README

Usage

The program is based on the python 3.10 environment. Use python 3.10 interpreter interpret script mydig.py. Then the code prompts the user to enter a domain name in the terminal. A dig-like info will be printed to the terminal. Format ex:

```
(.venv) jasper@ubuntu:~/$ /home/ubuntu/myfile/.venv/bin/python
/home/ubuntu/myfile/mydig.py
Enter a domain name: google.co.jp
QUESTION SECTION:
google.co.jp                      IN      A

ANSWER SECTION:
google.co.jp    300     IN      A       142.250.31.94

Query time: 192.782 msec
WHEN: Mon Feb 20 04:52:20 2023
```

Description

The code defines two functions: `mydig` and `dig` that perform a DNS query to obtain the IP addresses associated with a domain name. The code uses the `dns` library to perform the query, which provides a Python interface to the DNS protocol.

The `mydig` function iteratively queries a list of root DNS servers until it obtains a response or a timeout occurs. The function then checks the additional records in the response for any A records and passes them to the `dig` function to be processed. If no A records are found, the function checks the authority records in the response for any NS records and performs a recursive call to `mydig` with the target domain name. The function also collects any CNAME records that it encounters in the `cname` list.

The `dig` function takes a domain name and a source IP address as input and performs a DNS query using the `dns` library. The function checks the answer section of the response for any A records, collects the IP addresses in the `answers` list, and also checks for any CNAME records and passes them to the `mydig` function to be resolved recursively. If no A or CNAME records are found in the answer section, the function checks the additional records in the response for any A records and passes them to a recursive call to `dig` function. If no additional records are found, the function checks the authority section for any NS records and calls `mydig` with the target domain name.

Finally, the code prompts the user to enter a domain name and measures the time taken to perform the query using the `datetime` library. The result of the query is printed to the console in the format of

a standard dig command.

External Libraries Used

```
dnspython
```