

Workshop - MVC Project:

Next Level Technologies

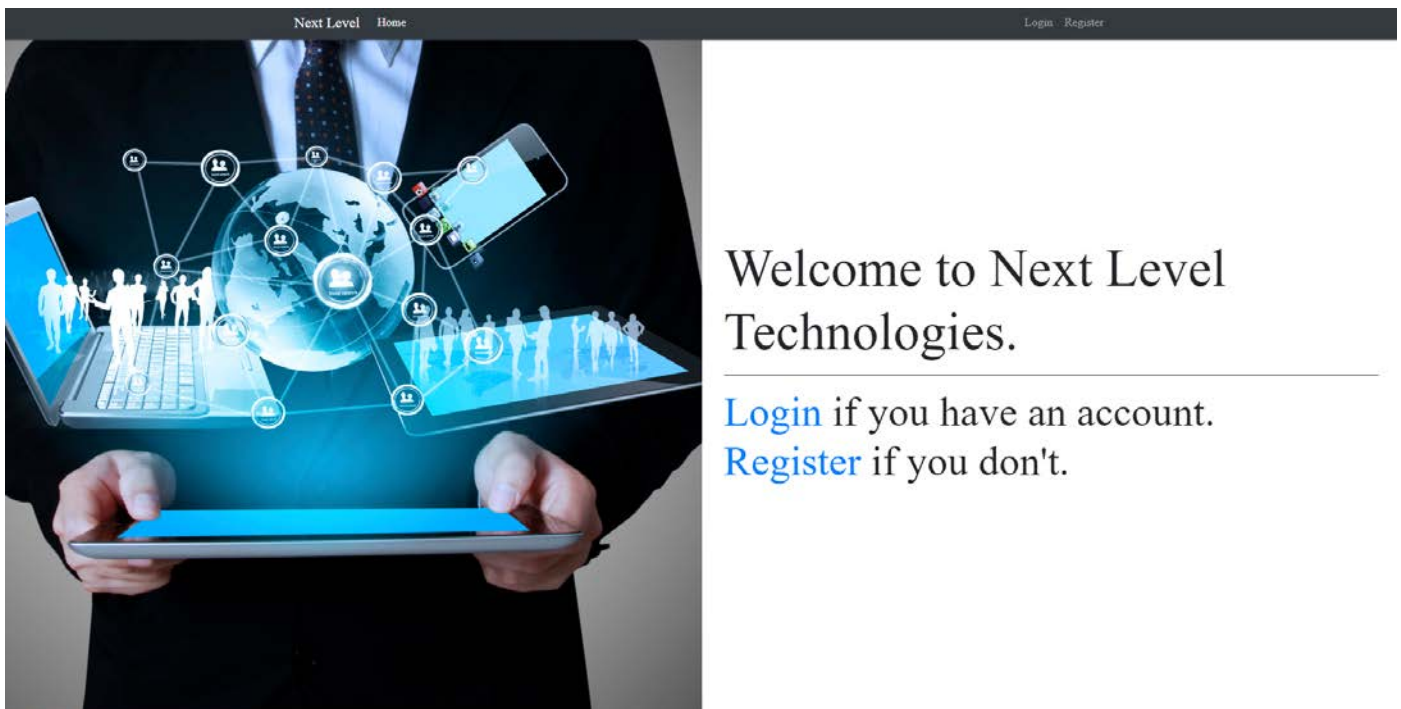
You have been employed by the Next Level Technologies Ltd. to finish the database layer, which supports basic functionality like importing data and exporting some results.

1. Functionality Overview

The firm has hired you as their application developer, to implement the **database layer**. The application should be able to easily **import** hard-formatted data and **support functionality** for also **exporting** the imported data. The application is called – **NLT**.

Look at the pictures below to see what must happen:

- Home page before logging in importing anything:



- Home page after login:



- Import XML page before importing anything:

[Next Level](#) [Home](#) [Import XML](#) [Logout](#)

Import XML

Click the buttons below to import XML.

[Import Companies](#) [Import Projects](#) [Import Employees](#)

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- Import Companies first:

[Next Level](#) [Home](#) [Import XML](#) [Logout](#)

Companies:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<companies>
  <company name="Vallor"/>
  <company name="Phoenix"/>
  <company name="MavenLtd"/>
  <company name="Gitbuh"/>
  <company name="MusicCo"/>
  <company name="Tech"/>
  <company name="Technologies"/>
</companies>
```

[Import Companies](#)

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- Import Project second:

[Next Level](#) [Home](#) [Import XML](#) [Logout](#)

Projects:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<projects>
  <project>
    <name>HealthCare</name>
    <description>Pharmacy web app</description>
    <start-date>2017-07-12</start-date>
    <is-finished>true</is-finished>
    <payment>10000.00</payment>
    <company name="Phoenix"/>
  </project>
  <project>
    <name>MMA</name>
  </project>
</projects>
```

Import Projects

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- Import Employees last:

[Next Level](#) [Home](#) [Import XML](#) [Logout](#)

Employees:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<projects>
  <project>
    <name>HealthCare</name>
    <description>Pharmacy web app</description>
    <start-date>2017-07-12</start-date>
    <is-finished>true</is-finished>
    <payment>10000.00</payment>
    <company name="Phoenix"/>
  </project>
</projects>
```

Import Employees

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- Import XML page after importing the given data:

[Next Level](#) [Home](#) [Import XML](#) [Logout](#)

Import XML

Click the buttons below to import XML.
All XML files are imported.

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- Home page after successful imports:

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Welcome to Next Level Technologies web site. Here you can find information about our projects

[Export finished projects](#) [Export employees with age above 25](#)

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- Export Finished projects:

Next Level
Home
Import XML
Logout

Finished projects:

Project Name: HealthCare
Description: Pharmacy web app
10000.00
Project Name: MMA
Description: Mixed martial arts club web site
7000.00
Project Name: Intel
Description: Intel new processor
1500000.00
Project Name: Furniture
Description: Furniture magazine
30000.00
Project Name: GitBuh_Project
Description: GitBuh repositories improvement
47899.00
Project Name: HoodWars
Description: Online fighting game
650000.00
Project Name: AMD
Description: Graphic card

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- Export Employees with age above 25:

Next Level
Home
Import XML
Logout

Employees with age above 25:

Name: Stamat Petrov
Age: 45
Project name: HealthCare
Name: Maria Hristova
Age: 28
Project name: Intel
Name: Ivan Todorov
Age: 31
Project name: Invest
Name: Ivan Minkov
Age: 47
Project name: Dolby
Name: Mihail Spasov
Age: 49
Project name: Robocop
Name: Dobromir Blagoev
Age: 51
Project name: HoodWars
Name: Daniel Zvezdev
Age: 34

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2. Project Skeleton Overview

You will be given a **Skeleton**, containing a **certain architecture(MVC)** with **several classes**, some of which – completely empty. The **Skeleton** will include the **files** with which you will **seed** the **database**.

3. Model Definition

There are 3 main models that the **nlt** database application should contain in its functionality.

Design them in the **most appropriate** way, considering the following **data constraints**:

Company

- **id** – integer number, **primary identification field**.
- **name** – a string (**required**).

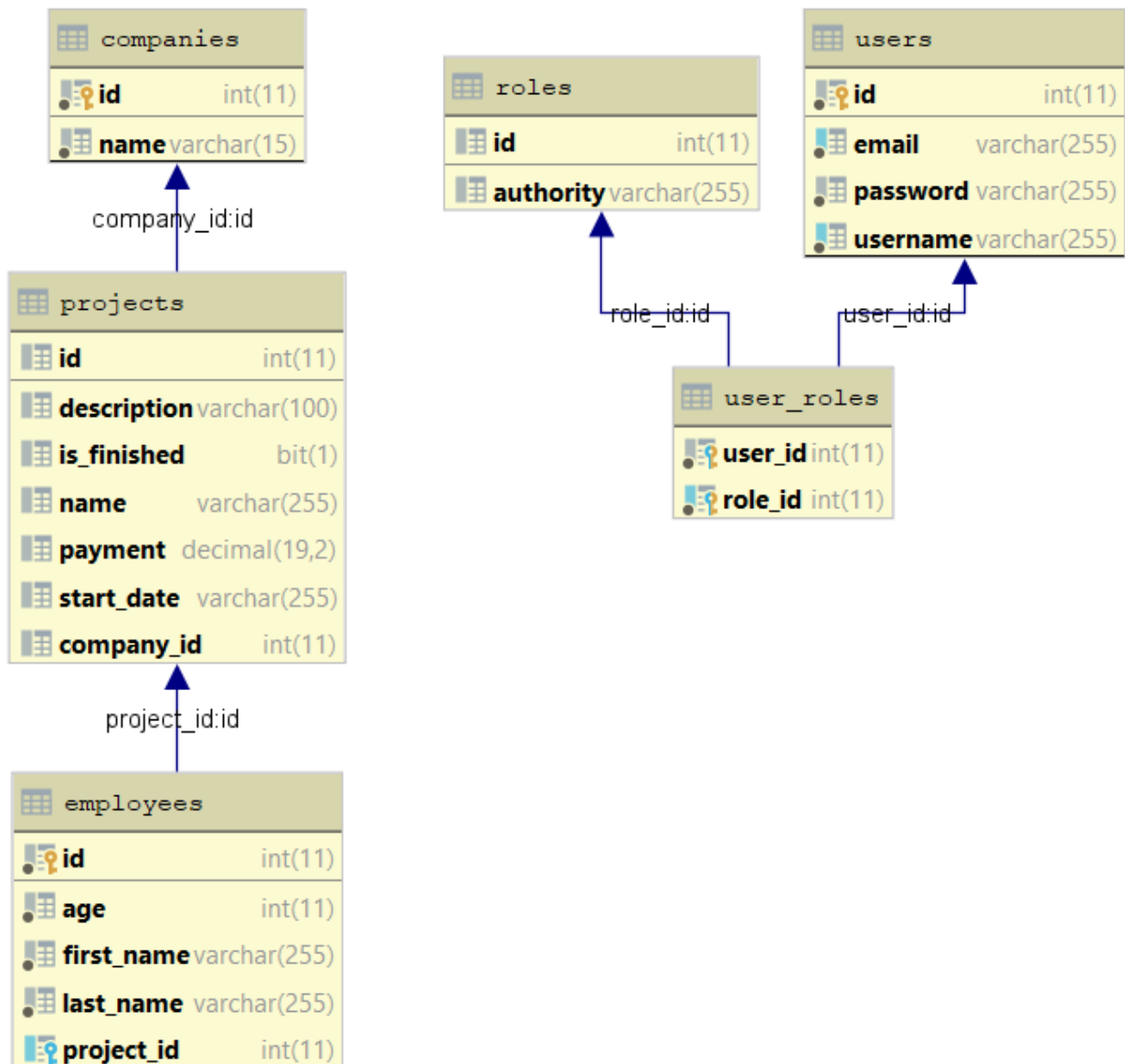
Project

- **id** – integer number, **primary identification field**.
- **name** – a string (**required**).
- **description** – a string (**required**).
- **is_finished** – a Boolean.
- **payment** – Big Decimal (**required**).
- **start_date** – a String !
- **company** – a **Company** entity (**required**).

Employee

- **id** – integer number, **primary identification field**.
- **first_name** – a string (**required**).
- **last_name** – a string (**required**).
- **age** – a Integer(**required**).
- **project** – a **Project** entity(**required**).

NOTE: Name the entities and their class members, **exactly** in the **format stated** above. Do not name them in snake case with the dashes, of course. But if a field is specified as **first_name**, you are to name it **firstName**.



Relationships

The NLT decided to give you a little hint about the more complex relationships in the database, so that you can implement it correctly.

One **Project** may have only one **Company**, and one **Company** may have many **Projects**.

One **Project** may have many **Employees**, and one **Employee** may be appointed to only one **Project**.

4. Data Import

Use the provided files to populate the database with data. Import all the information from those files into the database.

You are not allowed to modify the provided files.

ANY INCORRECT data should be **ignored** and a message appropriate should be printed.

- **NOTE:** An incorrect data input is an input which is **missing required fields**.

XML Import

The nlt have prepared some XML data for you to import.

Company (companies.xml)

bank-accounts.xml
<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <companies> <company name="Vallor"/> <company name="Phoenix"/> <company name="MavenLtd"/> <company name="Gitbuh"/> <company name="MusicCo"/> <company name="Tech"/> <company name="Technologies"/> <company name="FutureInvests"/> <company name="DesignGroup"/> </companies></pre>

Project (projects.xml)

cards.xml
<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <projects> <project> <name>HealthCare</name> <description>Pharmacy web app</description> <start-date>2017-07-12</start-date> <is-finished>true</is-finished> <payment>10000.00</payment> <company name="Phoenix"/> </project> <project> <name>MMA</name> <description>Mixed martial arts club web site</description> <start-date>2018-09-21</start-date> <is-finished>true</is-finished> <payment>7000.00</payment> <company name="Vallor"/> </project> ... </projects></pre>

Employee (employees.xml)

cards.xml
<pre><?xml version="1.0" encoding="UTF-8" standalone="yes"?> <employees> <employee> <first-name>Stamat</first-name> <last-name>Petrov</last-name> <age>45</age></pre>


```
<project>
  <name>HealthCare</name>
  <description>Pharmacy web app</description>
  <start-date>2017-07-12</start-date>
  <is-finished>true</is-finished>
  <payment>10000.00</payment>
  <company name="Phoenix"/>
</project>
</employee>
...
</employees>
```

5. Data Export

Get ready to export the data you've imported in the previous task. Here you will have some pretty complex database querying. Export the data in the formats specified below.

Finished Projects

Export all projects which have been finished:

- Extract from the database, the **project**.

Employees with age above 25

Export the **employees** with age above 25.

- Export the **employee's full name, age and project name**.