# ANSWERS TO WRITER’S PATROL CASE QUESTIONS

Consider the Writer’s Patrol traffic citation shown in Figure 4-28. The rounded corners on this form provide visual hints about the boundaries of the entities represented.

1. Draw an E-R data model based on the traffic citation form. Use five entities, create identifiers (watch out for any composite identifiers that may be needed, and you can use surrogate identifiers if appropriate), and use the data items on the form to specify attributes for the entities. Use the IE Crow’s Foot E-R model for your E-R diagram.

Note that all Correction Notices have as their identifier an identifying number that is *not* shown in the figure, and have an independent existence whether or not they are filled in. The alternative would be a composite identifier (such as Month, Date, Year, Time). But this is so cumbersome that even without a preexisting NoticeNumber we’d use a surrogate identifier.





1. Specify relationships among the entities. Name the relationships, and specify the relationship types and cardinalities. Justify the decisions you make regarding minimum and maximum cardinalities, indicating which cardinalities can be inferred from the data on the form and which need to be checked out with the system users.

The E-R Crow’s Foot model above is based on the following data:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| RELATIONSHIP | | | CARDINALITY  [Blue = Inferable] | |
| PARENT | CHILD | TYPE | MAX | MIN |
| DRIVER | CORRECTION\_NOTICE | Strong | 1:N | M-O |
| OFFICER | CORRECTION\_NOTICE | Strong | 1:N | M-O |
| VEHICLE | CORRECTION\_NOTICE | Strong | 1:N | M-O |
| CORRECTION\_NOTICE | VIOLATION | ID-Dependent  Multi-valued | 1:N | M-O |

We can infer that:

* only one DRIVER is cited because there is only room for one set of DRIVER information. Logically, however, one DRIVER may receive more than one CORRECTION\_NOTICE.
* only one OFFICER issues the CORRECTION\_NOTICE because there is only one OFFICER Signature. Logically, however, one OFFICER may issue many CORRECTION\_NOTICES.
* only one VEHICLE is recorded because there is only room for one set of VEHICLE information. Logically, however, one VEHICLE may be subject to more than one CORRECTION\_NOTICE.
* a CORRECTION\_NOTICE can have several VIOLATIONs because of the multiple lines and the wording Violations (plural). However, each VIOLATION is associated with the CORRECTION\_NOTICE it is listed on.

We need to check:

* the logic that one DRIVER may receive more than one CORRECTION\_NOTICE.
* the logic that one OFFICER may issue many CORRECTION\_NOTICES.
* the logic that one VEHICLE may be subject to more than one CORRECTION\_NOTICE.
* the cardinality of RegisteredOwner on VEHICLE. For example, the RegisteredOwner could be “John and Mary Smith.”

Although it’s not a cardinality, we also need to check:

* How to handle VIOLATIONs. If VIOLATIONs are standardized, we should have put a ViolationCode in the VIOLATION entity instead of Violation. ViolationCode will have a 1:1 relationship to a standardized text description in an additional entity named VIOLATION\_DEFINITION.