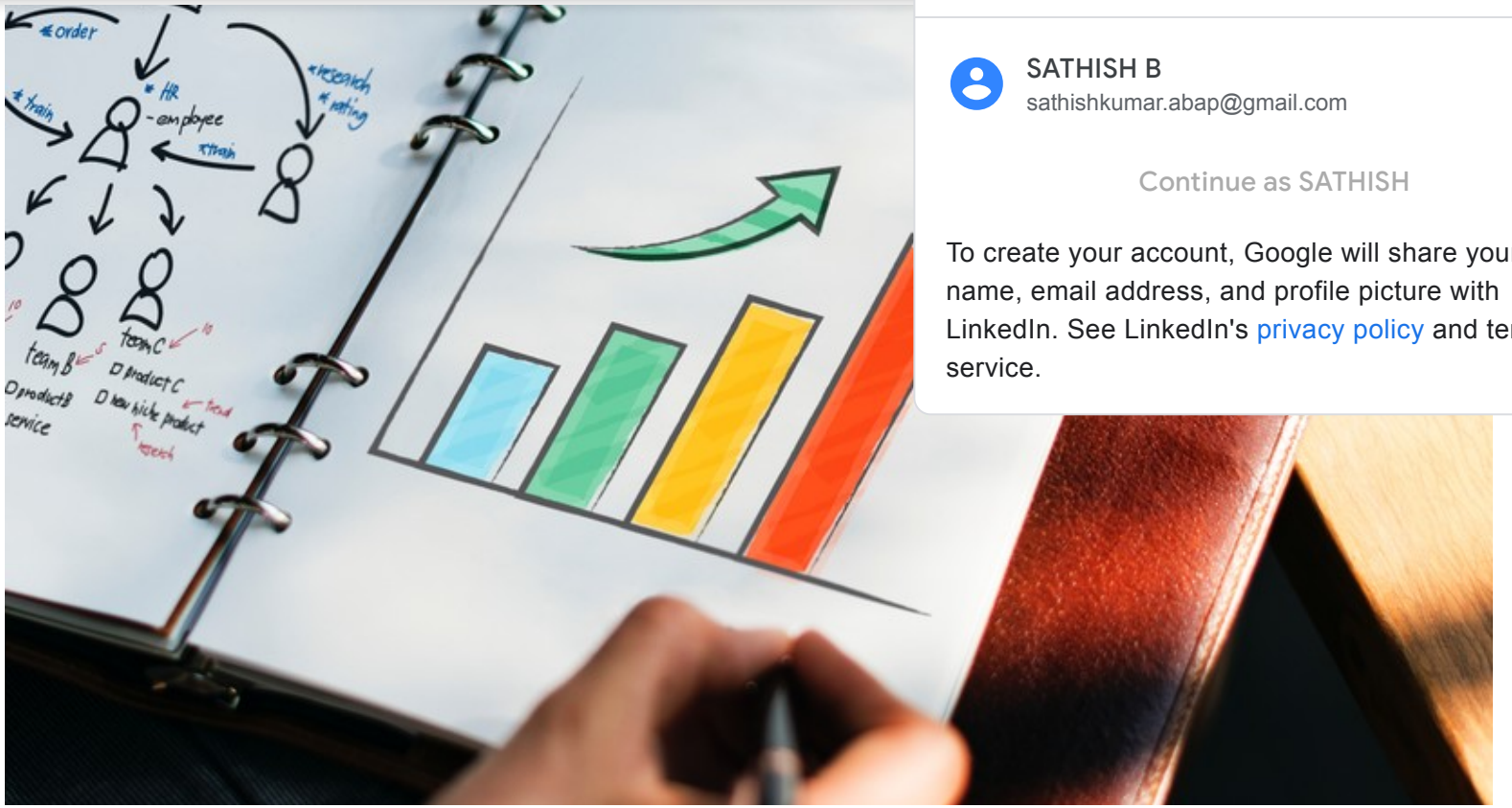

About ROW_NUMBER(), RANK(), and DENSE_RANK() Functions in SAP HANA

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The output of the this function can be non-deterministic a
the sequence is determined by the <windows_order_by_c
clause

RANK()

This function returns duplicate values in the ranking sequ
values and the next rankings are skipped.

DENSE_RANK()

This function is used to give rank based on measure/measures. This function is same as the RANK function, but the rank number will not skip when ties are found.

See the simple example with small data set.

Eg: We have a MARKS table like below:

2	2	JEO	40			
3	3	SCOTT	50			
4	4	ADAM	50			
5	5	MARY	55			
6	6	TAM	53			
7	7	PAM	73			
8	8	JAMI	36	31	54	121
9	9	MAX	28	70	32	130
10	10	TORI	28	70	32	130

Scenario 1:

Now apply functions ROW_NUMBER(), RANK() and DENSE_RANK() on above table.

Write below Code in HANA Studio in SQL Console. The below code gives first priority for Maths marks, second priority for Physics, and third priority for Chemistry.

```
        "TOTAL",
        ROW_NUMBER()     OVER(ORDER BY "MATHS" DESC, "PHYSICS" DESC
        RANK()           OVER(ORDER BY "MATHS" DESC, "PHYSICS" DESC
        DENSE_RANK()     OVER(ORDER BY "MATHS" DESC, "PHYSICS" DESC
FROM "<Your Schema>"."MARKS";
```


Execute the above code and see the Results.

SQL | Result

```
SELECT   "SNO",
         "SNAME",
         "MATHS",
```

	SNO	SNAME	MATHS	PHYSICS	CHEMISTRY	TOTAL	Using ROW_NUMBER	Using RANK	Using DENSE_RANK
1	7	PAM	73	37	55	165	1	1	1
2	5	MARY	55	65	70	190	2	2	2
3	6	TAM	53	42	36	131	3	3	3
4	3	SCOTT	50	60	70	180	4	4	4
5	4	ADAM	50	60	70	180	5	4	4
6	1	JAMES	40	50	60	150	6	6	5
7	2	JEO	40	50	60	150	7	6	5
8	8	JAMI	36	31	54	121	8	8	6
9	9	MAX	28	70	32	130	9	9	7
10	10	TORI	28	70	32	130	10	9	7

ROW_NUMBER() is generated numbers from 1 to 10 and allocated in sequence.

skipped and it allocated Rank# 6 for JAMS and JEO.

DENSE_RANK() is generated Ranks from 1 to 7. If two
allocated same Rank for both students instead of skipping

Scenario 2:

Removing the priority on individual subjects and using the same functions on TOTAL marks, see the below code.

```
SELECT   "SNO",
         "SNAME",
         "MATHS",
         "PHYSICS",
         "CHEMISTRY",
         "TOTAL",
         ROW_NUMBER()     OVER(ORDER BY "TOTAL" DESC) AS "Using ROW_NUMBER",
         RANK()           OVER(ORDER BY "TOTAL" DESC) AS "Using RANK",
         DENSE_RANK()     OVER(ORDER BY "TOTAL" DESC) AS "Using DENSE_RANK"
FROM "<Your Schema>"."MARKS";
```

The result of above code is:

3	4	ADAM	50	60	70	180
4	7	PAM	73	37	55	165
5	1	JAMES	40	50	60	150
6	2	JEO	40	50	60	150
7	6	TAM	53	42	36	131
8	9	MAX	28	70	32	130
9	10	TORI	28	70	32	130
10	8	JAMI	36	31	54	121

Scenario 3:

Apply ROW_NUMBER () function using PARTITION BY Clause.

We have PRODUCTS table with fields like Products, Color and List Price. Apply ROW_NUMBER based on COLOR (Partitioning Products based on Color) and List Price.

```
SELECT "COLOR",
        "PRODUCTKEY",
        "LISTPRICE",
        ROW_NUMBER() OVER (PARTITION BY "COLOR" ORDER BY "LISTPRICE" DESC) AS "Using RANK_NUMBER"
        FROM "Your Schema"."PRODUCTS"
        ORDER BY 1 ASC;
```

Note: In above code I used ORDER BY 1 ASC, it means the data will be sorted based on First Column i.e. COLOR.

1	Black	213	33.	
2	Blue	575	2384.	
3	Blue	576	2384.	
4	Grey	446	125.	
5	Multi	223	8.	
6	Multi	224	8.	
7	Red	331	782.	
8	Red	330	699.10	2
9	Red	214	34.99	3
10	Silver	289	1240.45	1
11	Silver	288	1204.32	2
12	White	218	9.50	1
13	White	219	9.50	2
14	Yellow	434	594.83	1
15	Yellow	433	540.75	2

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Easy to Understand
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qty from oldest batch first and remaining order qty from next batch and so on?
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