
Oracle Gems

for DBAs and Developers



presentation for:
Oracle Users Group Finland
Fall 2008 Conference



Introduction

- Daniel Morgan – damorgan@u.washington.edu
- Oracle Ace Director 
- University of Washington 
 - Wrote UW Oracle curricula
 - Primary program instructor - 8 years
- The Morgan of Morgan's Library on the web
 - www.psoug.org/library.html
- Education Chair: PSOUG 
- Member: **UK OUG**
- Member: 
- Frequent speaker: OOW and user group events
- Beta tester: 10g, 11g, and TimesTen
- Oracle since version 6



I am not, however, Australia's Dan Morgan

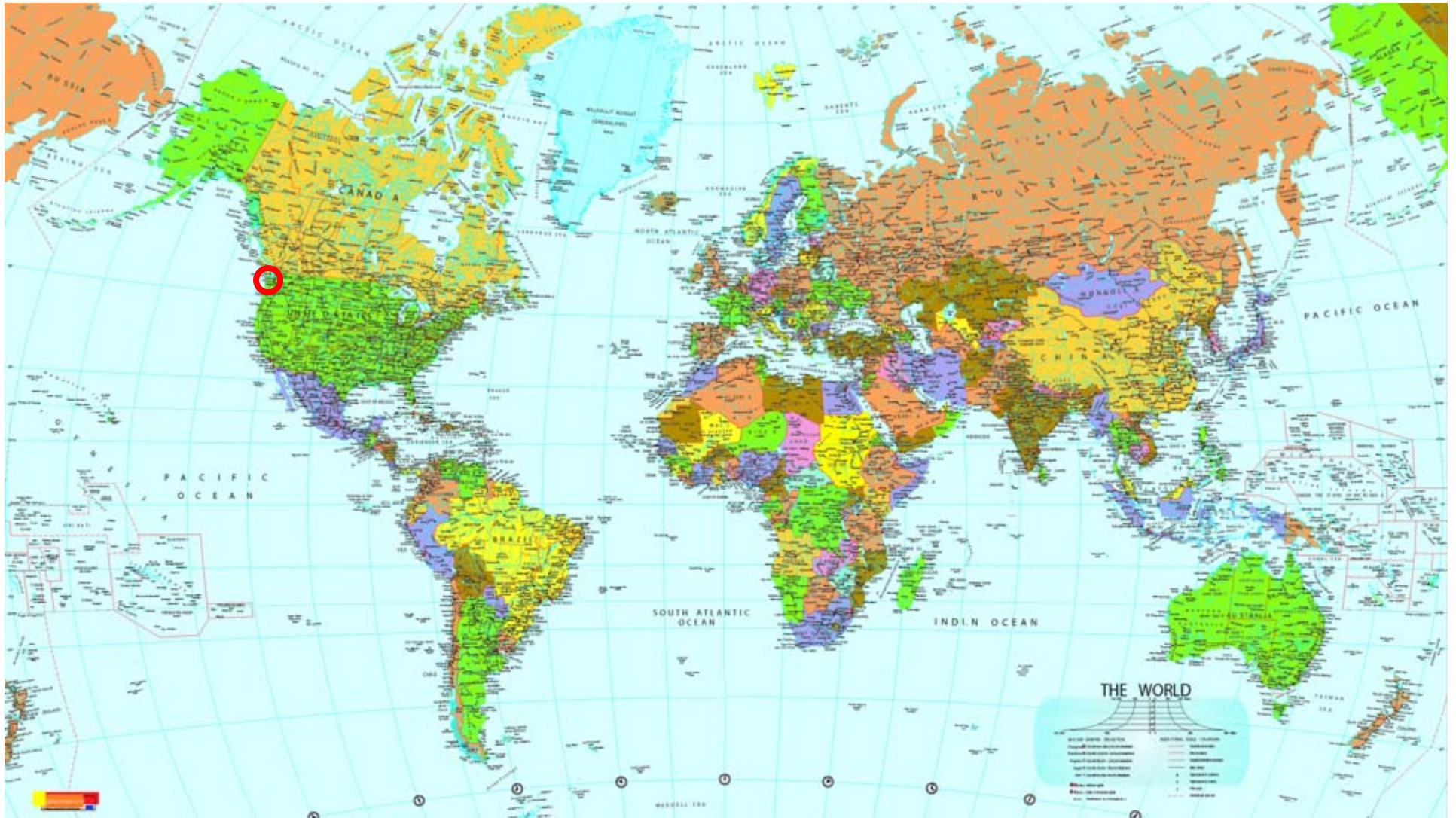


Become An **Oracle** ACE

- Expertise in an Oracle technology
 - Database
 - Middleware
 - Applications
- Contribute to the community
 - Join a user group
 - Present at conferences
 - Publish White Papers
 - Forums such as OTN, Oracle-L, and Usenet
 - Blogging



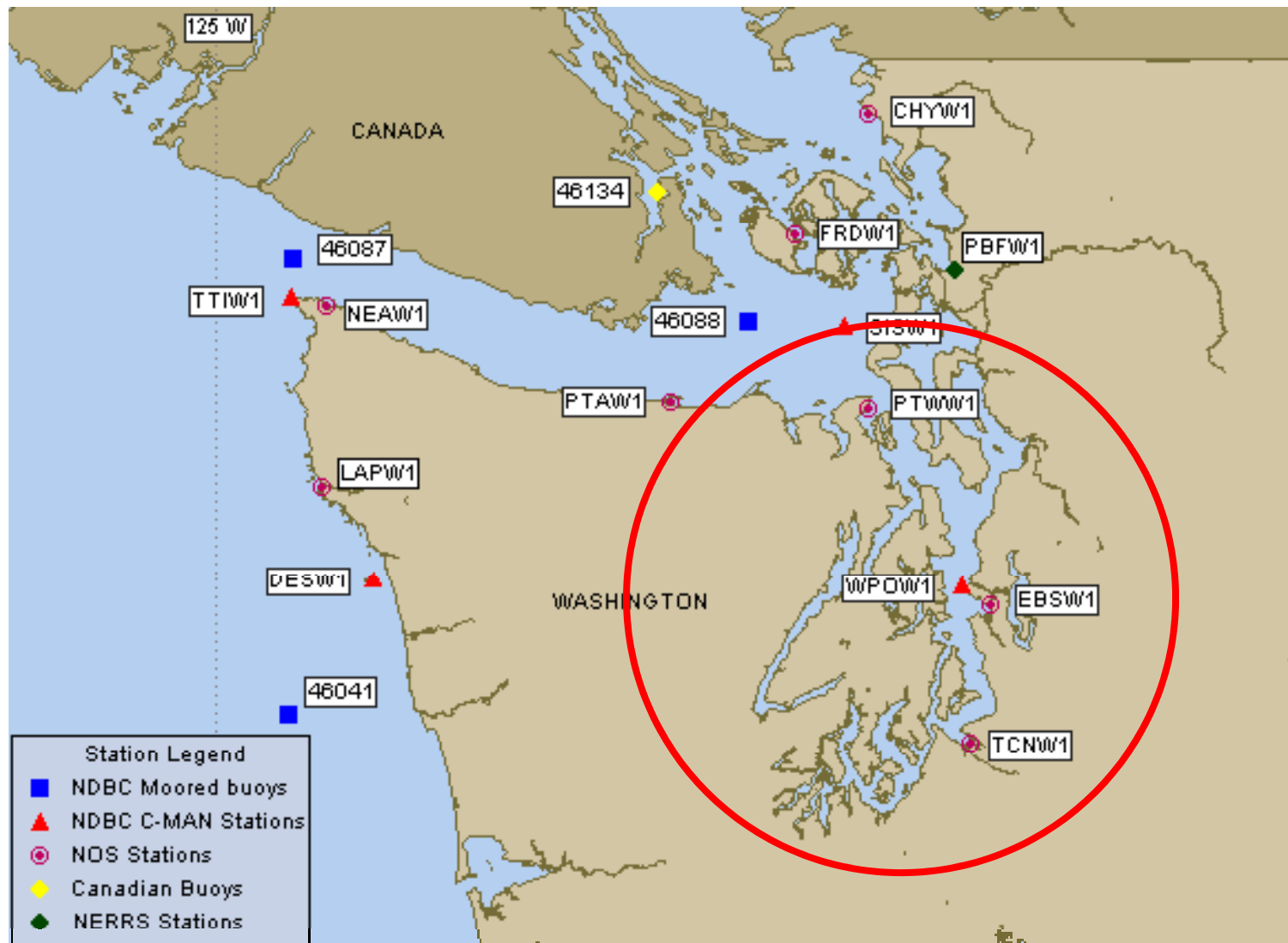
What is a Puget Sound



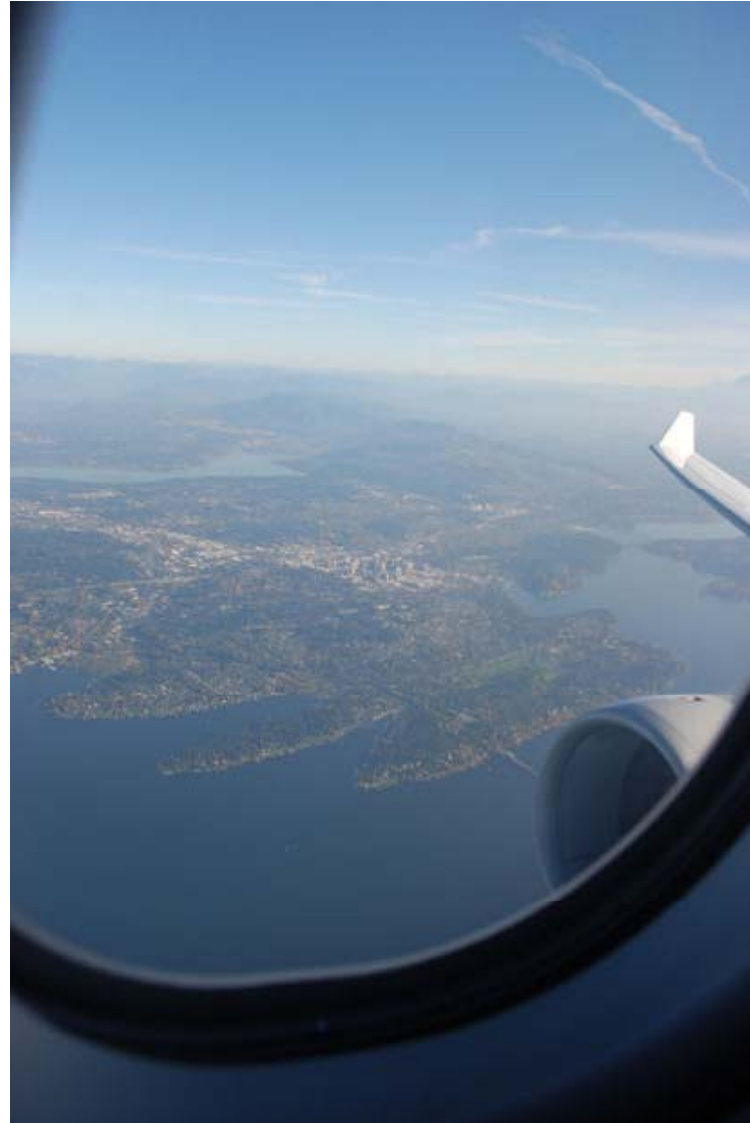
What is a Puget Sound



What is a Puget Sound



Leaving Seattle for Helsinki



My house, PSOUG's house, Bill Gate's house



We are also known for ... Microsoft



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 - Games
 - Innovation
- Travel
- Weather
- Blogs Etc.
- Local News

Microsoft Excel fails math test

Employee blogger wrote that some multiplication results incorrect

AP Associated Press
Updated: 10:29 a.m. PT Sept 28, 2007

SEATTLE - [Microsoft](#) Corp.'s Excel 2007 spreadsheet program is going to have to relearn part of its multiplication table.

In a [blog](#) post, Microsoft employee David Gainer said that when computer users tried to get Excel 2007 to multiply some pairs of numbers and the result was 65,535, Excel would incorrectly display 100,000 as the answer.

Gainer said Excel makes mistakes multiplying 77.1 by 850, 10.2 by 6,425 and 20.4 by 3,212.5, but the program appears to be able to handle 16,383.75 times 4.

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MSN TECH AND GADGETS

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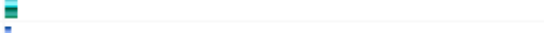
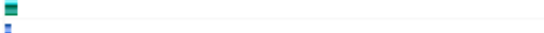
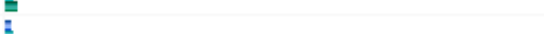
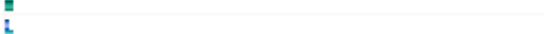
We never miss the chance to engage in ...



international relations



Website Stats

Countries			Pages	Hits	Bandwidth	
	United States	us	385164	673517	18.89 GB	
	India	in	77329	137277	5.09 GB	
	Great Britain	gb	50143	85369	2.50 GB	
	Germany	de	41354	72925	2.43 GB	
	Spain	es	34260	54650	1.70 GB	
	France	fr	30788	54184	1.56 GB	
	Canada	ca	30326	58736	1.47 GB	
	Australia	au	26450	47006	1.69 GB	
	Italy	it	23565	43323	1.36 GB	
	Brazil	br	23550	48236	1.39 GB	
	Poland	pl	17533	32274	1004.72 MB	
	Netherlands	nl	14550	28670	905.69 MB	
	Switzerland	ch	12547	22399	646.03 MB	
	Russian Federation	ru	11968	21878	842.69 MB	
	Portugal	pt	9338	14940	393.11 MB	
	China	cn	8981	16835	886.02 MB	
	Mexico	mx	8775	17489	429.18 MB	
	Malaysia	my	8445	13966	1.70 GB	
	Belgium	be	8048	13842	370.23 MB	
	Sweden	se	7914	14641	433.42 MB	
	Singapore	sg	7175	11636	369.09 MB	
	Czech Republic	cz	7082	13385	386.45 MB	
	Turkey	tr	6728	13741	482.86 MB	
	Hong Kong	hk	6606	12110	426.85 MB	
	Romania	ro	6551	11307	375.86 MB	
	Taiwan	tw	6429	12374	614.60 MB	
	Austria	at	5942	10974	321.78 MB	
	Kuwait	kw	5889	8405	441.98 MB	
	Hungary	hu	5346	10329	273.84 MB	
	Finland	fi	4943	9495	229.27 MB	

**1.1 Million Page
Requests / month
from 183 countries**



Gems for DBAs & Developers

- DBMS_ADVANCED_REWRITE
- DBMS_COMPARISON (replacement for DBMS_RECTIFIER_DIFF)
- DBMS_PCLXUTIL
- DBMS_SPACE
 - create_index_cost
 - create_table_cost
 - free_blocks
 - object_dependent_segments
 - object_growth_trend
- PL/SQL Warnings
- Sorted Hash Clusters
- INSERT ALL
- INSERT WHEN
- SAMPLE CLAUSE
- WM_CONCAT
- DBMS_REDEFINITION
- DBMS_FLASHBACK.TRANSACTION_BACKOUT

**Source code for all demos
can be found in Morgan's
Library at: www.psoug.org**



Health Warning

Due to complaints made to the Surgeon General's office ...



You are now entering ...

... a ...



DBMS_ADVANCED_REWRITE

```
dbms_advanced_rewrite.declare_rewrite_equivalence (  
name          VARCHAR2,  
source_stmt   VARCHAR2,  
destination_stmt VARCHAR2,  
validate      BOOLEAN := TRUE,  
mode          VARCHAR2 := 'TEXT_MATCH');
```

```
BEGIN  
  dbms_advanced_rewrite.declare_rewrite_equivalence(  
    'UW',  
    'SELECT srvr_id FROM servers INTERSECT SELECT srvr_id  
      FROM serv_inst',  
    'SELECT srvr_id FROM servers s WHERE EXISTS (  
      SELECT srvr_id  
      FROM serv_inst i  
      WHERE s.srvr_id = i.srvr_id)',  
    TRUE,  
    'TEXT_MATCH');  
END;  
/
```



DBMS_COMPARISON

```
dbms_comparison.create_comparison(  
comparison_name      IN VARCHAR2, -- can not contain spaces  
schema_name          IN VARCHAR2,  
object_name          IN VARCHAR2,  
dblink_name          IN VARCHAR2,  
index_schema_name    IN VARCHAR2 DEFAULT NULL,  
index_name           IN VARCHAR2 DEFAULT NULL,  
remote_schema_name   IN VARCHAR2 DEFAULT NULL,  
remote_object_name   IN VARCHAR2 DEFAULT NULL,  
comparison_mode       IN VARCHAR2 DEFAULT CMP_COMPARE_MODE_OBJECT,  
column_list          IN VARCHAR2 DEFAULT '*',  
scan_mode            IN VARCHAR2 DEFAULT CMP_SCAN_MODE_FULL,  
scan_percent         IN NUMBER    DEFAULT NULL,  
null_value           IN VARCHAR2 DEFAULT CMP_NULL_VALUE_DEF,  
local_converge_tag   IN RAW        DEFAULT NULL,  
remote_converge_tag  IN RAW        DEFAULT NULL,  
max_num_buckets      IN NUMBER    DEFAULT CMP_MAX_NUM_BUCKETS,  
min_rows_in_bucket   IN NUMBER    DEFAULT CMP_MIN_ROWS_IN_BUCKET);
```



DBMS_FLASHBACK.TRANSACTION_BACKOUT

```
dbms_flashback.transaction_backout(  
numtxns NUMBER,  
xids      xid_array,  
options  BINARY_INTEGER DEFAULT NOCASCADE,  
scnhint  NUMBER DEFAULT 0);
```

```
DECLARE  
  xa sys.xid_array := sys.xid_array();  
BEGIN  
  xa.extend;  
  xa(1) := '04000700A2020000';  
  dbms_flashback.transaction_backout(1, xa);  
END;  
/
```



DBMS_PCLXUTIL

```
dbms_pclxutil.build_part_index (  
  jobs_per_batch IN NUMBER DEFAULT 1,  
  procs_per_job   IN NUMBER DEFAULT 1,  
  tab_name        IN VARCHAR2 DEFAULT NULL,  
  idx_name        IN VARCHAR2 DEFAULT NULL,  
  force_opt       IN BOOLEAN  DEFAULT FALSE);
```

```
CREATE INDEX ix_prof_hist  
ON prof_hist(prof_history_id)  
LOCAL  
UNUSABLE;
```

```
exec dbms_pclxutil.build_part_index(  
  3,  
  1,  
  'PROF_HIST',  
  'IX_PROF_HIST', TRUE);
```



DBMS_REDEFINITION

- ABORT_REDEF_TABLE
- CAN_REDEF_TABLE
- COPY_TABLE_DEPENDENTS
- FINISH_REDEF_TABLE
- REGISTER_DEPENDENT_OBJECTS
- START_REDEF_TABLE
- SYNC_INTERIM_TABLE
- UNREGISTER_DEPENDENT_OBJECT



DBMS_SPACE

- ASA_RECOMMENDATIONS (auto seg advisor)
- CREATE_INDEX_COST
- CREATE_TABLE_COST
- FREE_BLOCKS
- ISDATAFILEDROPPABLE_NAME
- OBJECT_DEPENDENT_SEGMENTS
- OBJECT_GROWTH_TREND
- OBJECT_SPACE_USAGE
- UNUSED_SPACE
- VERIFY_SHRINK_CANDIDATE
- ... AND MORE...



INSERT Statements

```
DECLARE
  trec  t%ROWTYPE;
BEGIN
  trec.table_name := 'NEW';
  trec.tablespace_name := 'NEW_TBSP';

  INSERT INTO t
  VALUES trec;

  COMMIT;
END;
/
```

```
INSERT ALL
  INTO ap_cust VALUES
    (customer_id, program_id, del_date)
  INTO ap_orders VALUES
    (order_date, prog_id)
  SELECT program id, delivered date,
  customer_id, order_date
  FROM airplanes;
```

```
INSERT
  WHEN (deptno=10) THEN
    INTO emp_10
    (empno,ename,job,mgr,sal,deptno)
  VALUES
    (empno,ename,job,mgr,sal,deptno)
  WHEN (deptno=20) THEN
    INTO emp_20
    (empno,ename,job,mgr,sal,deptno)
  VALUES
    (empno,ename,job,mgr,sal,deptno)
  SELECT * FROM emp;
```

Also available:

- INSERT ALL WHEN
- INSERT FIRST WHEN
- INSERT WITH CHECK OPTION
- RETURNING CLAUSE



PL/SQL Warnings

- Severe Warning Messages (5000-5999)
- Informational Warning Messages (6000-6249)
- Performance Warning Messages (7000-7249)

```
CREATE OR REPLACE PROCEDURE plw06002 AS
  x NUMBER := 10;
BEGIN
  IF x = 10 THEN
    x := 20;
  ELSE
    x := 100;
  END IF;
END plw06002;
/
```

Unreachable code



Sample Clause

```
SELECT *  
FROM <table_name>  
SAMPLE (percentage_of_rows);
```

```
SQL> SELECT COUNT(*) FROM airplanes;  
COUNT (*)  
-----  
250000
```

```
SQL> SELECT COUNT(*) FROM AIRPLANES SAMPLE (1.0);  
COUNT (*)  
-----  
2478
```

```
SQL> /  
COUNT (*)  
-----  
2497
```



Sorted Hash Clusters

```
CREATE CLUSTER sorted_hc (  
  program_id    NUMBER(3),  
  line_id       NUMBER(10) SORT,  
  delivery_dt   DATE SORT)  
TABLESPACE uwdata  
HASHKEYS 11  
HASH IS program_id;
```

```
CREATE TABLE shc_airplane (  
  program_id    NUMBER(3),  
  line_id       NUMBER(10) SORT,  
  delivery_dt   DATE SORT,  
  customer_id   VARCHAR2(3),  
  order_dt      DATE)  
CLUSTER sorted_hc (program_id, line_id, delivery_dt);
```



WM_CONCAT Function

```
WM_CONCAT(p1 IN VARCHAR2) RETURN VARCHAR2
```

```
SQL> SELECT * FROM t;
```

COL1	COL2
111	This
111	is
111	a
111	test
222	This is not

```
SQL> SELECT col1, TRANSLATE(wmsys.wm_concat(col2), 'A, ', 'A ') CONCAT  
2 FROM t  
3 GROUP BY col1;
```

COL1	CONCAT
111	This is a test
222	This is not



Questions

