1. Write a query to find the root node.

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) id, title FROM category WHERE parent\_id IS NULL

1. Write a query to find leaf node.

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) c.id, c.title FROM category c [LEFT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-functions.html#function_left) JOIN category c2 ON c2.parent\_id = c.id WHERE c2.id [IS](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/comparison-operators.html#operator_is) NULL

1. Write a query to find non-leaf node.

[SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) c.id, c.title FROM category c [LEFT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-functions.html#function_left) JOIN category c2 ON c2.parent\_id = c.id WHERE c2.id [IS](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/comparison-operators.html#operator_is) [NOT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL

1. Write a query to find the path of each node.

WITH RECURSIVE category\_path (id, title, path) AS ( [SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) id, title, title as path FROM category WHERE parent\_id [IS](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/comparison-operators.html#operator_is) NULL UNION ALL [SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) c.id, c.title, CONCAT(cp.path, ' > ', c.title) FROM category\_path AS cp JOIN category AS c ON cp.id = c.parent\_id ) [SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) \* FROM category\_path ORDER BY path

1. Write a function to calculate node level.

WITH RECURSIVE category\_path (id, title, level) AS ( [SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) id, title, 0 level FROM category WHERE parent\_id [IS](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/comparison-operators.html#operator_is) NULL UNION ALL [SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) c.id, c.title,cp.level + 1 FROM category\_path AS cp JOIN category AS c ON cp.id = c.parent\_id ) [SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) \* FROM category\_path ORDER BY level DESC

1. Write a procedure to get the immediate children.

[DROP](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/drop-procedure.html) [PROCEDURE](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/drop-procedure.html) `getimmediatechildren`; CREATE DEFINER=`root`@`localhost` PROCEDURE `getimmediatechildren`(IN `id` [INT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/numeric-types.html)(5)) [NOT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) DETERMINISTIC CONTAINS SQL SQL SECURITY DEFINER BEGIN [SELECT](http://localhost/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/select.html) id, title FROM category WHERE parent\_id = id; END

In order to call this we can use,

**call `getimmediatechildren`({id of any parent node});**