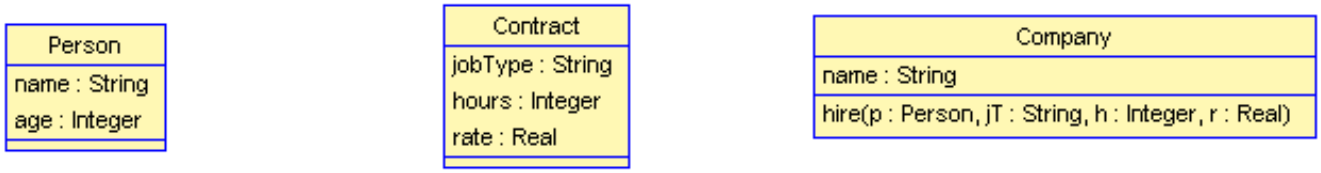
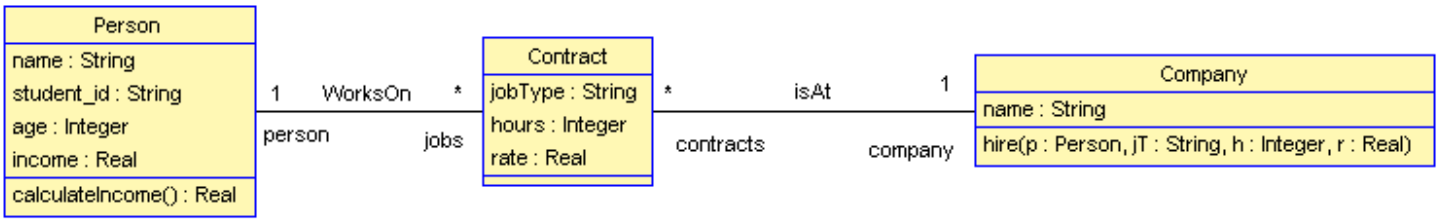
USE Lab Test

Based on Person-Contract-Company example

1. You have been provided with the file **contracts.use** which contains some preliminary class definitions as shown next. Load this file into USE, then view and rearrange the class diagram to get:



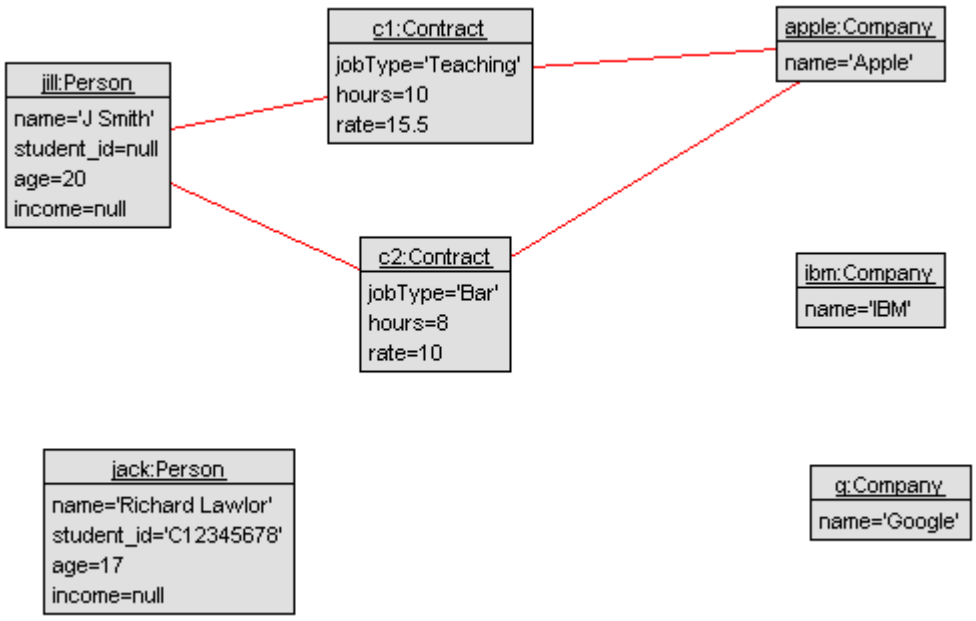
2. Using a text editor such as Notepad++ or Sublime, edit your USE model so that two extra attributes and an operation are added to **Person** as shown next. Also add the two associations shown.



Reload your USE model, then copy and paste the updated class diagram into a Microsoft Word document called myName-labtest.docx, for example MarySmith-labtest.docx. Make certain to put you own name in the filename as shown.

(10 marks)

3. Load the file **contracts.soil** to obtain some initial objects to test your model. Change the value of **jill.name** or **jack.name**, whichever you prefer, so that it shows your name and also add your student ID. Reaarange the object diagram and **copy/paste it to your Word document**. Should be something like:



(10 marks)

4. Implement in SOIL the **hire()** for class **Company**. Note that it has 4 parameters, the person **p**, job type **jT**, weekly hours **h** and hourly trate **r**.

   When this is done, reload your USE model and the SOIL file and execute the command `ibm.hire(jill, 'Admin', 10, 15.0)` . Then tidy up your modified object diagram and copy/paste it to your Word document.

   Also save the state of you current objects with **File/Save script (.soil)** .

   (20 marks)

5. Open a sequence diagram view and copy/paste the sequence diagram to your Word doc. It should show the **hire()** operation.

   (10 marks)

6. Jill now has 3 contracts and she would like to know her total weekly income. Implement in SOIL the operation **calculateIncome()** so that it computes a person's total income and updates the person's income attribute. Try to do this using distributed control/processing.

   (20 marks)

7. Relaod USE model and objects and run **calculateIncome()** on **jill**. Copy/paste the resulting sequence diagram to your Word doc.

   (10 marks)

8. Write OCL preconditions for **hire(p, jT, h, r)** which require **p** to be 18 years or older, **h** to be al least 8 hours per week. Test these on on **jack.** When finished use the menu **File/Save protocol** to save all your interactions with USE in a text file called **contracts.txt** .

   (20 marks)

Submission

Save your Word document, e.g. MarySmith-labtest.docx as a **PDF,** MarySmith-labtest.pdf

Upload Word doc and especially PDF to Brightspace along with contracts.use, contracts.soil, contracts.txt and your class layout file.