

These question should take about 65 min to complete, they should be answered in the following languages: MySql, PHP, HTML, CSS.

DATABASE (MYSQL) (20 MIN)

1) (5 min) What are different JOINS used in SQL?

INNER JOIN, LEFT JOIN, SELF JOIN, RIGHT JOIN, FULL OUTER JOIN, CROSS JOIN

SAMPLE TABLES

table_1

Id	student_id	last_name	first_name	Info
1	A001	Smith	Doe	{"campus":"Toronto","student_number":"ST-33422"}
2	A002	Ferguson	Linda	{"campus":"Toronto","student_number":"ST-33453"}
3	A003	Macini	Totti	{"campus":"Vancouver","student_number":"ST-33498"}
4	A005	Mariana	Pavarotti	{"campus":"Milan","student_number":"ST-458784"}

table_2

Id	student_id	last_name	first_name	joining_date
1	A001	Smith	Doe	2021-01-01
2	A005	Mariana	Pavarotti	2021-01-01
3	A007	Kate	Duran	2019-05-15
4	A008	Bruce	Waine	2019-01-01

2) (5 min) Using the sample tables above, write a query to create a full outer join.

```
SELECT table_1.last_name, table_1.first_name, table_2.joining_date FROM table_1 FULL OUTER JOIN table_2 ON table_1.student_id = table_2.student_id.
```

3) (5 min) Using the sample tables above, write a query to extract student_number from the info column

```
SELECT student_id as student_id, json_extract(table_1.info, '$.student_number') as student_number FROM student_1
```

- 4) (5 min) Using the invoices table below, you need to get aggregates for Paid monthly totals AND after each year you must add a row for yearly total. The data needs to be grouped by currency.

Invoices

id	inv_no	date	status	amount	currency
1	IL-001	2015-01-01	Paid	500	CAD
2	IL-002	2015-01-09	Paid	188.35	CAD
3	IL-003	2015-03-05	Paid	73.75	USD
4	IL-004	2015-05-01	Paid	100	CAD
5	IL-005	2015-09-01	Paid	153.57	USD
6	IL-006	2015-09-15	Paid	15.35	CAD
7	IL-007	2015-11-25	Paid	88.55	CAD
8	IL-008	2016-05-11	Paid	75.74	CAD
9	IL-009	2016-05-22	Paid	45.25	USD
10	IL-010	2016-05-29	Paid	55.78	CAD
11	IL-011	2017-04-15	Paid	44.55	CAD
12	IL-012	2017-04-24	Paid	887.25	CAD
13	IL-013	2018-01-05	Paid	55.25	USD
14	IL-014	2018-01-06	Paid	56.25	CAD
15	IL-015	2018-01-07	Paid	57.25	CAD
16	IL-016	2018-01-08	Paid	58.25	USD
17	IL-017	2018-01-09	Paid	59.25	CAD
18	IL-018	2018-01-10	Paid	60.25	CAD
12311	IL-12311	2021-10-01	Pending	350	CAD

```

SELECT YEAR(date), MONTH(date), currency, SUM(amount) FROM invoices
GROUP BY currency, YEAR(date), MONTH(date) HAVING GROUPING(currency)
ORDER BY GROUPING(YEAR(date)), YEAR(date), GROUPING(MONTH(date)),
MONTH(date), currency WITH ROLLUP

```

PROGRAMMING (PHP) (25 MIN)

- 1) (5 min) Write a function to print Floyd's Triangle, with a parameter for number rows.

Example output: floydsTriangle(5)

```
1
23
456
78910
1112131415
```

Please Refer -> <https://github.com/karandeepvirk85/Assignment-for-Guard.me>

- 2) (10 min) Write a function to validate a string with the following rules:
- at least one letter
 - at least two digits
 - at least one special character, excluding the exclamation mark
 - minimum 5 characters, maximum 20 characters
 - the third letter must be uppercase
 - it must contain 1 vowel (a, e, i, o, u)

Please Refer-> <https://github.com/karandeepvirk85/Assignment-for-Guard.me>

- 3) (10 min) Write a web crawler that will search our website (<https://www.guard.me>) for the string "I'm Batman, and you found me" and display the url.

FRONT END (10 MIN)

- 1) (10 min) Using HTML and CSS, create a responsive page with the below design:
 - you can use a CSS framework such as bootstrap
 - the colors, font, and size do not need to be an exact match, just reasonably similar



Please Refer -> <https://github.com/karandeepvirk85/Assignment-for-Guard.me>

GIT (10 MIN)

- 1) (5 min) How do you revert your last commit, but still have the changes in an uncommitted state?

`git reset --soft HEAD~1`

- 2) (5 min) Explain the development life cycle using branches.

- 1). A develop branch is created from master.
- 2). A release branch is created from develop.
- 3). Feature branches are created from develop.
- 4). When a feature is complete it is merged into the develop branch.
- 5). When the release branch is done it is merged into develop and master.
- 6). If an issue in master is detected a hotfix branch is created from master.
- 7). Once the hotfix is complete it is merged to both develop and master