SOURCE CODE :

parking.xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="parking.xsl"?>
<parkingSystem xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:noNamespaceSchemaLocation="parking.xsd">

  <parkingLot>
    <lotID>AB101</lotID>
    <lotName>Main Street Lot</lotName>
    <capacity>200</capacity>
    <occupied>120</occupied>
    <available>80</available>
    <location>Main Street, Downtown</location>
    <ratePerHour>2.00</ratePerHour>
    <securityLevel>High</securityLevel>
    <type>Public</type>
    <operationalHours>24/7</operationalHours>
    <contactNumber>1234567890</contactNumber>
  </parkingLot>

  <parkingLot>
    <lotID>CD202</lotID>
    <lotName>Park Avenue Lot</lotName>
    <capacity>300</capacity>
    <occupied>150</occupied>
    <available>150</available>
    <location>Park Avenue, Uptown</location>
    <ratePerHour>1.50</ratePerHour>
    <securityLevel>Medium</securityLevel>
    <type>Private</type>
```

```xml
      <operationalHours>6:00 - 22:00</operationalHours>
      <contactNumber>0987654321</contactNumber>
   </parkingLot>

   <parkingLot>
      <lotID>EF303</lotID>
      <lotName>Sunset Boulevard Lot</lotName>
      <capacity>250</capacity>
      <occupied>100</occupied>
      <available>150</available>
      <location>Sunset Boulevard, West End</location>
      <ratePerHour>3.00</ratePerHour>
      <securityLevel>High</securityLevel>
      <type>Public</type>
      <operationalHours>24/7</operationalHours>
      <contactNumber>1122334455</contactNumber>
   </parkingLot>

   <parkingLot>
      <lotID>GH404</lotID>
      <lotName>Ocean Drive Lot</lotName>
      <capacity>400</capacity>
      <occupied>350</occupied>
      <available>50</available>
      <location>Ocean Drive, Coastal Area</location>
      <ratePerHour>2.50</ratePerHour>
      <securityLevel>Low</securityLevel>
      <type>Private</type>
      <operationalHours>7:00 - 23:00</operationalHours>
      <contactNumber>6677889900</contactNumber>
   </parkingLot>

   <parkingLot>
      <lotID>IJ505</lotID>
```

```xml
      <lotName>Central Park Lot</lotName>
      <capacity>150</capacity>
      <occupied>80</occupied>
      <available>70</available>
      <location>Central Park, Midtown</location>
      <ratePerHour>2.75</ratePerHour>
      <securityLevel>Medium</securityLevel>
      <type>Public</type>
      <operationalHours>5:00 - 22:00</operationalHours>
      <contactNumber>9988776655</contactNumber>
   </parkingLot>

   <parkingLot>
      <lotID>KL606</lotID>
      <lotName>Elm Street Lot</lotName>
      <capacity>180</capacity>
      <occupied>130</occupied>
      <available>50</available>
      <location>Elm Street, Suburbia</location>
      <ratePerHour>1.80</ratePerHour>
      <securityLevel>High</securityLevel>
      <type>Private</type>
      <operationalHours>6:00 - 20:00</operationalHours>
      <contactNumber>4455667788</contactNumber>
   </parkingLot>

   <parkingLot>
      <lotID>MN707</lotID>
      <lotName>Highway 45 Lot</lotName>
      <capacity>350</capacity>
      <occupied>300</occupied>
      <available>50</available>
      <location>Highway 45, Outskirts</location>
      <ratePerHour>1.50</ratePerHour>
```

```xml
      <securityLevel>Low</securityLevel>
      <type>Public</type>
      <operationalHours>24/7</operationalHours>
      <contactNumber>3344556677</contactNumber>
   </parkingLot>

   <parkingLot>
      <lotID>OP808</lotID>
      <lotName>Maple Grove Lot</lotName>
      <capacity>100</capacity>
      <occupied>60</occupied>
      <available>40</available>
      <location>Maple Grove, Suburbia</location>
      <ratePerHour>2.20</ratePerHour>
      <securityLevel>High</securityLevel>
      <type>Public</type>
      <operationalHours>6:00 - 22:00</operationalHours>
      <contactNumber>5566778899</contactNumber>
   </parkingLot>

   <parkingLot>
      <lotID>QR909</lotID>
      <lotName>Riverside Lot</lotName>
      <capacity>120</capacity>
      <occupied>100</occupied>
      <available>20</available>
      <location>Riverside Drive, Downtown</location>
      <ratePerHour>2.50</ratePerHour>
      <securityLevel>Medium</securityLevel>
      <type>Private</type>
      <operationalHours>8:00 - 22:00</operationalHours>
      <contactNumber>7788990011</contactNumber>
   </parkingLot>
</parkingSystem>
```

parking.xsd

```xml
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">


  <xs:element name="parkingSystem">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="parkingLot" maxOccurs="unbounded">
          <xs:complexType>
            <xs:sequence>
              <!-- Restriction: Exactly 5 characters, two uppercase letters followed by three digits -->
              <xs:element name="lotID">
                <xs:simpleType>
                  <xs:restriction base="xs:string">
                    <xs:pattern value="[A-Z]{2}[0-9]{3}"/>
                    <xs:length value="5"/>
                  </xs:restriction>
                </xs:simpleType>
              </xs:element>

              <!-- Restriction: Lot name must be between 5 and 50 characters -->
              <xs:element name="lotName">
                <xs:simpleType>
                  <xs:restriction base="xs:string">
                    <xs:minLength value="5"/>
                    <xs:maxLength value="50"/>
                  </xs:restriction>
                </xs:simpleType>
              </xs:element>

              <!-- Restriction: Capacity between 10 and 1000 -->
              <xs:element name="capacity">
                <xs:simpleType>
                  <xs:restriction base="xs:int">
                    <xs:minInclusive value="10"/>
```

```xml
        <xs:maxInclusive value="1000"/>
      </xs:restriction>
    </xs:simpleType>
</xs:element>

<!-- Restriction: Occupied spaces must be between 0 and the capacity -->
<xs:element name="occupied">
    <xs:simpleType>
      <xs:restriction base="xs:int">
        <xs:minInclusive value="0"/>
        <xs:maxInclusive value="1000"/>
      </xs:restriction>
    </xs:simpleType>
</xs:element>

<!-- Restriction: Available spaces calculated as capacity minus occupied -->
<xs:element name="available">
    <xs:simpleType>
      <xs:restriction base="xs:int">
        <xs:minInclusive value="0"/>
        <xs:maxInclusive value="1000"/>
      </xs:restriction>
    </xs:simpleType>
</xs:element>

<!-- Restriction: Location must be between 5 and 100 characters -->
<xs:element name="location">
    <xs:simpleType>
      <xs:restriction base="xs:string">
        <xs:minLength value="5"/>
        <xs:maxLength value="100"/>
      </xs:restriction>
    </xs:simpleType>
</xs:element>
```

```xml
<!-- Restriction: Rate per hour between 0.50 and 10.00 -->
<xs:element name="ratePerHour">
    <xs:simpleType>
        <xs:restriction base="xs:decimal">
            <xs:minInclusive value="0.50"/>
            <xs:maxInclusive value="10.00"/>
            <xs:fractionDigits value="2"/>
        </xs:restriction>
    </xs:simpleType>
</xs:element>


<!-- Restriction: Security level can only be Low, Medium, or High -->
<xs:element name="securityLevel">
    <xs:simpleType>
        <xs:restriction base="xs:string">
            <xs:enumeration value="Low"/>
            <xs:enumeration value="Medium"/>
            <xs:enumeration value="High"/>
        </xs:restriction>
    </xs:simpleType>
</xs:element>


<!-- Restriction: Type can only be Public or Private -->
<xs:element name="type">
    <xs:simpleType>
        <xs:restriction base="xs:string">
            <xs:enumeration value="Public"/>
            <xs:enumeration value="Private"/>
        </xs:restriction>
    </xs:simpleType>
</xs:element>
```

```
                <!-- Restriction: Operational hours must follow the pattern 24/7 or 'HH:MM - HH:MM' -->
                <xs:element name="operationalHours">
                  <xs:simpleType>
                    <xs:restriction base="xs:string">
                      <xs:pattern    value="24/7|([0-9]{1,2}:[0-9]{2})\s?-\s?([0-9]{1,2}:[0-9]{2})"/>
                    </xs:restriction>
                  </xs:simpleType>
                </xs:element>



                <!-- Restriction: Contact number must be exactly 10 digits -->
                <xs:element name="contactNumber">
                  <xs:simpleType>
                    <xs:restriction base="xs:string">
                      <xs:pattern value="\d{10}"/>
                    </xs:restriction>
                  </xs:simpleType>
                </xs:element>
              </xs:sequence>
            </xs:complexType>
          </xs:element>
        </xs:sequence>
      </xs:complexType>
   </xs:element>
</xs:schema>
```

parking.xsl

```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform">

  <xsl:template match="/">
    <html>
    <head>
       <title>Parking Management System</title>
```

```html
    <style>
      table {
        width: 100%;
        border-collapse: collapse;
      }
      table, th, td {
        border: 1px solid black;
      }
      th, td {
        padding: 8px;
        text-align: left;
      }
      th {
        background-color: #f2f2f2;
      }
    </style>
</head>
<body>
  <h2>Parking Management System</h2>
  <table>
    <tr>
      <th>Lot ID</th>
      <th>Lot Name</th>
      <th>Capacity</th>
      <th>Occupied</th>
      <th>Available</th>
      <th>Location</th>
      <th>Rate/Hour</th>
      <th>Security Level</th>
      <th>Type</th>
      <th>Operational Hours</th>
      <th>Contact Number</th>
    </tr>
    <xsl:for-each select="parkingSystem/parkingLot">
```

```
            <xsl:if test="normalize-space(securityLevel) = 'Medium' and normalize-space(type) = 'Private'">
              <tr>
                <td><xsl:value-of select="lotID"/></td>
                <td><xsl:value-of select="lotName"/></td>
                <td><xsl:value-of select="capacity"/></td>
                <td><xsl:value-of select="occupied"/></td>
                <td><xsl:value-of select="available"/></td>
                <td><xsl:value-of select="location"/></td>
                <td><xsl:value-of select="ratePerHour"/></td>
                <td><xsl:value-of select="securityLevel"/></td>
                <td><xsl:value-of select="type"/></td>
                <td><xsl:value-of select="operationalHours"/></td>
                <td><xsl:value-of select="contactNumber"/></td>
              </tr>
            </xsl:if>
          </xsl:for-each>
        </table>
      </body>
    </html>
  </xsl:template>

</xsl:stylesheet>
```

OUTPUT :

1. lotID

```
<lotID>AB1010</lotID>
            'AB1010' violates length constraint of '5'.
            The element 'lotID' with value 'AB1010' failed to parse.
```

2. lotName

```
<lotName>Main</lotName>
            'Main' violates minLength constraint of '5'.
            The element 'lotName' with value 'Main' failed to parse.
```

3. Capacity

```
<capacity>2000</capacity>
```
'2000' violates maxInclusive constraint of '1000'.
The element 'capacity' with value '2000' failed to parse.

4. Occupied

```
<occupied>1200</occupied>
```
'1200' violates maxInclusive constraint of '1000'.
The element 'occupied' with value '1200' failed to parse.

5. Available

```
<available>1001</available>
```
'1001' violates maxInclusive constraint of '1000'.
The element 'available' with value '1001' failed to parse.

6. Location

```
<location>Main</location>
```
'Main' violates minLength constraint of '5'.
The element 'location' with value 'Main' failed to parse.

7. ratePerHour

```
<ratePerHour>2.0005</ratePerHour>
```
'2.0005' violates fractionDigits constraint of '2'.
The element 'ratePerHour' with value '2.0005' failed to parse.

8. securityLevel

```
<securityLevel>Ultra</securityLevel>
```
'Ultra' violates enumeration constraint of 'Low Medium High'.
The element 'securityLevel' with value 'Ultra' failed to parse.

9. Type

```
<type>Protected</type>
```
'Protected' violates enumeration constraint of 'Public Private'.
The element 'type' with value 'Protected' failed to parse.

10. operationalHours

```
<operationalHours>25/7</operationalHours>
```
'25/7' violates pattern constraint of '24/7|([0-9]{1,2}:[0-9]{2})\s?-\s?([0-9]{1,2}:[0-9]{2})'.
The element 'operationalHours' with value '25/7' failed to parse.
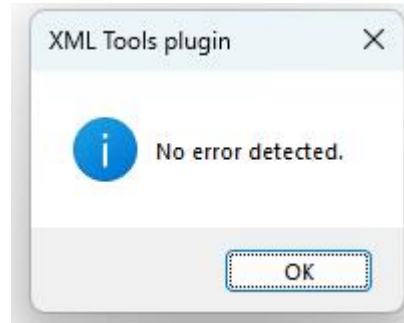
11. contactNumber

```
<contactNumber>123456789069</contactNumber>
```
'123456789069' violates pattern constraint of '\d{10}'.
The element 'contactNumber' with value '123456789069' failed to parse.

WITH NO ERRORS :

```xml
<parkingLot>
    <lotID>AB101</lotID>
    <lotName>Main Street Lot</lotName>
    <capacity>200</capacity>
    <occupied>120</occupied>
    <available>80</available>
    <location>Main Street, Downtown</location>
    <ratePerHour>2.0</ratePerHour>
    <securityLevel>High</securityLevel>
    <type>Public</type>
    <operationalHours>24/7</operationalHours>
    <contactNumber>1234567890</contactNumber>
</parkingLot>
```

XML Tools plugin ✕

ⓘ No error detected.

OK

XSLT :

Parking Management System

Lot ID	Lot Name	Capacity	Occupied	Available	Location	Rate/Hour	Security Level	Type	Operational Hours	Contact Number
AB101	Main Street Lot	200	120	80	Main Street, Downtown	2.00	High	Public	24/7	1234567890
CD202	Park Avenue Lot	300	150	150	Park Avenue, Uptown	1.50	Medium	Private	6:00 - 22:00	0987654321
EF303	Sunset Boulevard Lot	250	100	150	Sunset Boulevard, West End	3.00	High	Public	24/7	1122334455
GH404	Ocean Drive Lot	400	350	50	Ocean Drive, Coastal Area	2.50	Low	Private	7:00 - 23:00	6677889900
IJ505	Central Park Lot	150	80	70	Central Park, Midtown	2.75	Medium	Public	5:00 - 22:00	9988776655
KL606	Elm Street Lot	180	130	50	Elm Street, Suburbia	1.80	High	Private	6:00 - 20:00	4455667788
MN707	Highway 45 Lot	350	300	50	Highway 45, Outskirts	1.50	Low	Public	24/7	3344556677
OP808	Maple Grove Lot	100	60	40	Maple Grove, Suburbia	2.20	High	Public	6:00 - 22:00	5566778899
QR909	Riverside Lot	120	100	20	Riverside Drive, Downtown	2.50	Medium	Private	8:00 - 22:00	7788990011

XSLT SELECTION WITH CONSTRAINTS (securityLevel="Medium" and type="Private"):

Parking Management System

Lot ID	Lot Name	Capacity	Occupied	Available	Location	Rate/Hour	Security Level	Type	Operational Hours	Contact Number
CD202	Park Avenue Lot	300	150	150	Park Avenue, Uptown	1.50	Medium	Private	6:00 - 22:00	0987654321
QR909	Riverside Lot	120	100	20	Riverside Drive, Downtown	2.50	Medium	Private	8:00 - 22:00	7788990011