Data Model Question

1. On physical level of the relational model relations are stored in a __file structure__
2. __Relation schema _____ = relation name + attributes in order (+ types of attributes)
3. __database____ = collection of relations

1.

Name	Address
Joe's	Maple st.
Sue's	River rd.

2.

Bar	Address
Joe's	Maple st.
Sue's	River rd.

4. __RENAME____operator could have been used on relation 1 to produce relation 2

1.

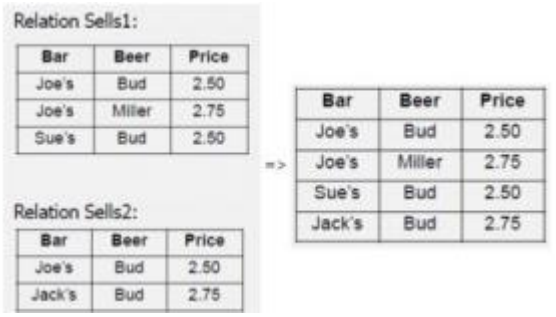
Bar	Beer	Price
Joe's	Bud	2.50
Joe's	Miller	2.75
Sue's	Bud	2.50
Sue's	Miller	3.00

2.

Bar	Beer	Price
Joe's	Bud	2.50
Joe's	Miller	2.75

5. __selection___ operator could have been used on the 1.relation to produce the 2.relation
6. Monotone non-decreasing expression : applied on more __tuples____, the result contains more _tuples__
7. __difference_____is the only core expression which is not monotone.
8. In expression trees leaves are __operands_____
9. On logical level of the relational model relations are considered as ___tables___
10. On logical level of the relational model rows represent the __records_____
11. Data model is
    1 Mathematical representation of data
    2 Operation on data
    3 __Constraints__
12. _Selection___ is the core relational algebra operator to pick certain rows
13. _intersection___ of R1 and R2 relations results in the common tuples from R1 and R2in core relational algebra
14. __Union__ of R1 and R2 relations results in all tuples from R1 and R2in core relational algebra
15. _Projection___ is the core relational algebra operator to pick certain columns

16. In expression trees interior nodes are _operators__ ,applied on their child or children



Relation Sells1:

Bar	Beer	Price
Joe's	Bud	2.50
Joe's	Miller	2.75
Sue's	Bud	2.50

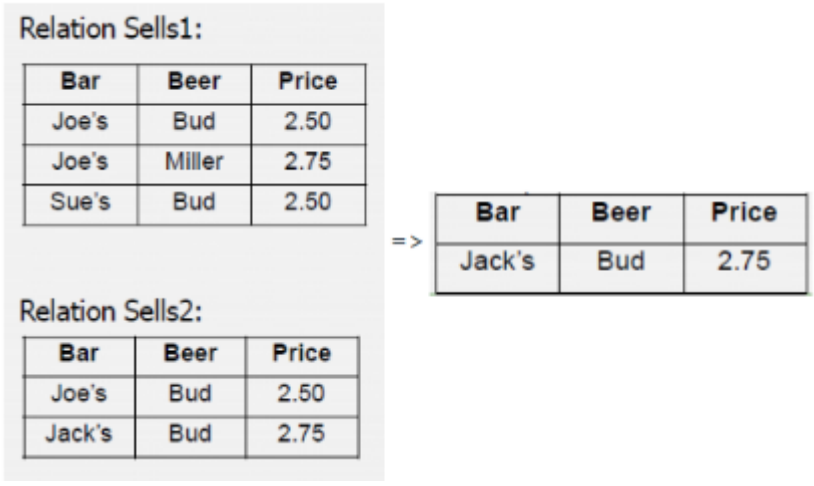
Relation Sells2:

Bar	Beer	Price
Joe's	Bud	2.50
Jack's	Bud	2.75

=>

Bar	Beer	Price
Joe's	Bud	2.50
Joe's	Miller	2.75
Sue's	Bud	2.50
Jack's	Bud	2.75

17. The relation on the right side is the __union_ of sells2 and sells1



Relation Sells1:

Bar	Beer	Price
Joe's	Bud	2.50
Joe's	Miller	2.75
Sue's	Bud	2.50

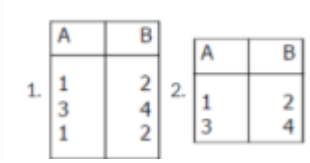
Relation Sells2:

Bar	Beer	Price
Joe's	Bud	2.50
Jack's	Bud	2.75

=>

Bar	Beer	Price
Jack's	Bud	2.75

18. The relation on the right side is the _intersection__ of sells2 and sells1
19. __Natural Join__ operator in core relational algebra connects two relation by
    a) Equating attributes on the same name
    b) Projecting out one copy of each pair of equated attributes.



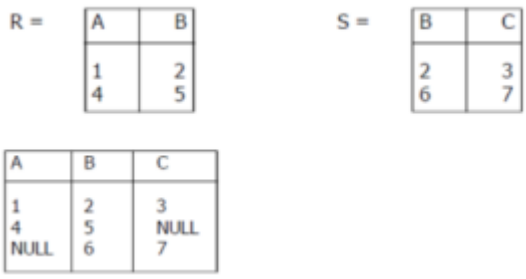
1.

A	B
1	2
3	4
1	2

2.

A	B
1	2
3	4

20. _delta___ operator could have been used on relation 1 to produce relation 2
21. An element appears in the _union____ of two bags the minimum of the number of times it appears in either
22. __delta__ is the extended relational algebra operator to eliminate duplicates from bags.
23. _outerjoin___ is the extended relational algebra operator that preserves “dangling tuples” when joining
24. ___gamma___ is the extended relational algebra operator for grouping and aggregation



R =

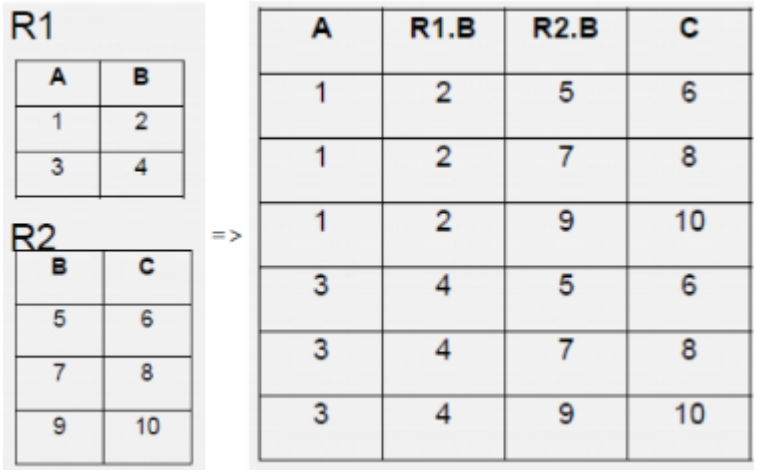
A	B
1	2
4	5

S =

B	C
2	3
6	7

A	B	C
1	2	3
4	5	NULL
NULL	6	7

25. The __Outerjoin___ of R and S relation was calculated above



R1

A	B
1	2
3	4

R2

B	C
5	6
7	8
9	10

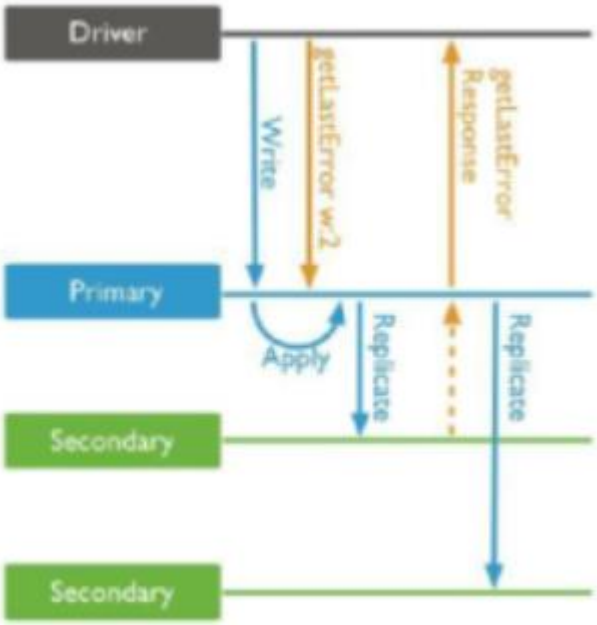
=>

A	R1.B	R2.B	C
1	2	5	6
1	2	7	8
1	2	9	10
3	4	5	6
3	4	7	8
3	4	9	10

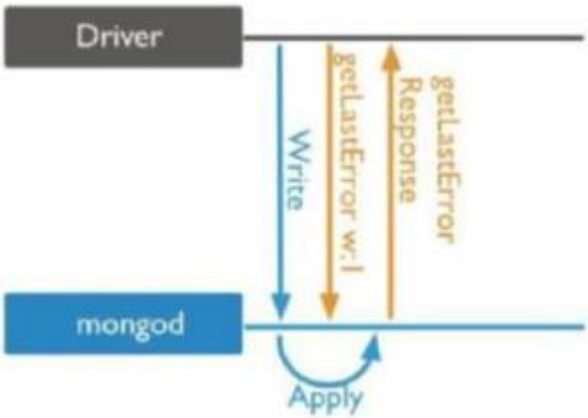
26. The relation on the right sides is the __product____ of R1 and R2
27. __ relationship ___ connects two or more entity sets in the Entity Relationship Model
28. __ Entity set___ is a collection of similar entities in the Entity Relationship Model
29. ___Deletion__ anomaly in relational schema design is when valid fact is lost when a tuple is removed
30. __ Attributes___ are represented by ovals in the Entity Relationship Diagrams
31. __attribute___ is a property of (the entities of) an entity set in the Entity Relationship Model
32. __relationships___ are represented by diamonds in the Entity Relationship Diagrams
33. An attribute is __ prime ___, if it is a member of any key.
34. In a ___ one-one __ relationship, each entity of either set is related to at most one entity of the other set.
35. In a __ many-many ____ relationship, an entity of either set can be connected to many entities of the other set
36. X->A violates 3NF if and only if A is not a __ superkey____ and also A is not a __ prime ____
37. When we sat that X->Y functional dependency holds in R, then X and Y represent _ set of attributes____
38. X is a __superkey__ for relation R if X functionally determines all in R
39. X->Y is a __ nontrivial ____ functional dependency. If Y is not contained in X.
40. In ____ Balanced trees ___. Indexed columns sorted and stored separately. Pointer structure enables logarithmic search.
41. In ORALCE DBMS.__ Best response ___ mode retrieves first row asap. Starts returning while computing(id possible)
42. In ORACLE DBMS. The __ SQL Execution ___ executes the query plan.
43. In ORACLE DBMS data storage, data-blocks contain_ rows _____, each identified by its sequence in the block.
44. In ORACLE DBMS data storage, data files are logically grouped in __ tablespaces ____
45. In ORACLE DBMS data storage, data files consists of__ data-blocks ___ , each identified by its offset in the file
46. In ORACLE DBMS , the _rule-based____ optimizer uses hardcoded heuristic rules to determine the query plan
47. With bitmap index we can create bit-vector for each key value of a __ dimension ___ table,

telling which tuples of the __ fact __ table have that value.

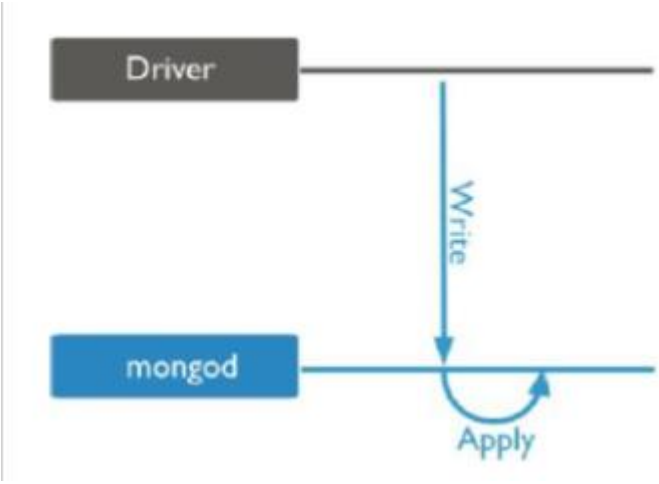
48. _nsaction processing_____ operations are short, simple, frequent queries and/or modification, each involving a small number of tuples.
49. In ORACLE DBMS data storage, location and size of data files determined by__ DBA _____
50. __ B-trees ___ consists of node blocks containing pointers to other node or blocks. Leaf blocks contain actual indexed values., rowids.
51. Dependent attribute is a value determined by the _ dimension attributes ___ of the tuple
52. __ Materialized views ___ store the answers to several useful queries in the warehouse itself.
53. __ OLAP ___ queries are few, but complex. They do not depend on having an absolutely up-to-date database.



54. Which write concern can be seen above? __ Replica Set Acknowledged ____

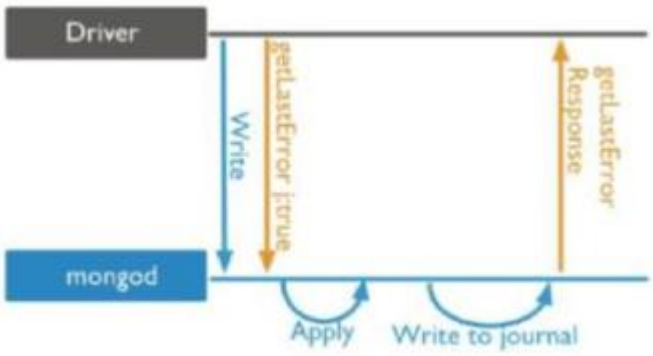


55. Which write concern can be seen above? __acknowledged___

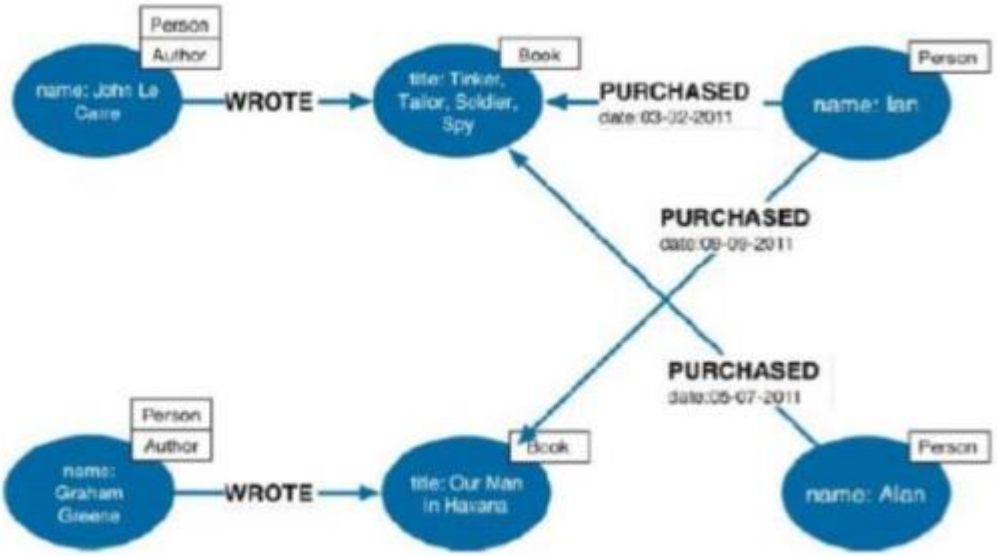


56. Which write concern can be seen above? __ Unacknowledged ___
57. Replica set in MongoDB consists of a single __primary___ and multiple __secondaries____

58. In the MongoDB replica set, writing requests are handled on __primary___
59. In MongoDB, _ unacknowledged _____ write concern is when the client does not get feedback of writing
60. __Hash__ based sharding distributes data giving the key of data as a parameter to a ___hash function_
61. __acknowledged___ write concern is when Mongod sends receipt about the success of writing
62. In MonogDB ,__ Replica Set Acknowledged ___ write concern is when replicas have to confirm the writing before it is noted to the client.



63. Which write concern can be seen above? __ journaled___



64. What are Person Book, Author in the property graph above? ___edges____
65. In a property graph, __ Properties ____ correspond to attributes and metadata.
66. In a property graph, ___labels___ can be used to group entities
67. In property graphs, node correspond to ___ Entity___
68. In the ___ Publish/Subscribe ___ architecture, __ Publisher _____ can send data to topics, clients can __ subscribe ____ to topics. Clients get the new data, when it arrives to the topic they are interested in.
69. In Redis every operation can be written to an __ AOF ___ file. When restarting, every operation is executed again
70. In Redis, the __ Snapshooting ___ mode creates binary dumps in every x seconds or after y operations.
71. In the HBase architecture,___ ZooKeeper ___ is used for monitoring.
72. In HBase, once data is written to the WAL, it is copied to the__ MemStore___, which is the write cache that stores new data, that has not yet been written to disk.
73. Part of XML document validation ofr a given DTD is checking if the document fits on the _ regular expressions ___
74. When client issues a _put____ request in HBase, it will write the data to the write ahead log (WAL), a file used to store new data that is yet to be put on permanent storage.

```
<p>
<message>message</message>
</P>
```

75. Is the document above well formatted? True False

```
<p>
Line
</p>
<p>
Line
</p>
```

76. Is the document above well formatted? True False

```
<p>
This is a paragraph
</br>
```

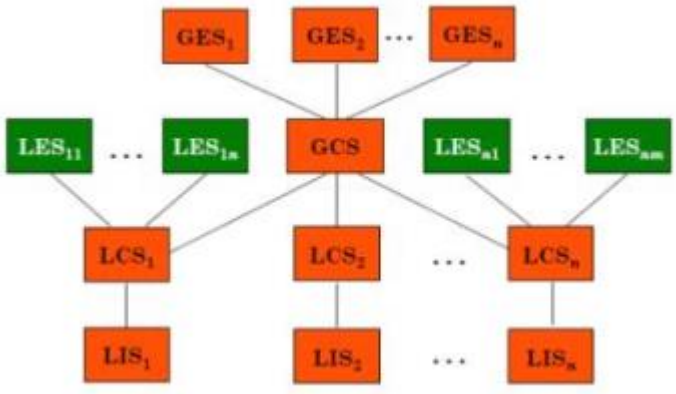
77. Is the document above well formatted? True Fals
78. Task ontology describes the vocabulary related to a generic task or activity by specializing the __top-level___ ontology.

```
<http://www.w3.org/TR/rdf-syntax-grammar> <http://purl.org/dc/elements/1.1/title>
"RDF/XML Syntax Specification (Revised)" .
<http://www.w3.org/TR/rdf-syntax-grammar> <http://example.org/stuff/1.0/editor> _:bnode .
_:bnode <http://example.org/stuff/1.0/fullname> "Dave Beckett" .
_:bnode <http://example.org/stuff/1.0/homePage> <http://purl.org/net/dajobe/> .
```

79. Which RDF format can be seen above? ____ N-Triples ____

```
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:dc="http://purl.org/dc/elements/1.1/">
  <rdf:Description rdf:about="http://en.wikipedia.org/wiki/Tony_Benn">
    <dc:title>Tony Benn</dc:title>
    <dc:publisher>Wikipedia</dc:publisher>
  </rdf:Description>
</rdf:RDF>
```

80. Which RDF format can be seen above? ___ XML _____
81. RDF triples can be given in the form of <subject, __ predicate ____, object>
82. __ Consistence window _____ specifies how much time have to pass for the system to become consistent again
83.
84. __ Consistence window ___specifies how much time have to pass for the system to become consistent again



85. What kind of architecture can be seen above?__ MDBS ___
86. In the CAP theorem, __Partition Tolerance___ ensures that the system will work well despite physical network partitions.

87. In MDBMS, the shared data are described in the __ LES ___ in each DBMSs
88. In DDBS, __ GCS ____ contains the logical structures of all data types.