

Ontology (CS6852)

Assignment 2

Team: G10

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Domain: Banking

XQueries/Xpath of CS21M037:

- 1) Print customers who took agricultural loan

Query:

for \$cl in //customer/loan[@loan_type = "agricultural_loan"]

return

\$cl/..

Output:

<xml>

<customer customer_id="cust1" customer_since_years="1">

<personal_data>

<name>Shivam_Kumar </name>

<date_of_birth>1998-03-24</date_of_birth>

<address>East Champaran,Bihar</address>

</personal_data>

<account account_type="basic_account" account_no="acc1">

<balance>5000000000</balance>

<transactions>

<date>2021-02-01</date>

<withdraw>

<amount>60000</amount>

</withdraw>

</transactions>

<transactions>

<date>2021-02-02</date>

<deposit>

<amount>70000</amount>

</deposit>

```

        </transactions>
        <transactions>
            <date>2021-02-03</date>
            <deposit>
                <amount>25000</amount>
            </deposit>
        </transactions>
    </account>
    <loan loan_type="agricultural_loan" max_duration="2"
loan_number="lo1">
        <amount> 50000 </amount>
        <interest> 2 </interest>
    </loan>
</customer>
<customer customer_id="cust3" customer_since_years="3">
    <personal_data>
        <name>Amit_Kumar_Singh </name>
        <date_of_birth>1995-03-24</date_of_birth>
        <address>West Champaran,Bihar</address>
    </personal_data>
    <account account_type="basic_account" account_no="acc3">
        <balance>5000000000</balance>
        <transactions>
            <date>2022-02-01</date>
            <withdraw>
                <amount>670000</amount>
            </withdraw>
        </transactions>
        <transactions>
            <date>2022-02-02</date>
            <deposit>
                <amount>79000</amount>
            </deposit>
        </transactions>
        <transactions>
            <date>2022-02-03</date>
            <deposit>
                <amount>25000</amount>
            </deposit>
        </transactions>
    </account>
    <loan loan_type="agricultural_loan" max_duration="2"
loan_number="lo2">
        <amount> 50000 </amount>

```

```

        <interest> 2 </interest>
    </loan>
</customer>
<customer customer_id="cust4" customer_since_years="6">
    <personal_data>
        <name>Sumit_Kumar_Singh </name>
        <date_of_birth>1999-07-24</date_of_birth>
        <address>Samastipur ,Bihar</address>
    </personal_data>
    <account account_type="basic_account" account_no="acc4">
        <balance>5006740000</balance>
        <transactions>
            <date>2021-07-01</date>
            <withdraw>
                <amount>60700</amount>
            </withdraw>
        </transactions>
        <transactions>
            <date>2021-08-02</date>
            <deposit>
                <amount>706700</amount>
            </deposit>
        </transactions>
        <transactions>
            <date>2021-09-03</date>
            <deposit>
                <amount>205000</amount>
            </deposit>
        </transactions>
    </account>
    <loan loan_type="agricultural_loan" max_duration="2"
loan_number="lo3">
        <amount> 50000 </amount>
        <interest> 2 </interest>
    </loan>
</customer>
</xml>

```

2) Print customers who took loan greater than 10000

Query:

```

for $cl in //customer/loan
where $cl/amount > 10000
return
$cl/..

```

Output:

```
<xml>
<customer customer_id="cust1" customer_since_years="1">
  <personal_data>
    <name>Shivam_Kumar </name>
    <date_of_birth>1998-03-24</date_of_birth>
    <address>East Champaran,Bihar</address>
  </personal_data>
  <account account_type="basic_account" account_no="acc1">
    <balance>5000000000</balance>
    <transactions>
      <date>2021-02-01</date>
      <withdraw>
        <amount>60000</amount>
      </withdraw>
    </transactions>
    <transactions>
      <date>2021-02-02</date>
      <deposit>
        <amount>70000</amount>
      </deposit>
    </transactions>
    <transactions>
      <date>2021-02-03</date>
      <deposit>
        <amount>25000</amount>
      </deposit>
    </transactions>
  </account>
  <loan loan_type="agricultural_loan" max_duration="2"
loan_number="lo1">
    <amount> 50000 </amount>
    <interest> 2 </interest>
  </loan>
</customer>
<customer customer_id="cust3" customer_since_years="3">
  <personal_data>
    <name>Amit_Kumar_Singh </name>
    <date_of_birth>1995-03-24</date_of_birth>
    <address>West Champaran,Bihar</address>
  </personal_data>
  <account account_type="basic_account" account_no="acc3">
    <balance>5000000000</balance>
```

```

        <transactions>
            <date>2022-02-01</date>
            <withdraw>
                <amount>670000</amount>
            </withdraw>
        </transactions>
        <transactions>
            <date>2022-02-02</date>
            <deposit>
                <amount>79000</amount>
            </deposit>
        </transactions>
        <transactions>
            <date>2022-02-03</date>
            <deposit>
                <amount>25000</amount>
            </deposit>
        </transactions>
    </account>
    <loan loan_type="agricultural_loan" max_duration="2"
loan_number="lo2">
        <amount> 50000 </amount>
        <interest> 2 </interest>
    </loan>
</customer>
<customer customer_id="cust4" customer_since_years="6">
    <personal_data>
        <name>Sumit_Kumar_Singh </name>
        <date_of_birth>1999-07-24</date_of_birth>
        <address>Samastipur ,Bihar</address>
    </personal_data>
    <account account_type="basic_account" account_no="acc4">
        <balance>5006740000</balance>
        <transactions>
            <date>2021-07-01</date>
            <withdraw>
                <amount>60700</amount>
            </withdraw>
        </transactions>
        <transactions>
            <date>2021-08-02</date>
            <deposit>
                <amount>706700</amount>
            </deposit>

```

```

        </transactions>
        <transactions>
            <date>2021-09-03</date>
            <deposit>
                <amount>205000</amount>
            </deposit>
        </transactions>
    </account>
    <loan loan_type="agricultural_loan" max_duration="2"
loan_number="lo3">
        <amount> 50000 </amount>
        <interest> 2 </interest>
    </loan>
</customer>
</xml>

```

- 3) Print all withdrawals of a customer with customer id "cust4"

Query:

```

for $w IN //customer[@customer_id="cust4"]/account/transactions/withdraw
return
$w

```

Output:

```

<withdraw>
    <amount>60700</amount>
</withdraw>

```

- 4) Print all employees who have address as "USA"

Query:

```

for $e in //employee
where $e/personal_data/address = "USA"
return
$e

```

Output:

```

<xml>
<employee employee_id="emp1" salary="1000000">
    <personal_data>
        <name>Elon_Musk </name>
        <date_of_birth>1971-01-04</date_of_birth>
        <address>USA</address>
    </personal_data>
    <manager subordinates="emp2 emp3 emp4 emp5"/>
</employee>
<employee employee_id="emp5" salary="5000000">

```

```
<personal_data>
  <name>Larry_Page </name>
  <date_of_birth>1979-07-05</date_of_birth>
  <address>USA</address>
</personal_data>
<technician maintains="ATM3 ATM4 ATM5"/>
</employee>
<employee employee_id="emp7" salary="5000000">
  <personal_data>
    <name>George_Bush </name>
    <date_of_birth>1960-07-13</date_of_birth>
    <address>USA</address>
  </personal_data>
  <customer_support responsible_for="cust6 cust7 cust8 cust9
cust10 cust11 cust12 cust13"/>
</employee>
<employee employee_id="emp8" salary="3000000">
  <personal_data>
    <name>Sergey_Brin </name>
    <date_of_birth>1977-07-02</date_of_birth>
    <address>USA</address>
  </personal_data>
  <customer_care responsible_for="cust6 cust7 cust8 cust9 cust10
cust11 cust12 cust13"/>
</employee>
</xml>
```