

## Conditional Control: IF Statements .

### Terminology

Directions: Identify the vocabulary word for each definition below:

1. \_\_\_\_\_ Statement that enables PL/SQL to perform actions selectively based on conditions.
2. \_\_\_\_\_ Control structures – Repetition statements that enable you to execute statements in a PL/SQL block repeatedly.
3. \_\_\_\_\_ An expression with a TRUE or FALSE value that is used to make a decision.
4. \_\_\_\_\_ An expression that determines a course of action based on conditions and can be used outside a PL/SQL block in a SQL statement.

### Try It/Solve It

1. What is the purpose of a conditional control structure in PL/SQL?
2. List the three categories of control structures in PL/SQL.
3. List the keywords that can be part of an IF statement.
4. List the keywords that are a required part of an IF statement.
5. Write a PL/SQL block to find the population of a given country in the wf\_countries table. Display a message indicating whether the population is greater than or less than 1 billion (1,000,000,000). Test your block twice using India (country\_id=91) and United Kingdom (country\_id=44). India's population should be greater than 1 billion, while United Kingdom's should be less than 1 billion.
6. Modify the code from the previous exercise so that it handles all the following cases:
  - A. Population is greater than 1 billion.
  - B. Population is greater than 0.
  - C. Population is 0.
  - D. Population is null. (Display: No data for this country.)

Run your script using the following countries:

China (country\_id=86): Population is greater than 1 billion.

United Kingdom (country\_id=44): Population is greater than 0.

Antarctica (country\_id=672): Population is 0.

Europa Island (country\_id=15): There is no data for this country.

7. Examine the following code:

```
DECLARE
  v_country_id wf_countries.country_name%TYPE := <a value>;
  v_ind_date wf_countries.date_of_independence%TYPE;
  v_natl_holiday wf_countries.national_holiday_date%TYPE;
BEGIN
  SELECT date_of_independence, national_holiday_date
    INTO v_ind_date, v_natl_holiday
   FROM wf_countries
   WHERE country_id=v_country_id;
  IF v_ind_date IS NOT NULL THEN
    DBMS_OUTPUT.PUT_LINE('A');
  ELSIF v_natl_holiday IS NOT NULL THEN
    DBMS_OUTPUT.PUT_LINE('B');
  ELSIF v_natl_holiday IS NULL AND v_ind_date IS NULL THEN
    DBMS_OUTPUT.PUT_LINE('C');
  END IF;
END;
```

- A. What would print if the country has an independence date equaling NULL and a national holiday date equaling NULL?
- B. What would print if the country has an independence date equaling NULL and a national holiday date containing a value?
- C. What would print if the country has an independence date equaling a value and a national holiday date equaling NULL?
- D. Run a SQL script against the WF\_COUNTRIES table to determine whether the following countries have independence dates or national holiday dates, or both.

Country	Country_ID	Independence Date? Y/N	National Holiday Date? Y/N	Output should be
United States	1			
Iraq	964			
Antarctica	672			
Spain	34			

- E. Finally, run the above PL/SQL code using each of the above country ids as input. Check whether your output answers are correct.

8. Examine the following code. What output do you think it will produce?

```
DECLARE
  v_num1  NUMBER(3) := 123;
  v_num2  NUMBER;
BEGIN
  IF v_num1 <> v_num2 THEN
    DBMS_OUTPUT.PUT_LINE('The two numbers are not equal');
  ELSE
    DBMS_OUTPUT.PUT_LINE('The two numbers are equal');
  END IF;
END;
```

Enter and run the script to check if your answer was correct.

### Extension Activity

1. Write a PL/SQL block to accept a year and check whether it is a leap year. For example, if the year entered is 1990, the output should be “1990 is not a leap year.”

Hint: The year should be exactly divisible by 4 but not divisible by 100, or it should be divisible by 400.

Test your solution with the following years:

1990	Not a leap year
2000	Leap year
1996	Leap year
1900	Not a leap year
1992	Leap year
1884	Leap year