

6 Functions, Aggregate and Group-set Functions

6.1 Summary

In this chapter you learnt how to create functions, manipulate and extract certain information from the database using more advanced SQL queries. Generally speaking functions used in SQL fall into four categories:

- String functions, such as `len(..)`, `&`, `substr(..)`, `mid(...)` , etc.
- Arithmetic functions, such as `round(..)`, `sum(..)`, etc.
- Date functions, such as + and – operations on dates
- Aggregate or group-set functions, such as `count()`, `avg()`, etc.

The `GROUP BY` clause divides (sorts) a table into groups of rows with matching values in the same column (or columns).

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Sources: Keuzegids Master ranking 2013; Elsevier 'Beste Studies' ranking 2012; Financial Times Global Masters in Management ranking 2012

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6.2 Exercises

1. Display the details for the latest booking date

SQL:

```
SELECT *
FROM booking
WHERE bookingdate=(select max(bookingdate) from booking);
```

clientno	propertyno	bookingdate	comment
CR56	PG4	17/12/2007	

2. Display the lowest yearly income earned by properties in Barbados

SQL:

```
SELECT min(yearincome)
FROM property
WHERE country="Barbados";
```

Expr1000
11075

3. Display the property number with the highest year income for a Villa

SQL:

```
SELECT propertyno
FROM property
WHERE yearincome=(select max(yearincome) from property where
type="Villa");
```

propertyno
PL94

4. Find the average year income for Villas

SQL:

```
SELECT avg(yearincome)
FROM property
WHERE type="Villa";
```

Expr1000
13683.3333

5. List the minimum and maximum year incomes for each property type

SQL:

```
SELECT min(yearincome), max(yearincome), type
FROM property
GROUP BY type;
```

Expr1000	Expr1001	type
8000	9500	Apartment
11075	11075	Studio

6. Find the average year income (name the new column avgyearincome) and average rent (name the new column avgrent) for each property type, grouped by property type

SQL:

```
SELECT avg(yearincome) AS avgyearincome, avg(rent) AS avgrent, type
FROM property
GROUP BY type;
```

avgyearincome	avgrent	type
8750	425	Apartment
11075	475	Studio
13683.3333333333	525	Villa