

ЛЬВІВСЬКИЙ НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ імені ІВАНА ФРАНКА  
Факультет прикладної математики та інформатики

**Бази даних та інформаційні системи**  
**ЛАБОРАТОРНА РОБОТА №6**  
**Мова виразів XPath**

Прийняв:  
ас. Жировецький В.В.

2022

**Тема:** Мова виразів XPath.

**Мета роботи:** Вивчення мови виразів XPath та створення виразів XPath для ефективного використання XSLT та XQuery.

# Хід роботи

## 0. Структура xml

```
<users>
  <user>
    <username>...</username>
    <permission>...</permission>
    <email>...</email>
    <pictures>
      <picture id="id_...">
        <name>...</name>
        <description>...</description>
        <characteristics>
          <charac>
            <name>...</name>
            <value>...</value>
          </charac>
        </characteristics>
      </picture>
    </pictures>
  </user>
</users>
```

## 1. Дісати назви фото всіх користувачів, чий permission == 1

```
//user[permission=1]/pictures/picture/name/text()
```

```
Text='park in the night1'
Text='park in the night'
Text='river'
Text='snow1'
Text='river1'
Text='snow man1'
Text='snow'
Text='snow man'
Text='screen_2020-0-0'
Text='screen_2020-0-1'
```

Option 1: Copy-paste your XML here

```
<!ATTLIST picture id ID #REQUIRED>
<!ELEMENT name (#PCDATA)>
<!ELEMENT description (#PCDATA)>
<!ELEMENT characteristics (charac*)>
<!ELEMENT charac (name?, value?)>
<!ELEMENT value (#PCDATA)>
]>
<users>
  <user>
    <username>third_author</username>
    <permission>1</permission>
    <email>author_3@mail.ua</email>
    <pictures>
      <picture id="id_3">
        <name>park in the night</name>
        <description />
        <characteristics>
          <charac>
            <name>height</name>
            <value>1920</value>
```

Option 2: Or upload your XML file

File encoding

Browse...

No file selected.

UTF-8



XPath expression

//user[permission=1]/pictures/picture/name/text()



Include 'XML Item Type' in output

Evaluate XPath

Evaluate XPath to new window

## -XPath Result-

```
Text='park in the night1'
Text='park in the night'
Text='river'
Text='snow1'
Text='river1'
Text='river1'
```

Copy

Save

## 2. К-сть фото, що містять характеристику "height", і вона менша за 1100

```
count(//charac[name='height' and number(value) < 1100]/../..)
```

Int64='2'

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE users [
<!ELEMENT users (user)*>
<!ELEMENT user (username, permission, email, pictures*)>
<!ELEMENT username (#PCDATA)>
<!ELEMENT permission (#PCDATA)>
<!ELEMENT email (#PCDATA)>
<!ELEMENT pictures (picture*)>
<!ELEMENT picture (name, description?, characteristics*)>
<!-- ATTENTION: picture id ID is REQUIRED -->
<!ELEMENT name (#PCDATA)>
<!ELEMENT description (#PCDATA)>
<!ELEMENT characteristics (charac*)>
<!ELEMENT charac (name?, value?)>
<!ELEMENT value (#PCDATA)>
]>
<users>
  <user>
    <username>third_author</username>
    <permission>1</permission>
```

Browse...	No file selected.	UTF-8
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```
`count(//charac[name='height' and number(value) < 1100]/../..)`
```

☒ Include 'XML Item Type' In output

Evaluate XPath to new window

Int64='2'

Save

```
//picture[number(substring-after(@id, '_')) mod 2 = 0]
```

```
Element='<picture id="id_8">
    <name>park in the night</name>
    <description/>
    <characteristics>
        <charac/>
    </characteristics>
</picture>'

Element='<picture id="id_10">
    <name>river</name>
    <description>summer river</description>
    <characteristics>
        <charac/>
    </characteristics>
```

```
</picture>'
```

```
Element='<picture id="id_4">
```

```
  <name>snow man1</name>
```

```
  <description>it also white</description>
```

```
  <characteristics>
```

```
    <charac/>
```

```
  </characteristics>
```

```
</picture>'
```

```
Element='<picture id="id_6">
```

```
  <name>snow</name>
```

```
  <description>it is white</description>
```

```
  <characteristics>
```

```
    <charac/>
```

```
  </characteristics>
```

```
</picture>'
```

```
Element='<picture id="id_2">
```

```
  <name>screen_2020-0-1</name>
```

```
  <description/>
```

```
  <characteristics>
```

```
    <charac>
```

```
      <name>height</name>
```

```
      <value>1080</value>
```

```
    </charac>
```

```
    <charac>
```

```
      <name>weight</name>
```

```
      <value>720</value>
```

```
    </charac>
```

```
    <charac>
```

```
      <name>place</name>
```

```
      <value>Ukraine</value>
```

```
    </charac>
```

```
  </characteristics>
```

```
</picture>'
```

## Option 1: Copy-paste your XML here

```
<!ELEMENT name (#PCDATA)>
<!ELEMENT description (#PCDATA)>
<!ELEMENT characteristics (charac*)>
<!ELEMENT charac (name?, value?)>
<!ELEMENT value (#PCDATA)>
]>
<users>
  <user>
    <username>third_author</username>
    <permission>1</permission>
    <email>author_3@mail.ua</email>
    <pictures>
      <picture id="id_3">
        <name>park in the night</name>
        <description />
        <characteristics>
          <charac>
```

## Option 2: Or upload your XML file

File encoding

Browse...

No file selected.

UTF-8



XPath expression

```
//picture[number(substring-after(@id, '_')) mod 2 = 0]
```



Include 'XML Item Type' in output

Evaluate XPath

Evaluate XPath to new window

## -XPath Result-

```
Element='<picture id="id_8">
  <name>park in the night</name>
  <description/>
  <characteristics>
    <charac/>
  </characteristics>
```

Copy

Save