Example Schema

• Student( ID, Name, Age, Uni )
• Project( ID, Name, StartDate, CoordUni )
• Equipment( ID, Type, ProductionDate, Price )
• Use( SID, PID, EID )
Example Query

- Student( ID, Name, Age, Uni )
- Project( ID, Name, StartDate, CoordUni )
- Equipment( ID, Type, ProductionDate, Price )
- Use( SID, PID, EID )

Q:

```
SELECT S.ID, S.Name, E.ID, 
       StartDate – ProductionDate AS EAge 
FROM Student S, Project, Equipment, Use 
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID 
AND Price > 500 AND Age < 25
```
Example View

- Student( ID, Name, Age, Uni )
- Project( ID, Name, StartDate, CoordUni )
- Equipment( ID, Type, ProductionDate, Price )
- Use( SID, PID, EID )

**V1:**
```
SELECT S.Name AS Name, EID, Price
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID AND Uni = 'University of Waterloo'
     AND Uni = CoordUni AND Price > 1000
```
Q:

```sql
SELECT S.ID, S.Name, E.ID, 
       StartDate – ProductionDate AS EAge 
FROM Student S, Project, Equipment, Use 
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID 
    AND Price > 500 AND Age < 25
```

V1:

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SELECT S.Name AS Name, EID, Price 
FROM Student S, Project, Equipment, Use 
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID 
    AND Uni = 'University of Waterloo' 
    AND Uni = CoordUni AND Price > 1000
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Q:

SELECT S.Name AS Name, EID, Price
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID
   AND Uni = 'University of Waterloo'
   AND Uni = CoordUni AND Price > 1000

V1:

SELECT S.Name AS Name, EID, Price
FROM Student S, Project, Equipment, Use
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   AND Price > 500 AND Age < 25

V1 may not contain all rows required for Q
Q:
SELECT S.ID, S.Name, E.ID, StartDate – ProductionDate AS EAge
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID AND Price > 500 AND Age < 25

V2:
SELECT S.Name AS Name, EID, Price
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID AND Uni = 'University of Waterloo'
AND Price > 1000
Q:

```
SELECT S.Name AS Name, EID, Price
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID
AND Price > 1000
AND Uni = 'University of Waterloo'
```

V2:

```
SELECT S.Name AS Name, EID, Price
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID
AND Price > 500 AND Age < 25
```

V2 may not contain all rows required for Q
Q:

SELECT S.ID, S.Name, E.ID, StartDate – ProductionDate AS EAge
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID
AND Price > 500 AND Age < 25

V3:

SELECT S.Name AS Name, EID, Price
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID
AND Price > 100
Q:

```sql
SELECT S.ID, S.Name, E.ID, 
       StartDate – ProductionDate AS EAge
FROM  Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID 
     AND Price > 500 AND Age < 25
```

V3:

```sql
SELECT S.Name AS Name, EID, Price
FROM  Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID 
     AND Price > 100
```

V3 cannot be used to select all required rows for Q
Q:

```sql
SELECT S.ID, S.Name, E.ID,
       StartDate – ProductionDate AS EAge
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID
     AND Price > 500 AND Age < 25
```

V4:

```sql
SELECT S.Name AS Name, EID, Price, Age
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID
     AND Price > 100
```
Q:

```
SELECT S.ID, S.Name, E.ID, StartDate - ProductionDate AS EAge
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID
    AND Price > 500 AND Age < 25
```

V4:

```
SELECT S.Name AS Name, EID, Price, Age
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID
    AND Price > 100
```

V4 cannot be used to compute all output expressions of Q
Q:

SELECT S.ID, S.Name, E.ID, StartDate – ProductionDate AS EAge
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID
AND Price > 500 AND Age < 25

V4:

SELECT S.Name AS Name, EID, Price, Age, SID, StartDate, ProductionDate
FROM Student S, Project, Equipment, Use
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID
AND Price > 100
Q: SELECT S.ID, S.Name, E.ID, 
    StartDate – ProductionDate AS EAge 
FROM Student S, Project, Equipment, Use 
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID 
    AND Price > 500 AND Age < 25

V4: SELECT S.Name AS Name, EID, Price, Age, 
    SID, StartDate, ProductionDate 
FROM Student S, Project, Equipment, Use 
WHERE S.ID = SID AND P.ID = PID AND E.ID = EID 
    AND Price > 100

Q': SELECT SID, Name, EID, StartDate – ProductionDate AS EAge 
FROM V4 WHERE Price > 500 AND Age < 25