd:element name="People" minOccurs="0" maxOccurs="1">
130                        <xsd:complexType>
131                            <xsd:sequence>
132                                <xsd:element name="Person" type="PersonWithID" minOccurs="1"
                                        maxOccurs="unbounded" />
133                            </xsd:sequence>
134                        </xsd:complexType>
135                    </xsd:element>
136
137                    <xsd:element name="Kind" type="xsd:token" minOccurs="0" maxOccurs="1" />
138                    <xsd:element name="Location" type="xsd:token" minOccurs="0" maxOccurs="1
                            " />
139                    <xsd:element name="History" type="ListType" minOccurs="0" maxOccurs="1"
                            />
140                    <xsd:element name="ContactInfo" type="ListType" minOccurs="0" maxOccurs=
                            "1" />
141                    <xsd:element name="Common" type="CommonType" minOccurs="0" maxOccurs="1"
                            />
142                    <xsd:any minOccurs="0" />
143                </xsd:sequence>
144                <xsd:attribute name="ID" type="OrgIDType" use="required"/>
145                <xsd:attribute name="Name" type="xsd:token" use="required" />
146        </xsd:complexType>
147
148        <!-- CommonType contains elements common to crises, people and organizations.
                Each of these elements is a list. -->
149        <xsd:complexType name="CommonType">
150            <xsd:sequence>
151                <xsd:element name="Citations" type="ListType" minOccurs="0" maxOccurs="1
                        " />
152                <xsd:element name="ExternalLinks" type="ListType" minOccurs="0"
                        maxOccurs="1" />
153                <xsd:element name="Images" type="ListType" minOccurs="0" maxOccurs="1" /
                        >
154                <xsd:element name="Videos" type="ListType" minOccurs="0" maxOccurs="1" /
                        >
155                <xsd:element name="Maps" type="ListType" minOccurs="0" maxOccurs="1" />
156                <xsd:element name="Feeds" type="ListType" minOccurs="0" maxOccurs="1" />
157                <xsd:element name="Summary" type="xsd:token" minOccurs="0" maxOccurs="1"
                        />
158            </xsd:sequence>
159        </xsd:complexType>
160
161        <!-- ListType is a list of tokens. Each token can have an optional hyperlink (
                href attribute) and/or link for embedded object (embed attribute).
162            This is a generic type that can accomodate all types of lists (images,
                    videos, citations, text, etc.) See example XML for usage -->
163        <xsd:complexType name="ListType">
164            <xsd:sequence>
165                <xsd:element name="li" minOccurs="1" maxOccurs="unbounded">
166                    <xsd:complexType mixed="true">
167                        <xsd:attribute name="href" type="xsd:token" />
168                        <xsd:attribute name="embed" type="xsd:token" />
169                        <xsd:attribute name="text" type="xsd:token" />
170                    </xsd:complexType>
171                </xsd:element>
172            </xsd:sequence>
173        </xsd:complexType>
174
175        <!-- Use these when making references to crises, people or orgs -->
176        <xsd:complexType name="CrisisWithID">
177            <xsd:attribute name="ID" type="CrisisIDType" use="required" />
178        </xsd:complexType>
179
180        <xsd:complexType name="PersonWithID">
181            <xsd:attribute name="ID" type="PersonIDType" use="required" />
182        </xsd:complexType>
183
184        <xsd:complexType name="OrgWithID">
```

```xml
185                <xsd:attribute name="ID" type="OrgIDType" use="required" />
186        </xsd:complexType>
187
188        <!-- All ID Types go here -->
189        <xsd:simpleType name="CrisisIDType">
190            <xsd:restriction base="IDType">
191                <xsd:pattern value="CRI_[A-Z]{6}" />
192            </xsd:restriction>
193        </xsd:simpleType>
194
195        <xsd:simpleType name="PersonIDType">
196            <xsd:restriction base="IDType">
197                <xsd:pattern value="PER_[A-Z]{6}" />
198            </xsd:restriction>
199        </xsd:simpleType>
200
201        <xsd:simpleType name="OrgIDType">
202            <xsd:restriction base="IDType">
203                <xsd:pattern value="ORG_[A-Z]{6}" />
204            </xsd:restriction>
205        </xsd:simpleType>
206
207        <xsd:simpleType name="IDType">
208            <xsd:restriction base="xsd:token">
209                <xsd:length value="10" />
210            </xsd:restriction>
211        </xsd:simpleType>
212 </xsd:schema>
```
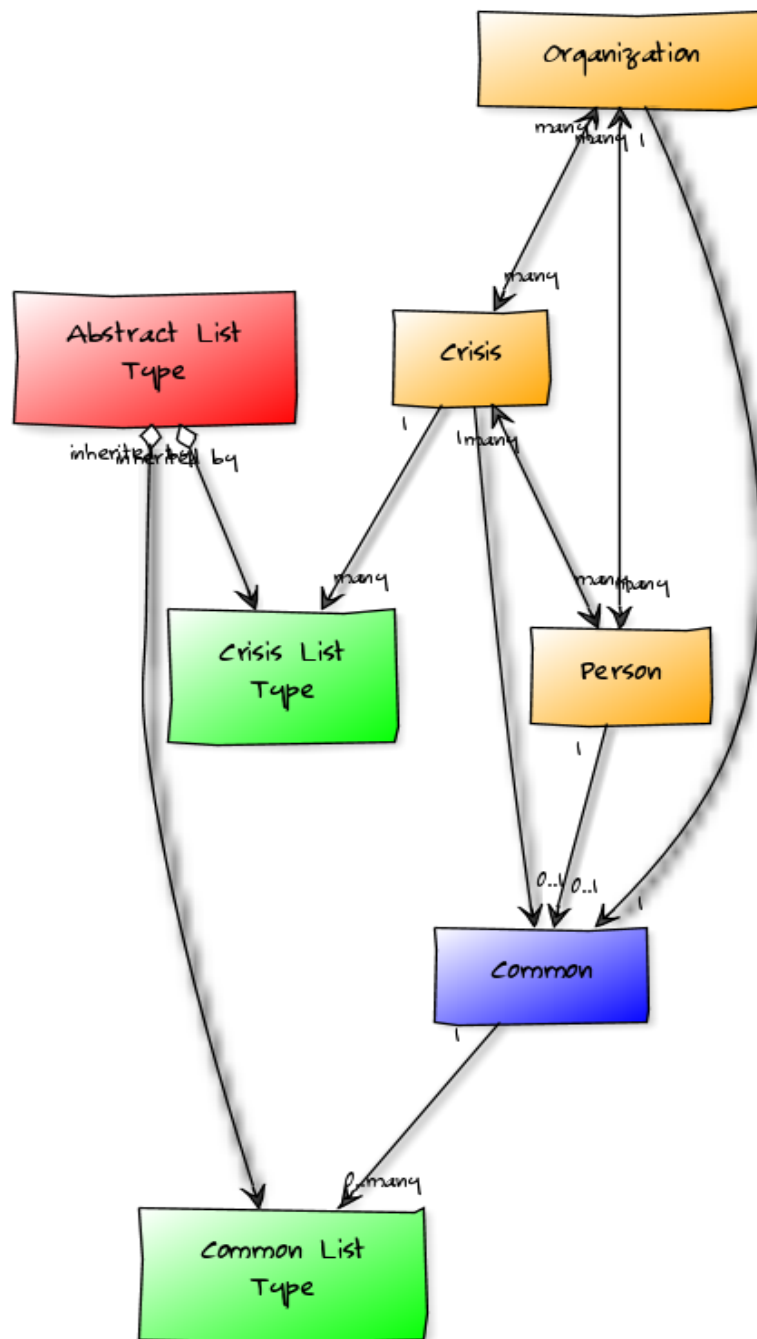
IMPLEMENTATION

Most of the code, including the *import* and *export* scripts, are done in Python. The website is delivered using Django and the site is designed using Twitter's Bootstrap. The data is stored to a MySQL server on campus.

Data Model

The core of our data model starts with the tables *Crisis*, *Organizations*, *Person*. These three tables all have a many to many relation between each other. We have a *Common* table to hold data these three models can all have. *Crisis*, emphOrganizations, and *Person* can have 0 or 1 *Common* objects. We have an abstract model, *AbstractListType*. The database will never write an *AbstractListType*, but abstract types are useful when scripting. The types *CommonListType* and *CrisisListType* both inherit from *AbstractListType*. *CrisisListType* will hold data for *Crisis* objects, and *CommonListType* will hold data for *Common*.

This is a diagram of our data model

Import

Export

TESTING

unittest

Other