DNS Message format
(http://www.ietf.org/rfc/rfc1035.txt)

Each message begins with a fixed header. The header contains a unique IDENT1F1CAT1ON field that the client uses to match responses to queries, and a PARAMETER field that specifies the operation requested and a response code. Second figure gives the interpretation of bits in the PARAMETER field. The fields labeled NUMBER OF each give a count of entries in the corresponding sections that occur later in the message. For example, the field labeled NUMBER OF QUESTIONS gives the count of entries that appear in the QUESTION SECTION of the message. The QUESTION SECTION contains queries for which answers are desired. The client fills in only the question section; the server returns the questions and answers in its response. Each question consists of a QUERY DOMAIN NAME followed by QUERY TYPE and QUERY CLASS fields, as third figure shows.

0	16	31
IDENTIFICATION		PARAMETER
NUMBER OF QUESTIONS		NUMBER OF ANSWERS
NUMBER OF AUTHORITY		NUMBER OF ADDITIONAL
QUESTION SECTION . . .		
ANSWER SECTION . . .		
AUTHORITY SECTION . . .		
ADDITIONAL INFORMATION SECTION . . .		

Bit of PARAMETER field	Meaning

0	Operation:
	  0 Query
	  1 Response

1-4	Query Type:
	  0 Standard
	  1 Inverse
	  2 Completion 1 (now obsolete)
	  3 Completion 2 (now obsolete)

5	Set if answer authoritative
6	Set if message truncated
7	Set if recursion desired
8	Set if recursion available
9-11	Reserved

12-15	Response Type:
	  0 No error
	  1 Format error in query
	  2 Server failure
	  3 Name does not exist

| 0	16	31
QUERY DOMAIN NAME		
. . .		
QUERY TYPE		QUERY CLASS
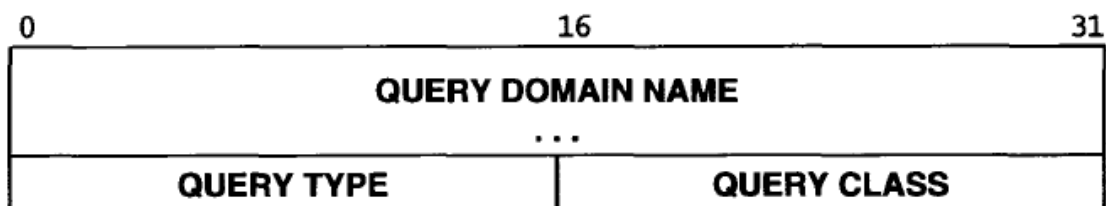
QUERY DOMAIN NAME field has variable length, it can be read by understanding the following representation. When represented in a message, domain names are stored as a sequence of labels (www.bits-pilani.ac.in.). Each label begins with an octet that specifies its length. Thus, the receiver reconstructs a domain name by repeatedly reading a 1-octet length, *n,* and then reading a label *n* octets long. A length octet containing zero marks the end of the name. The *QUERY TYPE* encodes the type of the question (e.g., whether the question refers to a machine name or a mail address). The *QUERY CLASS* field allows domain names to be used for arbitrary objects because official Internet names are only one possible class. It should be noted that, although the diagram in Figure 3 follows formats in 32-bit multiples, the *QUERY DOMAIN NAME* field may contain an arbitrary number of octets. No padding is used. Therefore, messages to or from domain name servers may contain an odd number of octets.

QTYPE Values:

TYPE	Value	Meaning
A	1	a host address
NS	2	an authoritative name server
MD	3	a mail destination (OBSOLETE - use MX)
MF	4	a mail forwarder (OBSOLETE - use MX)
CNAME	5	the canonical name for an alias
SOA	6	marks the start of a zone of authority
MB	7	a mailbox domain name (EXPERIMENTAL)
MG	8	a mail group member (EXPERIMENTAL)
MR	9	a mail rename domain name (EXPERIMENTAL)
NULL	10	a null RR (EXPERIMENTAL)
WKS	11	a well known service description
PTR	12	a domain name pointer
HINFO	13	host information
MINFO	14	mailbox or mail list information
MX	15	mail exchange
TXT	16	text strings
RP	17	for Responsible Person
AFSDB	18	for AFS Data Base location
X25	19	for X.25 PSDN address
ISDN	20	for ISDN address
More at http://www.iana.org/assignments/dns-parameters/dns-parameters.xhtml		
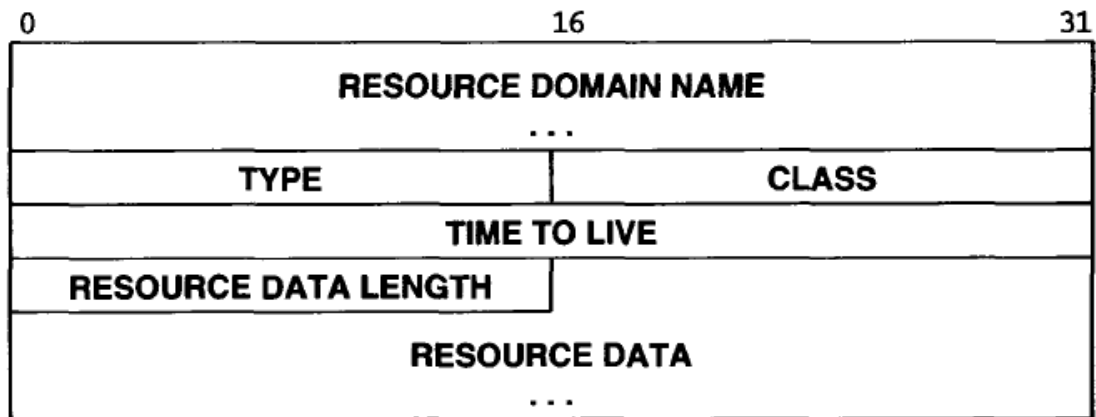
In a domain name server message, each of the **ANSWER SECTION, AUTHORITY SECTION,** and **ADDITIONAL INFORMATION SECTION** consists of a set of **resource records** that describe domain names and mappings. Each resource record describes one name. Figure 4 shows the format. The **RESOURCE DOMAIN NAME**

field contains the domain name to which this resource record refers. It may be an arbitrary length. The *TYPE* field specifies the type of the data included in the resource record; the *CLASS* field specifies the data's class. The *TIME TO LIVE* field contains a 32-bit integer that specifies the number of seconds information in this resource record can be cached. It is used by clients who have requested a name binding and may want to cache the results. The last two fields contain the results of the binding, with the *RESOURCE DATA LENGTH* field specifying the count of octets in the *RESOURCE DATA* field.