Aggregating Data Using Group Functions

Topics:
- Types of Group Functions
- Using the AVG and SUM Functions
- Using the MIN and MAX Functions
- Using the COUNT Function
- Using the GROUP BY Clause

Types of Group Functions
- AVG
- COUNT
- MAX
- STDDEV
- MIN
- SUM
- VARIANCE

Using the AVG and SUM Functions

```
SELECT AVG(salary), MAX(salary),
MIN(salary), SUM(salary)
FROM emps
WHERE job_id LIKE '%REP%';
```

Using the MIN and MAX Functions

```
SELECT MIN(hire_date), MAX(hire_date)
FROM emps;
```

Using the COUNT Function

```
SELECT COUNT(DISTINCT department_id)
FROM emps;
```

Using the GROUP BY Clause

```
SELECT department_id, AVG(salary)
FROM emps
```

```
    GROUP BY department_id ;
```

Aggregating Data Using Group Functions

Topics:
- Using the GROUP BY Clause on Multiple Columns
- Illegal Queries Using Group Functions
- Excluding Group Results: The HAVING Clause
- Nesting Group Functions

Using the GROUP BY Clause on Multiple Columns

```
SELECT department_id dept_id, job_id, SUM(salary)
FROM emps
GROUP BY department_id, job_id ;
```

DEPT_ID	JOB_ID	SUM(SALARY)
10	AD_ASST	4400
20	MK_MAN	13000
20	MK_REP	6000
50	ST_CLERK	11700
50	ST_MAN	5800
60	IT_PROG	19200
80	SA_MAN	10500
80	SA_REP	19600
90	AD_PRES	24000
90	AD_VP	34000
110	AC_ACCOUNT	8300
110	AC_MGR	12000
	SA_REP	7000

What is wrong with this?!!

```
>SELECT department_id, AVG(salary)
 FROM emps
 WHERE AVG(salary) > 8000
 GROUP BY department_id;
```

Excluding Group Results: The HAVING Clause

```
SELECT job_id, SUM(salary) PAYROLL
FROM emps
```

```
WHERE job_id NOT LIKE '%REP%'
GROUP BY job_id
HAVING SUM(salary) > 13000
ORDER BY SUM(salary);
```

Activity 01:

Display the highest, lowest, sum, and average salary of all employees. Label the columns Maximum, Minimum, Sum, and Average, respectively. Round your results to the nearest whole number.

Maximum	Minimum	Sum	Average
24000	2500	175500	8775

Activity 02:

display the minimum, maximum, sum, and average salary for each job type

JOB_ID	Maximum	Minimum	Sum	Average
AC_ACCOUNT	8300	8300	8300	8300
AC_MGR	12000	12000	12000	12000
AD_ASST	4400	4400	4400	4400
AD_PRES	24000	24000	24000	24000
AD_VP	17000	17000	34000	17000
IT_PROG	9000	4200	19200	6400
MK_MAN	13000	13000	13000	13000
MK_REP	6000	6000	6000	6000
SA_MAN	10500	10500	10500	10500
SA_REP	11000	7000	26600	8867
ST_CLERK	3500	2500	11700	2925
ST_MAN	5800	5800	5800	5800

Activity 03:

Write a query to display the number of people with the same job.

JOB_ID	COUNT(*)
AC_ACCOUNT	1
AC_MGR	1
AD_ASST	1
AD_PRES	1
AD_VP	2
IT_PROG	3
MK_MAN	1

Activity 04:

Display the manager number and the salary of the lowest paid employee for that manager.
Exclude anyone whose manager is not known. Exclude any groups where the minimum salary is $6,000 or less. Sort the output in descending order of salary.

MANAGER_ID	MIN(SALARY)
102	9000
205	8300
149	7000