Graph Traversal – Chansey - (Nikhil Nagaraj, r0727410)

Q. Can Chansey (currently at Room 0.01) reach its goal at Room 2.01?

A. Chansey currently is at Room 0.01. That marks its current position. 2.01 is on level 2, 10 units from the elevator. The relevant state variables are set as follows:

```
"deliveryLocation": {
        ...
        ...
        ...
        "@id": "Delivery_Location",
        "@value": [
            ...
            ...
            {
                "@id": "Steps",
                "heightDifference": 2,
                "toElevator": 10,
                "fromElevator": 12,
                "intoElevator": 2,
                "sameFloorDistance": 0
            }
        ]
    }
```

Starting from the goal to choose the action plan, we move to the action plan selector. The condition here is falsified, as `sameFloorDistance` is 0. As the condition has not been satified, the action plan chosen is `Chansey action plan`. The sequence of actions executed are as follows:

- `Move(distance = 10)` which satifies the preconditions (distance > 0) set by the meta model - `Motion`.
- `RequestElevator` which satisfies the preconditions set by the meta model `Elevator Communication`.

> **Note**: 10 units of motion puts it at the `accessPosition` since the distance from the elevator to the room is 10.

- `Move(distance = 2)` which satifies the preconditions (distance > 0) set by the meta model - `Motion`.
- `Move Elevator(floors = 2)` which satifies the preconditions (robot is inside the elevator) set by the meta model - `Elevator Communication` and with this Chansey reaches the 2nd Floor.
- `Move(distance = 12)` satisfies the required preconditions (distance > 0) and puts the robot in front of `Room 2.01`.

Since the action plan has been completely executed, on checking the goal we find that the desired result has been achieved.