

Course Number	COE 848
Course Title	Fundamentals of Data Engineering
Semester/Year	2022 Winter
Instructor	Dr. Faezeh Ensan
Teaching Assistant	Shirin Seyedsalehi

Lab Report No.	6
-----------------------	----------

Report Title	Lab 6 Report
--------------	---------------------

Section No.	2
Submission Date	April 11th, 2022
Due Date	April 11th, 2022

Name	Student ID	Signature*
Yasar Zaman	xxxx13595	Y.Z

(Note: remove the first 4 digits from your student ID)

**By signing above you attest that you have contributed to this submission and confirm that all work you have contributed to this submission is your own work. Any suspicion of copying or plagiarism in this work will result in an investigation of Academic Misconduct and may result in a "0" on the work, an "F" in the course, or possibly more severe penalties, as well as a Disciplinary Notice on your academic record under the Student Code of Academic Conduct, which can be found online at:*

<http://www.ryerson.ca/senate/policies/pol60.pdf>.

XML Scheme

```
<?xml version="1.0" encoding="UTF-8"?>
<animeList>
<anime>
  <animeID>1</animeID>
  <animeName>Naruto Shippuden</animeName>
  <animeGenre>Action</animeGenre>
  <animeRD>15/02/2007</animeRD>
  <animeNOE>500</animeNOE>
  <animeRating>8.23</animeRating>
  <animeAge>15</animeAge>
  <contractID>1</contractID>
</anime>

<anime>
  <animeID>2</animeID>
  <animeName>One Week Friends</animeName>
  <animeGenre>Slice of Life</animeGenre>
  <animeRD>7/4/2014</animeRD>
  <animeNOE>12</animeNOE>
  <animeRating>7.54</animeRating>
  <animeAge>7</animeAge>
  <contractID>2</contractID>
</anime>

<anime>
  <animeID>3</animeID>
  <animeName>Kaichou wa Maid-Sama</animeName>
  <animeGenre>Romance</animeGenre>
  <animeRD>2/4/2010</animeRD>
  <animeNOE>26</animeNOE>
  <animeRating>8.02</animeRating>
  <animeAge>11</animeAge>
  <contractID>3</contractID>
</anime>

<anime>
  <animeID>4</animeID>
  <animeName>Kimi no Todoke</animeName>
  <animeGenre>Romance</animeGenre>
  <animeRD>7/10/2009</animeRD>
  <animeNOE>37</animeNOE>
  <animeRating>8</animeRating>
  <animeAge>10</animeAge>
  <contractID>4</contractID>
</anime>

<anime>
  <animeID>5</animeID>
  <animeName>Rurouni Kenshin</animeName>
```

<animeGenre>Action</animeGenre>
<animeRD>10/1/1996</animeRD>
<animeNOE>94</animeNOE>
<animeRating>8.3</animeRating>
<animeAge>26</animeAge>
<contractID>5</contractID>
</anime>

<anime>
<animeID>6</animeID>
<animeName>Say "I Love You"</animeName>
<animeGenre>Romance</animeGenre>
<animeRD>26/12/2012</animeRD>
<animeNOE>10</animeNOE>
<animeRating>6.81</animeRating>
<animeAge>9</animeAge>
<contractID>6</contractID>
</anime>

<anime>
<animeID>7</animeID>
<animeName>Toradora!</animeName>
<animeGenre>Romance</animeGenre>
<animeRD>2/10/2008</animeRD>
<animeNOE>25</animeNOE>
<animeRating>8.12</animeRating>
<animeAge>13</animeAge>
<contractID>7</contractID>
</anime>

<anime>
<animeID>8</animeID>
<animeName>Yamada-kun and the Seven Witches</animeName>
<animeGenre>Slice of Life</animeGenre>
<animeRD>12/4/2015</animeRD>
<animeNOE>12</animeNOE>
<animeRating>7.58</animeRating>
<animeAge>6</animeAge>
<contractID>8</contractID>
</anime>

<anime>
<animeID>9</animeID>
<animeName>The Devil is a Part-Timer!</animeName>
<animeGenre>Comedy</animeGenre>
<animeRD>4/4/2013</animeRD>
<animeNOE>12</animeNOE>
<animeRating>7.79</animeRating>
<animeAge>8</animeAge>
<contractID>9</contractID>
</anime>

```
<anime>
  <animeID>10</animeID>
  <animeName>Wagnaria!!</animeName>
  <animeGenre>Slice of Life</animeGenre>
  <animeRD>4/4/2010</animeRD>
  <animeNOE>39</animeNOE>
  <animeRating>7.83</animeRating>
  <animeAge>11</animeAge>
  <contractID>10</contractID>
</anime>
```

```
<studio>
  <studioID>1</studioID>
  <studioName>Studio Pierrot</studioName>
  <studioDOB>5/5/1979</studioDOB>
  <contractID>1</contractID>
</studio>
```

```
<studio>
  <studioID>2</studioID>
  <studioName>Brain's Base</studioName>
  <studioDOB>6/6/1996</studioDOB>
  <contractID>2</contractID>
</studio>
```

```
<studio>
  <studioID>3</studioID>
  <studioName>J.C.Staff</studioName>
  <studioDOB>18/1/1986</studioDOB>
  <contractID>3</contractID>
</studio>
```

```
<studio>
  <studioID>4</studioID>
  <studioName>Production I.G</studioName>
  <studioDOB>11/11/2007</studioDOB>
  <contractID>4</contractID>
</studio>
```

```
<studio>
  <studioID>5</studioID>
  <studioName>Gallop</studioName>
  <studioDOB>13/12/1978</studioDOB>
  <contractID>5</contractID>
</studio>
```

```
<studio>
  <studioID>6</studioID>
  <studioName>Zecxs</studioName>
  <studioDOB>23/1/1998</studioDOB>
```

<contractID>6</contractID>
</studio>

<studio>
 <studioID>7</studioID>
 <studioName>LIDENFILMS</studioName>
 <studioDOB>22/2/2012</studioDOB>
 <contractID>7</contractID>
</studio>

<studio>
 <studioID>8</studioID>
 <studioName>White Fox</studioName>
 <studioDOB>4/4/2007</studioDOB>
 <contractID>8</contractID>
</studio>

<studio>
 <studioID>9</studioID>
 <studioName>A-1 Pictures</studioName>
 <studioDOB>9/5/2005</studioDOB>
 <contractID>9</contractID>
</studio>

<studio>
 <studioID>10</studioID>
 <studioName>Studio Deen</studioName>
 <studioDOB>14/3/1975</studioDOB>
 <contractID>5</contractID>
</studio>

<author>
 <authorID>1</authorID>
 <authorName>Masashi Kishimoto</authorName>
 <authorDOB>8/11/1974</authorDOB>
 <authorAge>47</authorAge>
 <contractID>1</contractID>
</author>

<author>
 <authorID>2</authorID>
 <authorName>Matcha Hazuki</authorName>
 <authorDOB>13/9/1990</authorDOB>
 <authorAge>31</authorAge>
 <contractID>2</contractID>
</author>

<author>
 <authorID>3</authorID>
 <authorName>Hiro Fujiwara</authorName>

```
<authorDOB>23/12/1981</authorDOB>
<authorAge>40</authorAge>
<contractID>3</contractID>
</author>

<author>
  <authorID>4</authorID>
  <authorName>Haruho Shiina</authorName>
  <authorDOB>23/10/1975</authorDOB>
  <authorAge>46</authorAge>
  <contractID>4</contractID>
</author>

<author>
  <authorID>5</authorID>
  <authorName>Nobuhiro Watsuki</authorName>
  <authorDOB>26/5/1970</authorDOB>
  <authorAge>51</authorAge>
  <contractID>5</contractID>
</author>

<author>
  <authorID>6</authorID>
  <authorName>Kanae Hazuki</authorName>
  <authorDOB>9/9/1980</authorDOB>
  <authorAge>41</authorAge>
  <contractID>6</contractID>
</author>

<author>
  <authorID>7</authorID>
  <authorName>Yuyuko Takemiya</authorName>
  <authorDOB>24/2/1978</authorDOB>
  <authorAge>44</authorAge>
  <contractID>7</contractID>
</author>

<author>
  <authorID>8</authorID>
  <authorName>Miki Yoshikawa</authorName>
  <authorDOB>2/10/1982</authorDOB>
  <authorAge>39</authorAge>
  <contractID>8</contractID>
</author>

<author>
  <authorID>9</authorID>
  <authorName>Satoshi Wagahara</authorName>
  <authorDOB>12/12/1982</authorDOB>
  <authorAge>40</authorAge>
  <contractID>9</contractID>
```

</author>

<author>
 <authorID>10</authorID>
 <authorName>Karino Takatsu</authorName>
 <authorDOB>20/7/1982</authorDOB>
 <authorAge>39</authorAge>
 <contractID>10</contractID>
</author>

<voiceActor>
 <valID>1</valID>
 <vaName>Junko Takeuchi</vaName>
 <vaDOB>5/4/1972</vaDOB>
 <vaSex>Female</vaSex>
 <vaAge>49</vaAge>
 <contractID>1</contractID>
</voiceActor>

<voiceActor>
 <valID>2</valID>
 <vaName>Yoshitaka Yamaya</vaName>
 <vaDOB>15/2/1992</vaDOB>
 <vaSex>Male</vaSex>
 <vaAge>31</vaAge>
 <contractID>2</contractID>
</voiceActor>

<voiceActor>
 <valID>3</valID>
 <vaName>Nobuhiko Okamoto</vaName>
 <vaDOB>24/10/1986</vaDOB>
 <vaSex>Male</vaSex>
 <vaAge>36</vaAge>
 <contractID>3</contractID>
</voiceActor>

<voiceActor>
 <valID>4</valID>
 <vaName>Mamiko Noto</vaName>
 <vaDOB>6/2/1980</vaDOB>
 <vaSex>Female</vaSex>
 <vaAge>43</vaAge>
 <contractID>4</contractID>
</voiceActor>

<voiceActor>
 <valID>5</valID>
 <vaName>Mayo Suzukaze</vaName>
 <vaDOB>11/9/1960</vaDOB>
 <vaSex>Female</vaSex>

<vaAge>62</vaAge>
<contractID>5</contractID>
</voiceActor>

<voiceActor>
 <valD>6</valD>
 <vaName>Ai Kayano</vaName>
 <vaDOB>13/9/1987</vaDOB>
 <vaSex>Female</vaSex>
 <vaAge>35</vaAge>
 <contractID>6</contractID>
</voiceActor>

<voiceActor>
 <valD>7</valD>
 <vaName>Junji Majima</vaName>
 <vaDOB>13/5/1978</vaDOB>
 <vaSex>Male</vaSex>
 <vaAge>44</vaAge>
 <contractID>7</contractID>
</voiceActor>

<voiceActor>
 <valD>8</valD>
 <vaName>Sori Hayami</vaName>
 <vaDOB>29/5/1991</vaDOB>
 <vaSex>Female</vaSex>
 <vaAge>32</vaAge>
 <contractID>8</contractID>
</voiceActor>

<voiceActor>
 <valD>9</valD>
 <vaName>Ryouta Oosaka</vaName>
 <vaDOB>2/8/1986</vaDOB>
 <vaSex>Male</vaSex>
 <vaAge>36</vaAge>
 <contractID>9</contractID>
</voiceActor>

<voiceActor>
 <valD>10</valD>
 <vaName>Jun Fukuyama</vaName>
 <vaDOB>26/11/1978</vaDOB>
 <vaSex>Male</vaSex>
 <vaAge>44</vaAge>
 <contractID>10</contractID>
</voiceActor>

<contract>
 <contractID>1</contractID>


```
<contractSalary>1000000</contractSalary>
<contractExpire>23/3/2017</contractExpire>
<studioID>1</studioID>
<valD>1</valD>
</contract>
```

```
<contract>
  <contractID>2</contractID>
  <contractSalary>200000</contractSalary>
  <contractExpire>23/6/2014</contractExpire>
  <studioID>2</studioID>
  <valD>2</valD>
</contract>
```

```
<contract>
  <contractID>3</contractID>
  <contractSalary>100000</contractSalary>
  <contractExpire>24/11/2010</contractExpire>
  <studioID>3</studioID>
  <valD>3</valD>
</contract>
```

```
<contract>
  <contractID>4</contractID>
  <contractSalary>150000</contractSalary>
  <contractExpire>30/3/2011</contractExpire>
  <studioID>4</studioID>
  <valD>4</valD>
</contract>
```

```
<contract>
  <contractID>5</contractID>
  <contractSalary>250000</contractSalary>
  <contractExpire>8/9/1998</contractExpire>
  <studioID>5</studioID>
  <valD>5</valD>
</contract>
```

```
<contract>
  <contractID>6</contractID>
  <contractSalary>100000</contractSalary>
  <contractExpire>30/12/2012</contractExpire>
  <studioID>6</studioID>
  <valD>6</valD>
</contract>
```

```
<contract>
  <contractID>7</contractID>
  <contractSalary>250000</contractSalary>
  <contractExpire>26/3/2009</contractExpire>
  <studioID>3</studioID>
```

<valD>7</valD>
</contract>

<contract>
 <contractID>8</contractID>
 <contractSalary>150000</contractSalary>
 <contractExpire>28/6/2015</contractExpire>
 <studioID>7</studioID>
 <valD>8</valD>
</contract>

<contract>
 <contractID>9</contractID>
 <contractSalary>200000</contractSalary>
 <contractExpire>27/6/2013</contractExpire>
 <studioID>8</studioID>
 <valD>9</valD>
</contract>

<contract>
 <contractID>10</contractID>
 <contractSalary>150000</contractSalary>
 <contractExpire>27/11/2015</contractExpire>
 <studioID>9</studioID>
 <valD>10</valD>
</contract>

<merchandise>
 <merchandiseID>1</merchandiseID>
 <merchandiseType>Figure</merchandiseType>
 <merchandiseMat>Plastic</merchandiseMat>
 <animeID>1</animeID>
</merchandise>

<merchandise>
 <merchandiseID>2</merchandiseID>
 <merchandiseType>Pillow</merchandiseType>
 <merchandiseMat>Polyester</merchandiseMat>
 <animeID>7</animeID>
</merchandise>

<merchandise>
 <merchandiseID>3</merchandiseID>
 <merchandiseType>Figure</merchandiseType>
 <merchandiseMat>Plastic</merchandiseMat>
 <animeID>5</animeID>
</merchandise>

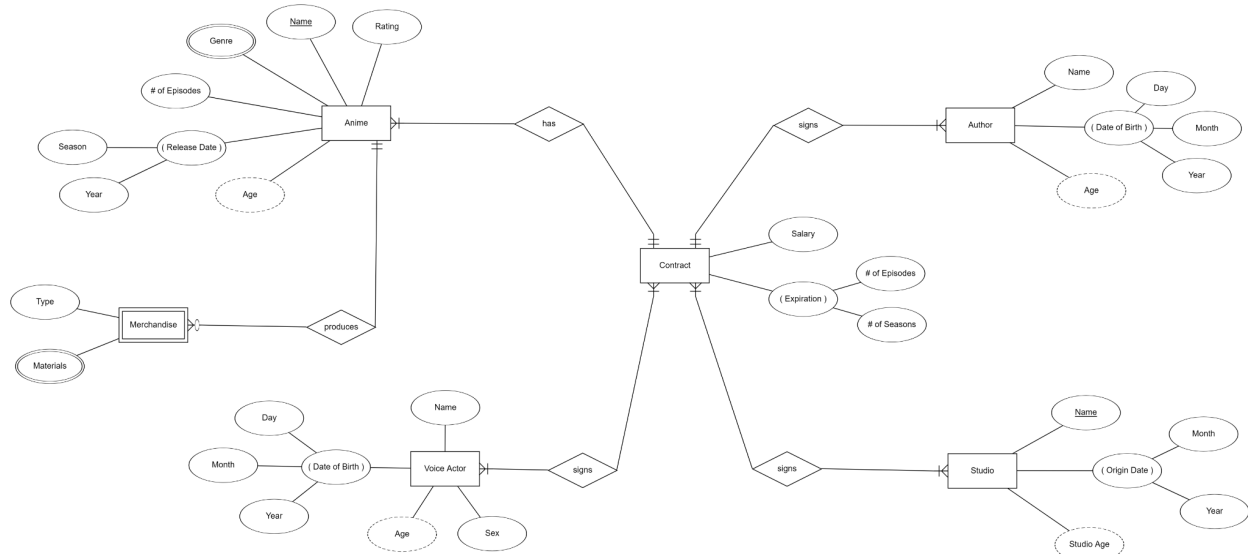
</animeList>

XSD Schema

```
<xs:schema attributeFormDefault="unqualified" elementFormDefault="qualified"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="animeList">
    <xs:complexType mixed="true">
      <xs:sequence>
        <xs:element name="anime" maxOccurs="unbounded" minOccurs="0">
          <xs:complexType>
            <xs:sequence>
              <xs:element type="xs:byte" name="animeID"/>
              <xs:element type="xs:string" name="animeName"/>
              <xs:element type="xs:string" name="animeGenre"/>
              <xs:element type="xs:string" name="animeRD"/>
              <xs:element type="xs:short" name="animeNOE"/>
              <xs:element type="xs:float" name="animeRating"/>
              <xs:element type="xs:byte" name="animeAge"/>
              <xs:element type="xs:byte" name="contractID"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="studio" maxOccurs="unbounded" minOccurs="0">
          <xs:complexType>
            <xs:sequence>
              <xs:element type="xs:byte" name="studioID"/>
              <xs:element type="xs:string" name="studioName"/>
              <xs:element type="xs:string" name="studioDOB"/>
              <xs:element type="xs:byte" name="contractID"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="author" maxOccurs="unbounded" minOccurs="0">
          <xs:complexType>
            <xs:sequence>
              <xs:element type="xs:byte" name="authorID"/>
              <xs:element type="xs:string" name="authorName"/>
              <xs:element type="xs:string" name="authorDOB"/>
              <xs:element type="xs:byte" name="authorAge"/>
              <xs:element type="xs:byte" name="contractID"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="voiceActor" maxOccurs="unbounded" minOccurs="0">
          <xs:complexType>
            <xs:sequence>
              <xs:element type="xs:byte" name="vaID"/>
              <xs:element type="xs:string" name="vaName"/>
              <xs:element type="xs:string" name="vaDOB"/>
              <xs:element type="xs:string" name="vaSex"/>
              <xs:element type="xs:byte" name="vaAge"/>
              <xs:element type="xs:byte" name="contractID"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```

```
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="contract" maxOccurs="unbounded" minOccurs="0">
      <xs:complexType>
        <xs:sequence>
          <xs:element type="xs:byte" name="contractID"/>
          <xs:element type="xs:int" name="contractSalary"/>
          <xs:element type="xs:string" name="contractExpire"/>
          <xs:element type="xs:byte" name="studioID"/>
          <xs:element type="xs:byte" name="valID"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
    <xs:element name="merchandise" maxOccurs="unbounded" minOccurs="0">
      <xs:complexType>
        <xs:sequence>
          <xs:element type="xs:byte" name="merchandiseID"/>
          <xs:element type="xs:string" name="merchandiseType"/>
          <xs:element type="xs:string" name="merchandiseMat"/>
          <xs:element type="xs:byte" name="animeID"/>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>
</xs:element>
</xs:schema>
```

ER Diagram



Based on this ER Diagram, every entity has been labeled in the Schema. The entities, 'Anime,' 'Author,' 'Contract,' 'Studio,' and 'Merchandise.' If we observe the entity 'Anime,' the attributes such as animeID, animeName, all are labeled in its specific type. Since animeName is a string, it is labeled as type string, and since animeRating is a number with decimal places, it is labeled as type float. Below is a list of the attributes of entities and their types.

Anime

animeID → byte
animeName → string
animeGenre → string
animeRD → string
animeNOE → short
animeRating → float
contractID → byte

Studio

studioID → byte
studioName → string
studioDOB → string
contractID → byte

Author

authorID → byte
authorName → string
authorDOB → string
authorAge → byte
contractID → byte

Voice Actor

vaID → byte
vaName → string
vaDOB → string
vaSex → string
vaAge → byte
contractID → byte

Contract

contractID → byte
contractSalary → int
contractExpire → string
studioID → byte
vaID → byte

Merchandise

merchandiseID → byte
merchandiseType → string
merchandiseMat → string
animeID → byte

No changes needed to be made from the original ERD other than determining the type for each instance. For example, previously we made studioDOB type DATE, however, there is no type DATE and so it needs to be shown as a string.