Implementation of User permission with PHP & Mysql Bitwise operators.

Posted on August 10, 2013 by Suresh Kamrushi in Mysql, PHP

Another way to implement user permission in your application and also a good use of bitwise operator. This can be done with PHP as well as Mysql.

Here I am showing how we can implement it with Mysql.

Below is a sample tables with some sample data:

<u>Table 1</u> : Permission table to store permission name along with it bit like 1,2,4,8..etc (multiple of 2)

```
CREATE TABLE IF NOT EXISTS `permission` (
 `bit` int(11) NOT NULL,
 `name` varchar(50) NOT NULL,
PRIMARY KEY (`bit`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

Insert some sample data into the table.

```
INSERT INTO `permission` (`bit`, `name`) VALUES
(1, 'User-Add'),
(2, 'User-Edit'),
(4, 'User-Delete'),
(8, 'User-View'),
(16, 'Blog-Add'),
(32, 'Blog-Edit'),
(64, 'Blog-Delete'),
(128, 'Blog-View');
```

<u>Table 2:</u> User table to store user id,name and role. Role will be calculated as sum of permissions.

Example :
If user 'Ketan' having permission of 'User-Add' (bit=1) and 'Blog-Delete' (bit-64) so role will be 65 (1+64).
If user 'Mehata' having permission of 'Blog-View' (bit=128) and 'User-Delete' (bit-4) so role will be 132 (128+4).

```
CREATE TABLE IF NOT EXISTS `user` (
 `id` int(11) NOT NULL AUTO_INCREMENT,
 `name` varchar(50) NOT NULL,
 `role` int(11) NOT NULL,
```

```
 `created_date` datetime NOT NULL
PRIMARY KEY (`id`)
) ENGINE=InnoDB  DEFAULT CHARSET=latin1;
```

```
INSERT INTO `user` (`id`, `name`, `role`, `created_date`)
VALUES (NULL, 'Ketan', '65', '2013-01-09 00:00:00'),
(NULL, 'Mehata', '132', '2013-01-09 00:00:00');
```

<u>Loading permission of user</u>
After login if we want to load user permission than we can query below to get the permissions:
SELECT permission.bit,permission.name
  FROM user LEFT JOIN permission ON user.role & permission.bit
WHERE user.id = 1

Here user.role "&" permission.bit is a Bitwise operator which will give output as –

User-Add – 1
Blog-Delete – 64

If we want to check weather a particular user have user-edit permission or not-
SELECT * FROM `user`
   WHERE role & (select bit from permission where name='user-edit')
Output = No rows.

Hope this will help someone!!!!

Cheerss..!!

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