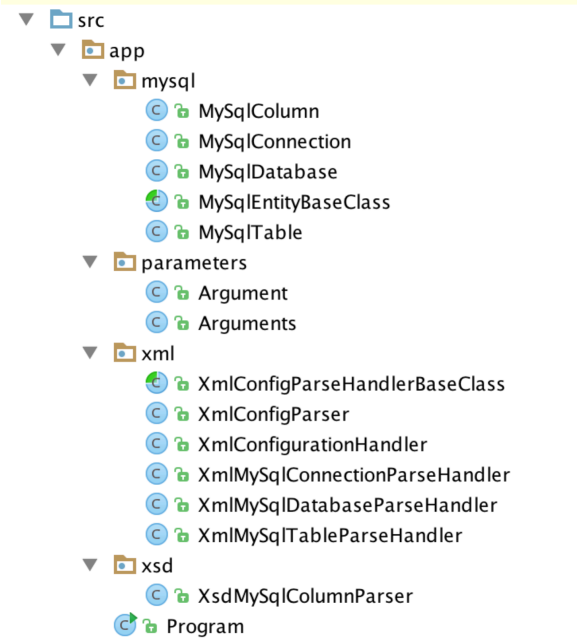
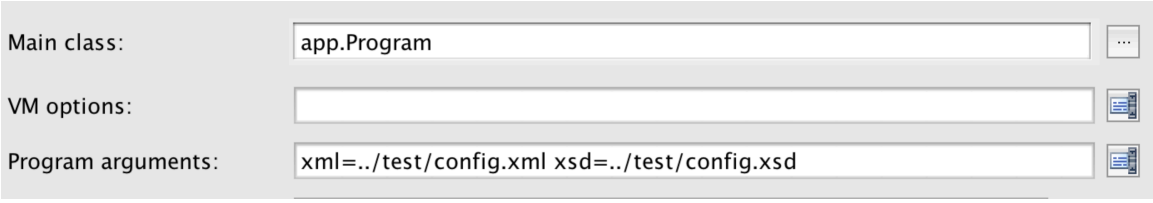
Pre-Requisites:

- Java 1.8.0_20
- IntelliJ 14 (To open packaged Project files)
- MySql running on local host

Source Files:



VM Options (CommandLine):



Input XML / XSD Files:

The application requires two input files—

- config.xml
- config.xsd

The config.xml file is used to "configure" the application. The config.xsd file is used to validate the structure of the config.xml file. Samples and an explanation of each is provided in the subsequent sections.

config.xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<Configurations>
    <!-- Create the database -->
    <Configuration id="1">
        <DatabaseType>MySql</DatabaseType>
        <Server>localhost</Server>
        <Database>mysql</Database>
        <Port>8889</Port>
        <Username>root</Username>
        <Password>root</Password>
        <EntityType>Database</EntityType>
        <EntityName>assignment1</EntityName>
    </Configuration>
    <!-- Add a Table -->
    <Configuration id="2">
        <DatabaseType>MySql</DatabaseType>
        <Server>localhost</Server>
        <Database>assignment1</Database>
        <Port>8889</Port>
        <Username>root</Username>
        <Password>root</Password>
        <EntityType>Table</EntityType>
        <InputXmlFile>../test/users.xml</InputXmlFile>
        <InputXsdFile>../test/users.xsd</InputXsdFile>
        <EntityName>users</EntityName>
    </Configuration>
</Configurations>
```

The root node of the config.xml file is “Configurations”. As it’s “tense” implies, it can contain multiple “Configuration” child nodes. Each child (or configuration) node is used define the attributes of a specific database object (or entity). The type of database entity is based on the “Configuration > EntityType” node. In its current state (or iteration) the applications supports two types of entities: “Database” or “Table”. The above example includes an example of each.

The “Table” entity type requires that an additional XML and XSD file be specified using the “InputXmlFile” and “InputXsdFile” node elements. The Xml file is used to pass in input data to initialize the target table. The XSD file is used to define columns (or structure) of the target table. In its current state, the application uses the XSD file to (1) verify the XML file and (2) generate the target table. The “EntityName” node defines the name of the database table. In a subsequent iteration, the contents of the XML file will be used to populate the table after it is created.

config.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified"
    xmlns:vc="http://www.w3.org/2007/XMLSchema-versioning" vc:minVersion="1.1">
  <xs:element name="users">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="user"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="user">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="id"/>
        <xs:element ref="firstName"/>
        <xs:element ref="lastName"/>
        <xs:element ref="socialSecurityNumber"/>
        <xs:element ref="active"/>
        <xs:element ref="addressLine1"/>
        <xs:element ref="addressLine2"/>
        <xs:element ref="city"/>
        <xs:element ref="state"/>
        <xs:element ref="country"/>
        <xs:element ref="zipCode"/>
        <xs:element ref="phoneNumber"/>
        <xs:element ref="netWorth"/>
        <xs:element ref="locked"/>
        <xs:element ref="updatePassword"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="id" type="xs:integer"/>
  <xs:element name="firstName" type="xs:string"/>
  <xs:element name="lastName" type="xs:string"/>
  <xs:element name="socialSecurityNumber" type="xs:string"/>
  <xs:element name="active" type="xs:integer"/>
  <xs:element name="addressLine1" type="xs:string"/>
  <xs:element name="addressLine2" type="xs:string"/>
  <xs:element name="city" type="xs:string"/>
  <xs:element name="state" type="xs:string"/>
  <xs:element name="country" type="xs:string"/>
  <xs:element name="zipCode" type="xs:integer"/>
  <xs:element name="phoneNumber" type="xs:string"/>
  <xs:element name="netWorth" type="xs:decimal"/>
  <xs:element name="locked" type="xs:integer"/>
  <xs:element name="updatePassword" type="xs:integer"/>
</xs:schema>
```

InputXmlFile (users.xml)

```
<?xml version="1.0" encoding="UTF-8"?>
<users>
    <user>
        <id>1010</id>
        <firstName>bob</firstName>
        <lastName>smith</lastName>
        <socialSecurityNumber>111-111-1111</socialSecurityNumber>
        <active>0</active>
        <addressLine1>1305 South Michigan Ave</addressLine1>
        <addressLine2>apt 2020</addressLine2>
        <city>Chicago</city>
        <state>Illinois</state>
        <country>United States</country>
        <zipCode>60605</zipCode>
        <phoneNumber>973-768-7017</phoneNumber>
```

```
        <netWorth>100.01</netWorth>
        <locked>0</locked>
        <updatePassword>0</updatePassword>
    </user>
</users>
```

InputXmlFile (users.xsd)

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified"
    xmlns:vc="http://www.w3.org/2007/XMLSchema-versioning" vc:minVersion="1.1">
  <xs:element name="users">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="user"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="user">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="id"/>
        <xs:element ref="firstName"/>
        <xs:element ref="lastName"/>
        <xs:element ref="socialSecurityNumber"/>
        <xs:element ref="active"/>
        <xs:element ref="addressLine1"/>
        <xs:element ref="addressLine2"/>
        <xs:element ref="city"/>
        <xs:element ref="state"/>
        <xs:element ref="country"/>
        <xs:element ref="zipCode"/>
        <xs:element ref="phoneNumber"/>
        <xs:element ref="netWorth"/>
        <xs:element ref="locked"/>
        <xs:element ref="updatePassword"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="id" type="xs:integer"/>
  <xs:element name="firstName" type="xs:NCName"/>
  <xs:element name="lastName" type="xs:NCName"/>
  <xs:element name="socialSecurityNumber" type="xs:NMTOKEN"/>
  <xs:element name="active" type="xs:integer"/>
  <xs:element name="addressLine1" type="xs:string"/>
  <xs:element name="addressLine2" type="xs:string"/>
  <xs:element name="city" type="xs:NCName"/>
  <xs:element name="state" type="xs:NCName"/>
  <xs:element name="country" type="xs:string"/>
  <xs:element name="zipCode" type="xs:integer"/>
  <xs:element name="phoneNumber" type="xs:NMTOKEN"/>
  <xs:element name="netWorth" type="xs:decimal"/>
  <xs:element name="locked" type="xs:integer"/>
  <xs:element name="updatePassword" type="xs:integer"/>
</xs:schema>
```

Output:

When run using Intelli with the above options, the following output is produced.

```
/Library/Java/JavaVirtualMachines/jdk1.8.0_20.jdk/Contents/Home/jre/bin/java -Didea.launcher.port=7532
"-Didea.launcher.bin.path=/Applications/IntelliJ IDEA 14.app/Contents/bin" -Dfile.encoding=UTF-8 -
classpath
"/Library/Java/JavaVirtualMachines/jdk1.8.0_20.jdk/Contents/Home/jre/lib/charsets.jar:/Library/Java/Ja
vaVirtualMachines/jdk1.8.0_20.jdk/Contents/Home/jre/lib/deploy.jar:/Library/Java/JavaVirtualMachines/j
dk1.8.0_20.jdk/Contents/Home/jre/lib/javaws.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_20.jdk/Cont
ents/Home/jre/lib/jce.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_20.jdk/Contents/Home/jre/lib/jfr.
jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_20.jdk/Contents/Home/jre/lib/jfxswt.jar:/Library/Java/J
avaVirtualMachines/jdk1.8.0_20.jdk/Contents/Home/jre/lib/jsse.jar:/Library/Java/JavaVirtualMachines/jd
k1.8.0_20.jdk/Contents/Home/jre/lib/management-
agent.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_20.jdk/Contents/Home/jre/lib/plugin.jar:/Library/
Java/JavaVirtualMachines/jdk1.8.0_20.jdk/Contents/Home/jre/lib/resources.jar:/Library/Java/JavaVirtual
Machines/jdk1.8.0_20.jdk/Contents/Home/jre/lib/rt.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_20.jd
k/Contents/Home/jre/lib/ext/cldrdata.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_20.jdk/Contents/Ho
me/jre/lib/ext/dnsns.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_20.jdk/Contents/Home/jre/lib/ext/j
fxrt.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_20.jdk/Contents/Home/jre/lib/ext/localedata.jar:/L
ibrary/Java/JavaVirtualMachines/jdk1.8.0_20.jdk/Contents/Home/jre/lib/ext/nashorn.jar:/Library/Java/Ja
vaVirtualMachines/jdk1.8.0_20.jdk/Contents/Home/jre/lib/ext/sunec.jar:/Library/Java/JavaVirtualMachine
s/jdk1.8.0_20.jdk/Contents/Home/jre/lib/ext/sunjce_provider.jar:/Library/Java/JavaVirtualMachines/jdk1
.8.0_20.jdk/Contents/Home/jre/lib/ext/sunpkcs11.jar:/Library/Java/JavaVirtualMachines/jdk1.8.0_20.jdk/
Contents/Home/jre/lib/ext/zipfs.jar:/Users/e13542/github/ITM466/assignment1/out/production/assignment1
:/Users/e13542/github/ITM466/assignment1/lib/sqljdbc4.jar:/Users/e13542/github/ITM466/assignment1/lib/
mysql-connector-java-5.0.8-bin.jar:/Applications/IntelliJ IDEA 14.app/Contents/lib/idea_rt.jar"
com.intellij.rt.execution.application.AppMain app.Program xml=../test/config.xml
xsd=../test/config.xsd
jdbc:mysql://localhost:8889/mysql
testing connectivity...
can connect!
attempting to drop assignment1 database ...
DROP DATABASE IF EXISTS `assignment1`;
attempting to create assignment1 database ...
CREATE DATABASE `assignment1` DEFAULT CHARACTER SET utf8 COLLATE utf8_general_ci;
jdbc:mysql://localhost:8889/assignment1
testing connectivity...
can connect!
[ index="1" name="id" type="integer" ]
[ index="2" name="firstName" type="string" ]
[ index="3" name="lastName" type="string" ]
[ index="4" name="socialSecurityNumber" type="string" ]
[ index="5" name="active" type="integer" ]
[ index="6" name="addressLine1" type="string" ]
[ index="7" name="addressLine2" type="string" ]
[ index="8" name="city" type="string" ]
[ index="9" name="state" type="string" ]
[ index="10" name="country" type="string" ]
[ index="11" name="zipCode" type="integer" ]
[ index="12" name="phoneNumber" type="string" ]
[ index="13" name="netWorth" type="decimal" ]
[ index="14" name="locked" type="integer" ]
[ index="15" name="updatePassword" type="integer" ]
attempting to create users table ...
CREATE TABLE `assignment1`.`users` (
`id` INT NULL,
`firstName` VARCHAR(255) NULL,
`lastName` VARCHAR(255) NULL,
`socialSecurityNumber` VARCHAR(255) NULL,
`active` INT NULL,
`addressLine1` VARCHAR(255) NULL,
`addressLine2` VARCHAR(255) NULL,
`city` VARCHAR(255) NULL,
`state` VARCHAR(255) NULL,
`country` VARCHAR(255) NULL,
`zipCode` INT NULL,
`phoneNumber` VARCHAR(255) NULL,
`netWorth` DOUBLE NULL,
`locked` INT NULL,
`updatePassword` INT NULL
);
```