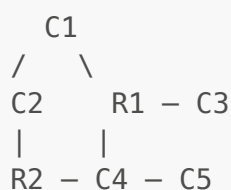
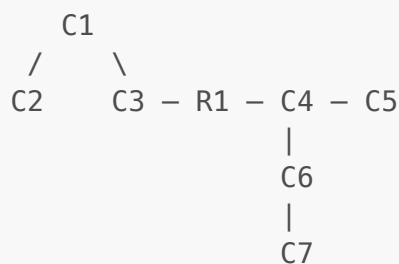


AjiraNet

Ajira needs you to develop a web api to simulate local network for communication-related purposes.

- The network will consist of various devices connected to each other (wired/wireless). There will be two types of devices :- computers and repeaters.
- Connections (wired/wireless) between devices can transfer information both ways.
- When information must be transferred between two devices and if there is no direct connection between two devices, it must be transferred from device to device until it reaches the destination.
 - The message sent by a device has a 'strength', limiting it to travel only a specific distance. The strength of a message will reduce by 1 unit after every device it reaches from the source computer.
 - If the message being sent encounters a repeater, it's strength will be amplified by double its current strength.

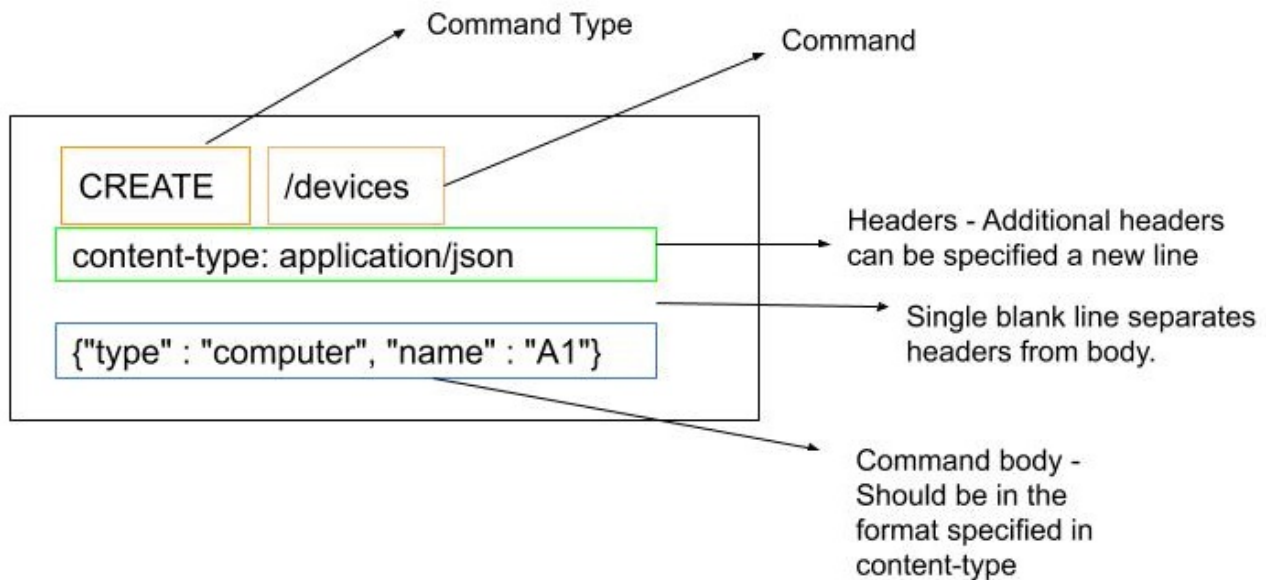
Examples of networks are given below. Computers are represented with the prefix 'C' and repeaters are represented with the prefix 'R'.



These are just examples. The network topography will be different.

You are expected to develop a **only one API endpoint** `POST /ajiranet/process` for all the network operations(commands). This endpoint should be able to take Command Text in its request body and process it.

An example command text with explanation is shown below.

**Note:**

Allowed operation types are **CREATE, MODIFY AND FETCH**. A blank line should separate command headers from body.

AjiraNet is required to support the following Commands:

- Add a device to a network.
- Add connections between two devices.
- List all the devices
- To fetch the route that must be taken if information is to be passed between two devices.
- To set device strength

The above-mentioned operations should be carried out using the following commands:-

ADD DEVICE

```
CREATE /devices
content-type : application/json

{"type" : "COMPUTER", "name" : "A1"}
```

- Every device must have a unique name (at least one character).
- The device type must be an enumeration of either 'COMPUTER' or 'REPEATER'.

CONNECT DEVICES

```
CREATE /connections
content-type : application/json

{"source" : "A1", "targets" : ["A2"]}'
```

- A device cannot be connected to itself.
- A device can be connected to any number of devices.
- A device does not necessarily need to be connected to other devices

LIST DEVICES

```
FETCH /devices
```

- List all devices in the network

ROUTE INFO

```
FETCH /info-routes?from=A1&to=A2
```

- If no route is found between two devices, then an error message must be displayed.
- The route for a device to itself should only have a source and destination which are both itself.
- The source or the destination device cannot be a repeater.

CHANGE DEVICE STRENGTH

```
MODIFY /devices/A1/strength  
content-type : application/json  
  
{"value": 2}
```

- The strength defined for a device must be a number and it cannot be negative.
- A strength cannot be defined for a repeater. It only doubles the strength of the incoming message.
- If not defined, the default strength will be 5.

Appropriate validations should be applied and error messages should appear.

Please refer TestCases file for sample test cases.

Implementation Guidelines

- DO NOT use any database and all the data should be kept in-memory.
- The web server you are going to develop should not have any other API other than `ajiar.net/process` endpoint.
- You can use any programming language you are comfortable with.

Things that we are looking for

- Readme file with how to build & run the application.

- Proper separation of concerns.
- Right abstractions - Don't over-engineer the solution use abstractions only where it make sense.
- Clean Code - We care a lot about code and make sure it is clean, readable and maintainable.