XML and Related Technologies
Jonathon Wager 100698641

XML DesignDiagram

```
                    ┌──────────┐ ┌──────────┐ ┌──────┐ ┌──────────┐ ┌───────┐ ┌───────┐
                    │ Company  │ │ Company  │ │ Logo │ │ Website  │ │ Email │ │ Phone │
                    │  Name    │ │ Address  │ │      │ │ Address  │ │       │ │       │
┌──────────┐        └──────────┘ └──────────┘ └──────┘ └──────────┘ └───────┘ └───────┘
│ Projects │                                              ?                        +
└──────────┘
          ┌──────────┐                          ┌────────────┐
          │ Company  │                          │ First Name │
          └──────────┘                          └────────────┘
                                            ?   ┌─────────────┐
          ┌──────────┐                          │ Middle Name │
          │ Project  │                          └─────────────┘
          └──────────┘        ┌─────────┐       ┌────────────┐
                              │ Manager │       │ LastName   │
      ┌──────────┐            └─────────┘       └────────────┘
      │  Title   │                              ┌────────────┐
      └──────────┘                              │   Phone    │
      ┌──────────┐                 +            └────────────┘
      │ Managers │                              ┌────────────┐
      └──────────┘                 +        •   │   Email    │
      ┌──────────┐                              └────────────┘
      │  Teams   │
      └──────────┘
  ?   ┌──────────┐            ┌──────┐  ┌────────────┐
      │ Clients  │            │ Team │  │  Leader    │
      └──────────┘            └──────┘  └────────────┘
      ┌──────────┐               +      ┌────────────┐
      │ Project  │                      │ Developers │
      │  Date    │                      └────────────┘
      └──────────┘               ?      ┌────────────┐
      ┌──────────┐                      │  Tester    │
      │ Project  │                      └────────────┘
      │ Comments │            ?
      └──────────┘               •      ┌────────────┐   ?  ┌───────────┐
                   ┌────────┐           │ Documents  │      │  Street   │
                   │ Client │           └────────────┘      └───────────┘
                   └────────┘                               ┌───────────┐
                                                            │   City    │
┌────────┐ ┌────────────┐ ┌─────────┐ ┌───────┐ ┌───────┐  └───────────┘
│ClientID│ │ Client Name│ │ Address │ │ Email │ │ Phone │  ┌───────────┐
└────────┘ └────────────┘ └─────────┘ └───────┘ └───────┘  │  Country  │
                                                            └───────────┘
                                                         ?  ┌───────────┐
                                                            │Postal Code│
                                                            └───────────┘
```

XML

```xml
<?xml version= "1.0" encoding ="utf-8"?>
<projects>
<company>
<company-name>UM Canada</company-name>
<company-address>150 Second Avenue Ohio</company-address>
<logo></logo>
<website-address>www.UMC.ca</website-address>
<email>UMC@UM.com</email>
<phone>999-888-4291</phone>
</company>
<project projid="01">
<title>Client Management Software</title>
<managers>
<manager>
<first-name>Tatum</first-name>
<middle-name></middle-name>
<last-name>Scurals</last-name>
<phone type="office">876-213-3242</phone>
<phone type="home"></phone>
<email>TScurals@hotmail.com</email>
</manager>
</managers>
<teams>
<team>
<leader>Jonathon Wager</leader>
<developers>Carl Burns</developers>
<tester>Josh Jumping</tester>
<documenters>Candace Candels</documenters>
</team>
</teams>
<clients>
<client>
<clientid>Hill823</clientid>
<client-name>Hillman John</client-name>
<address>
<street>Alpine Cres</street>
<city>Toronto</city>
<country>Canada</country>
<postalcode>0P2L92</postalcode>
```

```xml
                        </address>
                <email>himans@gmail.com</email>
                  <phone>565-897-1092</phone>
                        </client>
                      </clients>
        <project-date type="start">01-01-2022</project-date>
        <project-date type="end">01-02-2022</project-date>
              <project-comments>NA</project-comments>
                      </project>
                    </projects>
                    <projects>
                      <company>
              <company-name>Spotify</company-name>
        <company-address>876 Avenue West</company-address>
                      <logo></logo>
        <website-address>www.Spotify.com</website-address>
              <email>Spoitfy@gmail.com</email>
                <phone>905-564-2143</phone>
                      </company>
                  <project projid="02">
            <title>Updating shuffle algorithm</title>
                      <managers>
                        <manager>
                <first-name>David</first-name>
                  <middle-name></middle-name>
                <last-name>Coulthard</last-name>
              <phone type="office">798-213-1923</phone>
                  <phone type="home"></phone>
                <email>DavidC@yahoo.ca</email>
                        </manager>
                      </managers>
                        <teams>
                          <team>
                <leader>Lewis Hamilton</leader>
              <developers>Lando Norris</developers>
                <tester>Charles Leclarc</tester>
              <documenters>Super Man</documenters>
                          </team>
                        </teams>
                        <clients>
```

```xml
            <client>
                <clientid>Jump339</clientid>
            <client-name>Noma Group</client-name>
                        <address>
                <street>823 Thersea Street</street>
                    <city>Uxbrige</city>
                 <country>Greenland</country>
                 <postalcode>GR3076</postalcode>
                        </address>
                <email>NomaLtd@NMA.ca</email>
                <phone>832-234-2389</phone>
                        </client>
                    </clients>
    <project-date type="start">10/8/2021</project-date>
     <project-date type="end">12/10/2021</project-date>
            <project-comments>NA</project-comments>
                    </project>
                  </projects>
```

DTD

```dtd
<!ELEMENT projects (company,project+)>
<!ELEMENT company (company-name, company-address, logo,
          website-address?, email, phone+)>
<!ELEMENT company-name (#PCDATA)>
<!ELEMENT company-address (#PCDATA)>
<!ELEMENT logo (#PCDATA)>
<!ELEMENT website-address (#PCDATA)>
<!ELEMENT email (#PCDATA)>
<!ELEMENT phone (#PCDATA)>
<!ELEMENT project ( title, managers, teams, clients?, project-date,
          project-comments)>
<!ELEMENT title (#PCDATA)>
<!ELEMENT managers (manager+)>
<!ELEMENT manager (first-name,  middle-name?, last-name,
          phone, email*)>
<!ELEMENT first-name (#PCDATA)>
<!ELEMENT middle-name (#PCDATA)>
<!ELEMENT last-name (#PCDATA)>
<!ELEMENT phone (#PCDATA)>
<!ELEMENT email (#PCDATA)>
<!ELEMENT teams (team+)>
<!ELEMENT team (leader, developers+, tester?, documenters*)>
<!ELEMENT leader (#PCDATA)>
<!ELEMENT developers (#PCDATA)>
<!ELEMENT tester (#PCDATA)>
<!ELEMENT documenters (#PCDATA)>
<!ELEMENT clients (client*)>
<!ELEMENT client (clientid, client-name, address, email,
          phone)>
<!ELEMENT clientid (#PCDATA)>
<!ELEMENT client-name (#PCDATA)>
<!ELEMENT address (street? , city, country, postalcode?)>
<!ELEMENT street (#PCDATA)>
<!ELEMENT city (#PCDATA)>
<!ELEMENT country (#PCDATA)>
<!ELEMENT postalcode (#PCDATA)>
<!ELEMENT email(#PCDATA)>
<!ELEMENT phone (#PCDATA)>
```

```
<!ELEMENT project-date (#PCDATA)>
<!ELEMENT project-comments (#PCDATA)>
```