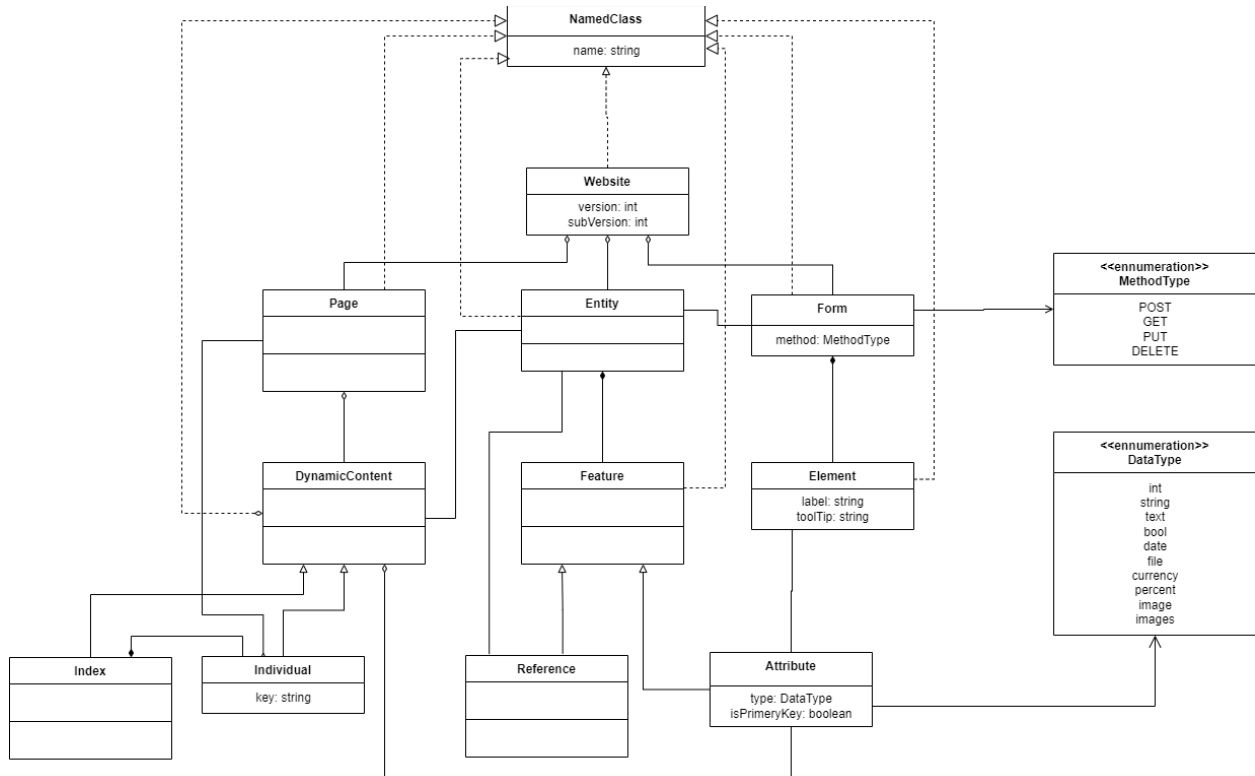**Team:** Team Biriyani

Members: Priyeta Saha, Ashish Dahal, Moneeza Syed

Task 4.1

Class diagram of the meta-model:

12 Meta-Classes:

platform:/resource/MDE_4/mde-course-22-23/it.disim.mde2223.webapplication.model/WebApplication.ecore
- glot_web
  - Import
  - Ecore
  - _DataType
  - MethodType
  - NamedClass
  - Website -> NamedClass
  - Page -> NamedClass
  - Entity -> NamedClass
  - Form -> NamedClass
  - DynamicContent -> NamedClass
  - Feature -> NamedClass
  - Element -> NamedClass
  - Index -> DynamicContent
    - individuals : Individual
    - individual : Individual
      - Pivot
      - Collection
  - Individual -> DynamicContent
  - Reference -> Feature
  - Attribute -> Feature

4.2 Two Instances:

platform:/resource/MDE_4/mde-course-22-23/it.disim.mde2223.webapplication.model/News%20Website.xmi
- Website News Website
  - Page News Homepage
    - Index Breaking News
      - Individual Sports
      - Individual Politics
  - Page Politics
    - Index News
      - Individual flood
  - Page Sports
  - Entity breakingNews
    - Attribute id
    - Attribute name
  - Entity news
    - Attribute id
    - Attribute title
    - Attribute content
    - Reference author_id
  - Entity author
    - Attribute id
    - Attribute name
  - Form addNews
    - Element title
platform:/resource/MDE_4/mde-course-22-23/it.disim.mde2223.webapplication.model/WebApplication.ecore

```
v 🔷 platform:/resource/MDE_4/mde-course-22-23/it.disim.mde2223.webapplication.model/Ecommerce%20Website.xmi
  v ✳ Website ecommerce
    v ✳ Page homepage
      v ✳ Index categories
          ✳ Individual men
          ✳ Individual women
    v ✳ Page men
      > ✳ Index products
        ✳ Page women
    v ✳ Entity category
        ✳ Attribute id
        ✳ Attribute name
    v ✳ Entity product
        ✳ Attribute id
        ✳ Attribute name
        ✳ Reference category_id
    v ✳ Form addProduct
        ✳ Element inputBar
        ✳ Element dropDownMenu
    v ✳ Form deleteProduct
        ✳ Element button
  > 🔷 platform:/resource/MDE_4/mde-course-22-23/it.disim.mde2223.webapplication.model/WebApplication.ecore
```

4.3: 3 constraints and operations (OCL):

```
class Website extends NamedClass
{
    attribute version : ecore::EInt[1];
    attribute subversion : ecore::EInt[1];
    property pages : Page[*|1] { ordered composes };
    property entities : Entity[*|1] { ordered composes };
    property forms : Form[*|1] { ordered composes };
    invariant hasAtLeastOnePage('should have at least one page'):
        self.pages->size() >= 1;
}
```

```
class Entity extends NamedClass
{
    property features : Feature[*|1] { ordered composes };
    invariant
    hasPrimaryKey('should have a primary key'):
        self.features->exists(f | ((f.oclIsKindOf(Attribute) and f.oclAsType(Attribute).isPrimaryKey)));

    operation shouldContain() : Boolean[?]
    {
        body: self.features->size() >=1;
    }
}
```

```
class Form extends NamedClass
{
    attribute method : MethodType[?];
    property elements : Element[*|1] { ordered composes };
    property entity : Entity[?];
    invariant hasAtLeastOneElement('should have at least one element'):
        self.elements->size() >= 1;
}
```

```
abstract class DynamicContent extends NamedClass
{
    property entity : Entity[?];
    operation shouldContain() : Boolean[?]
    {
        body: self.entity->size() >=1;
    }
}
```

4.4: Derived Fields

```
class Index extends DynamicContent
{
    property individuals : Individual[*|1] { ordered composes };

    property individual : Individual[*] { derived, volatile }{
        derivation: self.individuals->select(i | i.oclIsTypeOf(Individual))
    }
```

```
class Website extends NamedClass
{
    attribute version : ecore::EInt[1];
    attribute subversion : ecore::EInt[1];
    property pages : Page[*|1] { ordered composes };
    property entities : Entity[*|1] { ordered composes };
    property forms : Form[*|1] { ordered composes };
    invariant hasAtLeastOnePage('should have at least one page'):
        self.pages->size() >= 1;

    property versionAndSubVersion: String[*] { derived, volatile }{
        derivation: self->collect(i | i.version + ' (' + i.subVersion.toString())
    }
```