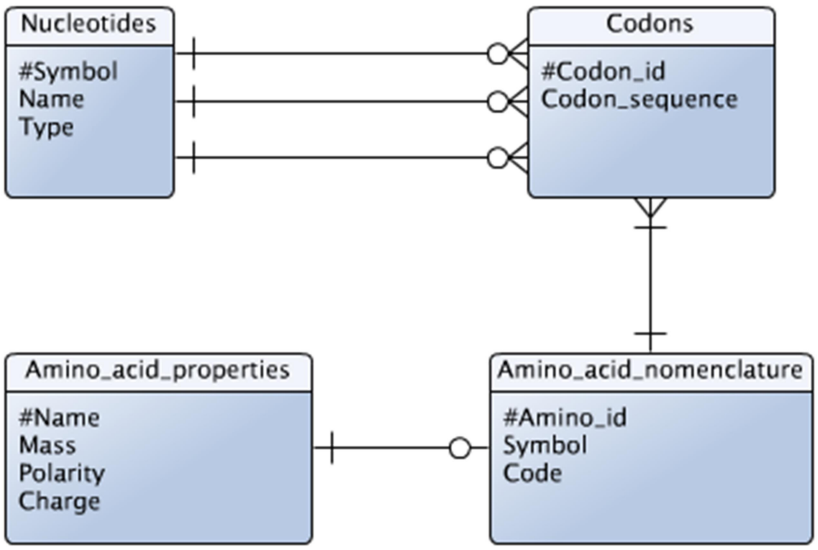
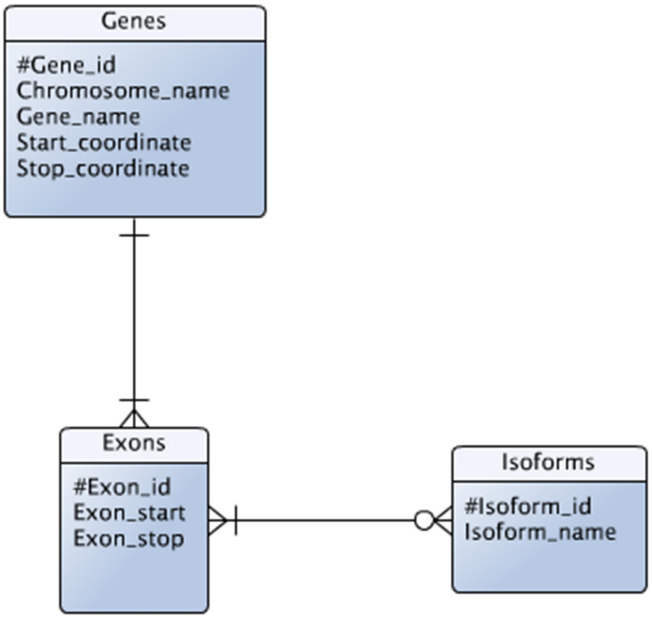
Rebecca Wasmund
Compulsory Assignment 2
1)



2i) The entities are Exons, Isoforms, and Genes.

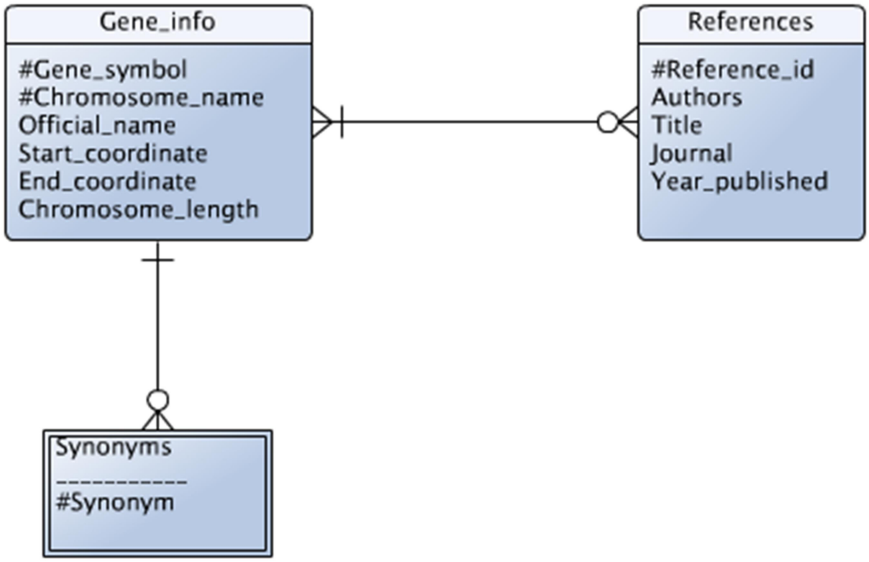
ii)



iii)
Genes(#Gene_id, Gene_name*, Start_coordinate, Stop_coordinate)
Chromosomes(#Gene_name, Chromosome_name)
Exons(#Exon_id, Exon_start, Exon_stop, Gene_id*)
Isoforms(#Isoform_id, Isoform_name)
Exon_isoform_relationship(#Exon_id*, #Isoform_id*)

3i) The entities are Genes, Synonyms and References.

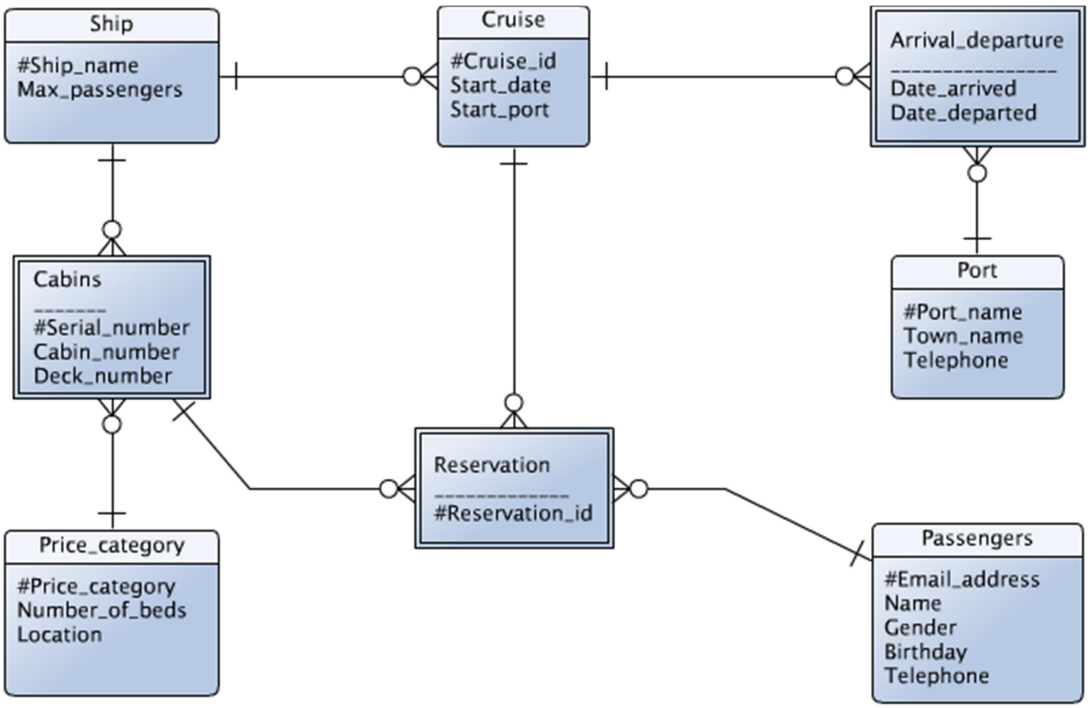
ii)

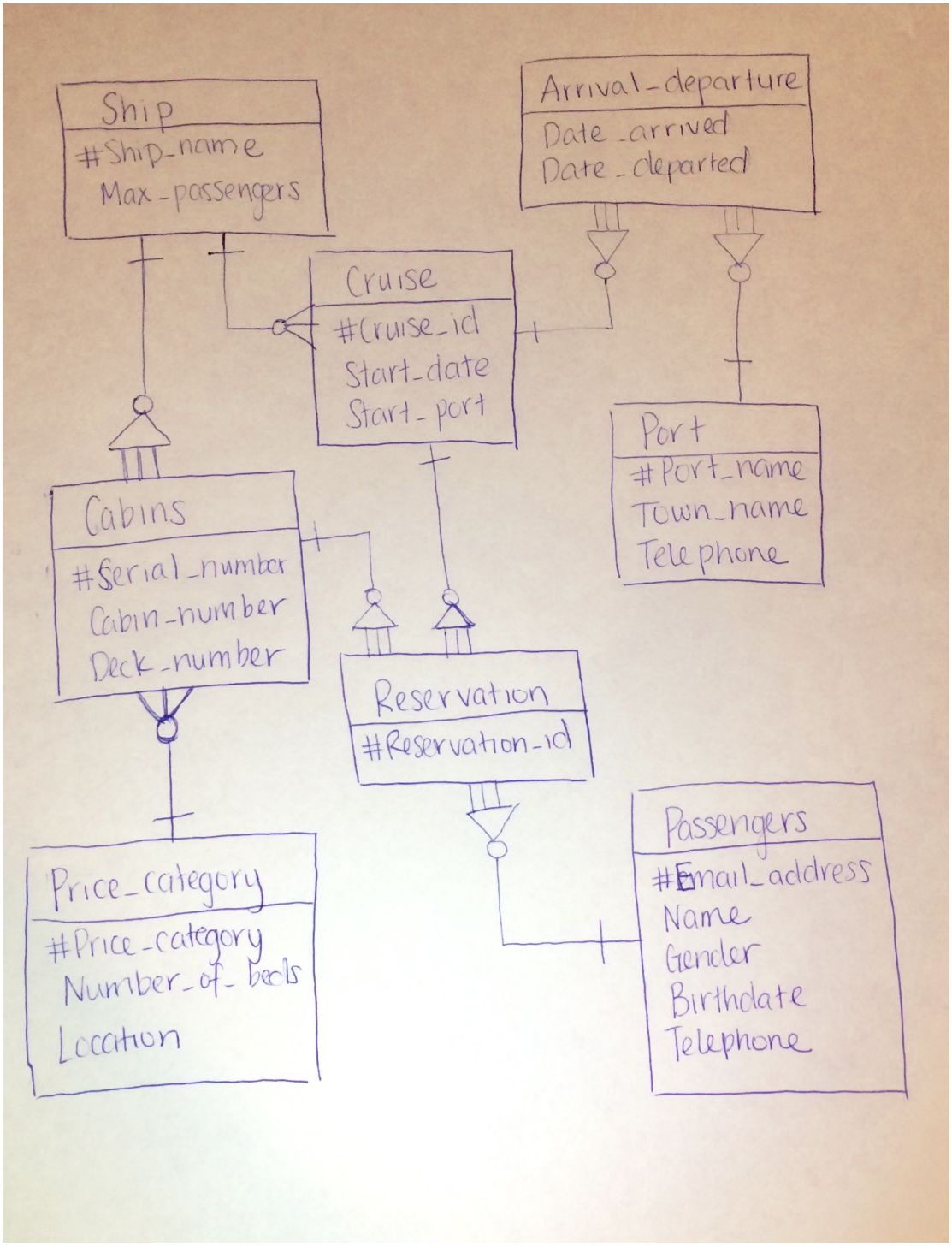


iii)
Gene_info(#Gene_symbol, #Chromosome_name, Official_name, Start_coordinate, End_coordinate, Chromosome_length)
Synonyms(#Synonym, #Gene_symbol*, #Chromosome_name*)
References(#Reference_id, Authors, Title, Journal, Year_published)
GeneReferenced(#Reference_id*, #Gene_symbol*, #Chromosome_name*)

iv)
Gene_info(#Gene_symbol, Official_name, Start_coordinate, End_coordinate, Chromosome_name*)
Chromosomes(#Chromosome_name, Chromosome_length)
Synonyms(#Synonym, #Gene_symbol*, #Chromosome_name*)
References(#Reference_id, Authors, Title, Journal, Year_published)
GeneReferenced(#Reference_id*, #Gene_symbol*)

4)
Here is the E/R diagram I made using Graphity for this task. I feel like this way of showing weak entities is unclear and much more confusing than the way the lecture notes and the book taught us, so I'm also including a hand-drawn E/R diagram using the way I would have preferred to represent the weak entities.





5i) There is a lot of redundancy in this table – it is not necessary to include all information about the truck (Registration_number, Registration_year, Model, Maximum_weight) every time we want to give that truck an assignment. This could lead to some update anomalies if we want to delete or update a single assignment.

ii) Registration_year, Model, and Maximum_weight are all dependent on Registration_number. Maximum_weight is also dependent on Model if we make the assumption that all trucks of one model are the same and therefore have the same capacity.

iii) Registration number and Assignment_number together make up the only candidate key.

iv)
Container_type_info(#Type_name, Max_weight, Cubic_quantity, Nightly_rate)
Container_type_name(#Type_id, Type_name*)
Customer(#Telephone_number, Address)
Assignment(#Assignment_number, Telephone_number*)
Truck_weight(#Model, Max_weight)
Truck(#Registration_number, Model*, Registration_year)
Truck_assignment(#Assignment_number, #Registration_number*)