

### List of tables:

1. Student\_list
2. Student\_response
3. Correct\_answers
4. Question\_paper\_code

- ⇒ **Table 1:** student\_list - List of students who attended the Olympiad exam from Google Public school.
- ⇒ **Table 2:** student\_response - The Learn Basics Olympiad is an objective exam, student response for every question was recorded in this table.
- 5 options ('A', 'B', 'C', 'D' and 'E') are provided for each question
  - Out of 5 options only 'A', 'B', 'C' and 'D' are the valid options, students can pick 'E' option when they think they haven't learnt the concept yet.
- ⇒ **Table 3:** correct\_answers - This table has the correct answer for all the questions in math and science.
- ⇒ **Table 4:** question\_paper\_code - Since we are dealing with 3 classes and 2 subjects, we are maintaining a separate question paper code for each class and each subject.

### Required output of task :

Now, the objective is to validate the student response and present it in a single table with list of columns mentioned below using SQL.

Required output table with column data

### Expected Output (only few records shown):

	roll_number integer	student_name character varying (50)	class integer	section character varying (20)	school_name character varying (50)	math_correct bigint	math_wrong bigint	math_yet_to_learn bigint	math_score bigint	math_percentage numeric	science_correct bigint	science_wrong bigint	science_yet_to_learn bigint	science_score bigint	science_percentage numeric
1	10159	Ada	8	A	Google Public School	4	28	8	4	10.00	11	38	11	11	18.33
2	10114	Dominik	7	B	Google Public School	7	24	9	7	17.50	13	35	12	13	21.67
3	10215	Adelaide	8	C	Google Public School	11	25	4	11	27.50	9	42	9	9	15.00
4	10052	Shridevi	6	B	Google Public School	9	26	5	9	22.50	15	34	11	15	25.00
5	10201	Elian	8	B	Google Public School	9	26	5	9	22.50	17	31	12	17	28.33
6	10033	Arnav	6	B	Google Public School	5	26	9	5	12.50	9	39	12	9	15.00
7	10205	Florrie	8	B	Google Public School	6	27	7	6	15.00	15	35	10	15	25.00
8	10120	Kate	7	B	Google Public School	8	24	8	8	20.00	11	33	16	11	18.33
9	10179	Marcus	8	A	Google Public School	8	20	12	8	20.00	5	40	15	5	8.33
10	10058	Arpana	6	C	Google Public School	8	26	6	8	20.00	13	32	15	13	21.67
11	10203	Fenton	8	B	Google Public School	6	23	11	6	15.00	12	39	9	12	20.00
12	10123	Lana	7	B	Google Public School	10	20	10	10	25.00	13	37	10	13	21.67
13	10066	Kristina	6	A	Google Public School	10	10	11	10	25.00	11	27	15	11	18.33

## My CODE:

```
with cte as
(
  select s_res.roll_number, sl.student_name, sl.class, sl.section, sl.school_name,
         s_res.question_paper_code, q_code.subject, s_res.question_number, s_res.option_marked, crk.correct_option
  FROM student_response s_res
  Inner JOIN correct_answers crk
         ON s_res.question_paper_code=crk.question_paper_code and s_res.question_number=crk.question_number
  Inner JOIN question_paper_code q_code
         ON s_res.question_paper_code=q_code.paper_code
  Inner JOIN student_list sl
         ON s_res.roll_number=sl.roll_number
),
marks_calc as(
  SELECT
    roll_number, student_name, class, section, school_name,
    SUM(case when ((subject='Math') and (option_marked=correct_option)) THEN 1 ELSE 0 END) as math_correct,
    SUM(case when ((subject='Math') and (option_marked<>correct_option) and (option_marked<>'e'))
           THEN 1 ELSE 0 END) as math_wrong,
    SUM(case when ((subject='Math') and (option_marked='e')) THEN 1 ELSE 0 END) as math_yet_to_learn,
    SUM(case when ((subject='Science') and (option_marked=correct_option)) THEN 1 ELSE 0 END) as science_correct,
    SUM(case when ((subject='Science') and (option_marked<>correct_option) and (option_marked<>'e'))
           THEN 1 ELSE 0 END) as science_wrong,
    SUM(case when ((subject='Science') and (option_marked='e')) THEN 1 ELSE 0 END) as science_yet_to_learn
  FROM cte
  GROUP BY 1,2,3,4,5
)
SELECT
  Roll_number,
  Student_name,
  Class,
  Section,
  School_name,
  Math_correct,
  Math_wrong,
  Math_yet_to_learn,
  math_correct as Math_score,
  Round(Math_correct*100/(Math_correct+Math_wrong+Math_yet_to_learn),2) as Math_percentage,
  Science_correct,
  Science_wrong,
  Science_yet_to_learn,
  science_correct as Science_score,
  Round(Science_correct*100/(Science_correct+Science_wrong+Science_yet_to_learn),2) as Science_percentage
FROM marks_calc;
```

My OUTPUT:

roll_number integer	student_name character varying	class integer	section character	school_name character varying	math_correct bigint	math_wrong bigint	math_yet_to_learn bigint	math_score bigint	math_percentage numeric	science_correct bigint	science_wrong bigint	science_yet_to_learn bigint	science_score bigint	science_percentage numeric
10001	Abhijit	6	A	Google Public School	5	27	8	5	12.00	6	37	17	6	10.00
10002	Aghat	6	A	Google Public School	10	25	5	10	25.00	11	32	17	11	18.00
10003	Amitava Chandar	6	A	Google Public School	9	22	9	9	22.00	11	40	9	11	18.00
10004	Anbarasu	6	A	Google Public School	6	23	11	6	15.00	10	38	12	10	16.00
10005	Atralarasu	6	A	Google Public School	8	25	7	8	20.00	5	43	12	5	8.00
10006	Ayog	6	A	Google Public School	8	24	8	8	20.00	14	36	10	14	23.00
10007	Bhishma	6	A	Google Public School	7	26	7	7	17.00	14	37	9	14	23.00
10008	Dwaipayan	6	A	Google Public School	6	28	6	6	15.00	12	41	7	12	20.00
10009	Ekalinga	6	A	Google Public School	8	25	7	8	20.00	12	37	11	12	20.00
10010	Gulfam	6	A	Google Public School	8	18	14	8	20.00	14	36	10	14	23.00
10011	Harjeet	6	A	Google Public School	7	27	6	7	17.00	12	36	12	12	20.00
10012	Ibhanan	6	A	Google Public School	5	28	7	5	12.00	8	39	13	8	13.00
10013	Irfan	6	A	Google Public School	7	27	6	7	17.00	8	35	17	8	13.00
10014	Jnyaneshwar	6	A	Google Public School	6	27	7	6	15.00	13	34	13	13	21.00
10015	Kamadev	6	A	Google Public School	10	25	5	10	25.00	12	39	9	12	20.00
10016	Lokesh	6	A	Google Public School	12	21	7	12	30.00	8	39	13	8	13.00
10017	Naman	6	A	Google Public School	7	28	5	7	17.00	10	38	12	10	16.00
10018	Namdev	6	A	Google Public School	8	21	11	8	20.00	10	38	12	10	16.00
10019	Nanak	6	A	Google Public School	3	27	10	3	7.00	12	36	12	12	20.00
10020	Nikhilesh	6	A	Google Public School	6	28	6	6	15.00	11	43	6	11	18.00
10021	Nitish	6	A	Google Public School	3	26	11	3	7.00	10	37	13	10	16.00