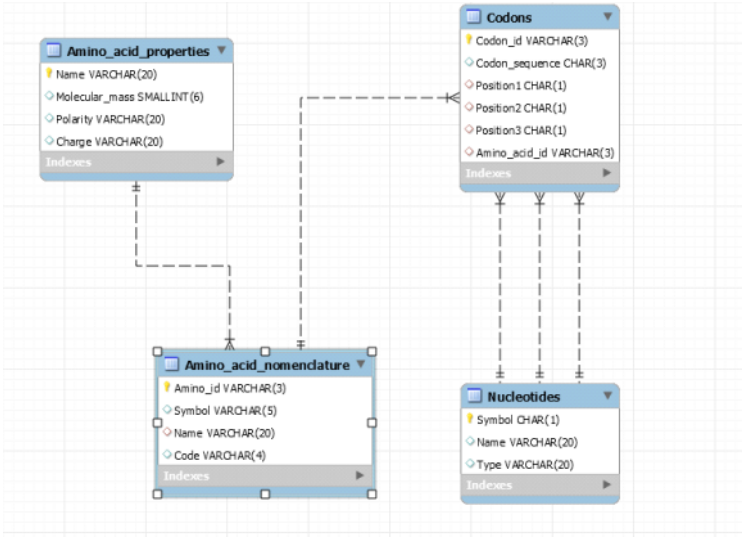
# Oblig 2

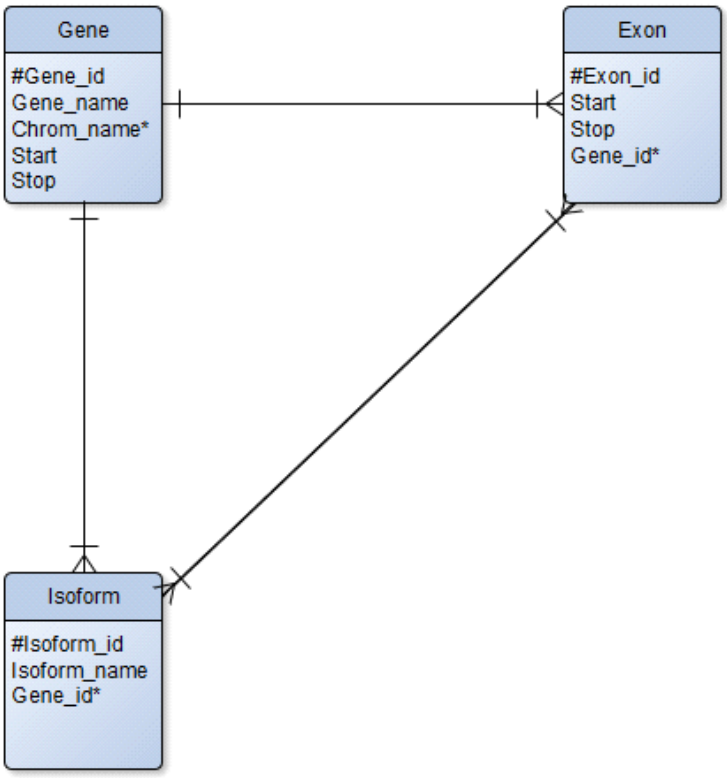
mandag 4. april 2016 13.47




2)

i) The entities in the database description are Gene, Exon and Isoform.

ii)

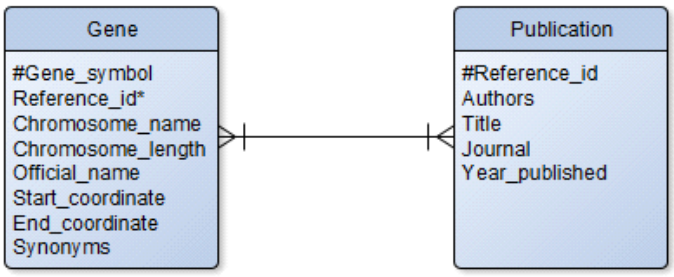



iii) Gene(#Gene_id, Gene_name*, Chromosome_name, Start, Stop)
Isoform(#Isoform_id, Isoform_name, Gene_id*)
Exon(#Exon_id, Start, Stop, Gene_id*)
Exon_set(#Exon_set_id, Exon_id*, Isoform_id*)

3)

i) Gene and Publication are the entities in the database description.

ii)




iii) Gene(#Gene_symbol, Official_name, Start_coordinate, End_coordinate, #Chromosome_name, Chromosome_length)

Publication(#Publication_id, Gene_symbol*, Author, Title, Journal, Year_published)

Synonyms(#Synonym_name, Gene_symbol*)

iv) Chromosome(#Chromosome_name, Chromosome_length)

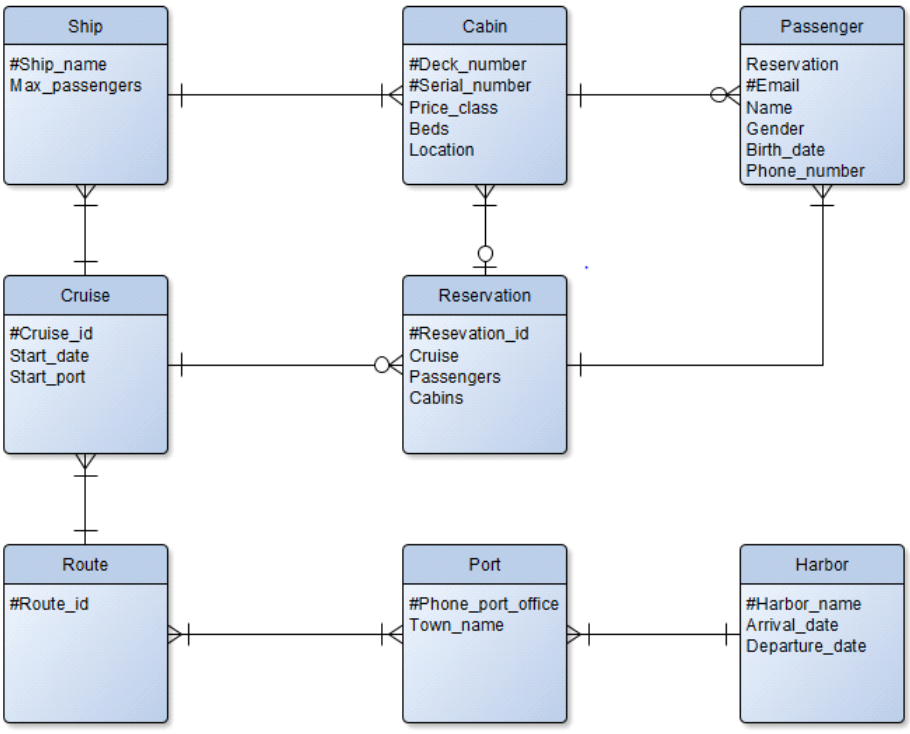
Gene(#Gene_symbol*, Official_name, Start_coordinate, End_coordinate, Chromosome_name*)

Gene_set(#Gene_symbol*, #Publication_id*)

Publication(#Publication_id, Author, Title, Journal, Year_published)

Synonyms(#Synonym_name, Gene_symbol*)

4)




5)

i) Explain first why this solution proposed by the Truck table above is problematic.

- The table contains no prmary key.
- It's inefficient that Max_weight depends on Model.
- Assignment_number may change and can not be an attribute to the truck determined by registration_number.

ii) Write down the functional dependencies of the Truck table.

- Registration_year depends on Registration_number.
- Model depends on Registration_number.
- Max_weight depends on Registration_number.
- Max_weight depends on Model.

iii) Determine the candidate key(s) for the Truck table.

The only primary key for the Truck table is Registration_number.

iv) Perform normalization to BCNF for the whole table (the original table expanded to incorporate transportation). Show primary keys and foreign keys in the final result.

Container_type(#Type_id, Type_name, Max_weight, Cubic_quantity, Nightly_rate)
Container(#Container_number, Type_id*)
Customer(#Telephone_number, Address)
Assignment(#Assignment_number, Telephone_number*, Container_number*, Start_date, End_date)
Assigned_Trucks(#Assigmnment_number*,#Registration_number*)
Truck(#Registration_number, Registration_year, Model*)
Model(#Model, Max_weight)

It makes sense that Nightly_rate might depend on Cubic_quantity, therefore we could move Nightly_rate, Cubic_quantity and Max_weight to a separate table to avoid these kinds of dependencies. Nightly_rate dependencies are not speciefied, therefore I chose not to separate it to another table.