**Assignment 23.2**

Explain Primary data types and complex data types in Hive with an example in brief.

Primary data types:

• Numeric Types

• String Types

• Date/Time Types

• Miscellaneous Types

Numeric Data Types

• Integral types are – TINYINT, SMALLINT, INT & BIGINT

• Floating types are – FLOAT, DOUBLE & DECIMAL.

String Data Types

• STRINGString literals can be expressed with either single quotes (') or double quotes (")

• VARCHAR Varchar types are created with a length specifier (between 1 and 65355), which defines the maximum number of characters allowed in the character string.

• CHAR Char types are similar to Varchar but they are fixed-length meaning that values shorter than the specified length value are padded with spaces but trailing spaces are not important during comparisons.

Date/Time Type

• Hive provides DATE and TIMESTAMP data types in traditional UNIX time stamp format for date/time related fields in hive.

• DATE values are represented in the form YYYY-MM-DD. Example: DATE ‘2014-12-07’. Date ranges allowed are 0000-01-01 to 9999-12-31.

• TIMESTAMP use the format yyyy-mm-dd hh:mm:ss[.f...].

• We can also cast the String, Time-stamp values to Date format if they match format. Miscellaneous Types

• Hive supports two more primitive data types, BOOLEAN and BINARY. Similar to Java’s Boolean, BOOLEAN in hive stores true or false values only.

• BINARY is an array of Bytes and similar to VARBINARY in many RDBMSs

Complex data types:

Currently Hive supports four complex data types. They are:

ARRAY

MAP

STRUCT

UNIONTYPE

ARRAY

ARRAY<datatype> An Ordered sequences of similar type elements that are indexable using zero-based integers. It is similar to arrays in Java. Example – array (‘lasa’, ‘aaba’, ‘aveen’); Second element is accessed with array [1 MAP] MAP MAP<primitive\_type,data\_type> Collection of key-value pairs. Fields are accessed using array notation of keys (e.g., [‘key’]).

STRUCT

STRUCT <col\_name:data\_type[COMMENT col\_comment] It is similar to STRUCT in C language. It is a record type which encapsulates a set of named fields that can be any primitive data type. Elements in STRUCT type are accessed using the DOT (.) notation. Example – For a column c of type STRUCT {d INT; f INT} the a field is accessed by the expression c.

UNIONTYPE

UNIONTYPE <data\_type,data\_type,….> It is similar to Unions in C. At any point of time, an Union Type can hold any one (exactly one) data type from its specified data types.