19 – Query Optimizer Implementation

1. Logical query optimization
   A. approach
      i. Split conjunctive predicate : make predicate easier to optimize
      ii. Predicate pushdown : move predicate to the possible lowest point
      iii. Replace cartesian products with joins : reduce materialization cost
      iv. Projection pushdown : reduce materialization cost by reducing selectivity
   B. Plan enumeration
      i. Transformation
         modify existing query plan to make new query plan
      ii. Generative
         assemble building blocks to generate a query plan
2. Cascade/Columbia
   A. Object oriented implementation of the volcano query optimizer
   B. Design ideas
      i. Optimization task as data structures
      ii. Rules to place property enforcers
      iii. Ordering of moves by promise
      iv. Predicates as logical/physical operators
   C. Group
      set of logically equivalent logical/physical expression
   D. Multi-expression
      implicitly represents expression group