

1

```
DECLARE
    FAG BOOLEAN := TRUE;
    CNT NUMBER := 0;
    TOTAL NUMBER := 0;
BEGIN
    FOR I IN 1..1000 LOOP
        FOR J IN 2..I-1 LOOP
            IF MOD(I,J) = 0 THEN
                FAG:=FALSE;
            END IF;
        END LOOP;
        IF FAG THEN
            CNT := CNT + 1;
            TOTAL := TOTAL + 1;
            DBMS_OUTPUT.PUT(I||',');
        END IF;
        IF CNT = 5 THEN
            DBMS_OUTPUT.NEW_LINE();
            CNT := 0;
        END IF;
        FAG := TRUE;
    END LOOP;
    DBMS_OUTPUT.NEW_LINE();
    DBMS_OUTPUT.PUT_LINE('合计共有'||TOTAL||'个');
END;
/
```

2

```
CREATE OR REPLACE VIEW RES_SALARY(DEPT_NAME,CNT,AVGSAL) AS
    SELECT DEPARTMENT_NAME,COUNT(EMPLOYEE_ID),AVG(SALARY)
    FROM      EMPLOYEES      EMP      JOIN      DEPARTMENTS      DEPT      ON
EMP.DEPARTMENT_ID=DEPT.DEPARTMENT_ID
    GROUP BY DEPARTMENT_NAME
    ORDER BY DEPARTMENT_NAME;
```

```
DECLARE
    CURSOR CUR_SAL IS SELECT * FROM RES_SALARY;
    SAL RES_SALARY%ROWTYPE;
    MINSAL RES_SALARY.AVGSAL%TYPE;
    MAXSAL RES_SALARY.AVGSAL%TYPE;
```

```

BEGIN
    SELECT MAX(AVGSAL),MIN(AVGSAL) INTO MAXSAL,MINSAL FROM RES_SALARY;
    FOR SAL IN CUR_SAL LOOP
        IF SAL.AVGSAL = MAXSAL THEN
            DBMS_OUTPUT.PUT_LINE('平均工资最高的职位为'||SAL.DEPT_NAME||
            ',平均工资为'||SAL.AVGSAL||', 共有'||SAL.CNT||'人担任此职: ');
        ELSIF SAL.AVGSAL = MINSAL THEN
            DBMS_OUTPUT.PUT_LINE('平均工资最低的职位为'||SAL.DEPT_NAME||
            ',平均工资为'||SAL.AVGSAL||',共有'||SAL.CNT||'人担任此职: ');
        END IF;
    END LOOP;
    DBMS_OUTPUT.PUT_LINE('平均工资处于俩极的职位平均工资差别为'
    ||((MAXSAL-MINSAL)));
END;

```

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3

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CREATE OR REPLACE VIEW RES_SALARY(DEPT_NAME,MAXSAL,MINSAL,CNT) AS
    SELECT DEPARTMENT_NAME,MAX(SALARY),MIN(SALARY),COUNT(EMPLOYEE_ID)
    FROM      EMPLOYEES      EMP      JOIN      DEPARTMENTS      DEPT      ON
    EMP.DEPARTMENT_ID=DEPT.DEPARTMENT_ID
    GROUP BY DEPARTMENT_NAME;

```

```

DECLARE
    V_JOBTITLE DEPARTMENTS.DEPARTMENT_NAME%TYPE;
    E_NOT_SIMILAR EXCEPTION;
    CURSOR CUR_SAL IS SELECT * FROM RES_SALARY;
    SAL RES_SALARY%ROWTYPE;
    RATE NUMBER(2);
BEGIN
    FOR SAL IN CUR_SAL LOOP
        V_JOBTITLE := SAL.DEPT_NAME;
        RATE:=(SAL.MAXSAL-SAL.MINSAL)/SAL.MINSAL;
        IF RATE > 1.5 THEN
            RAISE E_NOT_SIMILAR;
        END IF;
    END LOOP;
EXCEPTION
    WHEN E_NOT_SIMILAR THEN
        DBMS_OUTPUT.PUT_LINE('职位'||V_JOBTITLE||'的工资变化区间过大。');
    WHEN OTHERS THEN
        DBMS_OUTPUT.PUT_LINE('职位'||V_JOBTITLE||'的最低工资为'

```

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||SAL.MINSAL||',最高工资为'||SAL.MAXSAL||',两者差别为'||RATE
||'倍，供职此职位的人有'||SAL.CNT||'人，工资变化区间正常');
END;
/

```

4.

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WITH DEPT_JOB AS(
SELECT DNAME,
(CASE JOB WHEN 'CLERK' THEN SAL END) CLERK,
(CASE JOB WHEN 'SALESMAN' THEN SAL END) SALESMAN,
(CASE JOB WHEN 'PRESIDENT' THEN SAL END) PRESIDENT,
(CASE JOB WHEN 'MANAGER' THEN SAL END) MANAGER,
(CASE JOB WHEN 'ANALYST' THEN SAL END) ANALYST

FROM EMP JOIN DEPT ON EMP.DEPTNO=DEPT.DEPTNO
)

SELECT DNAME,
CASE COUNT(CLERK) WHEN 0 THEN '无' ELSE TO_CHAR(AVG(CLERK)) END CLERK,
CASE COUNT(SALESMAN) WHEN 0 THEN '无' ELSE TO_CHAR(AVG(SALESMAN)) END SALESMAN,
CASE COUNT(PRESIDENT) WHEN 0 THEN '无' ELSE TO_CHAR(AVG(PRESIDENT)) END PRESIDENT,
CASE COUNT(MANAGER) WHEN 0 THEN '无' ELSE TO_CHAR(AVG(MANAGER)) END MANAGER,
CASE COUNT(ANALYST) WHEN 0 THEN '无' ELSE TO_CHAR(AVG(ANALYST)) END ANALYST

FROM DEPT_JOB
GROUP BY DNAME;

```

5

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SELECT DNAME,CLERK,SALESMAN,PRESIDENT,MANAGER,ANALYST
FROM (SELECT DNAME,SAL,JOB
      FROM EMP JOIN DEPT ON EMP.DEPTNO=DEPT.DEPTNO) DEPT_JOB
PIVOT
(AVG(SAL)
FOR JOB IN('CLERK' AS CLERK , 'SALESMAN' AS SALESMAN
           , 'PRESIDENT' AS PRESIDENT, 'MANAGER' AS MANAGER,
           'ANALYST' AS ANALYST)
);

```