Database

services	
PK	hostname (string: 20)
PK	serviceType (string:15)
	protocol (string:5)
	interface (string:10)
	port (int)
	TXTDATA (string:20)
	TTL (int)
	advertised (bool)
	questioned (bool)

myServices	
PK	hostname (string: 20)
PK	serviceType (string:15)
	protocol (string:5)
	interface (string:10)
	port (int)
	TXTDATA (string:20)
	TTL (int)
	advertised (bool)
	questioned (bool)

requestedServices	
PK	id (int)
	serviceType (string:15)

DNSTable	
PK	hostname (string: 20)
PK	interface (string:10)
	ip (string:40)

Functions:

service[] getServices(int &size)   :
service[] getMyServices(int &size): both return an array of structs service (which contains the fields described on previous tables) from the corresponding table.

int addService(service): accepts a service and adds it to the table Services(it is important to check first if that service(aka hostname and service_type) is already added. If so, it should do update and not insert).

int addMyService(service): accepts a service and adds it to the table myServices(it is important to check first if that service(aka hostname and service_type) is already added. If so, it should do update and not insert).

void refreshTTL(int t): updates TTL times from both tables for all services (TTL = TTL – t , where t is a specific value)

bool removeService(string hostname, string serviceType): accepts a service's hostname and service_type and removes it from the table Services (it should support the string ANY for both hostname and serviceType. More specifically, if a hostname is ANY, it should remove the services of ALL hostnames. The same for the service types.)

bool removemyService(string serviceType): accepts a service_type from the table myServices (it should support the string ANY for serviceType. More specifically, if a service type is ANY, it should remove ALL services.)

char** getRequestedService(int &size): returns an array of strings of containing the service_type records.The argument returns the size of the array.

int getServicesNum(void): returns an integer equal to the number of records in myServices table
note: application layer should add a corresponding record in myServices table for each service the device offers

bool addDnsRecord(string hostname, string interface, string ip): adds a record in DNSTable

bool removeDnsRecord(string hostname, string interface): removes a record from DNSTable

bool updateDnsRecord(string hostname, string interface, string ip): updates the ip of the record having hostname and interface given with the ip given