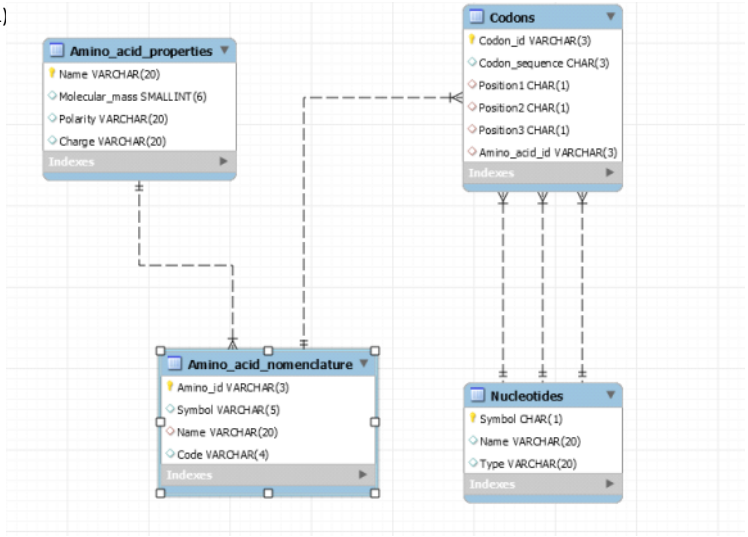
Oblig 2

mandag 4. april 2016 13.47

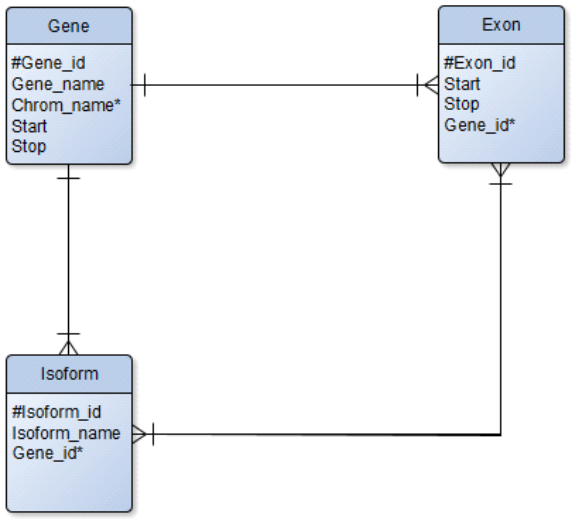
1)



2)

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

ii)

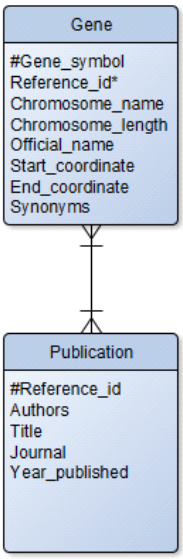


iii) Gene(#Gene_id, Gene_name*, Chromosome_name, Start, Stop)
Isoform(#Isoform_id, Isoform_name, Gene_id*)
Exon(#Exon_id, Start, Stop, Gene_id*)
Exon_set(#Exon_set_id, Exon_id*, Isoform_id*)

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)

Synonyms(#Synonym_name, Gene_symbol*)

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

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

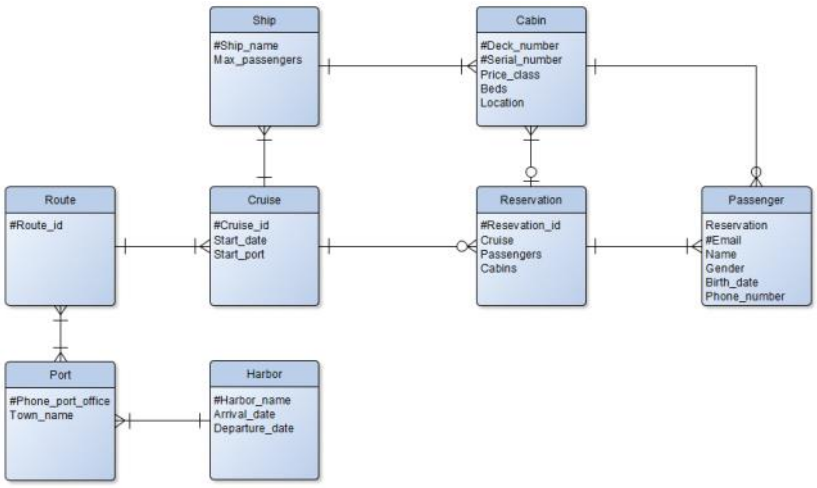
Gene_set(#Gene_symbol*, #Publication_id*)

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

Synonyms(#Synonym_name, Gene_symbol*)

Chromosome(#Chromosome_name, Chromosome_length)

4)



5)

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

- There is no prmary key
- Assignment_number may change and can not be an attribute of truck determined by registration_number
- Max_weight depends on model. Thats inefficient

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.

Registration_number is the one and only candidate key for the turck table

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)
TruckAssignment(#Assigmnment_number*,#Registration_number*)
Truck(#Registration_number, Registration_year, Model*)
Model(#Model, Max_weight)

Its fair to assume that nightly_rate depends on cubic_quantity and therefore we could separate nightly_rate, cubic_quantity and max_weight to another table to avoid dependencies. Nightly rate dependencies is not speciefied and there chose not to separate it to anoter table.