Backward-Chaining

Aim:

To Implement Backard-Chaining.

```
facts = set()
rules = [
    ("It is raining", "The ground is wet"),
    ("The ground is wet", "The grass is slippery")
]

def backward_chaining(goal, facts, rules):
    print(f"Checking if we can prove: {goal}")
    if goal in facts:
        print(f"Goal {goal} is already a fact!")
        return True
    for premise, conclusion in rules:
        if goal == conclusion:
            print(f"Trying rule: If {premise}, then {conclusion}")
            if backward_chaining(premise, facts, rules):
                facts.add(goal)
                print(f"Goal {goal} is achieved!")
                return True
    return False
```

```
facts.add("It is raining")


goal = "The grass is slippery"


backward_chaining(goal, facts, rules)


print("\nInferred facts:", facts)
```

Result:

```
      Checking if we can prove: The grass is slippery

Trying rule: If The ground is wet, then The grass is slippery

Checking if we can prove: The ground is wet

Trying rule: If It is raining, then The ground is wet

Checking if we can prove: It is raining

Goal It is raining is already a fact!

Goal The ground is wet is achieved!

Goal The grass is slippery is achieved!

Inferred facts: {'the ground is wet', 'it is raining', 'the grass is
slippery'}
```