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```
SELECT * FROM `bi-sql-assignment.exam_data.exam_sessions` LIMIT 1000;
```

```
SELECT * FROM `bi-sql-assignment.exam_data.exams` LIMIT 12;
```

-- 1.Question 1: Actual Mark Calculation

-- Answer:

```
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 exam_data.exam_sessions es
JOIN exam_data.exams e ON es.exam_id = e.exam_id;
```

Query results

Save results

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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 - ...	67c300b23cde706028c5e072	17.5
4	623a4e7cfb492fa5df1515a9	Class 10 - Monthly MCQ Exam - ...	67c314b384b7c91d2ac2d9c7	1.25
5	623a8286fb492fa5df20bc1d	Class 10 - Monthly MCQ Exam - ...	67f3cc1f170cd37a61a6fe38	10.0
6	623ad09bfb492fa5df2dc9d4	Class 10 - Monthly MCQ Exam - ...	67c466a18f9536aae73b9f1b	28.75
7	623a4e7cfb492fa5df1515a9	Class 10 - Monthly MCQ Exam - ...	67c5b9195d25c4efa493d4f2	8.75
8	623a5fc0fb492fa5df196e94	Class 10 - Monthly MCQ Exam - ...	67c3015d416fb1d9aa19a909	19.75
9	623aae0cfb492fa5df286b6f	Class 10 - Monthly MCQ Exam - ...	67d553307897d3b2407a3eb8	3.75

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-- 2.Question 2: Pass/Fail Classification

-- Answer:

```
CREATE OR REPLACE VIEW `bi-sql-assignment.exam_data.view_pass_fail_status` 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,
  e.pass_mark,
  CASE
    WHEN (es.total_correct_answers * e.each_ques_mark) -
      (es.total_false_answers * e.per_ques_negative_marking) >= e.pass_mark THEN 'Pass'
    ELSE 'Fail'
  END AS result_status
FROM exam_data.exam_sessions es
JOIN exam_data.exams e ON es.exam_id = e.exam_id;

SELECT * from `exam_data.view_pass_fail_status`;
```

Query results Save results Open in

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

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-- 3.Question 3: Top Performers

-- Answer:

```
CREATE OR REPLACE VIEW `bi-sql-assignment.exam_data.view_top_performers` AS
WITH student_marks 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-sql-assignment.exam_data.exam_sessions` es
  JOIN `bi-sql-assignment.exam_data.exams` e ON es.exam_id = e.exam_id
),
ranked_students AS (
  SELECT *,
    RANK() OVER (PARTITION BY exam_name ORDER BY actual_mark DESC) AS rank
  FROM student_marks
)
SELECT
  exam_name,
  auth_user_id,
  actual_mark,
  rank
FROM ranked_students
WHERE rank <= 5;

SELECT * from `exam_data.view_top_performers`;
```

Query results Save results Open in

Job information	Results	Chart	JSON	Execution details	Execution graph
Row	exam_name	auth_user_id	actual_mark	rank	
1	Class 10 - Weekly MCQ Exam - ...	623aa797fb492fa5df2759dd	25.0	1	
2	Class 10 - Weekly MCQ Exam - ...	623ab72dfb492fa5df29e41b	25.0	1	
3	Class 10 - Weekly MCQ Exam - ...	623a473bfb492fa5df1315ad	23.75	3	
4	Class 10 - Weekly MCQ Exam - ...	623acd24fb492fa5df2d4517	23.75	3	
5	Class 10 - Weekly MCQ Exam - ...	623a318efb492fa5df0c24df	23.75	3	
6	Class 10 - Weekly MCQ Exam - ...	623a51f3fb492fa5df160079	23.75	3	
7	Class 10 - Weekly MCQ Exam - ...	623abc17fb492fa5df2aa99d	23.75	3	
8	Class 10 - Weekly MCQ Exam - ...	623a4e7cfb492fa5df1515a9	23.75	3	

-- 4.Question 4: (Use LAG()): Performance Trend per Student Across Exams

--Answer:

```
CREATE OR REPLACE VIEW `bi-sql-assignment.exam_data.view_performance_trend` AS
WITH student_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 exam_data.exam_sessions es
  JOIN exam_data.exams e ON es.exam_id = e.exam_id
),
lagged AS (
  SELECT *,
    LAG(actual_mark) OVER (PARTITION BY auth_user_id ORDER BY user_exam_starts_at) AS
previous_actual_mark
  FROM student_marks
)
SELECT
  auth_user_id,
  exam_name,
  user_exam_starts_at,
  actual_mark,
  previous_actual_mark,
  CASE
    WHEN previous_actual_mark IS NULL THEN NULL
    WHEN actual_mark > previous_actual_mark THEN 'Improved'
    WHEN actual_mark < previous_actual_mark THEN 'Declined'
    WHEN actual_mark = previous_actual_mark THEN 'Same'
  END AS performance_trend
FROM lagged;

SELECT * from `exam_data.view_performance_trend`;
```

Query results								Save results	Open in	
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	623a5280fb492fa5df1624f7	সাপ্তাহিক পরীক্ষা - ১	2025-01-25 14:28:50.125000 UTC	8.75	null	null				
2	623a5280fb492fa5df1624f7	Monthly Exam 1 (MCQ)	2025-02-01 12:55:35.239000 UTC	22.5	8.75	Improved				
3	623a5280fb492fa5df1624f7	Class 10 - Weekly MCQ Exam - F...	2025-02-08 14:44:45.394000 UTC	22.5	22.5	Same				
4	623a5280fb492fa5df1624f7	Class 10 - Weekly MCQ Exam - F...	2025-02-16 06:54:47.654000 UTC	15.0	22.5	Declined				
5	623a5280fb492fa5df1624f7	Class 10 - Weekly MCQ Exam - F...	2025-02-18 06:31:22.309000 UTC	15.0	15.0	Same				
6	623a5280fb492fa5df1624f7	Class 10 - Weekly MCQ Exam - ...	2025-04-19 15:53:43.373000 UTC	10.0	15.0	Declined				
7	623aa1a5fb492fa5df265a96	সাপ্তাহিক পরীক্ষা - ১	2025-01-28 12:58:03.613000 UTC	11.25	null	null				
8	623aa1a5fb492fa5df265a96	Monthly Exam 1 (MCQ)	2025-02-01 13:20:59.814000 UTC	18.75	11.25	Improved				
9	623aa1a5fb492fa5df265a96	Class 10 - Weekly MCQ Exam - F...	2025-02-22 12:46:29.553000 UTC	13.75	18.75	Declined				

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