SIT202– Computer Networks and Communication

Task 5.2C My DNS Server Sketch

This is a Credit Task

As you are targeting above the pass grade, you will be expected to gain deeper understanding of the topics we cover in this unit, going above and beyond in your learning journey. To achieve this, you will be **developing a DNS server** using Python and **build a client program to test its functionalities through** Task 5.2C (this task) and Task 6.2C**.**

Task Requirement

This task serves as an introduction to designing a DNS server, focusing on the conceptual understanding and logical flow of operations through the creation of pseudo code. It aims to build a foundational understanding of DNS server operations, which is essential for the subsequent practical implementation in Python in Task 6.2C.

Task Instruction

In this task you will develop a comprehensive pseudo code covering all operational aspects of a DNS server. As you have learnt in Module 2, DNS uses UDP as the transport layer protocol. This DNS server uses the query and response messages and is capable of supporting two types of resource records, A and CNAME. Make sure to add annotations or comments within the pseudo code to clarify your logic. You can follow the following steps to build a pseudo code of the DNS server functionality.

1. Server Initialization: Outline the steps for starting a DNS server, including initialization of necessary components.
2. Listening and Processing DNS Queries: Describe how the server listens for and processes incoming DNS queries. Develop logic for parsing queries to identify the hostname and query type (A or CNAME).
3. Handling A and CNAME Records: Design separates logical flows for dealing with A and CNAME record queries.
4. Generating DNS Responses: Develop the process for creating and sending appropriate DNS response messages.

Task Submission Instruction

You need to submit a pdf containing the pseudo code covering all operational aspects of a DNS server with annotations or comments to clarify the logic.