

Chapter 15

		Guideline
1	<p>clear semantics of relation Attributes</p> <ul style="list-style-type: none"> - Semantics of a Relation: <ul style="list-style-type: none"> - Meaning resulting from interpretation of attribute values in a tuple. - Easier to explain semantics of relation: <ul style="list-style-type: none"> - indicates better Schema design. 	<ul style="list-style-type: none"> - Design relation schema so that it is easy to explain its meaning. - Do not combine attributes from multiple entity types and relationship types into a single relation.
2	<p>Redundant info in Tuples and Update Anomalies</p> <ul style="list-style-type: none"> - Grouping attribute into relation schemas: <ul style="list-style-type: none"> - Significant effect on storage space. - Sorting natural joins of base relations leads to update anomalies. - Types of update anomalies: <ol style="list-style-type: none"> 1- Insertion. 2- Deletion. 3- Modification. 	<ul style="list-style-type: none"> - Design base relation schema so that no update anomalies are present in the relation. - If any anomalies are present: <ul style="list-style-type: none"> - Note them clearly. - Make sure that the program that update the database will operate correctly.
3	<p>Null Values in Tuples</p> <ul style="list-style-type: none"> - May group many attributes together into a "fat" relation: <ul style="list-style-type: none"> - Can end up with many nulls. - Problems with nulls: <ul style="list-style-type: none"> - wasted storage space. - Problems understanding meaning. 	<ul style="list-style-type: none"> - Avoid placing attributes in a base relation whose values may frequently be Null. - If Nulls are unavoidable: <ul style="list-style-type: none"> - Make sure that they apply in exceptional cases only, not to a majority of tuples.
4	<p>Generation of Spurious Tuples</p> <ul style="list-style-type: none"> - Natural join: <ul style="list-style-type: none"> - Result Produces many more tuples than the original set of tuples. - called spurious tuples. - Represent spurious information that is not valid. 	<ul style="list-style-type: none"> - Design relation schemas to be joined with equality conditions on attributes that are appropriately related: <ul style="list-style-type: none"> - Guarantees that no spurious tuples are generated. - Avoid relations that contain matching attributes that are not (foreign key, primary key) combinations.

Summary:

- 1- Anomalies cause Redundant work to be done.
- 2- Waste of storage space due to Nulls.
- 3- Difficulty of performing operations and joins due to Null values.
- 4- Generation of invalid and spurious data during joins.