

# Window functions

<b>Language:</b>	English • 日本語
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General Elections were held in the UK in 2015 and 2017. Every citizen votes in a **constituency**. The candidate who gains the most votes becomes MP for that constituency.

All these results are recorded in a table **ge**

yr	firstName	lastName	constituency	party	votes
2015	Ian	Murray	S14000024	Labour	19293
2015	Neil	Hay	S14000024	Scottish National Party	16656
2015	Miles	Briggs	S14000024	Conservative	8626
2015	Phyl	Meyer	S14000024	Green	2090
2015	Pramod	Subbaraman	S14000024	Liberal Democrat	1823
2015	Paul	Marshall	S14000024	UK Independence Party	601
2015	Colin	Fox	S14000024	Scottish Socialist Party	197
2017	Ian	MURRAY	S14000024	Labour	26269
2017	Jim	EADIE	S14000024	SNP	10755
2017	Stephanie Jane Harley	SMITH	S14000024	Conservative	9428
2017	Alan Christopher	BEAL	S14000024	Liberal Democrats	1388

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## Warming up

### 1.

Show the **lastName**, **party** and **votes** for the **constituency** 'S14000024' in 2017.

```
SELECT lastName, party, votes
FROM ge
WHERE constituency = 'S14000024' AND yr = '2017'
ORDER BY votes DESC
```

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## Correct answer

lastName	party	votes
MURRAY	Labour	26269
EADIE	SNP	10755
SMITH	Conservative	9428
BEAL	Liberal Democrats	1388

## Who won?

2.

You can use the RANK function to see the order of the candidates. If you RANK using (ORDER BY votes DESC) then the candidate with the most votes has rank 1.

**Show the party and RANK for constituency S14000024 in 2017. List the output by party**

```
SELECT party, votes,  
       RANK() OVER (ORDER BY votes desc) as posn  
FROM ge  
WHERE constituency = 'S14000024' AND yr = 2017  
order by party
```

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## Correct answer

party	votes	posn
Conservative	9428	3
Labour	26269	1
Liberal Democrats	1388	4
SNP	10755	2

## PARTITION BY

# 3.

The 2015 election is a different PARTITION to the 2017 election. We only care about the order of votes for each year.

**Use PARTITION to show the ranking of each party in S14000021 in each year. Include yr, party, votes and ranking (the party with the most votes is 1).**

```
SELECT yr,party, votes,
       RANK() OVER (PARTITION BY yr ORDER BY votes DESC) as posn
FROM ge
WHERE constituency = 'S14000021'
ORDER BY party,yr
```

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## Correct answer

yr	party	votes	posn
2015	Conservative	12465	3
2017	Conservative	21496	1
2019	Conservative	19451	2
2015	Labour	19295	2
2017	Labour	14346	3
2019	Labour	6855	3
2015	Liberal Democrats	1069	4
2017	Liberal Democrats	1112	4

## Edinburgh Constituency

# 4.

Edinburgh constituencies are numbered S14000021 to S14000026.

Use **PARTITION BY** constituency to show the ranking of each party in Edinburgh in 2017. Order your results so the winners are shown first, then ordered by constituency.

```
SELECT constituency,party, votes,  
rank()over(partition by constituency order by votes desc) as posn  
FROM ge  
WHERE constituency BETWEEN 'S14000021' AND 'S14000026'  
AND yr = 2017  
ORDER BY posn,constituency
```

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## Correct answer

constituency	party	votes	posn
S14000021	Conservative	21496	1
S14000022	SNP	18509	1
S14000023	SNP	19243	1
S14000024	Labour	26269	1
S14000025	SNP	17575	1
S14000026	Liberal Democrats	18108	1
S14000021	SNP	16784	2
S14000022	SNP	15884	2

## Winners Only

5.

You can use SELECT within SELECT to pick out only the winners in Edinburgh.

**Show the parties that won for each Edinburgh constituency in 2017.**

```
SELECT constituency, party
FROM (
  SELECT constituency, party,
    RANK() OVER (PARTITION BY constituency ORDER BY votes DESC) AS rnk
  FROM ge
  WHERE constituency BETWEEN 'S14000021' AND 'S14000026' AND yr = 2017
) ranked
WHERE rnk = 1;
```

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## Correct answer

constituency	party
S14000021	Conservative
S14000022	SNP
S14000023	SNP
S14000024	Labour
S14000025	SNP
S14000026	Liberal Democrats

## Scottish seats

# 6.

You can use **COUNT** and **GROUP BY** to see how each party did in Scotland. Scottish constituencies start with 'S'

**Show how many seats for each party in Scotland in 2017.**

```
SELECT party, COUNT(*) AS seats
FROM (
  SELECT constituency, party,
         RANK() OVER (PARTITION BY constituency ORDER BY votes DESC) AS rnk
  FROM ge
  WHERE yr = 2017
        AND LEFT(constituency, 1) = 'S'
) ranked
WHERE rnk = 1
GROUP BY party
ORDER BY party;
```

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## Correct answer

party	seats
Conservative	13
Labour	7
Liberal Democrats	4
SNP	35

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