# T-SQL Statements

## Table Design

* Created in an appropriate schema other than dbo
* Table name is to be singular
* Use Pascal Case, Avoid underscores
* Avoid keywords in table and column naming
* Must have primary key that is the table name plus "ID"
* Primary Key constraint should be named "PK\_SchemaName\_TableName\_ColumnName" and be a clustered index
* Unique Constraint should be named "UC\_SchemaName\_TableName\_ColumnName1\_ColumnName2" with up to 3 columns included in the unique constraint
* Indexes should be named "IX\_SchemaName\_TableName\_ColumnName1\_ColumnName2" with up to 3 columns included
* Data Types
  + should not be null unless absolutely needed
  + should be the smallest needed type (ie: use TINYINT if there will be no more than 255 values)
  + DATE, TIME, and DATETIME2 should be used appropriately for the needed precision
  + FLOAT should never be used, instead use a NUMERIC or if used in a monetary sense, use MONEY
  + Do not use DATETIME, TEXT, NTEXT, IMAGE, TIMESTAMP
* Column names should be descriptive of what they are storing, instead of DateModified use ModifiedOn
* Avoid abbreviations
* Columns with Default values should have the default constraint explicitly named "DF\_SchemaName\_TableName\_ColumnName"
* Foreign Keys should have "ID" at the end of the column name
* Foreign Key constraints should be FK\_SchemaName\_ForeignKeyTableName\_ForeignKeyColumnName\_SchemaName\_PrimaryKeyTableName
* Columns that are not foreign keys, but are an identifier, should have "Identifier" in the name instead of "ID"

## Queries

* Cursors should be avoided at nearly all costs
* Avoid sub-select statements
* Avoid spaces, underscores, keywords or any other special characters in column aliasing
* Avoid overly complex or excessive chaining of CTE ([Common Table Expressions](https://msdn.microsoft.com/en-us/library/ms175972.aspx))
  + Some of the CTE and sub-Select cases can take advantage of the [Windowing Functions](http://www.brentozar.com/sql-syntax-examples/window-function-examples-sql-server/)
* Do not Cast/Covert or modify a column in the WHERE or JOIN clause
* Use [FORMAT](https://msdn.microsoft.com/en-us/library/hh213505.aspx) instead of CONVERT to format a date
* Use [COALESCE](https://msdn.microsoft.com/en-us/library/ms190349.aspx) instead of ISNULL
* Use SYSUTCDATETIME() instead of GETDATE(), this will be in UTC and should be accounted for in the Application documentation
* Table aliasing should be used in a simple and identifiable manner. Do not use 'a', 'b', 'c' for the table aliases if that is not relatable to the table name. Instead if the table is Person use p, TrackedClaim as tc, etc
* Do not use the database name for a table if the query is being executed from within that database, instead of HPS.dbo.Networks use just dbo.Networks
* Use the full phrases for join statements, INNER JOIN, LEFT OUTER JOIN, etc
* Try to keep a line of code to a reasonable length to avoid the need for side to side scrolling
* Each item of a SELECT, WHERE, GROUP BY, ORDER BY, etc should be on it's own line preceded by a comma
* Comments should be used when something is not "simple", things that would like bring up questions in a review process
* Do not ORDER BY unless absolutely needed
* Use UNION ALL if potential duplicates are not a concern or won't happen, UNION uses a sorting to remove duplicates between the statements and is therefore has a higher query cost
* Table Variables are suitable for narrow tables that are not very deep, 1-3 coulmns with less than 2000ish rows (this is really determined by performance testing); otherwise use a Temporary Table

## Database Objects

* Avoid spaces, underscores, keywords or any other special characters is SP naming
* Naming should describe the action and targeted noun ie: GetPerson, UpdateNacha, ProcessIncoming835Files, etc
* created in an appropriate schema other than dbo
* Comment at the top should be the JIRA task id and high level purpose description no longer needed being that Crucible, JIRA and Git are integrated
* Comments should be used when something is not "simple", things that would like bring up questions in a review process
* Do not ORDER BY unless absolutely needed
* Use WITH SCHEMABINDING when creating a view