Recruitment Task: Log File IP Extraction and Storage with Docker and MongoDB

Problem Statement:

You are tasked with creating a Docker module that processes a given log file. The module should:

1. **Fetch the Log File**: You will be provided with a log file for processing. Your task is to read and process the log file line by line.

2. **Extract IP Addresses**: For each line in the log file, extract the IP addresses.

3. **Categorize IP Addresses**: Classify the extracted IP addresses into two categories:
   a. **Public IPs**
   b. **Private IPs**

4. **Store in MongoDB**: Store the IP addresses in a MongoDB collection. You should use two distinct documents:
   a. One for **Public IPs**
   b. One for **Private IPs**

5. **No Duplicate IPs**: Ensure that each IP is only stored once, even if it appears multiple times in the log file. This will require you to check for duplicates before insertion into the MongoDB collection.

6. **Docker Module**: Package your solution in a Docker container that performs the above tasks. Your solution should be self-contained and executable via a single command.

7. **Evaluation with Additional Log File**: Once you have submitted your solution, we will evaluate the accuracy and efficiency of your work by providing an additional log file. The module should be able to handle this new file and process it as expected.

If you want, you can use the following rules to classify the IP addresses:

- **Private IP ranges** (IPv4):
  - `10.0.0.0` to `10.255.255.255`
  - `172.16.0.0` to `172.31.255.255`
  - `192.168.0.0` to `192.168.255.255`
- Any other IP address outside these ranges is considered a **Public IP**.

Requirements:

- Docker must be used to package the solution.

- MongoDB should be used to store the IP addresses.
- Python, Node.js, or any programming language of your choice is allowed for this task, as long as it works within the Docker container.
- The solution should be able to handle large log files efficiently.

Deliverables:

- Docker image of the module you created.
- A Dockerfile to build the Docker container.
- The script that reads the log file, extracts the IPs, and stores them in MongoDB.
- A README file explaining how to run the solution, including dependencies and setup instructions.
- Sample log files (if possible) or description of the log format.
- Please ensure your solution can handle an additional log file for evaluation purposes.
- A well-documented **approach**:
  - If you have completed the task, submit your approach along with the solution.
  - If you are unable to complete the task, submit your approach and outline the steps you took, challenges you encountered, and your plan to tackle the remaining parts of the task.

Note: The well-documented approach should clearly explain the thought process, challenges faced, any decisions made, and the steps you took to solve the problem.

Have any questions about the assignment? We're here to help! If you need clarification on any aspect of the task, please don't hesitate to ask.