PS 1: Problem 16
Relational-algebra queries

problem 16.1

Project{name, year} (SELECT {type LIKE 'BEST-PICTURE' & year BETWEEN 2010 & 2019} (JOIN {movie_id = id} (Movie ⋈ Oscar)

problem 16.2

WITH Top25GrossingMovies AS (PROJECT{id, name, earnings_rank} (SELECT{} (ORDER BY{earnings_rank}(LIMIT 25(Movie))))) PROJECT{earnings_rank, name AS movie_name, type AS award_type}(JOIN{id = movie_id}(Top25GrossingMovies ⋈ Oscar))

problem 16.3

```
{
  SELECT{type = 'COUNT'}(
    {
      PROJECT{num_supporting_winners}(
        {
          SELECT{(O.type = 'BEST-SUPPORTING-ACTOR' OR O.type =
'BEST-SUPPORTING-ACTRESS')}(
            {
              JOIN{P.id = O.person_id}(
                {
                  Person P
```

```
            JOIN{O2.person_id NOT IN {SELECT{(O2.type IN ('BEST-ACTOR',
'BEST-ACTRESS'))}(Oscar O2)}}(
              {
                Oscar O2
              }
             )
           }
         )
       }
     )
   }
   GROUP BY{P.id HAVING{COUNT(DISTINCT O.type) = 1}}
  )
 }
)
} AS SupportingOnlyWinners;
```