

Case Study for Hierarchy Test Case

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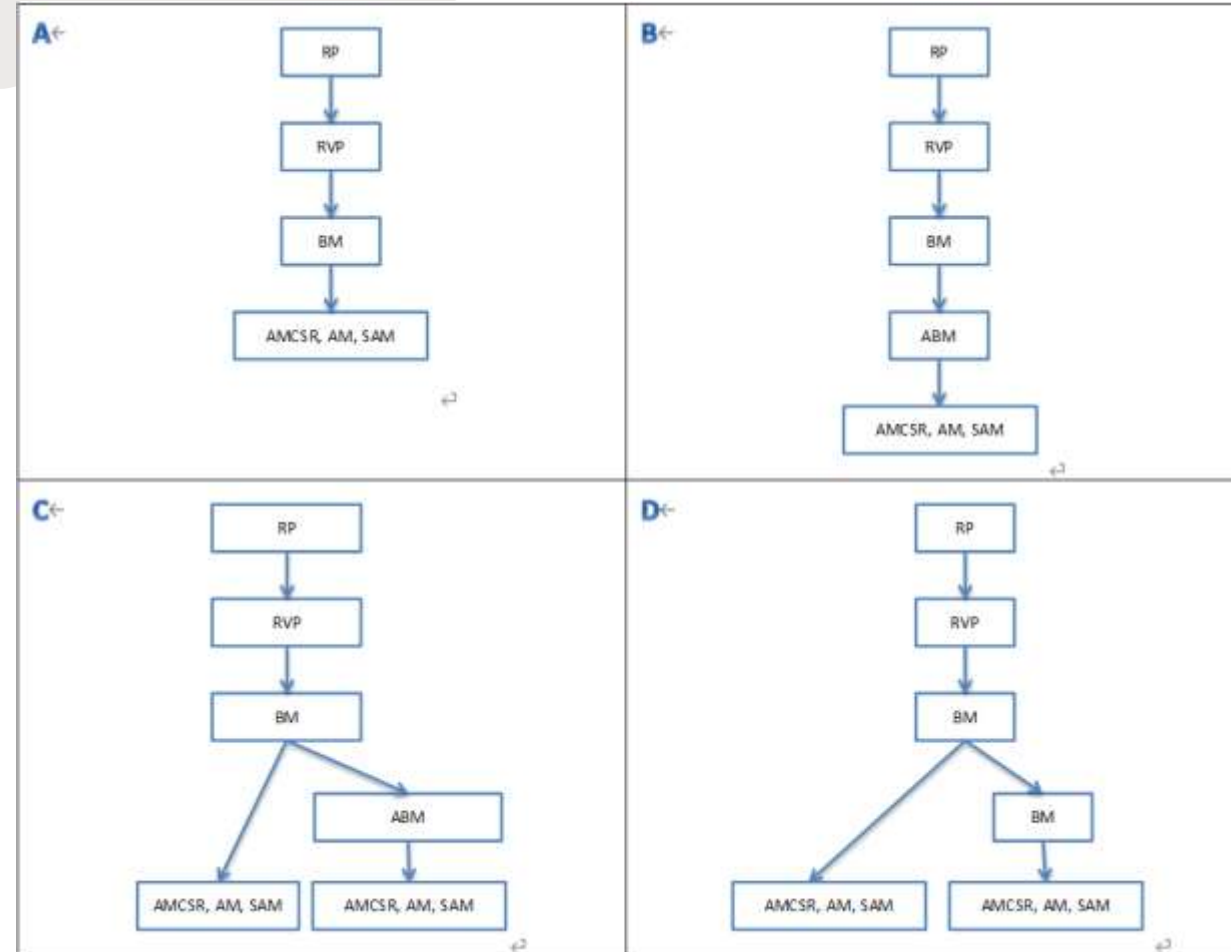
<https://colab.research.google.com/drive/1RUVJU-2oUG9ULPPwkioKFKCrrz5FfWJt?usp=sharing>

Assumption

- 1) AMCSRs, AMs and SAMs do not report directly to RVPs or RPs.
- 2) AMCSRs, AMs, and SAMs do not have other employees reporting to them.
- 3) All AMCSRs, AMs, and SAMs have at least one manager in a valid role type (manager role types include ABM, BM, ~~RVP, RP~~).
- 4) VP is only allowed to be added between RVP and RP, and only ONE VP is allowed to be there

Limitation

- Limited to the four reporting structures
- When there are breaks or gaps in the reporting structure, or if the reporting structure is not one of those four types, no rows are created at all for any of the employees in the reporting line even if they have other valid employee-manager relationships.



Employee roles: ↵

Account Manager (AM)↵

Senior Account Manager (SAM)↵

Account Manager / Service Representative (AMSR)↵

Manager roles: ↵

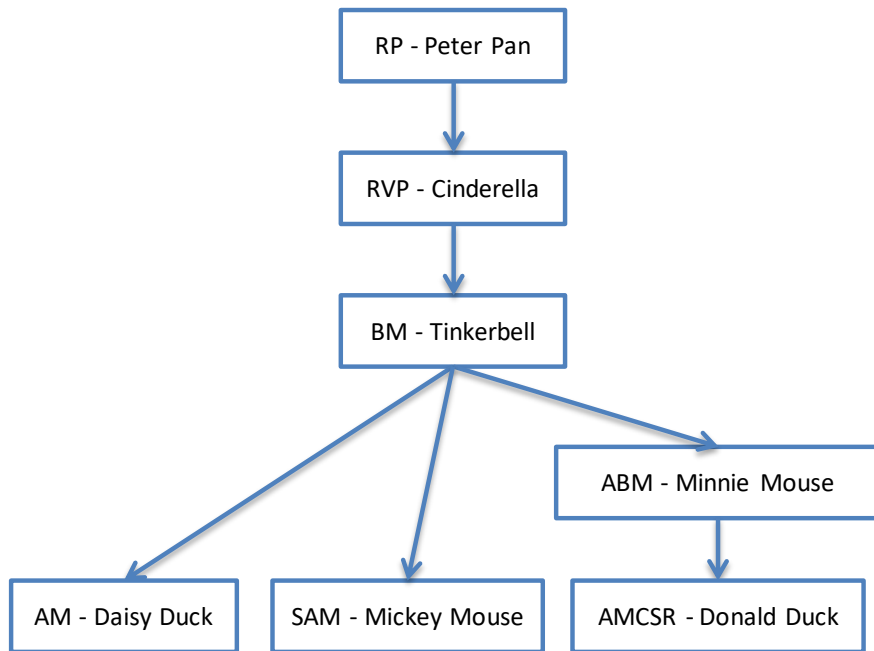
Assistant Branch Manager (ABM)↵

Branch Manager (BM)↵

Regional Vice-President (RVP)↵

Regional President (RP)↵

Tables Examples



ALL_EMPLOYEE table

| | EMP_ID | EMP_POSN_ID | EMP_NM | ROLE | EMP_STS | MGR_POSN_ID | CAPTR_DT |
|---|--------|-------------|--------------|-------|---------|-------------|------------|
| 1 | 111111 | 2233 | DAISY DUCK | AM | Active | 8899 | 2015/11/30 |
| 2 | 333333 | 4455 | MICKEY MOUSE | SAM | Active | 8899 | 2015/11/30 |
| 3 | 555555 | 6677 | DONALD DUCK | AMCSR | Active | 7788 | 2015/11/30 |
| 4 | 666666 | 7788 | MINNIE MOUSE | ABM | Active | 8899 | 2015/11/30 |
| 5 | 777777 | 8899 | TINKER BELL | BM | Active | 9900 | 2015/11/30 |
| 6 | 888888 | 9900 | CINDERELLA | RVP | Active | 1122 | 2015/11/30 |
| 7 | 999999 | 1122 | PETER PAN | RP | Active | 888 | 2015/11/30 |

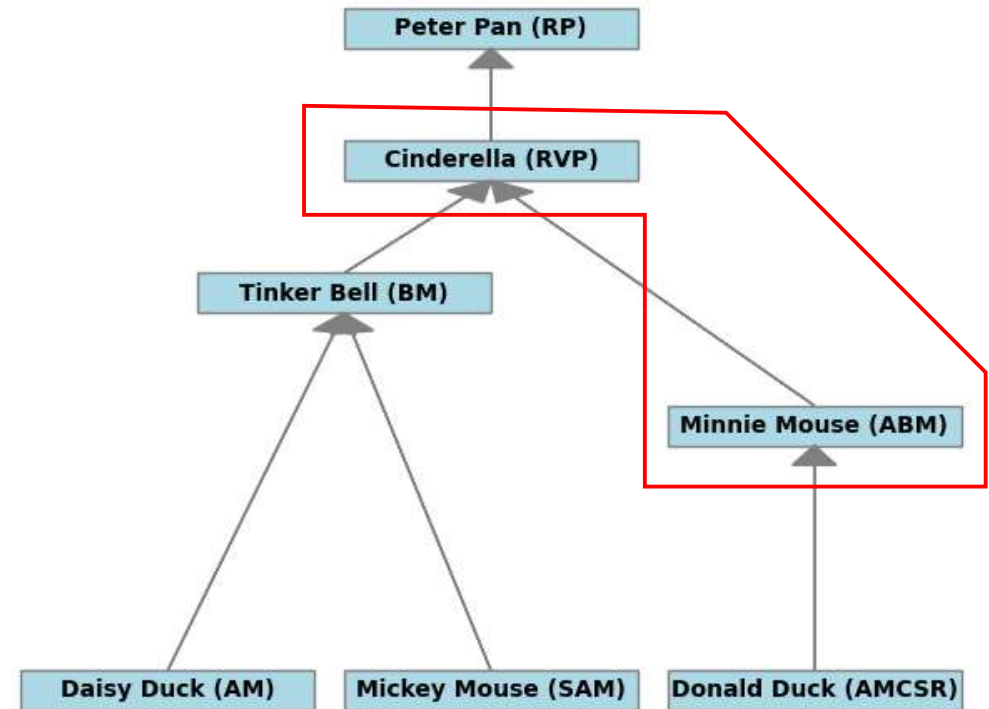
HIERARCHY table

| EMP_ID | EMP_POSN_ID | EMP_NM | ROLE | MGR_ID | MGR_POSN_ID | MGR_NM | MGR_ROLE | CAPTR_DT |
|--------|-------------|--------------|-------|--------|-------------|--------------|----------|------------|
| 111111 | 2233 | DAISY DUCK | AM | 777777 | 8899 | TINKER BELL | BM | 2015/11/30 |
| 333333 | 4455 | MICKEY MOUSE | SAM | 777777 | 8899 | TINKER BELL | BM | 2015/11/30 |
| 555555 | 6677 | DONALD DUCK | AMCSR | 666666 | 7788 | MINNIE MOUSE | ABM | 2015/11/30 |
| 111111 | 2233 | DAISY DUCK | AM | 888888 | 9900 | CINDERELLA | RVP | 2015/11/30 |
| 333333 | 4455 | MICKEY MOUSE | SAM | 888888 | 9900 | CINDERELLA | RVP | 2015/11/30 |
| 555555 | 6677 | DONALD DUCK | AMCSR | 888888 | 9900 | CINDERELLA | RVP | 2015/11/30 |
| 111111 | 2233 | DAISY DUCK | AM | 999999 | 1122 | PETER PAN | RP | 2015/11/30 |
| 333333 | 4455 | MICKEY MOUSE | SAM | 999999 | 1122 | PETER PAN | RP | 2015/11/30 |
| 555555 | 6677 | DONALD DUCK | AMCSR | 999999 | 1122 | PETER PAN | RP | 2015/11/30 |

Scenario 1

- A Branch Manager does not exist between an employee and an RVP.
- Employees are currently only captured in the hierarchy if there is a Branch Manager in the levels above them.
- For example, if an ABM reports directly to an RVP none of the employee-to-ABM, employee- to-RVP, or employee-to-RP records will be created in the hierarchy.

Employee Hierarchy Tree Scenario 1



Scenario 1- Identification

- Create a function to identify RVPs without BM direct reports.
- Also to identify those missing employees under that the RVPs umbrella.

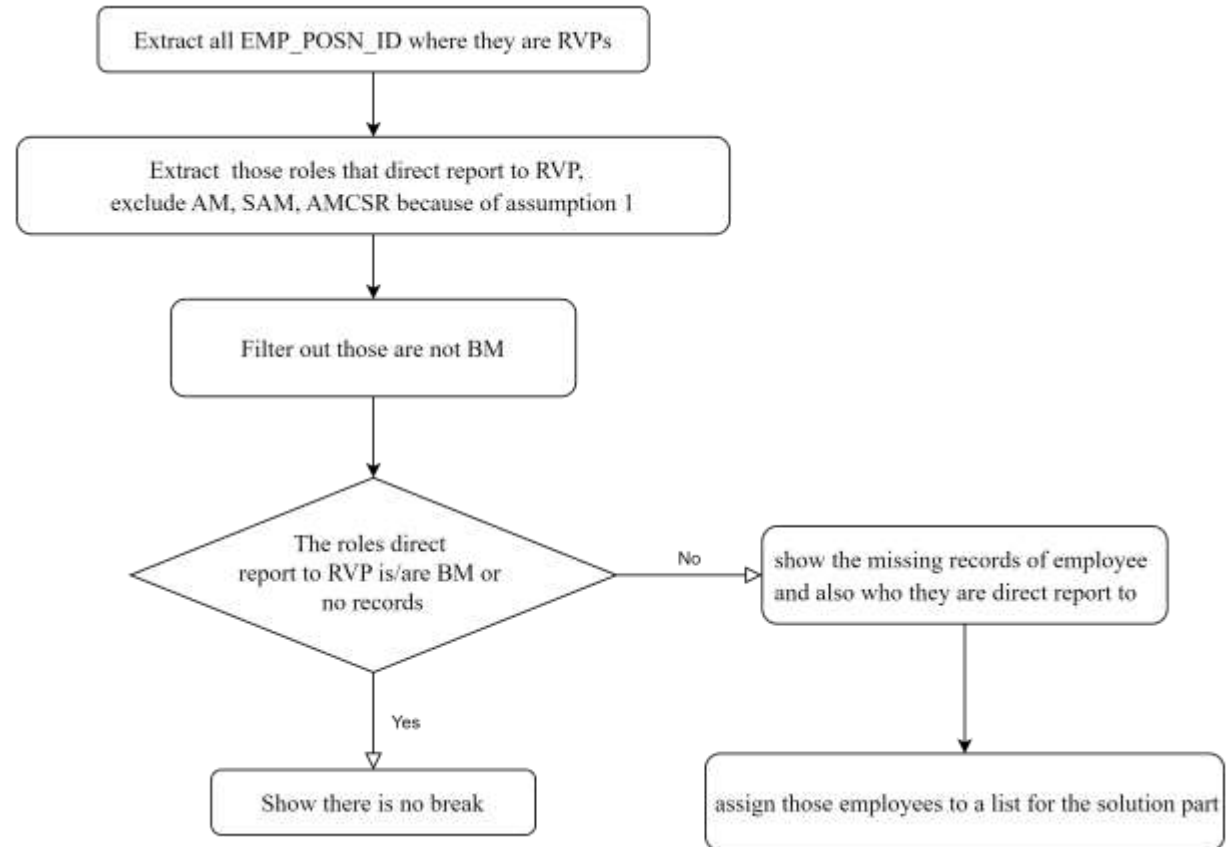
- There is/are 1 breaks because of No BM between RVP and ABM

Missing record Employee(s) is/are

| | EMP_ID | EMP_POSN_ID | EMP_NM | ROLE | EMP_STS | MGR_POSN_ID | CAPTR_DT |
|---|--------|-------------|-------------|-------|---------|-------------|------------|
| 2 | 555555 | 6677 | Donald Duck | AMCSR | Active | 7788 | 2015/11/30 |

Direct report to

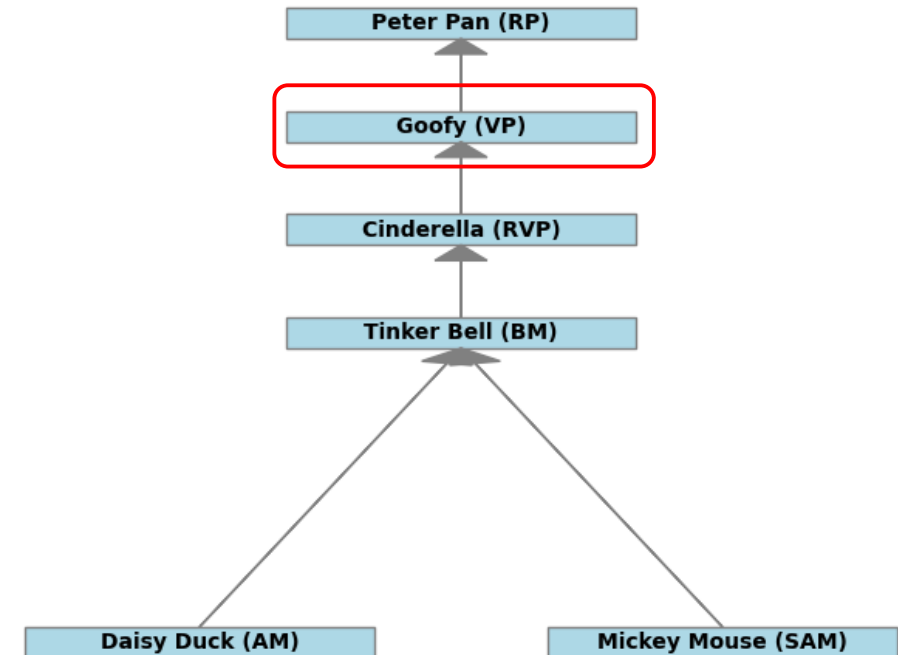
| | EMP_ID | EMP_POSN_ID | EMP_NM | ROLE | EMP_STS | MGR_POSN_ID | CAPTR_DT |
|---|--------|-------------|--------------|------|---------|-------------|------------|
| 3 | 666666 | 7788 | Minnie Mouse | ABM | Active | 9900 | 2015/11/30 |



Scenario 2

- In one region only, a new role type has been inserted between the RVP and the RP.
- This caused a break in the hierarchy and as a result no records are created for any employees in this region.
- Example of structure: AM -> BM -> RVP -> VP -> RP.
- In this case we do not wish to capture the new VP level but do wish to capture the other valid relationships (AM-to-BM, AM-to-RVP, AM-to-RP).
- Add one more assumption
- 4) VP is only allowed to be added between RVP and RP, and only ONE VP is allowed to be there

Employee Hierarchy Tree Scenario 2



Scenario 2- Identification

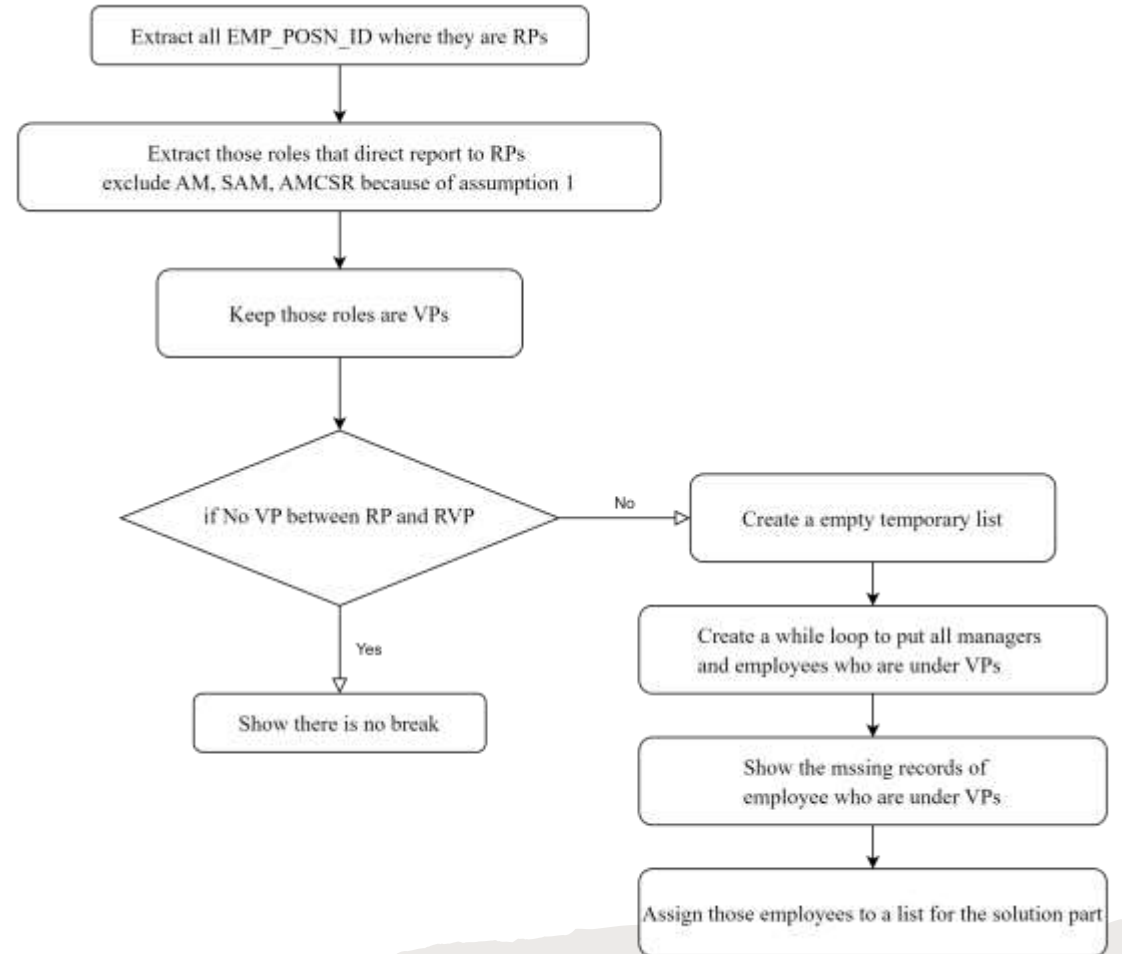
- Create a function to identify if there is a VP direct report to RP, and an RVP report to that VP.
- Also to identify those missing employees under that the VPs umbrella.

There is a VP appear between RP and RVP

| | EMP_ID | EMP_POSN_ID | EMP_NM | ROLE | EMP_STS | MGR_POSN_ID | CAPTR_DT |
|---|--------|-------------|--------|-------|---------|-------------|-----------------|
| • | 5 | 000000 | 0011 | Goofy | VP | Active | 1122 2015/11/30 |

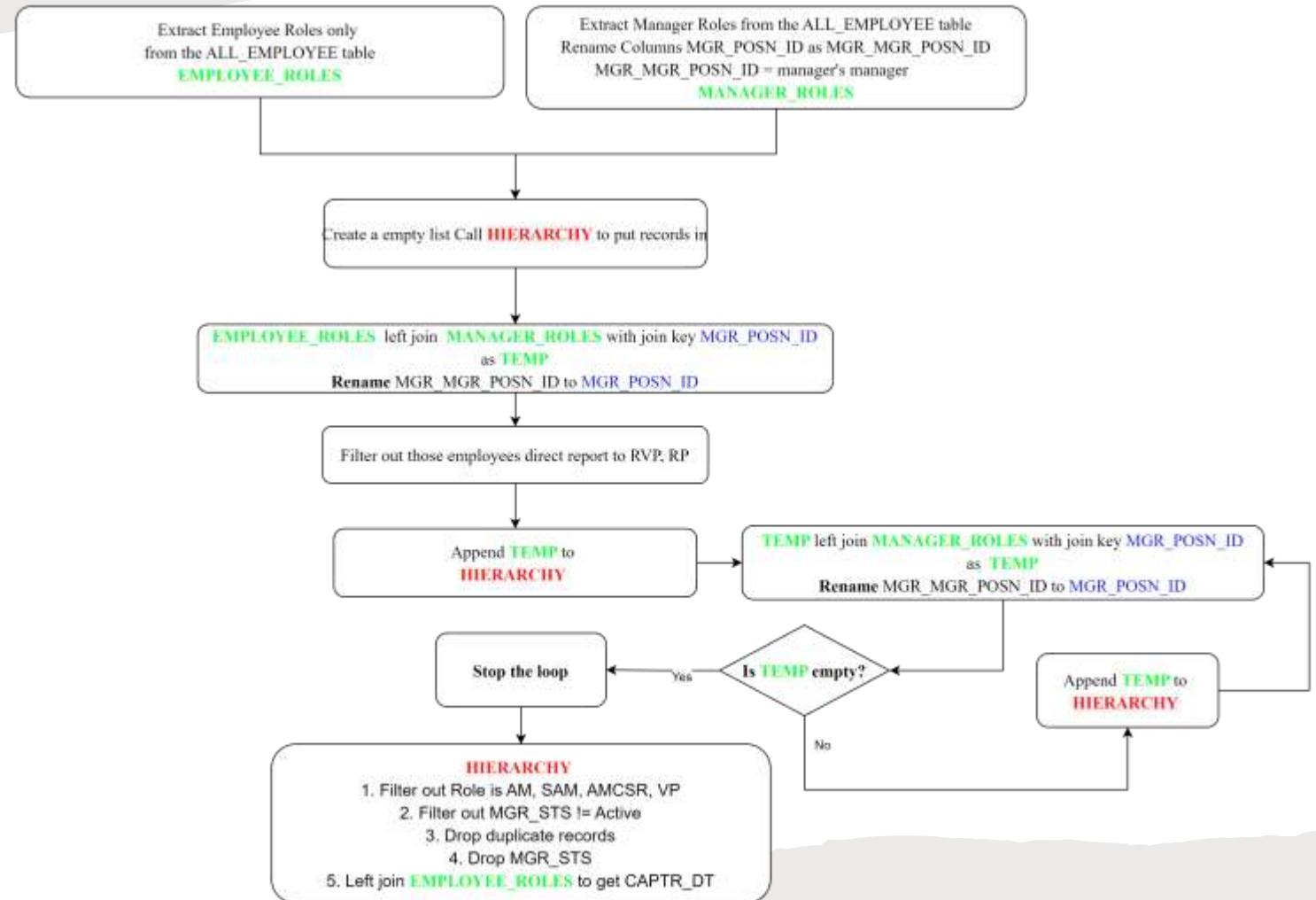
Missing record Employees who are under the Tree of VP are

| | EMP_ID | EMP_POSN_ID | EMP_NM | ROLE | EMP_STS | MGR_POSN_ID | CAPTR_DT |
|--|--------|-------------|--------|-------------|---------|-------------|-----------------|
| | 0 | 111111 | 2233 | Daisy Duck | AM | Active | 8899 2015/11/30 |
| | 1 | 333333 | 4455 | Mikey Mouse | SAM | Active | 8899 2015/11/30 |



Solution for data breaks

- Build a function to get Manager from Employee level (Lowest to Highest)
- Output the table **HIERARCHY**



Scenario 1 - Solution

There is/are 1 breaks because of No BM between RVP and ABM

Missing record Employee(s) is/are

| | EMP_ID | EMP_POSN_ID | EMP_NM | ROLE | EMP_STS | MGR_POSN_ID | CAPTR_DT |
|---|--------|-------------|-------------|-------|---------|-------------|------------|
| 2 | 555555 | 6677 | Donald Duck | AMCSR | Active | 7788 | 2015/11/30 |

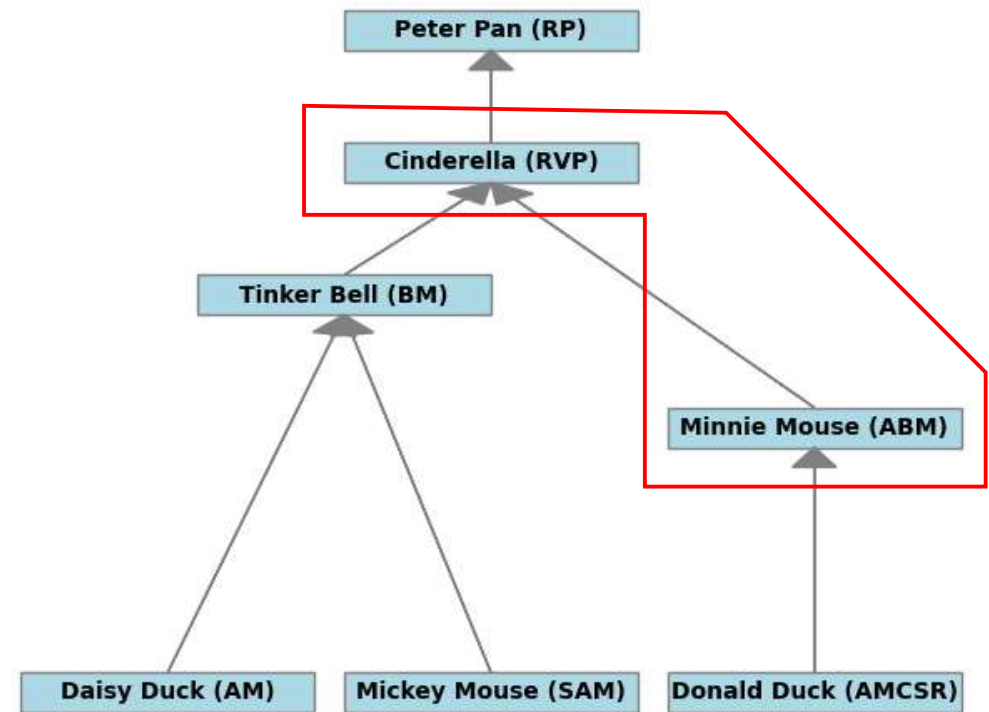
Direct report to

| | EMP_ID | EMP_POSN_ID | EMP_NM | ROLE | EMP_STS | MGR_POSN_ID | CAPTR_DT |
|---|--------|-------------|--------------|------|---------|-------------|------------|
| 3 | 666666 | 7788 | Minnie Mouse | ABM | Active | 9900 | 2015/11/30 |

Result:

| | EMP_ID | EMP_POSN_ID | EMP_NM | ROLE | MGR_POSN_ID | MGR_ID | MGR_NM | MGR_ROLE | MGR_MGR_POSN_ID | CAPTR_DT |
|---|--------|-------------|-------------|-------|-------------|--------|--------------|----------|-----------------|------------|
| 0 | 555555 | 6677 | Donald Duck | AMCSR | 7788 | 666666 | Minnie Mouse | ABM | 9900 | 2015/11/30 |
| 1 | 555555 | 6677 | Donald Duck | AMCSR | 9900 | 888888 | Cinderella | RVP | 1122 | 2015/11/30 |
| 2 | 555555 | 6677 | Donald Duck | AMCSR | 1122 | 999999 | Peter Pan | RP | 888 | 2015/11/30 |

Employee Hierarchy Tree Scenario 1



Scenario 2 - Solution

There is a VP appear between RP and RVP

| | EMP_ID | EMP_POSN_ID | EMP_NM | ROLE | EMP_STS | MGR_POSN_ID | CAPTR_DT |
|---|--------|-------------|--------|------|---------|-------------|------------|
| 5 | 000000 | 0011 | Goofy | VP | Active | 1122 | 2015/11/30 |

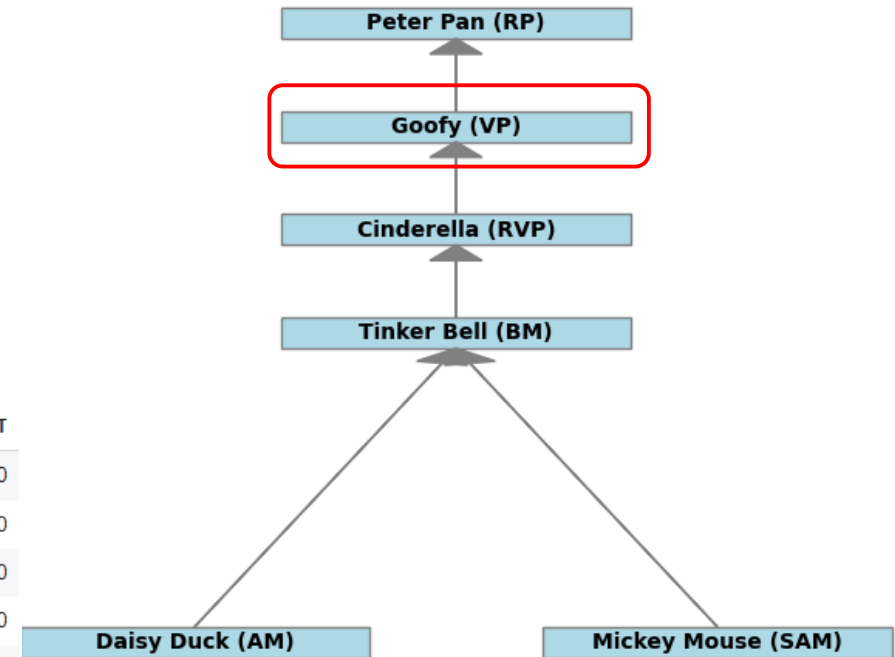
Missing record Employees who are under the Tree of VP are

| | EMP_ID | EMP_POSN_ID | EMP_NM | ROLE | EMP_STS | MGR_POSN_ID | CAPTR_DT |
|---|--------|-------------|--------------|------|---------|-------------|------------|
| 0 | 111111 | 2233 | Daisy Duck | AM | Active | 8899 | 2015/11/30 |
| 1 | 333333 | 4455 | Mickey Mouse | SAM | Active | 8899 | 2015/11/30 |

Result:

| | EMP_ID | EMP_POSN_ID | EMP_NM | ROLE | MGR_POSN_ID | MGR_ID | MGR_NM | MGR_ROLE | MGR_MGR_POSN_ID | CAPTR_DT |
|---|--------|-------------|--------------|------|-------------|--------|-------------|----------|-----------------|------------|
| 0 | 111111 | 2233 | Daisy Duck | AM | 8899 | 777777 | Tinker Bell | BM | 9900 | 2015/11/30 |
| 1 | 333333 | 4455 | Mickey Mouse | SAM | 8899 | 777777 | Tinker Bell | BM | 9900 | 2015/11/30 |
| 2 | 111111 | 2233 | Daisy Duck | AM | 9900 | 888888 | Cinderella | RVP | 0011 | 2015/11/30 |
| 3 | 333333 | 4455 | Mickey Mouse | SAM | 9900 | 888888 | Cinderella | RVP | 0011 | 2015/11/30 |
| 4 | 111111 | 2233 | Daisy Duck | AM | 1122 | 999999 | Peter Pan | RP | 888 | 2015/11/30 |
| 5 | 333333 | 4455 | Mickey Mouse | SAM | 1122 | 999999 | Peter Pan | RP | 888 | 2015/11/30 |

Employee Hierarchy Tree Scenario 2



Conclusion

- 1. Identification
 - Build checking function for special cases
 - Identify those missing records
- 2. Solution
 - Build a function for the solution
 - breaking down
 - `EMPLOYEE_ROLES`
 - `MANAGER_ROLES`, while adding one indicator
`MGR_MGR_POSN_ID`
 - Use missing records' employee start tracking their manager from lowest level to highest e.g.,
AM->ABM->BM->RVP->RP