

Question-1: Actual mark calculation

```

SELECT
    es.user_id,
    e.exam_name,
    es.session_id,
    (es.total_correct_answers * e.each_ques_mark)
    - (es.total_false_answers * e.per_ques_negative_marking) AS actual_mark
FROM
    `bi-assessment-project.anything.exam_sessions` AS es
JOIN
    `bi-assessment-project.anything.exams` AS e
ON
    es.exam_id = e.exam_id;

```

Job information		Results	Chart	JSON	Execution details	Execution graph
Row	user_id	exam_name	session_id		actual_mark	
1	623ad09bfb492fa5df2dc9d4	Class 10 - Monthly MCQ Exam - ...	67c56ad455f584a4862bff7c		27.5	
2	623a4e7cfb492fa5df1515a9	Class 10 - Monthly MCQ Exam - ...	67cd98fb1ca1a4ada7cc41e5		16.25	
3	623ad09bfb492fa5df2dc9d4	Class 10 - Monthly MCQ Exam - ...	67ee631c3db3b091e19c764f		26.25	
4	623ad09bfb492fa5df2dc9d4	Class 10 - Weekly MCQ Exam - F...	67b0800e64933092bedbb048		19.0	
5	623a4e7cfb492fa5df1515a9	Class 10 - Weekly MCQ Exam - F...	67bcdce591f4ff5af1c21924		3.75	
6	623ad09bfb492fa5df2dc9d4	Class 10 - Weekly MCQ Exam - F...	67b71d1447fb3e15caeadd73d		26.25	
7	623ad09bfb492fa5df2dc9d4	Class 10 - Weekly MCQ Exam - F...	67bedf9bab4fa6fb453d5d07		22.5	
8	623ad09bfb492fa5df2dc9d4	Class 10 - Weekly MCQ Exam - ...	67cc74c739f16a3bca394821		13.25	
9	623a4e7cfb492fa5df1515a9	Class 10 - Weekly MCQ Exam - ...	67cd9fef0208aa19a3ad0975		18.75	
10	623ad09bfb492fa5df2dc9d4	Class 10 - Weekly MCQ Exam - ...	67d82d0bdbda27c9426c596e		20.0	
11	623aac8dfb492fa5df282c3d	Class 10 - Weekly MCQ Exam - ...	67d6d6eadbda27c9425d0c85		22.5	
12	623ab3e3fb492fa5df295ca1	Monthly Exam 1 (MCQ)	679f6b9a3fd0b19f66c9d6f3		20.0	
13	623a42b2fb492fa5df11c4b7	Monthly Exam 1 (MCQ)	67aedbbec60cb2109946bcb9		0.0	
14	623a4e7cfb492fa5df1515a9	Monthly Exam 1 (MCQ)	679f7ff5e96e087c8b77cfdb8		1.25	
15	623ad09bfb492fa5df2dc9d4	Monthly Exam 1 (MCQ)	67a23dd3fecfa4470ddcf12d		16.25	
16	623acd24fb492fa5df2d4517	Monthly Exam 1 (MCQ)	679e1a1bf35973c9132f005a		13.75	
17	623ad09bfb492fa5df2dc9d4	সাম্প্রাদিক পরীক্ষা - ১	679a15fe37547cc9510ec8f2		7.5	
18	623a4e7cfb492fa5df1515a9	সাম্প্রাদিক পরীক্ষা - ১	67a0c05dfecfa4470def6cf3		7.5	
19	623abc17fb492fa5df2aa99d	সাম্প্রাদিক পরীক্ষা - ১	6794eb77ff05fd8a0857c1fe		15.0	
20	623a48d2fb492fa5df138705	সাম্প্রাদিক পরীক্ষা - ১	679e19c6d73629dd27e232b8		0.0	
21	623a0604fb492fa5df282c3d	সাম্প্রাদিক পরীক্ষা - ১	6706da156906998888072		6.25	

Question-2: Pass/Fail Classification

```
SELECT
    es.user_id AS auth_user_id,
    e.exam_name,
    (es.total_correct_answers * e.each_ques_mark)
        - (es.total_false_answers * e.per_ques_negative_marking) AS actual_mark,
    e.pass_mark,
    IF(
        (es.total_correct_answers * e.each_ques_mark)
            - (es.total_false_answers * e.per_ques_negative_marking) >= e.pass_mark,
        'Pass',
        'Fail'
    ) AS result_status
FROM
    `anything.exam_sessions` AS es
INNER JOIN
    `anything.exams` AS e
ON
    es.exam_id = e.exam_id;
```

Query results

Job information		Results	Chart	JSON	Execution details		Execution graph	
Row	auth_user_id	exam_name		actual_mark	pass_mark		result_status	
1	623ad09bfb492fa5df2dc9d4	Class 10 - Monthly MCQ Exam - ...		27.5	12		Pass	
2	623a4e7cfb492fa5df1515a9	Class 10 - Monthly MCQ Exam - ...		16.25	12		Pass	
3	623ad09bfb492fa5df2dc9d4	Class 10 - Monthly MCQ Exam - ...		26.25	12		Pass	
4	623ad09bfb492fa5df2dc9d4	Class 10 - Weekly MCQ Exam - F...		19.0	10		Pass	
5	623a4e7cfb492fa5df1515a9	Class 10 - Weekly MCQ Exam - F...		3.75	12		Fail	
6	623ad09bfb492fa5df2dc9d4	Class 10 - Weekly MCQ Exam - F...		26.25	12		Pass	
7	623ad09bfb492fa5df2dc9d4	Class 10 - Weekly MCQ Exam - F...		22.5	10		Pass	
8	623ad09bfb492fa5df2dc9d4	Class 10 - Weekly MCQ Exam - ...		13.25	10		Pass	
9	623a4e7cfb492fa5df1515a9	Class 10 - Weekly MCQ Exam - ...		18.75	10		Pass	
10	623ad09bfb492fa5df2dc9d4	Class 10 - Weekly MCQ Exam - ...		20.0	10		Pass	
11	623aac8dfb492fa5df282c3d	Class 10 - Weekly MCQ Exam - ...		22.5	10		Pass	
12	623ab3e3fb492fa5df295ca1	Monthly Exam 1 (MCQ)		20.0	12		Pass	
13	623a42b2fb492fa5df11c4b7	Monthly Exam 1 (MCQ)		0.0	12		Fail	
14	623a4e7cfb492fa5df1515a9	Monthly Exam 1 (MCQ)		1.25	12		Fail	
15	623ad09bfb492fa5df2dc9d4	Monthly Exam 1 (MCQ)		16.25	12		Pass	
16	623acd24fb492fa5df2d4517	Monthly Exam 1 (MCQ)		13.75	12		Pass	
17	623ad09bfb492fa5df2dc9d4	সাম্প্রাদিক পরীক্ষা - ১		7.5	8		Fail	
18	623a4e7cfb492fa5df1515a9	সাম্প্রাদিক পরীক্ষা - ১		7.5	8		Fail	
19	623abc17fb492fa5df2aa99d	সাম্প্রাদিক পরীক্ষা - ১		15.0	8		Pass	
20	623a48d2fb492fa5df138705	সাম্প্রাদিক পরীক্ষা - ১		0.0	8		Fail	
21	623ac604fb492fa5df2c30de	সাম্প্রাদিক পরীক্ষা - ১		6.25	8		Fail	

Question-3: Top Performers

```
WITH marks_calculated AS (
    SELECT
        es.user_id AS auth_user_id,
        e.exam_name,
        (es.total_correct_answers * e.each_ques_mark)
        - (es.total_false_answers * e.per_ques_negative_marking) AS actual_mark
    FROM
        `bi-assessment-project.anything.exam_sessions` AS es
    JOIN
        `bi-assessment-project.anything.exams` AS e
    ON
        es.exam_id = e.exam_id
),
# Rank students per exam based on their actual marks
ranked_students AS (SELECT
    exam_name,auth_user_id,actual_mark,
    RANK() OVER (PARTITION BY exam_name ORDER BY actual_mark DESC) AS rank
    FROM marks_calculated)
# Return top 5 students per exam
SELECT exam_name,auth_user_id,actual_mark,rank
FROM ranked_students
WHERE rank <= 5
ORDER BY exam_name,rank;
```

Query results

Job information		Results	Chart	JSON	Execution details	Execution graph
Row	auth_user_id	exam_name		actual_mark	rank	
1	623ad1befb492fa5df2df54d	Class 10 - Weekly MCQ Exam - F...		25.0	1	
2	623ad09bfb492fa5df2dc9d4	Class 10 - Weekly MCQ Exam - F...		23.75	2	
3	623a7385fb492fa5df1dc1c8	Class 10 - Weekly MCQ Exam - F...		23.75	2	
4	623ad09bfb492fa5df2dc9d4	Class 10 - Weekly MCQ Exam - F...		22.5	4	
5	623acd24fb492fa5df2d4517	Class 10 - Weekly MCQ Exam - F...		22.5	4	
6	623aada9fb492fa5df285b20	Class 10 - Weekly MCQ Exam - F...		22.5	4	
7	623ab51afb492fa5df298ed5	Class 10 - Weekly MCQ Exam - F...		22.5	4	
8	623aa09afb492fa5df262d0e	Class 10 - Weekly MCQ Exam - ...		15.0	1	
9	623a7385fb492fa5df1dc1c8	Class 10 - Weekly MCQ Exam - ...		15.0	1	
10	623ac942fb492fa5df2caf3e	Class 10 - Weekly MCQ Exam - ...		15.0	1	
11	623ab493fb492fa5df2978dc	Class 10 - Weekly MCQ Exam - ...		15.0	1	
12	623ab2d8fb492fa5df2931b1	Class 10 - Weekly MCQ Exam - ...		15.0	1	
13	623a3c81fb492fa5df0fe0dd	Class 10 - Weekly MCQ Exam - ...		15.0	1	
14	623a318cfb492fa5df0c2456	Class 10 - Weekly MCQ Exam - ...		15.0	1	
15	623aa54ffb492fa5df26f883	Class 10 - Weekly MCQ Exam - ...		15.0	1	
16	623a318efb492fa5df0c24df	Class 10 - Weekly MCQ Exam - ...		15.0	1	
17	623a4d1afb492fa5df14b55d	Class 10 - Weekly MCQ Exam - ...		15.0	1	
18	623aa068fb492fa5df26247d	Class 10 - Weekly MCQ Exam - ...		15.0	1	
19	623a4e17fb492fa5df14fa5b	সাংস্কৃতিক পরীক্ষা - ১		20.0	1	
20	623a4aadfb492fa5df140b79	সাংস্কৃতিক পরীক্ষা - ১		20.0	1	
21	623a318efb492fa5df0c24df	সাংস্কৃতিক পরীক্ষা - ১		20.0	1	

Question- 4: Performance Trend per Student Across Exams

```
WITH marks AS (
    SELECT
        es.user_id AS auth_user_id,
        e.exam_name,
        es.user_exam_starts_at,
        (es.total_correct_answers * e.each_ques_mark)
            - (es.total_false_answers * e.per_ques_negative_marking) AS actual_mark
    FROM
        `bi-assessment-project.anything.exam_sessions` AS es
    JOIN
        `bi-assessment-project.anything.exams` AS e
    ON
        es.exam_id = e.exam_id
)

SELECT
    auth_user_id,
    exam_name,
    user_exam_starts_at,
    actual_mark,
    LAG(actual_mark) OVER (
        PARTITION BY auth_user_id
        ORDER BY user_exam_starts_at
    ) AS previous_actual_mark,
    CASE
        WHEN LAG(actual_mark) OVER (PARTITION BY auth_user_id ORDER BY user_exam_starts_at) IS NULL
        THEN NULL
        WHEN actual_mark > LAG(actual_mark) OVER (PARTITION BY auth_user_id ORDER BY user_exam_starts_at) THEN 'Improved'
        WHEN actual_mark < LAG(actual_mark) OVER (PARTITION BY auth_user_id ORDER BY user_exam_starts_at) THEN 'Declined'
        ELSE 'Same'
    END AS performance_trend
FROM
    marks
ORDER BY
    auth_user_id,
    user_exam_starts_at;
```

Query results

Job information		Results	Chart	JSON	Execution details	Execution graph			
Row	auth_user_id	exam_name		user_exam_starts_at	actual_mark	previous_actual...	performance_trend		
1	623a46d7fb492fa5df12fa61	Class 10 - Weekly MCQ Exam - F...		2025-02-27 06:48:48.105000 UTC	1.25	null	null		
2	623a46d7fb492fa5df12fa61	Class 10 - Monthly MCQ Exam - ...		2025-03-01 12:49:02.774000 UTC	25.0	1.25	improved		
3	623a46d7fb492fa5df12fa61	Class 10 - Weekly MCQ Exam - ...		2025-03-15 12:45:28.319000 UTC	18.75	25.0	declined		
4	623a46d7fb492fa5df12fa61	Class 10 - Monthly MCQ Exam - ...		2025-03-22 13:29:14.017000 UTC	18.75	18.75	Same		
5	623a46d7fb492fa5df12fa61	Class 10 - Weekly MCQ Exam - ...		2025-04-12 12:48:36.377000 UTC	23.75	18.75	improved		
6	623a46d7fb492fa5df12fa61	Class 10 - Weekly MCQ Exam - ...		2025-04-19 15:52:43.297000 UTC	6.25	23.75	declined		
7	623a46d7fb492fa5df12fa61	Class 10 - Weekly MCQ Exam - ...		2025-04-26 13:15:47.949000 UTC	6.25	6.25	Same		
8	623a4e50fb492fa5df1509dc	সাম্প্রাদিক পরীক্ষা - ১		2025-01-25 12:36:11.902000 UTC	15.0	null	null		
9	623a4e50fb492fa5df1509dc	সাম্প্রাদিক পরীক্ষা - ১		2025-01-30 02:30:37.262000 UTC	16.25	15.0	improved		
10	623a4e50fb492fa5df1509dc	Monthly Exam 1 (MCQ)		2025-02-01 12:38:56.899000 UTC	22.5	16.25	improved		
11	623a4e50fb492fa5df1509dc	Monthly Exam 1 (MCQ)		2025-02-04 14:11:06.314000 UTC	23.75	22.5	improved		
12	623a4e50fb492fa5df1509dc	Class 10 - Weekly MCQ Exam - F...		2025-02-08 14:32:56.910000 UTC	16.25	23.75	declined		
13	623a4e50fb492fa5df1509dc	Class 10 - Weekly MCQ Exam - F...		2025-02-15 13:01:03.454000 UTC	26.25	16.25	improved		
14	623a4e50fb492fa5df1509dc	Class 10 - Weekly MCQ Exam - F...		2025-02-22 13:00:14.623000 UTC	13.0	26.25	declined		
15	623a4e50fb492fa5df1509dc	Class 10 - Monthly MCQ Exam - ...		2025-03-01 12:45:55.955000 UTC	26.25	13.0	improved		
16	623a4e50fb492fa5df1509dc	Class 10 - Weekly MCQ Exam - ...		2025-03-08 15:15:09.712000 UTC	22.5	26.25	declined		
17	623a4e50fb492fa5df1509dc	Class 10 - Weekly MCQ Exam - ...		2025-03-15 12:57:04.159000 UTC	22.5	22.5	Same		
18	623a4e50fb492fa5df1509dc	Class 10 - Monthly MCQ Exam - ...		2025-03-22 13:24:35.765000 UTC	26.25	22.5	improved		
19	623a4e50fb492fa5df1509dc	Class 10 - Weekly MCQ Exam - ...		2025-04-14 17:26:02.034000 UTC	9.5	26.25	declined		
20	623a4e50fb492fa5df1509dc	Class 10 - Weekly MCQ Exam - ...		2025-04-19 15:53:16.818000 UTC	0.0	9.5	declined		
21	623a44c3fb492fa5df126066	সাম্প্রাদিক পরীক্ষা - ১		2025-01-27 03:58:05.908000 UTC	7.5	null	null		

- To see from BigQuery:

Link: <https://console.cloud.google.com/bigquery?project=bi-assessment-project&ws=!1m0>