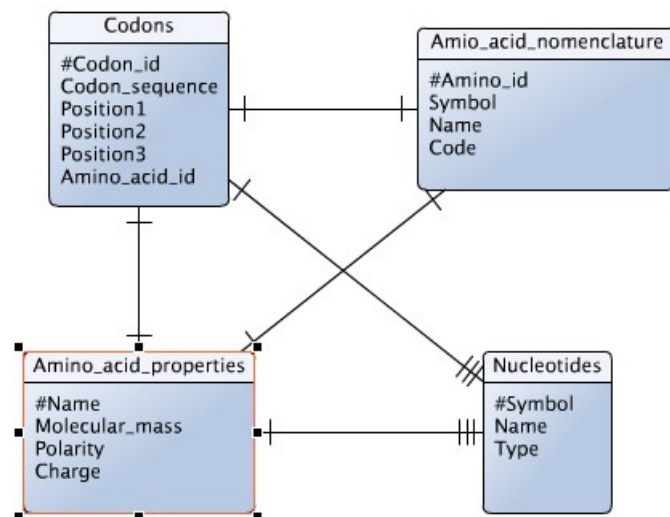


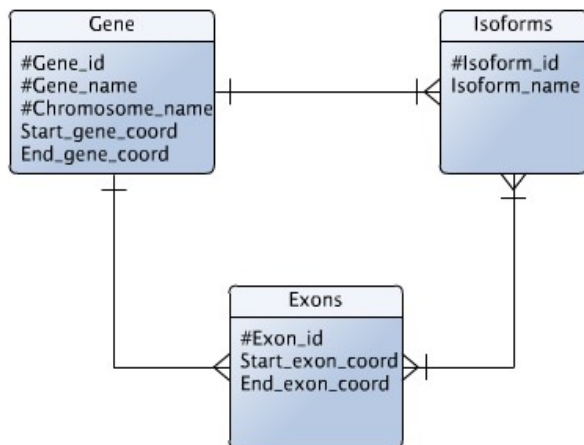
1)



2).

i) Entities: Gene, Isoforms, Exons

ii)



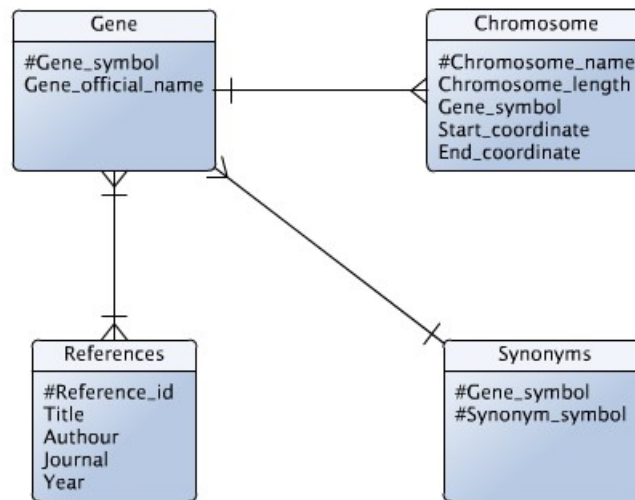
iii)

Gene(#Gene\_id,#Gene\_name,#Chromosome\_name, Start\_gene\_coord, End\_gene\_coord)  
 Exons(#Exon\_id, Isoform\_id,Start\_exon\_coord,End\_exon\_coord)  
 Isoforms(#Isoform\_id, Gene\_id\*, Isoform\_name)  
 Isoform\_structure(#Exon\_id\*, #Isoform\_id\*)

3)

i) Entities: Gene, Chromosome, References, Synonyms

ii)

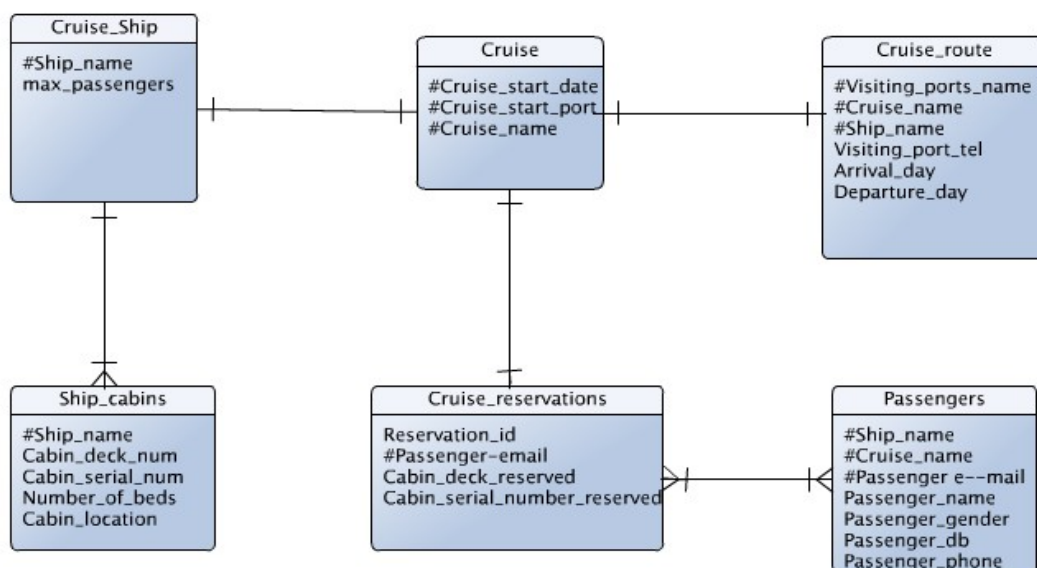


iii) Gene (#Gene\_symbol, #Official\_name, #Chromosome\_name, Chromosome\_length, Start\_coordinate, End\_coordinate, Reference\_id\*)  
 References\_list (#Reference\_id\*, #Reference\_letter\*, Gene\_symbol\*)  
 References\_details (#Reference\_id\*, #Reference\_letter\*, title, author, year, journal)  
 Synonyms (#Synonym\_symbol, Gene\_symbol\*)

iv) Gene(#Gene\_symbol, #

Official\_name, Chromosome\_name\*, Reference\_id\*)  
 Chromosome(#Chromosome\_name, Gene\_symbol\*, Chromosome\_length)  
 Gene\_location(#Chromosome\_name, Gene\_symbol\*, Start\_coordinate, End\_coordinate)  
 References\_list (#Reference\_id\*, #Reference\_letter\*, Gene\_symbol\*)  
 References\_details (#Reference\_id\*, #Reference\_letter\*, title, author, year, journal)  
 Synonyms (#Synonym\_symbol, Gene\_symbol\*)

4)



5)

i) Solution is problematic, since there is no primary key.

ii)

Registration\_number ---> Registration\_year

Registration\_number ----> Model

Maximum\_weight ----> Model

Assignment\_number ----> Maximum\_weight, Model

iii) The candidate keys are Registration\_number + Assignment\_number

iv)

Container\_type (#Type\_id, Type\_name, Max\_weight, Cubic\_quantity, Nightly\_rate)

Container (#Container\_number, Type\_id\*)

Customer (#Telephone\_number, Address)

Assignment\_details(#Assignment\_number, Telephone\_number\*, Container\_number\*, Start\_date, End\_date)

Assignment\_transportation(#Assignment\_number, Registration\_number\*)

Truck\_specification(#Registration\_number, Registration\_year, Model, Maximum\_weight)