Software testing - Questions and Answers - SQL Interview Questions

Q. What does SQL stand for?
A. Structured Query Language

Q. What is a primary key?
A. Primary key : Each row of the data in a table uniquely identified by a Primary Key
The column (columns) that has completely unique data throughout the table is known as the primary key field.

Q. What is the main role of a primary key in a table?
A. The main role of a primary key in a data table is to maintain the internal integrity of a data table.

Q. What are foreign keys?
A. Foreign key field â€“ is a field that links one table to another tableâ€™s primary or foreign key.
Foreign Key : You can logically relate data from multiple tables using Foreign Keys

Q. Can a table have more than one foreign key defined?
A. A table can have any number of foreign keys defined. It can have only one primary key defined.

Q. What is difference between UNIQUE and PRIMARY KEY constraints?
A table can have only one PRIMARY KEY whereas there can be any number of UNIQUE keys.
The columns that compose PK are automatically define NOT NULL, whereas a column that compose a UNIQUE KEY can have null values.

Q. Can a primary key contain more than one columns?
Yes. Primary key created on more than one column is called composite primary key.

Constraints

The Oracle Server uses *constraints* to prevent invalid data entry into tables.
You can use constraints to do the following:
• Enforce rules on the data in a table whenever a row is inserted, updated, or deleted from that
table. The constraint must be satisfied for the operation to succeed.
• Prevent the deletion of a table if there are dependencies from other tables
• Provide rules for Oracle tools, such as Oracle Developer

DATA Integrity Constraints

Constraint Description

NOT NULL Specifies that the column cannot contain a null value
UNIQUE Specifies a column or combination of columns whose values must be

unique for all rows in the table
PRIMARY KEY Uniquely identifies each row of the table
FOREIGN KEY Establishes and enforces a foreign key relationship between the column and a column of the referenced table
CHECK Specifies a condition that must be true

Q What is an Index ?
An Index is an optional structure associated with a table to have direct access to rows,which can be created to increase the performance of data retrieval. Index can be created on one or more columns of a table.

Indexes are automatically maintained and used by ORACLE. Changes to table data are automatically incorporated into all relevant indexes.

Q What is the Subquery ?
A Subquery is a query whose return values are used in filtering conditions of the main query.

Q. What is correlated sub-query ?
A Correlated sub_query is a sub_query which has reference to the main query.

Q. What is an Integrity Constraint ?
A Integrity constraint is a rule that restricts values to a column in a table.

Q. What is Referential Integrity ?
A Maintaining data integrity through a set of rules that restrict the values of one or more columns of the tables based on the values of primary key or unique key of the referenced table.

Q. what is Case Function
Case facilitates conditional inquires by doing the work of an if-then-else statement

Q. Decode function
Decode : facilitates conditional inquires by doing the work of a case or if then else statement

Q. How you will avoid duplicating records in a query?
A By using DISTINCT

Q. What is difference between Rename and Alias?
Rename is a permanent name given to a table or column whereas Alias is a temporary name given to a table or column which do not exist once the SQL statement is executed.

Q. What is a view ?
A view is a virtual table based on one or more tables.

Why Use views ?

To restrict data access
• To make complex queries easy

• To provide data independence
• To present different views of the same data

Q. What are the advantages of Views ?

Advantages of Views

• Views restrict access to the data because the view can display selective columns from the table.
• Views can be used to make simple queries to retrieve the results of complicated queries. For
example, views can be used to query information from multiple tables without the user knowing
how to write a join statement.
• Views provide data independence for ad hoc users and application programs. One view can be used to retrieve data from several tables.
• Views provide groups of users access to data according to their particular criteria.

Provide an additional level of table security, by restricting access to a predetermined set of rows and columns of a table.
Hide data complexity.
Simplify commands for the user.
Present the data in a different perpecetive from that of the base table.
Store complex queries.

Q. What are various privileges that a user can grant to another user?

SELECT
CONNECT
RESOURCES

Q. What is schema?

A schema is collection of database objects of a User.

Q. what is Table ?
A table is the basic unit of data storage in an ORACLE database. The tables of a database hold all of the user accessible data. Table data is stored in rows and columns.

Q. Do View contain Data?
Views do not contain or store data.

Q. Can a View based on another View ?
Yes.

Q. What is a Sequence ?
A sequence generates a serial list of unique numbers for numerical columns of a database's tables.

Q. What is a Synonym ?
A synonym is an alias for a table, view, sequence or program unit.

There are two types of Synonyms Private and Public.
A Private Synonyms can be accessed only by the owner.
A Public synonyms can be accessed by any user on the database.

Synonyms are used to : Mask the real name and owner of an object.
Provide public access to an object
Provide location transparency for tables,views or program units of a remote database.
Simplify the SQL statements for database users.

Q. What is difference between TRUNCATE & DELETE ?

TRUNCATE commits after deleting entire table i.e., can not be rolled back. Database triggers do not fire on TRUNCATE

DELETE allows the filtered deletion. Deleted records can be rolled back or committed. Database triggers fire on DELETE.

Advantages of COMMIT and ROLLBACK Statements
With COMMIT and ROLLBACK statements, you can:
• Ensure data consistency
• Preview data changes before making changes permanent
• Group logically related operations

Q. Difference between SUBSTR and INSTR ?

INSTR (String1,String2(n,(m)),
INSTR returns the position of the mth occurrence of the string 2 in string1. The search begins from nth position of string1.

SUBSTR (String1 n,m)
SUBSTR returns a character string of size m in string1, starting from nth postion of string1.

Q. Explain UNION, MINUS, UNION ALL, INTERSECT ?

INTERSECT returns all distinct rows selected by both queries.
MINUS - returns all distinct rows selected by the first query but not by the second.
UNION - returns all distinct rows selected by either query
UNION ALL - returns all rows selected by either query, including all duplicates.

Q. What is ROWID ?

ROWID is a pseudo column attached to each row of a table. It is 18 character long, blockno, rownumber are the components of ROWID.

Q. What is the fastest way of accessing a row in a table ?
Using ROWID.

Q. What is difference between CHAR and VARCHAR2 ? , What is the maximum SIZE allowed for each type ?

CHAR pads blank spaces to the maximum length. VARCHAR2 does not pad blank spaces. For CHAR it is 255 and 2000 for VARCHAR2.

Q. How many LONG columns are allowed in a table ? Is it possible to use LONG columns in WHERE clause or ORDER BY ?
A Only one LONG columns is allowed. It is not possible to use LONG column in WHERE or ORDER BY clause.

Q. What is Database Link ?

A database link is a named object that describes a "path" from one database to another.

Private Database Link, Public Database Link & Network Database Link.

Private database link is created on behalf of a specific user. A private database link can be used only when the owner of the link specifies a global object name in a SQL statement or in the definition of the owner's views or procedures.

Public database link is created for the special user group PUBLIC. A public database link can be used when any user in the associated database specifies a global object name in a SQL statement or object definition.

Network database link is created and managed by a network domain service. A network database link can be used when any user of any database in the network specifies a global object name in a SQL statement or object definition.

Q. Which is more faster - IN or EXISTS?
EXISTS is more faster than IN because EXISTS returns a Boolean value whereas IN returns a value.

Q. What is a join?
A. Join is a process of retrieve pieces of data from different sets (tables) and returns them to the user or program as one â€œjoinedâ€ collection of data.

Types of Joins
- Equijoins
- Non-equijoins
- Outer joins
- Self joins
- Cross joins
- Natural joins
- Full or outer joins

Equijoins
To determine an employee's department name, you compare the value in the DEPARTMENT_ID
column in the EMPLOYEES table with the DEPARTMENT_ID values in the DEPARTMENTS table. The relationship between the EMPLOYEES and DEPARTMENTS tables is an *equijoin*—that is, values in the DEPARTMENT_ID column

on both tables must be equal. Frequently, this type of join involves primary and foreign key complements.
Note: Equijoins are also called *simple joins* or *inner joins*.

Non-Equijoins
A non-equijoin is a join condition containing something other than an equality operator. The relationship between the EMPLOYEES table and the JOB_GRADES table has an example of a non-equijoin. A relationship between the two tables is that the SALARY column in the EMPLOYEES table must be between the values in the LOWEST_SALARY
and HIGHEST_SALARY columns of the JOB_GRADES table. The relationship is obtained using an operator other than equals (=).

```
SELECT e.last_name, e.salary, j.grade_level
FROM employees e, job_grades j
WHERE e.salary
BETWEEN j.lowest_sal AND j.highest_sal;
```

Outer join : to also see rows that do not meet the join condition

Returning Records with No Direct Match with Outer Joins
If a row does not satisfy a join condition, the row will not appear in the query result. For example, in the equijoin condition of EMPLOYEES and DEPARTMENTS tables, employee Grant does not appear because there is no department ID recorded for her in the EMPLOYEES table. Instead of seeing 20 employees in the result set, you see 19 records.

```
SELECT e.last_name, e.department_id, d.department_name
FROM employees e, departments d
WHERE e.department_id = d.department_id;
```

```
SELECT e.last_name, e.department_id, d.department_name
FROM employees e, departments d
WHERE e.department_id(+) = d.department_id ;
```

Self Join :
Joining a Table to Itself
Sometimes you need to join a table to itself. To find the name of each employee’s manager, you need
to join the EMPLOYEES table to itself, or perform a self join. For example, to find the name of
Whalen’s manager, you need to:
• Find Whalen in the EMPLOYEES table by looking at the LAST_NAME column.
• Find the manager number for Whalen by looking at the MANAGER_ID column. Whalen’s
manager number is 101.
• Find the name of the manager with EMPLOYEE_ID 101 by looking at the LAST_NAME column. Kochhar’s employee number is 101, so Kochhar is Whalen’s manager.
In this process, you look in the table twice. The first time you look in the table to find Whalen in the

LAST_NAME column and MANAGER_ID value of 101. The second time you look in the EMPLOYEE_ID column to find 101 and the LAST_NAME column to find Kochhar.

```
SELECT worker.last_name || ' works for '
|| manager.last_name
FROM employees worker, employees manager
WHERE worker.manager_id = manager.employee_id ;
```

Left Outer Join :
This query retrieves all rows in the EMPLOYEES table, which is the left table even if there is no
match in the DEPARTMENTS table.
This query was completed in earlier releases as follows:

```
SELECT e.last_name, e.department_id, d.department_name
FROM employees e, departments d
WHERE d.department_id (+) = e.department_id;
```

```
SELECT e.last_name, e.department_id, d.department_name
FROM employees e
LEFT OUTER JOIN departments d
ON (e.department_id = d.department_id) ;
```

Right Outer Join :

```
SELECT e.last_name, e.department_id, d.department_name
FROM employees e
RIGHT OUTER JOIN departments d
ON (e.department_id = d.department_id) ;
```

Example of RIGHT OUTER JOIN
This query retrieves all rows in the DEPARTMENTS table, which is the right table even if there is no match in the EMPLOYEES table.
This query was completed in earlier releases as follows:

```
SELECT e.last_name, e.department_id, d.department_name
FROM employees e, departments d
WHERE d.department_id = e.department_id (+);
```

Full outer join

```
SELECT e.last_name, e.department_id, d.department_name
FROM employees e
FULL OUTER JOIN departments d
ON (e.department_id = d.department_id) ;
```

Example of FULL OUTER JOIN
This query retrieves all rows in the EMPLOYEES table, even if there is no match in the DEPARTMENTS table. It also retrieves all rows in the DEPARTMENTS table, even if there is no match in the EMPLOYEES table.

Cartesian Products
A Cartesian product results in all combinations of rows displayed. This is done by either omitting the WHERE clause or specifying the CROSS JOIN clause.

Table Aliases
• Table aliases speed up database access.
• Table aliases can help to keep SQL code smaller, by conserving memory.

Q. What kinds of joins do you know? Give examples.
A. We have self join, outer joint (LEFT, RIGHT), , cross-join (Cartesian product n*m rows returned)
Exp:
outer joint
SELECT Employee.Name, Department. DeptName
FROM Employee, Department
WHERE Employee.Employee_ID = Department.Employee_ID;

cross-join
SELECT * FROM table1, table2;

self join
SELECT e1.name | |â€™ â€˜ | | e2.ename FROM emp e1, emp e2 WHERE e1. emp_no = e2.emp_no;

The following summarizes the result of the join operations:

The result of T1 INNER JOIN T2 consists of their paired rows where the join-condition is true.
The result of T1 LEFT OUTER JOIN T2 consists of their paired rows where the join-condition is true and, for each unpaired row of T1, the concatenation of that row with the null row of T2. All columns derived from T2 allow null values.
The result of T1 RIGHT OUTER JOIN T2 consists of their paired rows where the join-condition is true and, for each unpaired row of T2, the concatenation of that row with the null row of T1. All columns derived from T1 allow null values.
The result of T1 FULL OUTER JOIN T2 consists of their paired rows and, for each unpaired row of T2, the concatenation of that row with the null row of T1 and, for each unpaired row of T1, the concatenation of that row with the null row of T2. All columns derived from T1 and T2 allow null values.

Q. How do you add record to a table?
A. INSERT into table_name VALUES (â€˜ALEXâ€™ , 33 , â€˜Mâ€™);

Q. How do you add a column to a table?
A. ALTER TABLE Department ADD (AGE, NUMBER);

Q. How do you change value of the field?
A. UPDATE EMP_table set number = 200 where item_munber = â€˜CDâ€™;

update name_table set status = 'enable' where phone = '4161112222';

update SERVICE_table set REQUEST_DATE = to_date ('2006-03-04 09:29', 'yyyy-mm-dd hh24:MI') where phone = '4161112222';

Q. What does COMMIT do?
A. Saving all changes made by DML statements

Q. List all the possible values that can be stored in a BOOLEAN data field.
A. There are only two values that can be stored in a BOOLEAN data field:
-1(true) and 0(false).

Q. What is the highest value that can be stored in a BYTE data field?
A. The highest value that can be stored in a BYTE field is 255. or from -128 to 127. Byte is a set of Bits that represent a single character. Usually there are 8 Bits in a Byte, sometimes more, depending on how the measurement is being made. Each Char requires one byte of memory and can have a value from 0 to 255 (or 0 to 11111111 in binary).

Q. How many places to the right of the decimal can be stored in a CURRENCY data field?
A. The CURRENCY data type can store up to four places to the right of the decimal. Any data beyond the fourth place will be truncated by Visual Basic without reporting an error.

Q. What is a stored procedure?
A. A procedure is a group of PL/SQL statements that can be called by a name. Procedures do not return values they perform tasks.

Q. Describe how NULLs work in SQL?
A. The NULL is how SQL handles missing values.
Arifthmetic operation with NULL in SQL will return a NULL.

Q. What is Normalization?
A. The process of table design is called normalization.
Q. What is referential integrity constraints?
A. Referential integrity constraints are rules that are partnof the table in a database schema.

Q. What is Trigger?
A. Trigger will execute a block of procedural code against the database when a table event occurs. A2. A trigger defines a set of actions that are performed in response to an insert, update, or delete operation on a specified table. When such an SQL operation is executed, in this case the trigger has been activated.

Q. Which of the following WHERE clauses will return only rows that have a NULL in the PerDiemExpenses column?
A. WHERE PerDiemExpenses <>
B. WHERE PerDiemExpenses IS NULL
C. WHERE PerDiemExpenses = NULL
D. WHERE PerDiemExpenses NOT IN (*)

A. B is correct ï¿½ When searching for a NULL value in a column, you must use the keyword IS. No quotes are required around the keyword NULL.

22. Q. You issue the following query:SELECT FirstName FROM StaffListWHERE FirstName LIKE'_A%'Which names would be returned by this query? Choose all that apply.

A. Allen
B. CLARK
C. JACKSON
D. David

A. C is correct ï¿½ Two wildcards are used with the LIKE operator. The underscore (_) stands for any one character of any case, and the percent sign (%) stands for any number of characters of any case including none. Because this string starts with an underscore rather than a percent sign, it won't return Allen or Clark because they represent zero and two characters before the "A". If the LIKE string had been "%A%", both of these values would have been returned.
David was not returned because all non-wild card characters are case sensitive. Therefore, only strings with an uppercase "A" as their second letter are returned

Q. Write a SQL SELECT query that only returns each city only once from Students table?
Do you need to order this list with an ORDER BY clause?

A. SELECT DISTINCT City FROM Students;

The Distinct keyword automatically sorts all data in ascending order. However, if you want the data sorted in descending order, you have to use an ORDER BY clause

Q. Write a SQL SELECT sample of the concatenation operator.

A. SELECT LastName ||',' || FirstName, City FROM Students;

Q. How to rename column in the SQL SELECT query?

A. SELECT LastName ||',' || FirstName
AS "Student Name", City AS "Home City"
"FROM StudentsORDER BY "Student Name"

Q. Write SQL SELECT example how you limiting the rows returned with a WHERE clause.

A. SELECT InstructorID, Salary FROM Instructors
WHERE Salary > 5400 AND Salary < 6600;

Q. Write SQL SELECT query that returns the first and last name of each instructor, the Salary, and gives each of them a number.

A. SELECT FirstName, LastName, Salary, ROWNUM FROM Instructors;

Q. Which of the following functions can be used only with numeric values? (Choose all that apply.)
A. AVG
B. MIN
C. LENGTH
D. SUM
E. ROUND

A. A and D ï¿½ Only A and D are correct. The MIN function works with any character, numeric, or date datatype. The LENGTH function is a character function that returns the number of letters in a character value. The ROUND function works with both numeric and date values.

Q. Which function do you use to remove all padded characters to the right of a character value in a column with a char datatype?
A. RTRIM
B. RPAD
C. TRIM

A. C ï¿½ The TRIM function is used to remove padded spaces. LTRIM and RTRIM functions were included in earlier versions of Oracle, but Oracle 8i has replaced them with a single TRIM function

Q. Which statement do you use to eliminate padded spaces between the month and day values in a function TO_CHAR(SYSDATE,'Month, DD, YYYY') ?

A. To remove padded spaces, you use the "fm" prefix before the date element that contains the spaces.
TO_CHAR(SYSDATE,'fmMonth DD, YYYY')

Q. Is the WHERE clause must appear always before the GROUP BY clause in SQL SELECT ?

A. Yes.
The proper order for SQL SELECT clauses is: SELECT, FROM, WHERE, GROUP BY, HAVING, ORDER BY. Only the SELECT and FROM clause are mandatory.

Q. How Oracle executes a statement with nested subqueries?

A. When Oracle executes a statement with nested subqueries, it always executes the innermost query first. This query passes its results to the next query and so on until it reaches the outermost query. It is the outermost query that returns a result set.

Q. Which operator do you use to return all of the rows
from one query except rows are returned in a second query?

A. You use the MINUS operator to return all rows from one query except
where duplicate rows are found in a second query. The UNION operator
returns all rows from both queries minus duplicates. The UNION ALL operator
returns all rows from both queries including duplicates.
The INTERSECT operator returns only those rows that exist in both queries.

Q. How you will create a column alias? (Oracle 8i)

A. The AS keyword is optional when specifying a column alias.
You must enclose the column alias in double quotes when the alias
contains a space or lowercase letters. If you specify an alias in l
owercase letters without double quotes, the alias will appear in uppercase.

Q. Which of the following statements are Data Manipulation Language commands?
A. INSERT
B. UPDATE
C. GRANT
D. TRUNCATE
E. CREATE

A. A and B ï¿½ The INSERT and UPDATE statements are
Data Manipulation Language (DML) commands.
GRANT is a Data Control Language (DCL) command.
TRUNCATE and CREATE are Data Definition Language (DDL) commands

Q. What is Oracle locking?
A. Oracle uses locking mechanisms to protect data from
being destroyed by concurrent transactions.

Q. What Oracle lock modes do you know?
A. Oracle has two lock modes: shared or exclusive.
Shared locks are set on database resources so that many transactions
can access the resource.
Exclusive locks are set on resources that ensure
one transaction has exclusive access to the database resource

Q. What is query optimization?
A. Query optimization is the part of the query
process in which the database system compares
different query strategies and chooses the one with
the least expected cost

Q. What are the main components of Database management systems software.
A. The database management system software includes
components for storage management, concurrency control, transaction
processing, database manipulation interface, database definition interface,
and database control interface.

Q. What are the main attributes of database management system?
A. A database management system is composed of five elements: computer hardware, software, data, people (users), and operations procedures.

Q. What is transaction?
A. A transaction is a collection of applications
code and database manipulation code bound into an indivisible unit of execution.
it consists from:
BEGIN-TRANSACTION Name
Code
END TRANSACTION Name

Q. What databases do you know?
 Informix
 DB2
 SQL
 Oracle

Q. Explain SQL SELECT example:
```
     select j.FILE_NUM
  from DB_name.job j, DB_name.address a
where j.JOB_TYPE ='C'
  AND j.COMPANY_NAME = 'TEST6'
  AND j.OFFICE_ID = '101'
  AND j.ACTIVE_IND = 'Y'
  AND a.ADDRESS_STATUS_ID = 'H'
  AND a.OFFICE_ID = '101'
  AND a.FILE_NUM = j.FILE_NUM order by j.FILE_NUM;
```

   Answer: j and a aliases for table names. this is outer joint select statament from two tables.

Q. Describe some Conversion Functions that you know

A. TO_CHAR converts a number / date to a string.
        TO_DATE converts a string (representing a date) to a date.

        TO_NUMBER converts a character string containing digits to a numeric data type, it accepts one parameter which is a column value or a string literal

Q. What does DML stand for?
A. DML is Data Manipulation Language statements. (SELECT)

Q. What does DDL stand for?
 A. DDL is Data Definition Language statements. (CREATE)

Q. What does DCL stand for?

 A. DCL is Data Control Language statements. (COMMIT)

Q: Describe SQL comments.
A. SQL comments are introduced by two consecutive hyphens
(--) and ended by the end of the line.

Q. In what sequence SQL statement are processed?
A. The clauses of the subselect are processed in the following sequence (DB2):
1. FROM clause
2. WHERE clause
3. GROUP BY clause
4. HAVING clause
5. SELECT clause
6. ORDER BY clause
7. FETCH FIRST clause

Q. Describe TO_DATE function.
A. The TO_DATE function returns a timestamp from a character string
that has been interpreted using a character template.
TO_DATE is a synonym for TIMESTAMP_FORMAT.

Q. What is a pseudo column. Give some examples?
It is a column that is not an actual column in the table.
Eaxmple USER, UID, SYSDATE, ROWNUM, ROWID, NULL, AND LEVEL.

Q. Suppose a customer table is having different columns like customer no, payments.
What will be the query to select top three max payments?

```
SELECT customer_no, payments from customer C1
WHERE 3<=(SELECT COUNT(*) from customer C2 WHERE C1.payment <=
C2.payment)
```

Q. Find out nth highest salary from emp table

```
SELECT DISTINCT (a.sal) FROM EMP A
WHERE &N = (SELECT COUNT (DISTINCT (b.sal)) FROM EMP B
        WHERE a.sal<=b.sal);
```

Q. What are the difference between DDL, DML and DCL commands?

DDL is Data Definition Language statements. Some examples:
- CREATE - to create objects in the database
- ALTER - alters the structure of the database
- DROP - delete objects from the database
- TRUNCATE - remove all records from a table, including all spaces allocated for the records are removed
- COMMENT - add comments to the data dictionary
- GRANT - gives user's access privileges to database
- REVOKE - withdraw access privileges given with the GRANT command

DML is Data Manipulation Language statements. Some examples:
- SELECT - retrieve data from the a database
- INSERT - insert data into a table

UPDATE - updates existing data within a table
DELETE - deletes all records from a table, the space for the records remain
CALL - call a PL/SQL or Java subprogram
EXPLAIN PLAN - explain access path to data
LOCK TABLE - control concurrency

DCL is Data Control Language statements. Some examples:
COMMIT - save work done
SAVEPOINT - identify a point in a transaction to which you can later roll back
ROLLBACK - restore database to original since the last COMMIT
SET TRANSACTION - Change transaction options like what rollback segment to use

Can we drop a column from a table?

yes. ALTER TABLE table_name DROP COLUMN column_name;

Q. Describe some Group Functions that you know

A. 1) The COUNT function tells you how many rows were in the result set.
SELECT COUNT(*) FROM TESTING.QA

2) The AVG function tells you the average value of a numeric column.
SELECT MAX(SALARY) FROM TESTING.QA

3) The MAX and MIN functions tell you the maximum and minimum value of a numeric column.
SELECT MIN(SALARY) FROM TESTING.QA

4) The SUM function tells you the sum value of a numeric column.
SELECT SUM(SALARY) FROM TESTING.QA

Group functions: Group functions operate on sets of rows to give one result per group

Count function : **COUNT(*) returns the number of rows in a table.**

```
SELECT COUNT(*)FROM employees
WHERE department_id = 50;
```

Having clause
If you restrict rows based on the result of a group function, you must have a GROUP BY clause as well as the HAVING clause.

```
SELECT department_id, MAX(salary)
FROM employees
GROUP BY department_id
HAVING MAX(salary)>10000 ;
```