ENSF 380 WS 2024

Group Project

Submission 1 (Week 4)

Instructions

Work with your assigned group project (L02 or L03) group. Each team should submit a two-page PDF file containing a UML class diagram (page 1) and a demonstration of how the sample data would be instantiated (page 2). The UML diagram should show class names, visibility, attributes, data types, default values, and class relationships. An example of how to demonstrate the sample data is given below. Use only the data shown in *italics* in your sample data demonstration; you do not need to include any additional examples.

The file should be named <Group #>.pdf - for example, L02 group 5 should submit a file 5.pdf, while L03 group 6 should submit a file 6.pdf. The UML diagram should be easy to read (with minimal overlapping of arrows) and be created using the software of your choice (not hand-drawn).

Task

You are tasked with creating a disaster relief system. Following natural disasters such as hurricanes or earthquakes, people may need to be housed in temporary shelters. To aid in family reunification, it is necessary to keep track of where individuals are housed, and their relationship to family members, especially in the case of minor children. Family members might be located in other facilities, unaffected by the disaster but seeking information, or not yet located. All contact with relief services is logged. In addition to housing, people may receive supplies and medical care. Currently, the information is entered in a single text document which is emailed between different centres. Below are some examples of entries:

- TELUS Convention Centre - 136 8 Ave SE
    - 2024-01-18
        - A child five years of age named Teruya (surname unknown) was found with a broken arm and taken to the centre, where he was treated. Height: 43 inches. Weight: 38 pounds. Appearance: black hair, brown eyes. He is alert but quiet, and speaks French and Japanese. He has been assigned a social worker (#2891).
- *University of Calgary - 2500 University Dr NW*
    - *2024-01-18*
        - *Freda McDonald (female, b. 1986-06-03), suffering from a twisted ankle and light burns. She was not accompanied by her husband, Jo Bouillon, who is travelling and presumed safe. She is looking for her*

children, Teruya, Jari, and Luis Bouillon. She was issued a personal toiletries kit and two sets of clothes.
        - Cornelia ten Boom (1972-04-15), sister Elisabeth (1965-08-19) and father Casper (1939-05-18) arrived at Pantheon. Elisabeth suffers from pernicious anemia. Cornelia and Elisabeth asked for volunteer duties. They were each issued a personal toiletries kit and two sets of clothing apiece.
    - 2024-01-19
        - Hans Massaquoi (male, b. 2006-01-19) entered with his mother, Bertha Nikodijevic (female, b. 1983-05-10). Neither had injuries, and both were issued a personal toiletries kit.
- Dispatch centre
    - 2024-01-19
        - Joseph Bouillon (b. 1988-05-03) phoned from Paris seeking information on his wife, Freda McDonald, and children Luis, Jari, and Teruya.

Example of representing sample data

For this example we will use a different scenario. Imagine that the task was described thusly:

> Create a system to keep track of competition animals and their riders. Initially, the system will focus on horses (Equidae Chordata), but it may eventually be expanded to include other mounts. Each horse is associated with one rider, but a rider can ride multiple horses for different competitions, although a horse can also have multiple skills. *Taylor (age 25), competitor number 1234, is known to ride Thunder for racing and Blaze for jumping and dressage*. Gemariah (23), competitor number 567, rides Dawn for jumping.

In response to this prompt, a programmer created the UML diagram shown in `Lesson10_UML/02_Aggregation`. We could then provide a representation of how the data in the above task description would be instantiated according to the UML diagram, as shown below:

> **Animal (1)**
> animalSpecies: horse
> animalFamily: Equidae
> animalPhylum: Chordata
> animalName: Thunder
> animalRider: *Rider (1)*
> skills: racing
> **Animal (2)**
> animalSpecies: horse
> animalFamily: Equidae
> animalPhylum: Chordata

animalName: Blaze
animalRider: *Rider (1)*
skills: jumping, dressage
Rider (1)
riderName: Taylor
riderRegName: 1234
age: 25

Note that the numbers are used to clarify a reference to another object. Only the example shown in italics is shown.