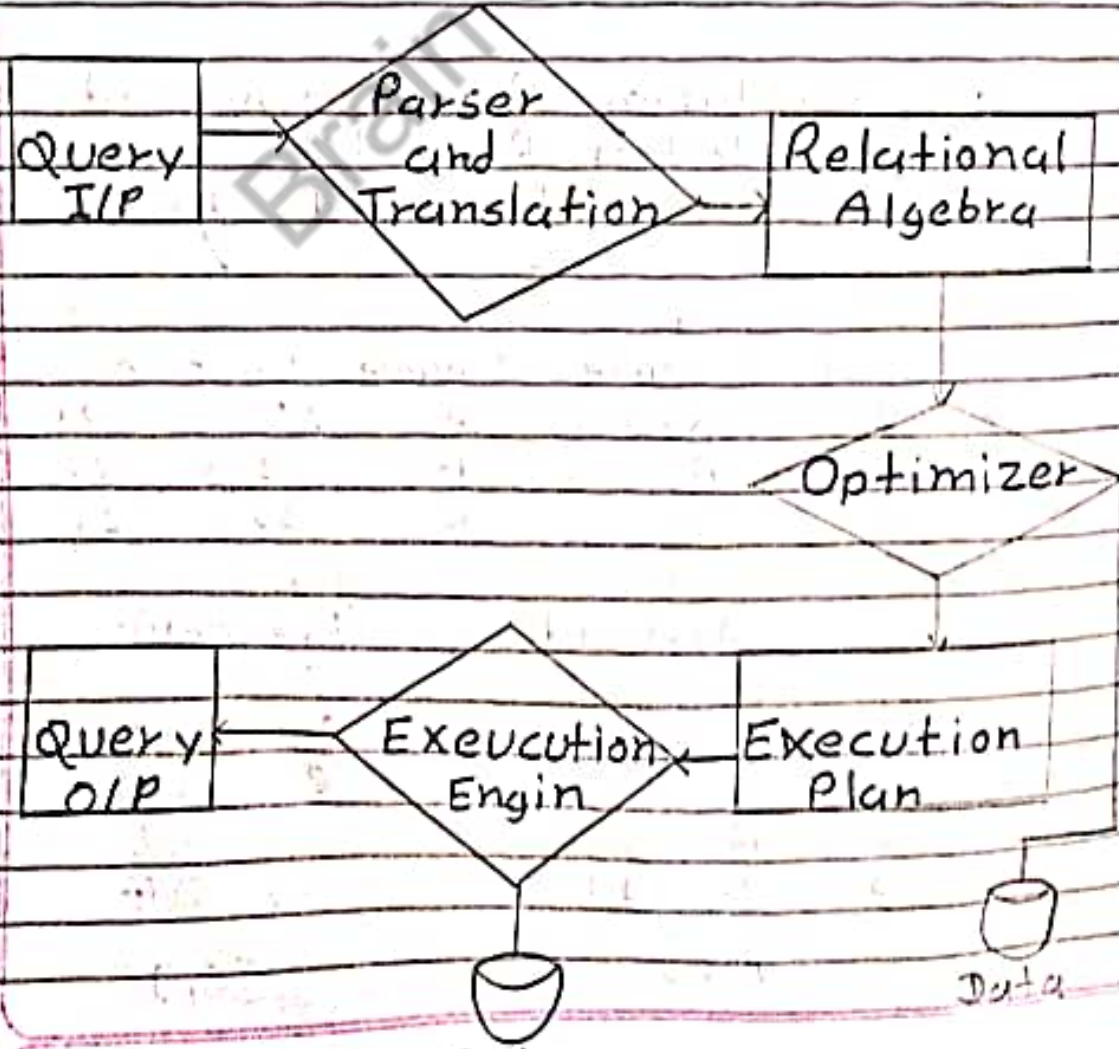


In this table (E1), it is containt all the dependency.

### \* Explain Step of Query Processing.

This are the basic Step of Query Processing.

- 1) Parser and Translation
- 2) Optimizer
- 3) Evaluation.



## 1. Parser and Translation:

User gives the queries into the low level languages and sometime user gives the syntactically wrong queries.

This are the syntactically wrong or right queries are check with the use of Parser.

When user execute the query then, Parser checks the syntax in query, verify the name of relation in database and tuple and finally checks the required attributes values.

Parser creates a tree of query, that is called ~~Parser~~ Parstree.

Translator translate the query into the high-level database language and convert into the Relational Algebra Expression.

## 2. Optimizer:

The basic work of Optimizer is chooses the best execution plan.



A database system generates an efficient query evaluation plan.

Optimizer is the select the query evaluation plan in minimizes its cost.

For optimizing a query, the query optimizer should have an estimated cost analysis of each operation.

### 3 Evaluation :

In order to fully evaluate a query, system is work on Query Evaluation Plan.

#### - Query Evaluation Plan:

For Query evaluation it may be use to different algorithms and particular index for specific operation.

Such relational Algebra with referred to as "Evaluation Primitives".

Evaluation Primitives carry the instructions needed for the evaluation of the operation.

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A Query Execution Engine is responsible for generating the output of the given query.

These are the three basic steps of Query Processing.

\* Explain Evaluation Expressions with its types.

Expression may contain more than one operation.

Solving operation is difficult when expression contains more than one operation.

To evaluate such expression we need to evaluate such operation one by one in order.

There are two types of Evaluation Expressions.

1) Materialization

2) Pipelining.



1 Materialization:

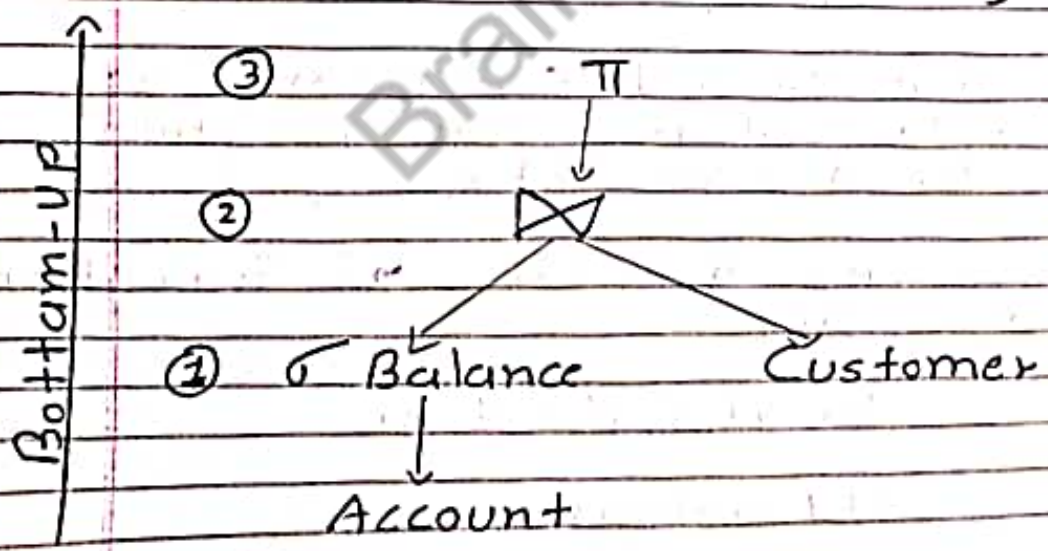
Materialization evaluates the tree of Relational Algebra from bottom up.

Materialization is creates lots of temporary relation.

Materialization Performs lot of input-output operation.

Ex.

$\Pi$  C-name ( $\sigma$  Balance < 2500 (Account  $\bowtie$  customer))



Tree of Relational Algebra

## 2 Pipelining:

In Pipelining evaluation, after evaluating one operation its output is passed on to the next operation.

The chain continues till all the relational operations are evaluated.

Pipelining is reduce the number of temporary relation.

There are two types of Pipelining.

- 1) Demand Driven
- 2) Producer Driven

1) Demand Driven: In Demand Driven system makes request to tuple from the operation.

2) Producer Driven: In Producer Driven, operation do not wait request to produce the tuple but generate the tuple.