

# Window functions

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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

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### 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?

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# 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

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### 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
2019	Liberal Democrats	4174	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 r
FROM ge
WHERE constituency BETWEEN 'S14000021' AND 'S14000026'
AND yr = 2017
ORDER BY r , constituency
```

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S14000022	Conservative	8081	3
S14000023	Conservative	15385	3
S14000024	Conservative	9428	3
S14000025	Labour	13213	3
S14000026	Conservative	11559	3
S14000021	Liberal Democrats	1112	4
S14000022	Liberal Democrats	1849	4
S14000023	Liberal Democrats	2579	4
S14000024	Liberal Democrats	1388	4
S14000025	Liberal Democrats	2124	4
S14000026	Labour	7876	4
S14000023	Green	1727	5
S14000026	SIR	132	5

## Winners Only

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### 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 t_posn.constituency, t_posn.party
FROM
  (SELECT constituency, party, votes,
   RANK()OVER(PARTITION BY constituency ORDER BY
    votes DESC) posn
  FROM ge
  WHERE constituency BETWEEN 'S14000021' AND 'S14000026' AND yr = 2017
  ORDER BY constituency ,votes DESC)
t_posn
WHERE t_posn.posn = 1
```

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## Correct answer

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

## Scottish seats

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# 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 t_posn.party, COUNT(*)
FROM
  (SELECT party, RANK() OVER (PARTITION BY constituency ORDER BY votes DESC) posn
   FROM ge
   WHERE yr = 2017 AND constituency LIKE "S%"
   ORDER BY constituency, votes DESC
  )t_posn
WHERE t_posn.posn = 1
GROUP BY t_posn.party
```

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## Correct answer

party	COUNT(*)
Conservative	13
Labour	7
Liberal Democrats	4
SNP	35

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