MSc Computing OO Design and Programming

1st Coursework

in groups of **up to five** students

The following describes loans for the purchase of cars:

1. A person has a name, an address and an age. A person may be working for one or more, but for no more than three companies. A person receives a salary from each company he/she works for.
2. The disposable income of a person is the sum of all salaries received divided by the person's age and then decremented by a tenth of the sum of the prices of all the cars owned by this person, and a fifth of the remaining amount on each of their existing loans.
3. A car has a number plate, a horsepower, and a mileage. A car may be owned by a person, a company or a bank. The price of a car is its horsepower multiplied by 10000 and then divided by the mileage.
4. A company has a name, an address, and a turnover (i.e. money received before paying the employees).
5. The disposable income of a company is calculated as its turnover, decremented by the salaries of all employees, and a fifth of the remaining amount on each of their existing loans.
6. A bank has a name, an address and an interest rate.
7. Companies or people may apply to a bank for a loan to buy a car.
8. The bank grants the loan to a person, if the person's disposable income exceeds the price of the car multiplied by the interest rate. The bank grants the loan to a company if the company's disposable income exceeds the price of the car multiplied by the interest rate.
9. When a person or company receives the grant of a loan, then he/she/it sends back a letter of acceptance.

Draw a UML class diagram describing the above. Indicate the type of the attributes, and the types of the arguments and results of the operations. Note: Not *all* aspects of the above situation can be expressed in the UML class diagram.

Submission: Please, form groups of up to five students, and write ALL NAMES on the submission.