Task 1.

Codons

#Codon_id
Codon_sequence
Position 1
Position 2
Position 3

Amino_acid_nomenclature

#Amino_id
Symbol
Name
Code

Nucleotides

#Symbol
Name
Purine

Amino_acid_properties

#Name
Molecular_mass
Polarity
Charge

Task 2.

Gene

#Gene_id
Name
Chromosome_name
Start_coo
Stop_coo

Exon

#Exon_id
Start_coordinate
Stop_coordinate

Chromosome

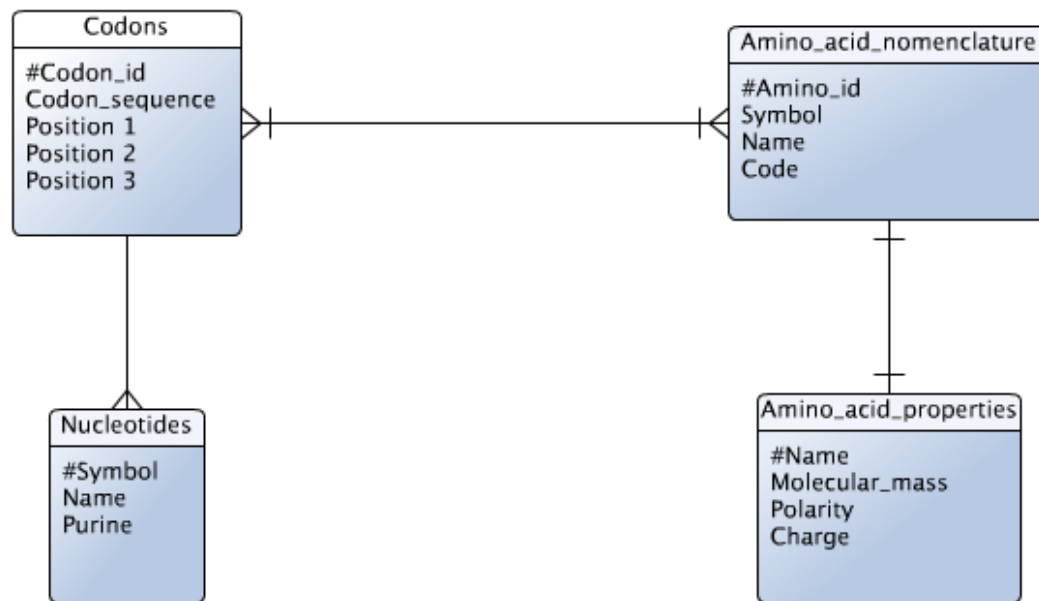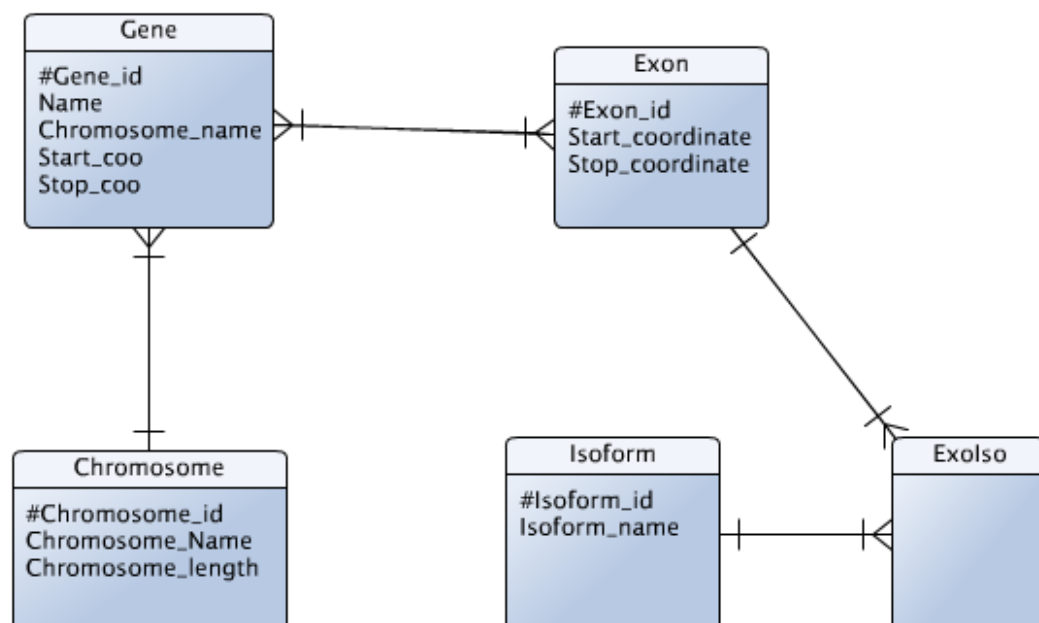#Chromosome_id
Chromosome_Name
Chromosome_length

Isoform

#Isoform_id
Isoform_name

ExoIso

Genes
- #gene_id
- Name
- Chromosome_name
- Start_coo
- Stop_coo
- exon_id*
- isoform_id*

Exons
- #Exon_id
- Start_coordinate
- Stop_coordinate

Isoforms
- #Isoform_id
- Isoform_name

Genes(#gene_id, gene_name, cromosome_id*, start_pos, end_pos)

Exons(#exon_id, gene_id*, start_pos, stop_pos)

Isoforms(#Isoform_id, Isoform_name)

ExoIso(Iso_id*, Exo_id*)

Chromosomes(#Chromosome_id, Chromosome_name, Chromosome_length)

#Gene_symbol	off_name	#chr_name	chr_length	start_coo	stop_coo	synonyms	#references_id	authors	title	journal	year_published
SHH	Sonic hedgehog	Chr5	153573022	28456815	28467256	HHG1					
SHH	Sonic hedgehog	Chr5	153573022	28456815	28467256	MCOPCB5					
SHH	Sonic hedgehog	Chr5	153573022	28456815	28467256	SMMCi					
SHH	Sonic hedgehog	Chr5	153573022	153573022	28467256	TPT					

#Gene_symbol	off_name	chr_name	chr_length	start_coo	stop_coo	synonyms	#references_id	authors	title	journal	year_published
SHH	Sonic hedgehog	Chr5	153573022	153573022	28467256	TPTPS					
SHH	Sonic hedgehog	Chr5	153573022	153573022	28467256		J:227320	Holtz AM, et al.,	Secreted HHIP1 interacts with heparan sulfate and regulates Hedgehog ligand localization and function.	J Cell Biol.	2015
SHH	Sonic hedgehog	Chr5	153573022	153573022	28467256		J:13476	Dickie MM,	Hemimelic extra toes, Hx.	Mouse News Lett.	1968

#Gene_symbol	off_name	chr_name	chr_length	start_coo	stop_coo	synonyms	#references_id	authors	title	journal	year_published
SHH	Sonic hedgehog	Chr5	153573022	28456815	28467256	HHG1					
SHH	Sonic hedgehog	Chr5	153573022	28456815	28467256	MCOPCB5					
SHH	Sonic hedgehog	Chr5	153573022	28456815	28467256	SMMCi					
SHH	Sonic hedgehog	Chr5	153573022	153573022	28467256	TPT					
SHH	Sonic hedgehog	Chr5	153573022	153573022	28467256	TPTPS					
SHH	Sonic hedgehog	Chr5	153573022	153573022	28467256		J:227320	Holtz AM, et al.,	Secreted HHIP1 interacts with heparan sulfate and regulates Hedgehog ligand localization and function.	J Cell Biol.	2015
SHH	Sonic hedgehog	Chr5	153573022	153573022	28467256		J:13476	Dickie MM,	Hemimelic extra toes, Hx.	Mouse News Lett.	1968

Gene

#Gene_symbol	Off_name	Chr_name*	Start_coo	End_coo
SHH	Sonic hedgehog	Chr5	28456815	28467256

Synonym

#Synonym	Gene_symbol*
HHG1	SHH
MCOPCB5	SHH
SMMCi	SHH
TPT	SHH
TPTPS	SHH

Chromosone

#Chr_name	Chr_length
Chr5	153573022

Refrence

#reference_id	author	title	journal	year_published
J:227320	Holtz AM, et al.,	Secreted HHIP1 interacts with heparan sulfate and regulates Hedgehog ligand localization and function.	J Cell Biol.	2015
J:13476	Dickie MM,	Hemimelic extra toes, Hx.	Mouse News Lett.	1968

Gene_pub

reference_id*	gene_symbol*
J:227320	SHH
J_13476	SHH

Task 4
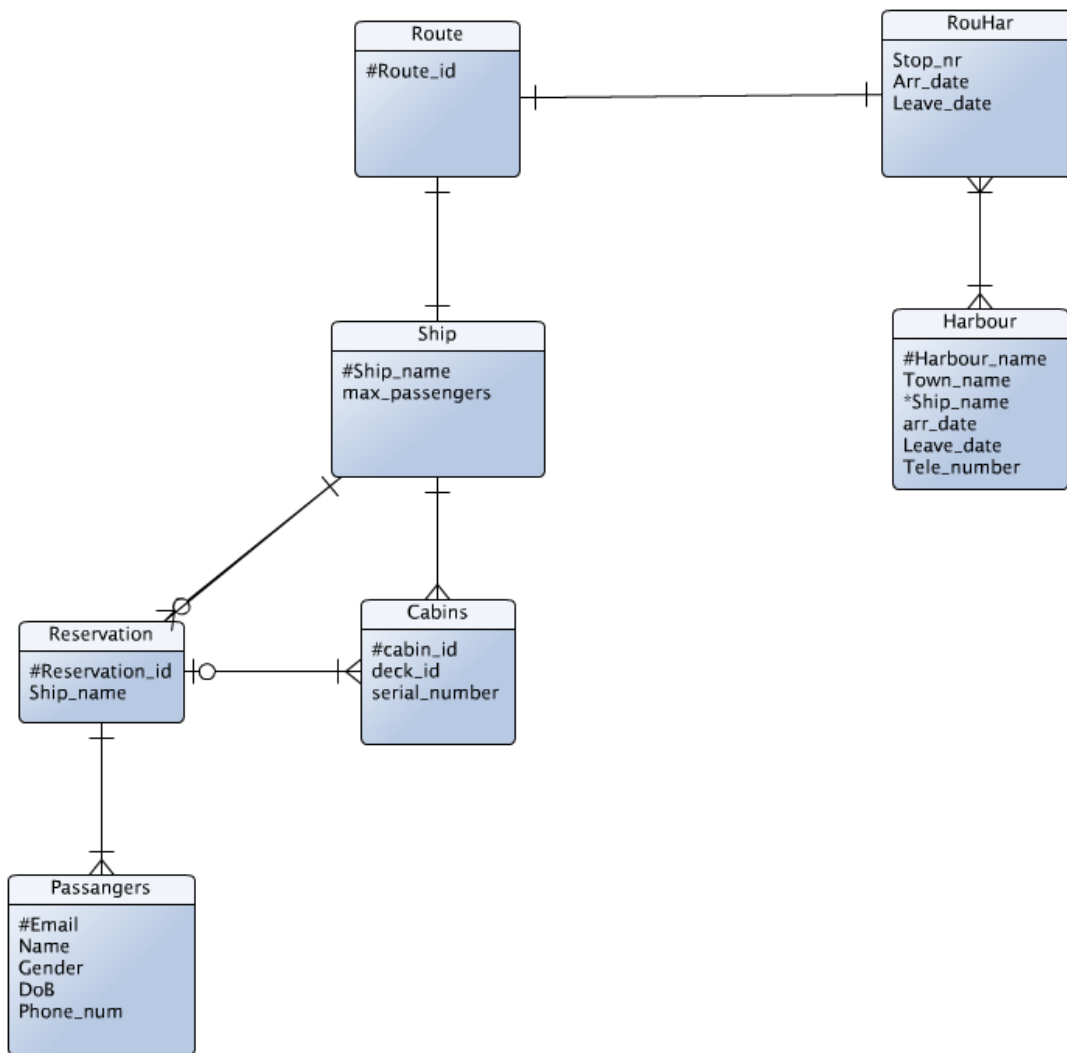
Ship(#Ship_name, Max_passengers, port_name*)
Harbours(#Port_name, Date_departure,)
Route(ship_name*, port_name*)
Cabins(#cabin_id, deck_id, serial_number, ship_name*)
Passengers(#passenger_id, first_name, surname, email_address, gender)
Phone_numbers(#Phone_number, passenger_id*)
DOBs(#Date_of_birth, passenger_id*)
Reservations(#Reservation_id, ship_name*)

Ship(#Name, Max_Pas, Start_port, End_Port)
Route(#Route_id, Ship_name*, Harbour_name*)
RouHar(Route_id*, Stop_Nr, Arr_Date, Leave_Date, Harbour_name*)
Harbour(#Harbour_Name, Town_Name, Tele_number)
Cabin(#Cabin_id, Price_Category, *Ship_name)
Reservations(#Res_id, *Ship_name)
Reservation_connection(reservation_id*, Passenger_email*, cabin_id*)
Passenger(#Email, Name, Gender, DoB, Phone_num, *Res_id)

5) 1.

The Registration_Number should be a primary key. In addition, the "Maximum_weight", is too vague in terms of information. We cannot know if this includes the weight of the truck or simply the maximum load weight, which can be crucial in practical terms.

2.

Registration_year, model and maximum_weight has a functional dependency on Registration_Number.

3.
Assignment is a foreign key, and Registration_Number is a primary key.

4.

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)
Transportation(Assignment_number*, Registration_number*,)
Truck (#Registration_number, Registration_year, Model, Maximum_weight)