

Aggregate Functions

Prof. Hasso Plattner

Facts about Aggregate Functions

- ❑ Aggregate Functions (AF) work on data sets instead of single values
- ❑ HAVING clause includes predicates to filter result set of aggregate functions
- ❑ SQL-Syntax:

SELECT	AF(attribute1)
FROM	table
WHERE	attribute= value
GROUP BY	attribute2, attribute3
HAVING	AF(attribute_name1) > 5

SQL Aggregate Functions

- ☐ COUNT
- ☐ SUM
- ☐ Average
- ☐ Median
- ☐ Maximum
- ☐ Minimum

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Example

- ☐ Aggregate Function “COUNT” is shown on the following example table:

recID	fname	lname	gender	city	country	birthday
0	John	Smith	m	Chicago	USA	12.03.1964
1	Mary	Brown	f	London	UK	12.05.1964
2	Jane	Doe	f	Palo Alto	USA	23.04.1976
3	John	Doe	m	Palo Alto	USA	17.06.1952
4	Peter	Schmidt	m	Potsdam	GER	11.11.1975
...	...	...	...	...	...	...

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COUNT

- COUNT the number of people per country

```
SELECT      country, COUNT(*) AS citizens
FROM        world_population
GROUP BY    country
```

Attribute Vector for "country"

44	43	44	44	42	...
----	----	----	----	----	-----



Result Map

44	1
----	---

country Dictionary

valueID	value
...	...
42	GER
43	UK
44	USA
...	...

COUNT

- COUNT the number of people per country

```
SELECT      country, COUNT(*) AS citizens
FROM        world_population
GROUP BY    country
```

Attribute Vector for "country"

44	43	44	44	42	...
----	----	----	----	----	-----



Result Map

44	1
43	1

country Dictionary

valueID	value
...	...
42	GER
43	UK
44	USA
...	...

COUNT

- COUNT the number of people per country

```
SELECT      country, COUNT(*) AS citizens
FROM        world_population
GROUP BY    country
```

Attribute Vector for "country"					
44	43	44	44	42	...

Result Map	
44	2
43	1

country Dictionary	
valueID	value
...	...
42	GER
43	UK
44	USA
...	...

COUNT

- COUNT the number of people per country

```
SELECT      country, COUNT(*) AS citizens
FROM        world_population
GROUP BY    country
```

Attribute Vector for "country"					
44	43	44	44	42	...

Result Map	
44	3
43	1

country Dictionary	
valueID	value
...	...
42	GER
43	UK
44	USA
...	...

COUNT

- COUNT the number of people per country

```
SELECT      country, COUNT(*) AS citizens
FROM        world_population
GROUP BY    country
```

Attribute Vector for "country"

44	43	44	44	42	...
----	----	----	----	----	-----



Result Map

44	3
43	1
42	1

country Dictionary

valueID	value
...	...
42	GER
43	UK
44	USA
...	...

COUNT

- COUNT the number of people per country

```
SELECT      country, COUNT(*) AS citizens
FROM        world_population
GROUP BY    country
```

Attribute Vector for "country"

44	43	44	44	42	...
----	----	----	----	----	-----



Result Map

44	3
43	1
42	1
...	...

country Dictionary

valueID	value
...	...
42	GER
43	UK
44	USA
...	...

COUNT

- COUNT the number of people per country

```
SELECT      country, COUNT(*) AS citizens
FROM        world_population
GROUP BY    country
```

Attribute Vector for "country"

44	43	44	44	42	...
----	----	----	----	----	-----

Result Map	
44	3
43	1
42	1
...	...

+

country Dictionary	
valueID	value
...	...
42	GER
43	UK
44	USA
...	...

=

Result	
country	citizens
USA	3
UK	1
GER	1
...	...