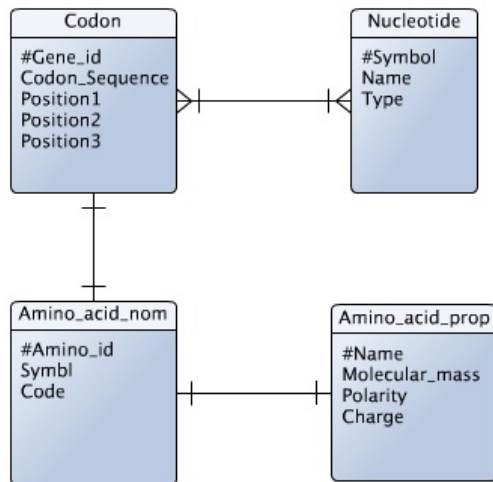


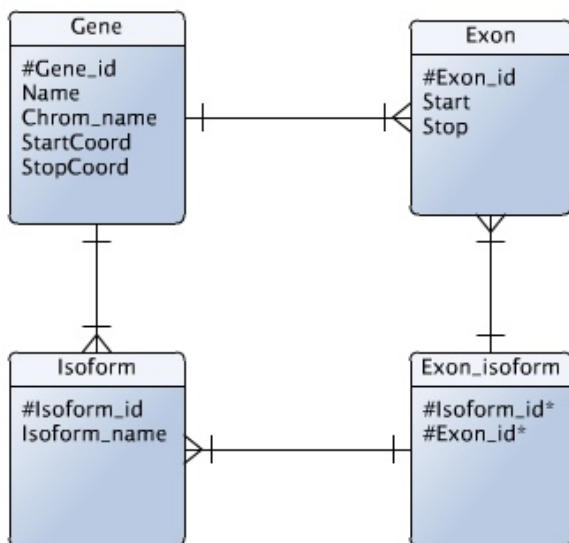
1. There are suppose to be 3 many-to-many relations between Nucleotide and Codon.



2.

i) Gene, Isoform, Exon

ii)



iii)

Gene

#Gene_id	Name	Chrom_name	Start_coord	Stop_coord
----------	------	------------	-------------	------------

Isoform

#Isoform_id	Isoform_name	Gene_id*
-------------	--------------	----------

Exon

#Exon_id	Start_coor	Stop_coor	Gene_id*
----------	------------	-----------	----------

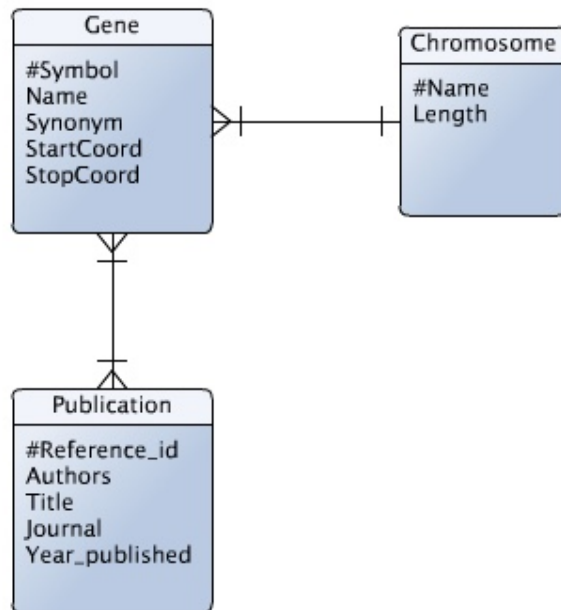
Exon_isoform

#Isoform_id*	#Exon_id*
--------------	-----------

3.

i) Gene, Chromosome, Publication

ii)



iii)

Gene

#Symbol	Name	Synonyms	Start_coordinate	Stop_coordinate	Chromosome_name	Chromosome_length
---------	------	----------	------------------	-----------------	-----------------	-------------------

Publication

#Reference_id	Authors	Title	Journal	Year_published	Gene_symbol*
---------------	---------	-------	---------	----------------	--------------

iv)

Gene

#Symbol	Name	Start_coordinate	Stop_coordinate
---------	------	------------------	-----------------

Gene_synonym

#Synonyms	Gene_name*
-----------	------------

Chromosome

#Name	Length	Gene_symbol*
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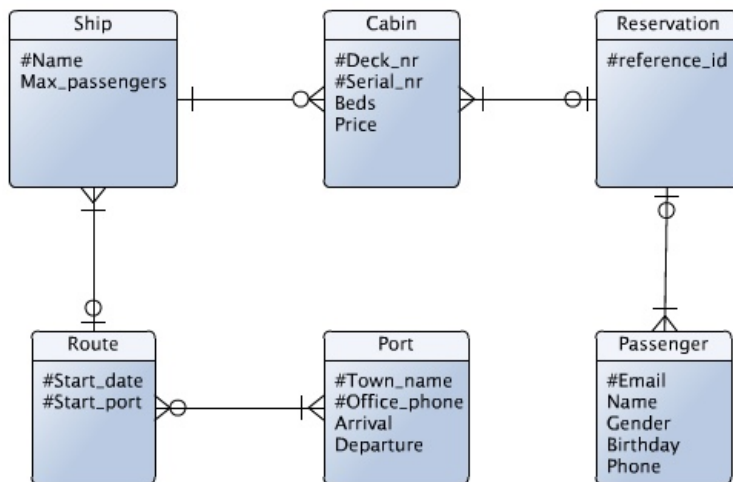
Publication

#Reference_id	Authors	Title	Journal	Year_published	Gene_symbol*
---------------	---------	-------	---------	----------------	--------------

Gene_reference

#Reference_id*	#Gene_symbol*
----------------	---------------

4. We consider that there are some ports that aren't on any route and there are some ships that don't have any route.



5.

i) The Truck table doesn't have any primary key. Registration_number could be the primary key.

ii) Maximum weight is depended on the model of the truck, so only by looking at the model we can find out how much weight a truck tolerates.

iii) Registration_number and Assignment_number is the candidate key.

iv)

Container_type

#Type_id	Type_name	Max_weight	Cubic_quantity	Nightly_rate
----------	-----------	------------	----------------	--------------

Container

#Container_nr	Type_id*
---------------	----------

Customer

#Telephone	Address
------------	---------

Container_assignment

#Container_nr*	#Assignment_nr*
----------------	-----------------

Assignment

#Assignment_nr	Telephone*	Container_nr*	Start_date	End_date
----------------	------------	---------------	------------	----------

Truck_assignment

#Reg_nr*	#Assignment_nr*
----------	-----------------

Truck

#Registration_number	Registration_year	Model	Assignment_nr*
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Model

#Model*	Maximum_weight
---------	----------------