8. Tell me about check constraints: What are they? What are they good for? What's the advantage of putting that sort of thing inside the database? Make up some examples of good uses of check constraints and some examples of bad uses of check constraints. Explain the differences in your examples and argue your case.

Check constraints give better control over a database – they limit the data that go into a column or multiple columns. This is similar to what Foreign Key constraints do, but Check constraints perform a different operation to see if data is credible, so the constraints put on a table can only refer to that table, not the columns of another table. Check constraints are written as a logical expression, so the result will always be true or false. If you try to enter data that does not follow the check constraint then you will get an error saying that you violated a check constraint. This is very useful because it allows a database to follow more specific rules which helps increase data integrity. You can put multiple Check constraints on a column as long as they don't conflict with one another and you can also put a Check constraint on a whole table. This comes in very handy because it allows you to limit data in a column based off data in another column. Suppose you have a database containing information about students and you place Check constraints on the absences and the attendance columns. You can have a constraint on the absences column that doesn't allow a student to have over a certain number of absences, so there can be number threshold that can't be violated. You can have a constraint on the same column that says that the number of absences can never be greater than the number of attendances in the same row. Another example of the Check constraint could be for discount and price columns that limits the discount depending on the price of something, and another constraint that limits what percentage the discount can be. A bad use of Check constraints would be to use it on a column that contains the value null. A limitation on Check constraints is the value null. Null doesn't evaluate to true or false, it's unknown and because of that the constraint could be violated without any error. Another bad use of the constraint would be to apply to a table that does not have any rows, in other words, nothing to use to see if a condition is true or false. Tables can be created that don't have any rows so if you create a Check constraint before there are values in the table then some unexpected results could be produced. These limitations do not make Check constraints a bad constraint to use, you just have to know how to apply a Check constraint correctly and what instances it shouldn't be used.