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Vocabulary

Identify the vocabulary word for each definition below:

%ROWTYPE	Declares a record with the same fields as the cursor on which it is based
Record	A composite data type in PL/SQL, consisting of a number of fields each with their own name and data type
%ISOPEN	Returns the status of the cursor
%ROWCOUNT	An attribute that processes an exact number of rows or counts the number of rows fetched in a loop
%NOTFOUND	An attribute used to determine whether the most recent FETCH statement successfully returned a row

Try It / Solve It

1. In your own words, explain the advantage of using %ROWTYPE to declare a record structure based on a cursor declaration.
   Answer : Retrieves the data types of all data retrieved from the database

2. Write a PL/SQL block to read through rows in the countries table for all countries in region 5 (South America region). For each selected country, display the country_name, national_holiday_date, and national_holiday_name. Use a record structure to hold all the columns selected from the countries table.
   Answer :

```
declare
  cursor countries_cur is
  select country_name, national_holiday_date, national_holiday_name
  from wf_countries
  where region_id = 5;
  v_countries countries_cur%rowtype;
begin
  open countries_cur;
    loop
    fetch countries_cur into v_countries;
    exit when countries_cur%notfound;
    dbms_output.put_line('name country : ' || v_countries.country_name || ', national holiday
date : ' || v_countries.national_holiday_date || ', national holiday name : ' ||
v_countries.national_holiday_name);
    end loop;
  close countries_cur;
end;
```

   Hint: This exercise is similar to question 4G in the previous lesson. Use your solution as a starting point for this exercise.

3. For this exercise, you use the employees table. Create a PL/SQL block that fetches and displays the six employees with the highest salary. For each of these employees, display the first name, last name, job id, and salary. Order your output so that the employee with the highest salary is displayed first. Use %ROWTYPE and the explicit cursor attribute %ROWCOUNT.
Answer :

```
declare
 cursor employees_cur is
 select first_name, last_name, job_id, salary
 from employees
 order by salary desc;
 v_employees employees_cur%rowtype;
begin
 open employees_cur;
  loop
  fetch employees_cur into v_employees;
  exit when employees_cur%rowcount > 6;
  dbms_output.put_line(v_employees.first_name || ' ' || v_employees.last_name || ', job
id : ' || v_employees.job_id||', salary : '||v_employees.salary);
  end loop;
 close employees_cur;
end;
```

4. Look again at the block you created in question 3. What if you wanted to display 21 employees instead of 6? There are only 20 rows in the employees table. What do you think wouldhappen?
Answer : Error buffer overflow, limit of 1000000 bytes. It's repeated indefinitely

5. In real life we would not know how many rows the table contained. Modify your block from question 3 so that it will exit from the loop when either 21 rows have been fetched and displayed, or when there are no more rows to fetch. Test the block again.
Answer :

```
declare
 cursor employees_cur is
 select first_name, last_name, job_id, salary
 from employees
 order by salary desc;
 v_employees employees_cur%rowtype;
begin
 open employees_cur;
  loop
  fetch employees_cur into v_employees;
  exit when employees_cur%notfound or employees_cur%rowcount > 21;
  dbms_output.put_line(v_employees.first_name|| ' ' ||v_employees.last_name || ', job
id : ' || v_employees.job_id||', salary : '||v_employees.salary);
  end loop;
 close employees_cur;
end;
```