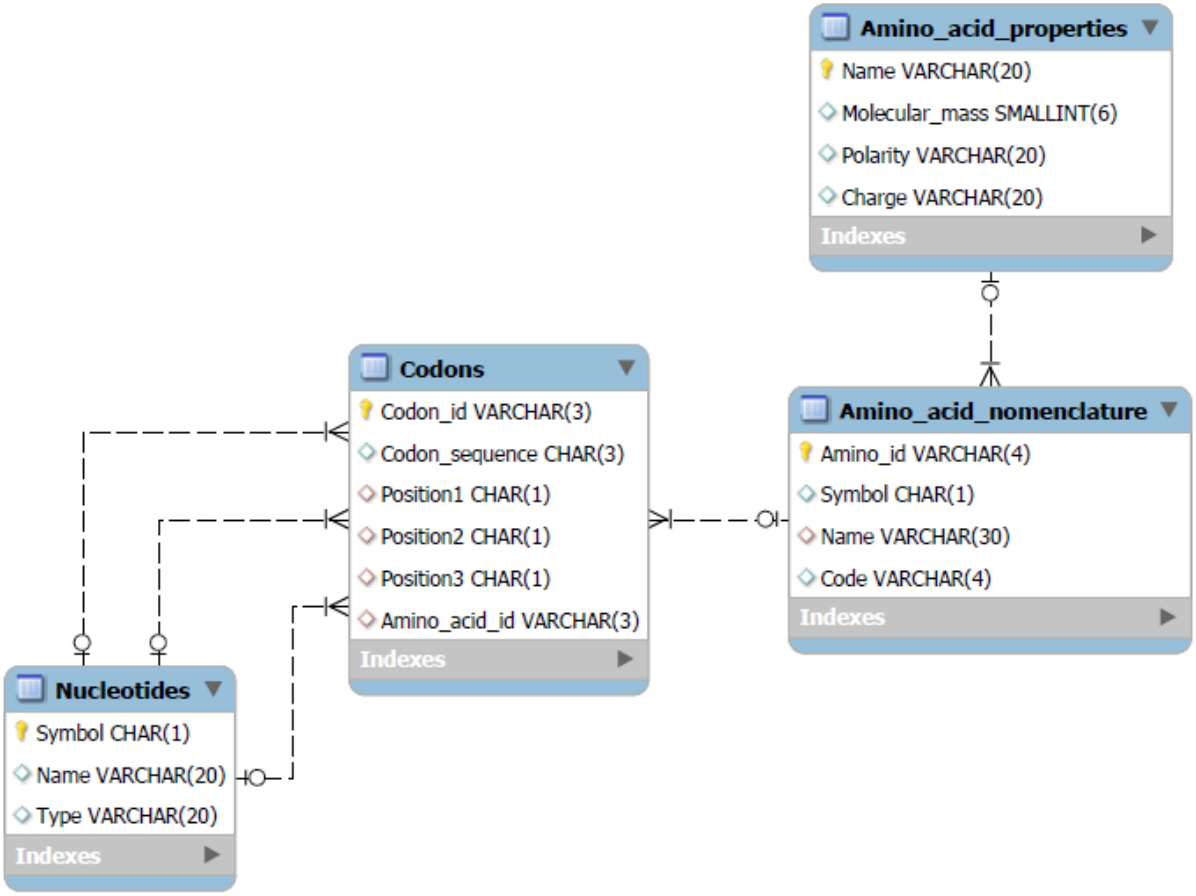
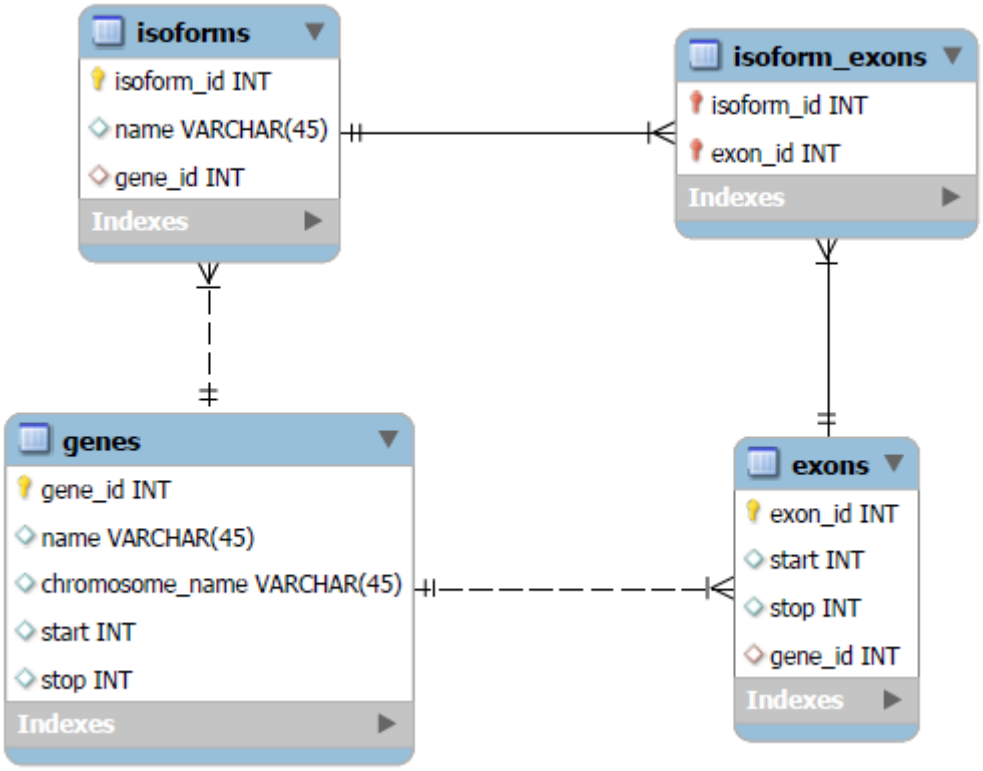
1)


Amino_acid_properties
Name VARCHAR(20)
Molecular_mass SMALLINT(6)
Polarity VARCHAR(20)
Charge VARCHAR(20)
Indexes
Codons
Codon_id VARCHAR(3)
Codon_sequence CHAR(3)
Position1 CHAR(1)
Position2 CHAR(1)
Position3 CHAR(1)
Amino_acid_id VARCHAR(3)
Indexes
Amino_acid_nomenclature
Amino_id VARCHAR(4)
Symbol CHAR(1)
Name VARCHAR(30)
Code VARCHAR(4)
Indexes
Nucleotides
Symbol CHAR(1)
Name VARCHAR(20)
Type VARCHAR(20)
Indexes

2)

i. Genes, exons and isoforms.

ii.



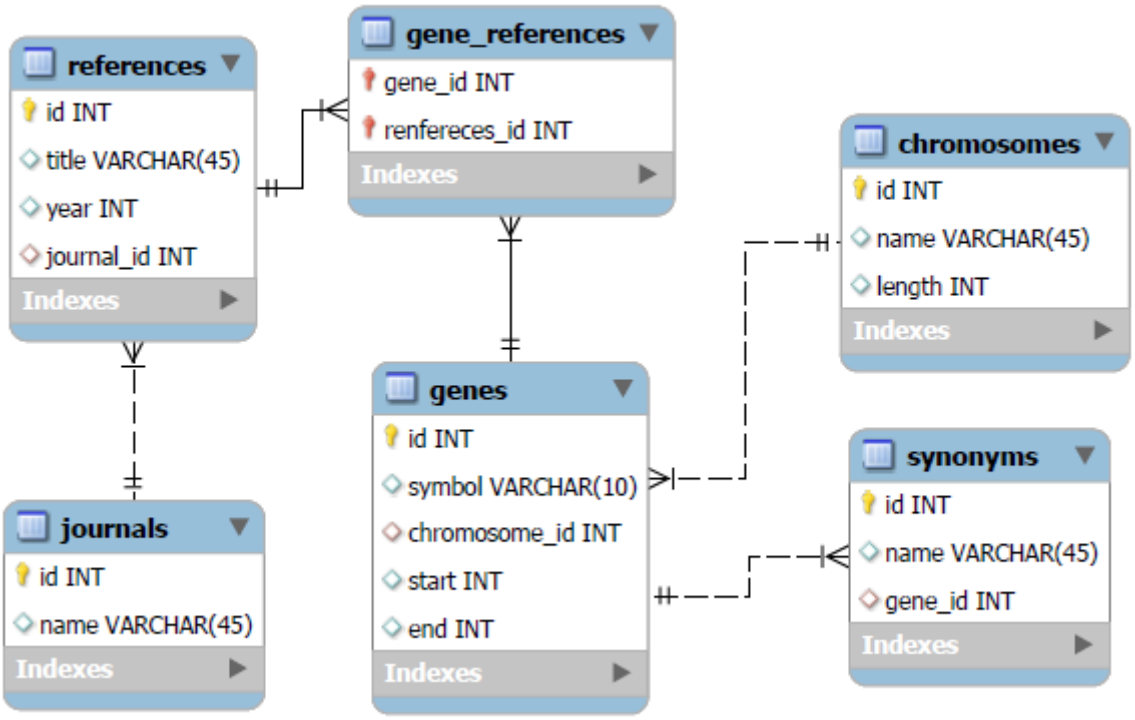
iii.

genes (#gene_id, name, chromosome_name, start, stop)
exons (#exon_id, start, stop, gene_id*)
isoforms (#isoform_id, name,gene_id*)
isoform_exons (#isoform_id*, #exon_id*)

3)

i. Genes, synonyms, chromosmes, references and journals.

ii.



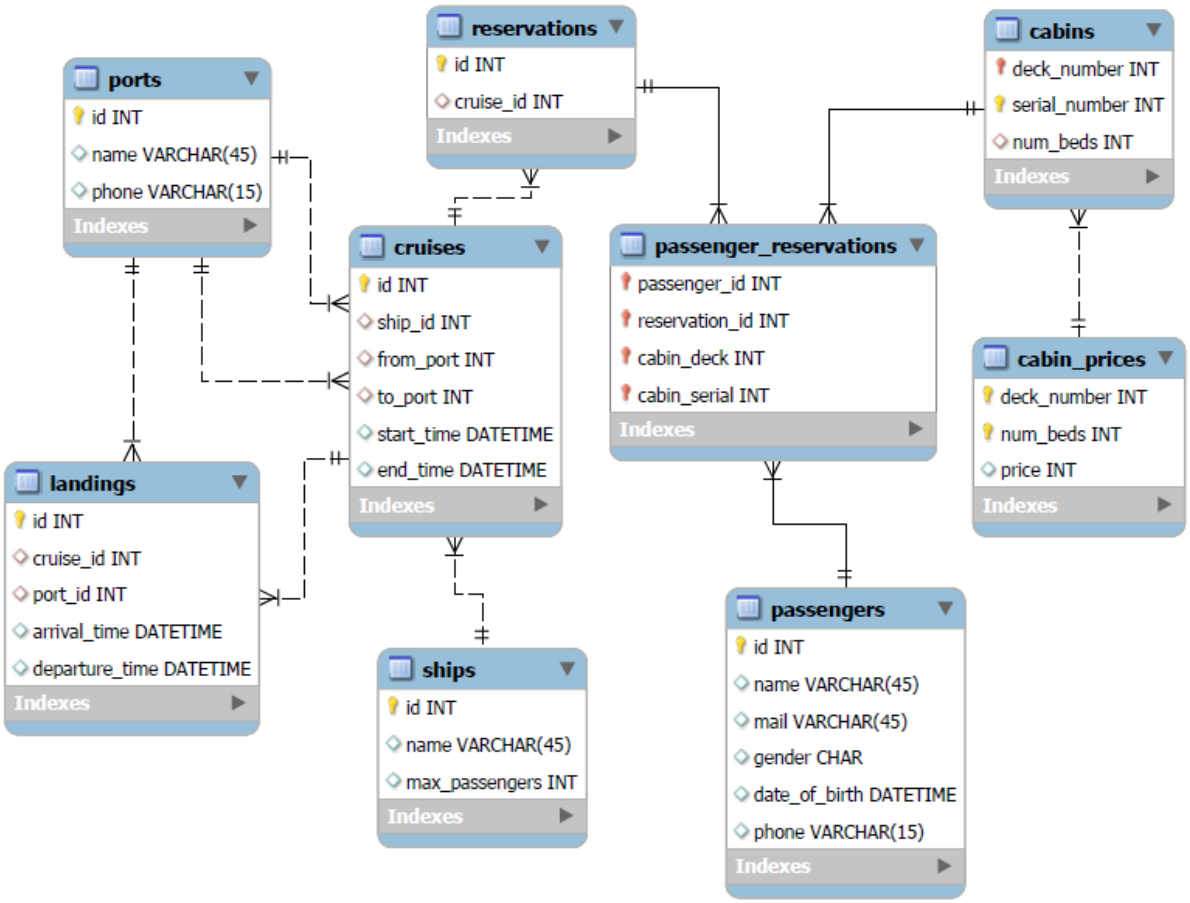
iii.

genes (#id, symbol, chromosome_name, chromosome_length, start, end)
synonym (#id, name,gene_id*)
references (#id, title, year, journal_name)
gene_references (#gene_id*, #reference_id*)

iv.

genes (#id, symbol, chromosome_id*, start, end)
synonym (#id, name,gene_id*)
chromosome (#id, name, length)
references (#id, title, year, journal_id*)
journals (#id, name)
gene_references (#gene_id*, #reference_id*)

4)



5)

i. It doesn't make sense to have the container number as a foreign key in the assignment table. That would mean one assignment only applies to a single container. With the current layout, it wouldn't make sense to add multiple trucks to the same assignment, as there would only be one container to carry. Also, have the assignment number as a foreign key in the Truck table only allows for a truck to be used in one assignment. Trucks can be reused, so they should be able to have more than one assignment.

ii. The Assignment_number column is a foreign key to the Assignment table

iii. Primary key: Registration_number

iv.

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*, Start_date, End_date)
Truck (Registration_number, Registration_year, Model, Maximum_weight)
Assignment_containers (#Assignment_number*, #Container_number*)
Assignments_trucks (#Assignment_number*, #Truck_registration*)