

Database Design and Implementation
Chapter 9 Conceptual Exercises

Questions	Answers
9.1.a.	<pre> <Query> -- <SelectList> -- <Field> = a -- <TableList> -- IdTok = x -- WHERE -- <Predicate> -- <Term> -- <Expression> = <Field> = b -- = -- <Expression> = <Constant> = IntTok = 3 </pre>
9.1.b.	<pre> <Query> -- <SelectList> -- <Field> = a -- , -- <Field> = b -- <TableList> -- IdTok = x -- , -- IdTok = y -- , -- IdTok = z </pre>
9.1.c.	<pre> <UpdateCmd> -- <Delete> -- DELETE FROM -- IdTok = x </pre>

Database Design and Implementation
Chapter 9 Conceptual Exercises

	<pre> -- WHERE -- <Predicate> -- <Term> -- <Expression> = <Field> = a -- = -- <Expression> = <Field> = b -- AND -- <Term> -- <Expression> = <Field> = c -- = -- <Expression> = <Constant> = IntTok = 0 </pre>
9.1.d.	<pre> <UpdateCmd> -- <Modify> -- UPDATE -- IdTok = x -- SET -- <Field> = a -- = -- <Expression> = <Field> = b -- WHERE -- <Predicate> -- <Term> -- <Expression> = <Field> = c -- = -- <Expression> = <Constant> = IntTok = 3 </pre>
9.1.e.	<pre> <UpdateCmd> -- <Insert> -- INSERT INTO -- IdTok = x -- (</pre>

Database Design and Implementation
Chapter 9 Conceptual Exercises

	<pre> -- <FieldList> -- <Field> = a -- , -- <Field> = b -- , -- <Field> = c --) -- VALUES -- (-- <ConstList> -- <Constant> = IntTok = 3 -- , -- <Constant> = StrTok = 'glop' -- , -- <Constant> = IntTok = 4 --) </pre>
9.1.f.	<pre> <UpdateCmd> -- <Create> -- <CreateTable> -- CREATE TABLE -- IdTok = x -- (-- <FieldDefs> -- <FieldDef> -- IdTok = a -- <TypeDef> = VARCHAR (IntTok = 3) -- , -- <FieldDef> -- IdTok = b -- <TypeDef> = INT -- , -- <FieldDef> </pre>

Database Design and Implementation
Chapter 9 Conceptual Exercises

	<pre> -- IdTok = c -- <TypeDef> = VARCHAR (IntTok = 2) --)</pre>
9.2.a.	Exception at "select". Reason: Missing fields to select.
9.2.b.	Exception at the second "x". Reason: Syntax error, looks like an alias without the "AS" keyword.
9.2.c.	Exception at "z". Reason: Syntax error, looks like an alias or an additional table without a comma.
9.2.d.	Exception at "where". Reason: Missing table name.
9.2.e.	Exception at "-=". Reason: Invalid operator. Should be "=".
9.2.f.	Exception at end of string. Reason: Incomplete WHERE clause.
9.3.a.	<p>The grammar for <Create> is:</p> <pre><Create> := <CreateTable> <CreateView> <CreateIndex></pre> <p>This grammar is ambiguous because it does not differentiate between different types of creation commands when parsing. A recursive-descent parser, which processes the input from left to right, would have difficulty determining which rule to follow without looking ahead in the input string.</p>
9.3.b.	<p>Assuming the parser distinguishes the type of creation based on specific keywords like TABLE, VIEW, and INDEX, the grammar can be revised as:</p> <pre><Create> := CREATE <CreateType> <CreateType> := TABLE <CreateTableDetails> VIEW <CreateViewDetails> INDEX <CreateIndexDetails></pre> <p>This modified grammar uses the "CREATE" keyword followed by the specific type keyword to guide the parser in its decision-making process.</p>