iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 5 **Issue:** IV **Month of publication:** April 2017

DOI: http://doi.org/10.22214/ijraset.2017.4230

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Volume 5 Issue IV, April 2017
ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

Review on Overview of Oracle Operators

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Abstract- SQL set operators allows combine results from two or more SELECT statements. At first sight this looks similar to SQL joins although there is big difference. SQL joins tends to combine columns i.e. with each additionally joined table it is possible to select more and more columns. You can combine multiple queries using the set operators UNION, UNION ALL, INTERSECT, and MINUS. All set operators have equal precedence. If a SQL statement contains multiple set operators, Oracle evaluates them from the left to right if no parentheses explicitly specify another order.
Keywords - AND, OR, NOT, UNION, INTERSECT, MINUS

I. INTRODUCTION

An operator manipulates individual data items and returns a result. The data items are called operands or arguments. Operators are represented by special characters or by keywords. FOR EXAMPLE: The multiplication operator is represented by an asterisk (*) and the operator that tests for nulls is represented by the keywords IS NULL. There are two general classes of operators: unary and binary. Oracle database lite SQL also supports set operators. Following are the types of operators:
Unary and binary operators
Precedence
Arithmetic operator
Concatenation operator
Comparison operators
Logical operators: NOT, AND, OR
Set operators: union, intersect, minus
Other built-in operators
User-defined operators

A. Unary and Binary Operators

The two general classes of operators are:
1) Unary: A unary operates only one operand. A unary operator typically is in this format:
operator operand
2) Binary: A binary operator operates on two operands. A binary operator appears with its operands is in this format: operand1 operand 2

B. Precedence Operators

Precedence is the order in which oracle evaluates different operators in the same expression. When evaluating an expression containing multiple operators, oracle evaluates operators with higher precedence before evaluating those with lower precedence. Oracle evaluates operators with equal precedence from left to right with an expression.

Operator	Operation
+,-	Indetity,negation
*,/	Multiplication, division
+,-,II	Add, sub, concatenation
=,!=,<,>,<=,>=,IS NULL,LIKE,BETWEEN,IN	Comparison
NOT	Exponentiation, logical negation
AND	Conjuction
OR	Disjunction

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Volume 5 Issue IV, April 2017
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C. Arithmetic Operators

Oracle allows arithmetic operators to be used while viewing records from a table or while performing Data Manipulation operations such as insert, update and delete. You can use an arithmetic operator with one or two arguments to negate, add, subtract, multiply and divide numeric values. Some of these operators are also used in date time and interval arithmetic. The arguments to the operators must resolve to numeric data types or to any data types that can be implicitly converted to a numeric data types. Unary arithmetic operators return the same data type as the numeric data type of the arguments. For binary arithmetic operators, Oracle determines the arguments with the highest numeric precedence, implicitly converts the remaining arguments to that data type, and return that data type.

Operators	Purpose
+	Addition
-	Subtraction
*	Multiplication
( )	Enclosed operation
/	Division
**	Exponentiation

1) Example: Create a table by naming it employee.

Name	ID	SALARY
Paul	00	400
John	002	600
Richa	003	700

2) Syntax: SELECT SALARY (salary=salary+2000) FROM EMPLOYEE WHERE salary>5000

Name	ID	SALARY
Paul	00	4000
John	002	8000
Richa	003	9000

D. Logical Operators

The AND operator allow creating SQL statement based on two r more condition being met. It can be used in any SQL statement such as select, insert, update and delete.

1) Example: SELECT * FROM student WHERE Roll no>3 AND Roll no<3;

The OR operator allow creating SQL statement where the records are return when anyone of the condition are met.

2) Example: SELECT * FROM STUDENT WHERE Roll no>3 OR Roll no<3;

The NOT operator show that entries which does not satisfy any condition.

3) Example: SELECT* FROM student WHERE NOT (Roll no>3 AND Roll no<3);

4) Truth table

NOT

True	False
False	True
Unknown	Unknown

AND

True	False	Unknown
False	False	False
False	Unknown	Unknown
True	True	True

OR

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True	True	True
True	False	Unknown
True	Unknown	Unknown

E. Range Searching Operators

In order to select data that is within a range of values the between operator is used, the between operator allow the selection of rows that contain values within the specified lower & upper bound. The two values in between the range must be linked in the AND operator. The between operator with both character & numeric data that means data types can't be mixed. The SQL BETWEEN operator tests an expression against a range, the range consists of a beginning, followed by an AND keyword and an end expression. The operator returns TRUE when the search value present within the range otherwise returns false. The results are NULL if any of the range values are NULL. A range search is that returns all values between two specified values. Inclusive ranges return any values that match the two specified values. Exclusive ranges do not return any values that match the specified values. The between keyword specified an inclusive range to search.

1) *Syntax:* Select*From<Tablename>Where<Columnname>Between<Expression>And<Expression2>;
2) *Example:* SELECT*FROM student WHERE age BETWEEN age 3 AND age 20;

F. Pattern Matching

To match the pattern oracle use LIKE predicate. The LIKE predicate allow comparison of one string value with another string value which is not attendical. This is used by using wild card characters. '%' allows to match any string of any length. '_' allows to match on a single character.

1) *Example:* SELECT empid , salary, department FROM EMPLOYEE WHERE empname =_a% OR empname =_s%;

It will select the string in empname whose second character is a or s .

G. IN Predicate

The IN predicate reduce the need of to use multiple OR conditions. The arithmetic operator (=) compares a single value to another single value. In case a value needs to be compared to a list of values then the IN predicate is used. One can check a single value against multiple values by using the IN predicate.

1) *Example:* SELECT empid, salary, dept, FROM employee WHERE empname='Ivan' OR empname='korth' OR empname='Adis';

With IN predicate: SELECT empid, salary, dept FROM employee WHERE empname IN ('Ivan', 'Korth', 'Adis');

H. NOT IN Predicate

The NOT IN PREDICATE is opposite of the IN predicate. This will select all the rows where values do not match all of the values in the list.

1) *Example:* SELECT empid, salary, dept FROM employee WHERE empname NOT IN ('Ivan','Korth','Adis');

II. CONCLUSION

An operator manipulates individual data items and returns a result. The data items on which operators acts upon are called operands. Some operators require two operands while other act upon only one operand. The operators are represented by special characters or keywords.

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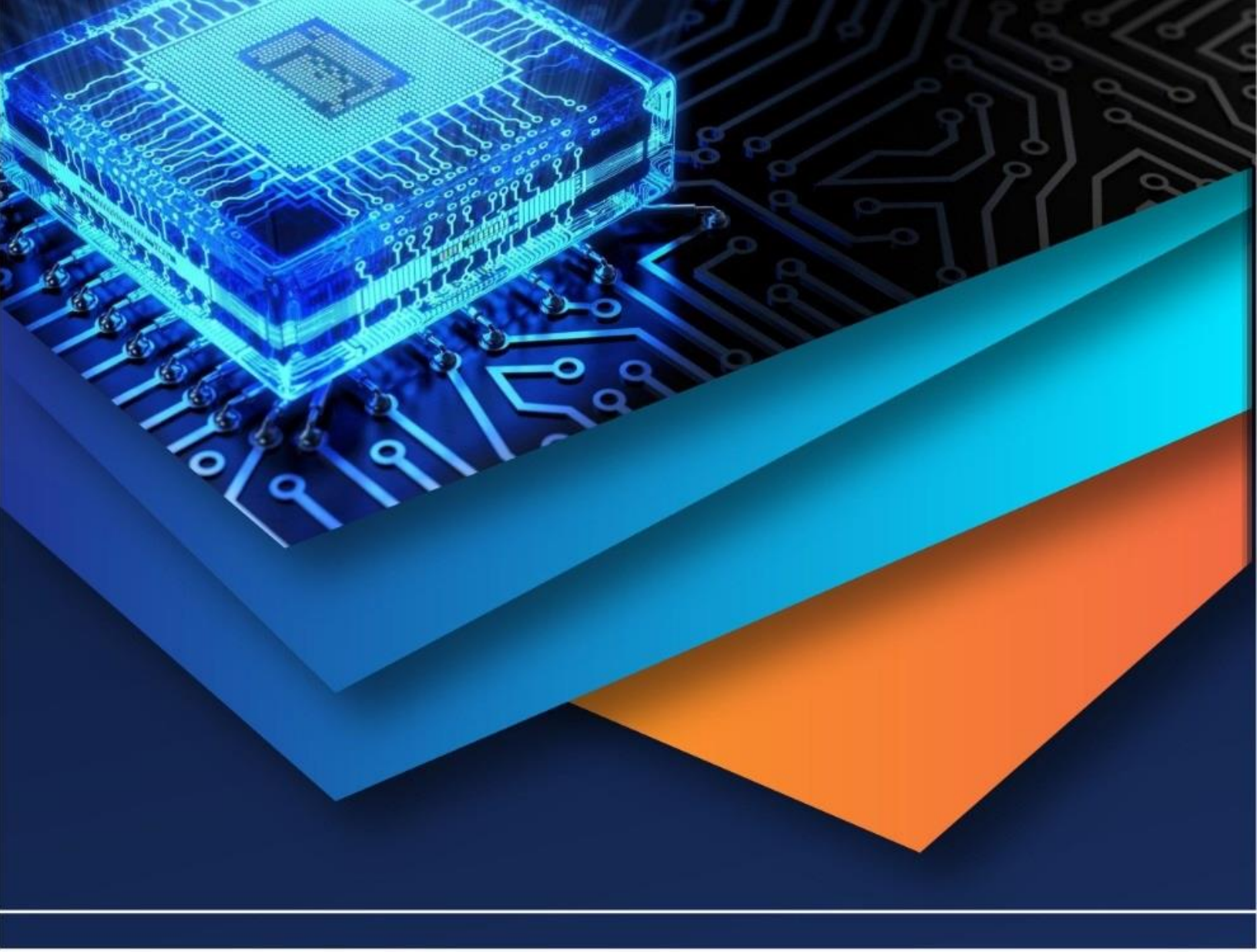

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