# INF3580/4580 – MANDATORY EXERCISE no. 1

**Published date:** 23.01.2017 17:00.

**Due date:** 31.01.2017 23:59.

**Delivery file:** 1: (`simpsons.ttl`, `simpsons.n3`, `simpsons.rdf` or `simpsons.nt`).

**Delivery attempts:** 1.

Read the whole of this document thoroughly before solving any of the exercises.

The aim of these exercises is to capture family relations of the Simpsons family in RDF. To give you an overview of how parts the Simpson family look like check their family tree on the Simpson's Wikia.

When solving the exercises and modelling family relationships use only the classes

- `fam:Family` and

- `foaf:Person`,

the properties

- `rdf:type`,

- `foaf:age`,

- `foaf:name`,

- `fam:hasFamilyMember` (relating a family to a member),

- `fam:hasBrother` (relating a person to a brother),

- `fam:hasSister` (relating a person to a sister),

- `fam:hasParent` (relating a person to a parent),

- `fam:hasMother` (relating a person to a mother),

- `fam:hasFather` (relating a person to a father),

- `fam:hasSpouse` (relating a person to a spouse),

where `foaf:` is prefix for the FOAF vocabulary namespace

```
http://xmlns.com/foaf/0.1/
```

and `fam:` is prefix for the namespace

```
http://www.ifi.uio.no/INF3580/family#
```

You may also use the the standard `xsd` datatypes, and the prefix `sim`, which is shorthand for the namespace

```
http://www.ifi.uio.no/INF3580/simpsons#
```

Use the RDF serialisation you prefer, RDF/XML, Turtle, N3 or N-Triples, but make sure your work is syntactically correct. We recommend that you use Turtle. RDF validators are available online:

- `http://www.w3.org/RDF/Validator/` (RDF/XML only)

- `http://www.easyrdf.org/converter` (Turtle, RDF/XML, N3, etc. just convert to the same)

- `http://ttl.summerofcode.be/` (Turtle)

Each Simpsons character mentioned in the exercise text shall be modelled as an instance of `foaf:Person` and is to be placed in the `sim` namespace. The localname identifier for each person should be their first name, e.g., the triple

```
sim:Homer rdf:type foaf:Person .
```

is the intended way of stating that Homer Simpson is a person, i.e. an instance of the `foaf:Person` class. Remember that RDF is case-sensitive.

Solutions to all of the exercises below shall be put in the same RDF file.

# 1   Exercise

Define the standard `rdf` and `xsd` namespaces, and the `foaf`, `fam` and `sim` namespaces as specified above in your RDF file.

# 2   Exercise

Add Homer, Marge, Lisa, Bart and Maggie as instances of `foaf:Person` to your RDF file. Add also their full name, e.g. "Homer Simpson", using the `foaf:name` property and their age using the `foaf:age` property. Take values from the table below. Specify the age values to be of the datatype `xsd:int`.

| Person | Age |
|---|---|
| Homer Simpson | 36 |
| Marge Simpson | 34 |
| Lisa Simpson | 8 |
| Bart Simpson | 10 |
| Maggie Simpson | 1 |

## 3  Exercise

Model the statement: "The Simpsons is a family, and members of the family are Marge, Homer, Bart, Lisa and Maggie. Marge and Homer are married, i.e, Marge is the spouse of Homer and Homer is the spouse of Marge, and they are respectively the mother and father to Bart, Lisa and Maggie." Create a suitable identifier for the Simpsons family.

## 4  Exercise

Model the statement: "Maggie has the grandfather Abraham and the grandmother Mona."

**Tip:** You do not know which of the grandparents is parent to which of Maggie's parents (since you only know what these exercises tell you). To express the relationship between Maggie and her grandparents, you'll need to use blank nodes.

## 5  Exercise

Model the statement: "Lisa has the aunts Patty and Selma and the uncle Herb. Patty and Selma are sisters."

## 6  Exercise

Model the statement: "Marge has a father-in-law Abraham."

## 7  Ending notes

### 7.1  Delivery, Devilry

Mandatory exercises are to be handed in using Devilry[1]. Make sure that your are registered in the system by logging on and finding that an `oblig1`

---

[1] `https://devilry.ifi.uio.no/`

is available as an assignment in INF3580. *Check this before you start solving the exercises!* If you are not registered in the system, give notice to `leifhka@ifi.uio.no`.

You may hand in as many times as you like, it is only the last delivery which counts. Submissions delivered after the deadline will not be accepted unless there are acceptable reasons for the delay, see Mandatory assignments and other hand-ins[2] for more information.

Your delivery shall include one file called `simpsons.xxx`, where `.xxx` is an extension indicating the RDF serialisation used in the file: `.rdf` = RDF/XML, `.ttl` = Turtle, `.n3` = N3 and `.nt` = N-Triples.

## 7.2   Testing

You can, and should, use Mr. Oblig to test your delivery before handing it in. Mr. Oblig is located at `http://sws.ifi.uio.no/mroblig/`. Note that Mr. Oblig comes without any warranty. A non-functioning Mr. Oblig will not have any effect on the due date of this mandatory exercise, and a flawless test report from Mr. Oblig does not guarantee that your delivery will be graded with *passed*. Also, since there may be many correct answers to an exercise, it is possible that Mr. Oblig does not agree with your solution even though it is correct. However, a perfect score from Mr. Oblig is an indication that your delivery is good and that it does not contain any "stupid" errors.

*Good Luck!*

---

[2]`https://www.uio.no/studier/admin/obligatoriske-aktiviteter/mn-ifi-oblig.html`