Research Document (MySQL Spatial Data Types, Storing spatial data and using it to create a Restful Web service)

**Aim:** The aim of the document is to successfully research ways to be able to store geo spatial dats in MySQL database

**Why:** Currently (24 Feb, 2017) I have been using SAP Hana HCP but the issue is its not free and is very expensive to move from trail to pro version, so the better alternative is MySQL if I am successfully able to implement what I was able to do with HCP. And, the advantages will be free of cost, HCP trail needs restart every 12 hours and auto deletes after 6 days which is a big disadvantage, MySQL will allow 99% uptime for web service.

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## Importance of the external resources used based on Level:

***Level (High) – Very helpful and important***

***Level (Medium) – Important and Some what helpful and related***

***Level (Low) – Helped to see some light, but not very useful resource.***

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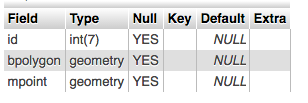
## \*\*\*\*\*\*\*\*\*\*\*\*Creating a table with geometry\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

create table myspatialdata (id integer(7), bpolygon Geometry, mpoint Geometry);

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

## Query to show the columns in the table:

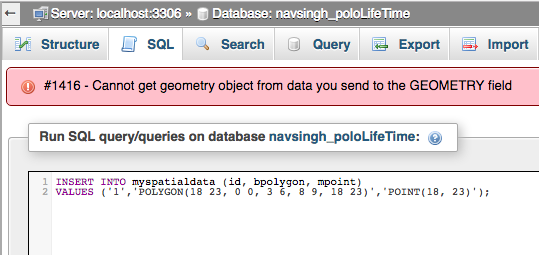
[**SHOW**](https://eu72.hostblast.net:2083/cpsess4597370376/3rdparty/phpMyAdmin/url.php?url=http%3A%2F%2Fdev.mysql.com%2Fdoc%2Frefman%2F5.6%2Fen%2Fshow.html&token=374f924831d152b054de90762c13843c) **COLUMNS** **FROM** myspatialdata



## \*\*\*Quite close to solving problem of inserting spatial data into MySQL\*\*\*\*

INSERT INTO myspatialdata (id, bpolygon, mpoint)

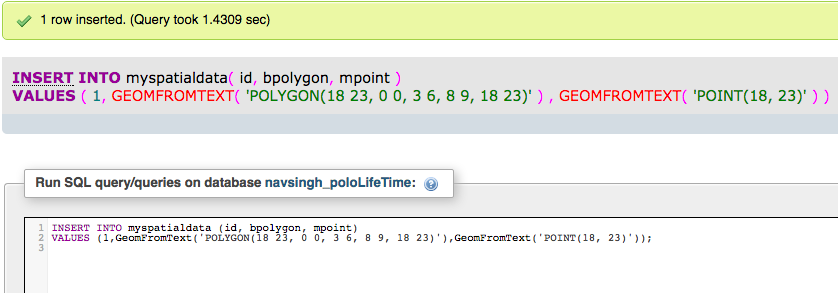
VALUES ('1','POLYGON(18 23, 0 0, 3 6, 8 9, 18 23)','POINT(18, 23)');



## \*\*\*\*Working SQL Statement to insert spatial data in MySQL (Polygon and Point)\*\*\*\*\*\*

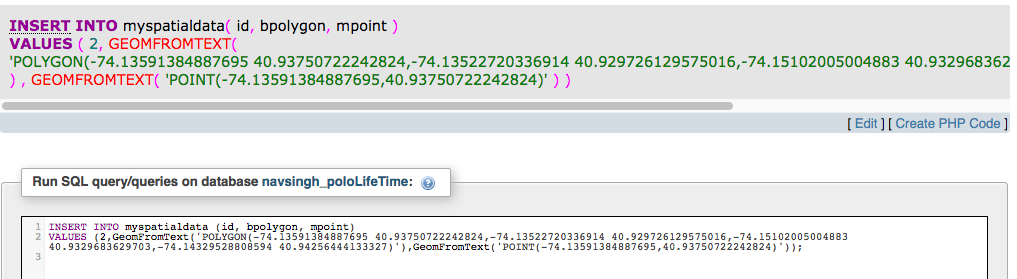
INSERT INTO myspatialdata (id, bpolygon, mpoint)

VALUES (1,GeomFromText('POLYGON(18 23, 0 0, 3 6, 8 9, 18 23)'),GeomFromText('POINT(18, 23)'));



INSERT INTO myspatialdata (id, bpolygon, mpoint)

VALUES (2,GeomFromText('POLYGON(-74.13591384887695 40.93750722242824,-74.13522720336914 40.929726129575016,-74.15102005004883 40.9329683629703,-74.14329528808594 40.94256444133327)'),GeomFromText('POINT(-74.13591384887695,40.93750722242824)'));



Note: Useful documentation on MySQL Spatial Data Types

<http://www.w3resource.com/mysql/mysql-spatial-data-types.php>

(Level: High)

Inserting Coordinates into MySQL (Stack Flow)

<http://stackoverflow.com/questions/15453084/inserting-coordinates-into-mysql-polyfromtext-sql-syntax-error-returning-nul>

(Level: Low)

\*\*\*\*\*\*The end of the Inserting Spatial data like Polygon and Point in to database table\*\*\*\*\*

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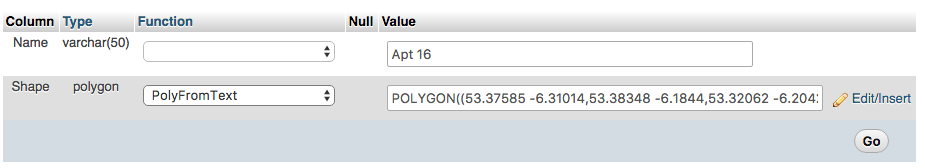
RESEARCH RESULTS: FAILED

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Inserting Geo-spatial Polygon into the MySQL Database

INSERT INTO `Buildings` (`Name`, `Shape`) VALUES ('Apt 15', PolyFromText('POLYGON((50.866753 5.686455, 50.859819 5.708942, 50.851475 5.722675, 50.841611 5.720615, 50.834023 5.708427, 50.840744 5.689373, 50.858735 5.673923, 50.866753 5.686455))'));

Reference: <https://gis.stackexchange.com/questions/23900/how-to-add-polygon-in-mysql-database>



RESEARCH RESULTS: PASSED (Working)

# Resources for Functioanal Requirements

Requirement 7:

Requirement 8: Photo Upload

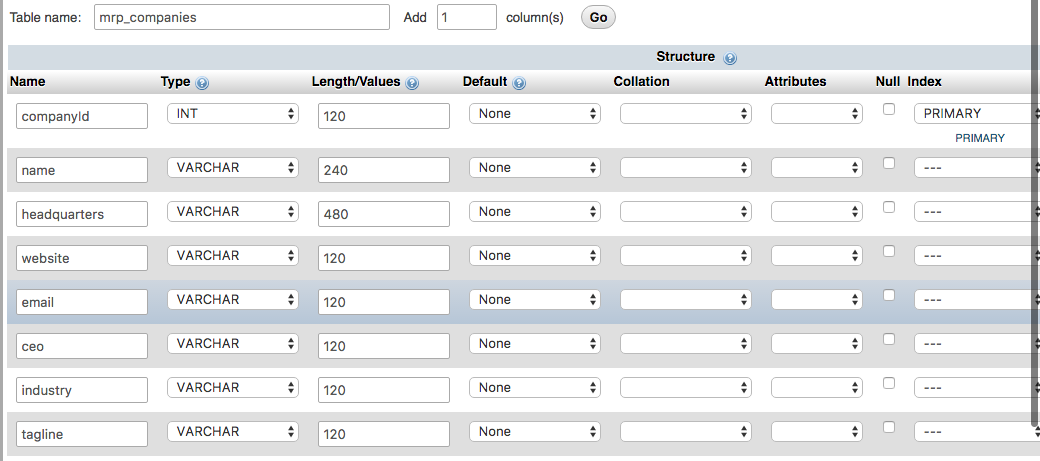
Image upload example with Swift and PHP - http://swiftdeveloperblog.com/image-upload-example/

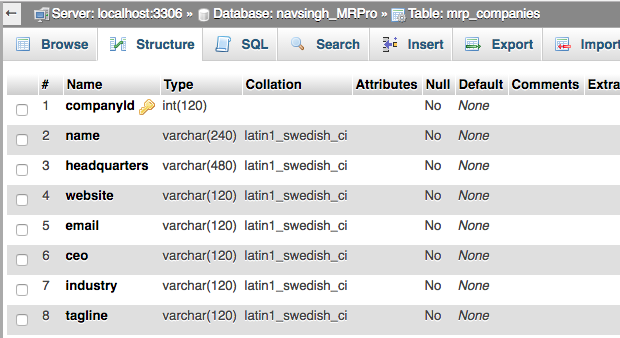
Requirement 9:

# Final Report Database

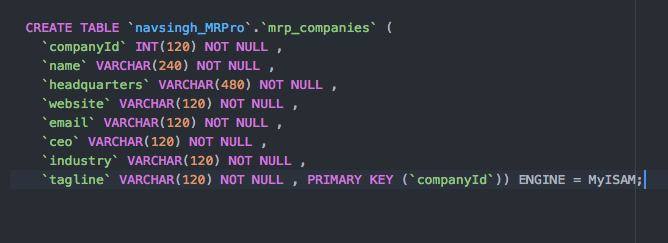
1- Companies Table (mrp\_companies) to store all the information regarding the different companies this will allow us to –

1. Use app for multiple companies/organisations/instituations by storing data for different companies and use it in a single app (example- city council can buy the app to list the different public properties/companies and the available buildings/meeting rooms in them)
2. or just use the app for one company (example – Our college – for NCI use only can be deployed as an internal app)

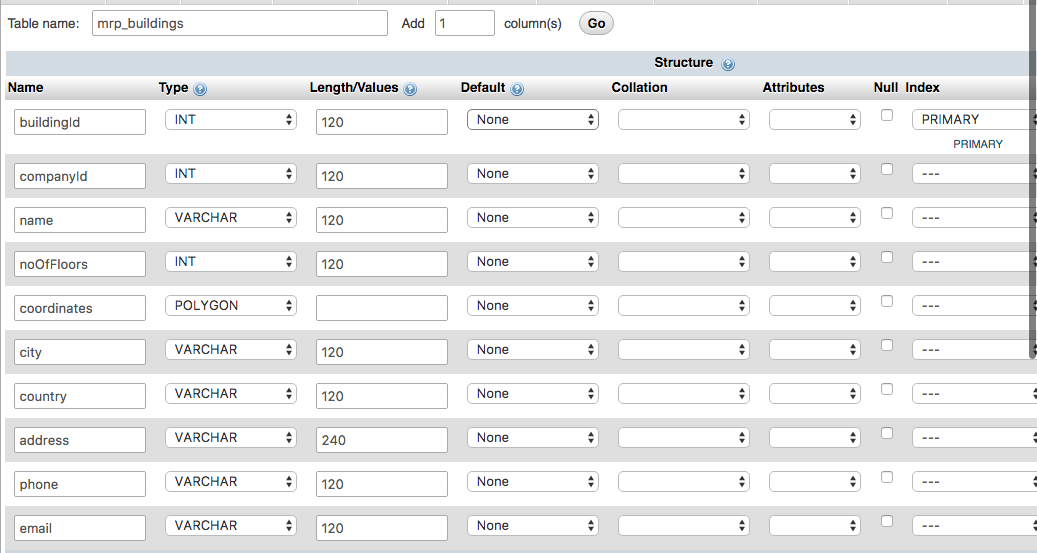


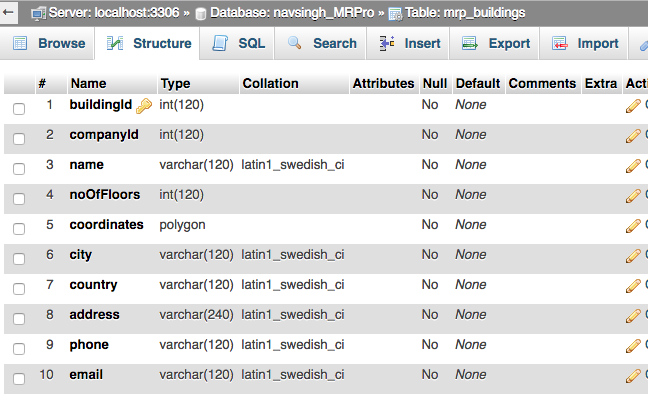


[CREATE](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/create-table.html) [TABLE](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/create-table.html) `navsingh\_MRPro`.`mrp\_companies` ( `companyId` [INT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/numeric-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not)NULL , `name` [VARCHAR](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-types.html)(240) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL , `headquarters` [VARCHAR](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-types.html)(480) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not)NULL , `website` [VARCHAR](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL , `email` [VARCHAR](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL ,`ceo` [VARCHAR](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL , `industry` [VARCHAR](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL ,`tagline` [VARCHAR](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL , PRIMARY KEY (`companyId`)) ENGINE =MyISAM;



2 - Buildings table (mrp\_buildings) to store all the information regarding buildings and also their co-ordinates (using geospatial features of MySQL – here we are using Polygon/Geometry)





CREATE TABLE `navsingh\_MRPro`.`mrp\_meeting\_rooms` (

`meetingRoomId`INT(120) NOT NULL ,

`buildingId` INT(120) NOT NULL ,

`name` VARCHAR(120)NOT NULL ,

`floorNumber` INT(120) NOT NULL ,

`coordinates` POINT NOT NULL ,

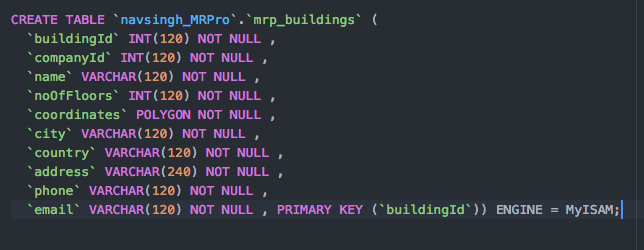
`capacity` INT(120) NOT NULL ,

`type` VARCHAR(120) NOT NULL ,

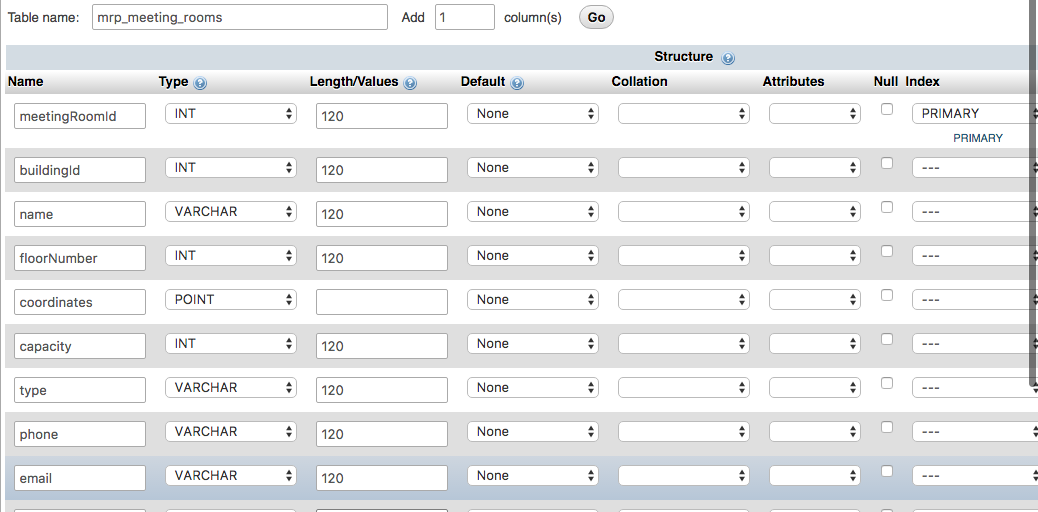
`phone` VARCHAR(120) NOT NULL ,

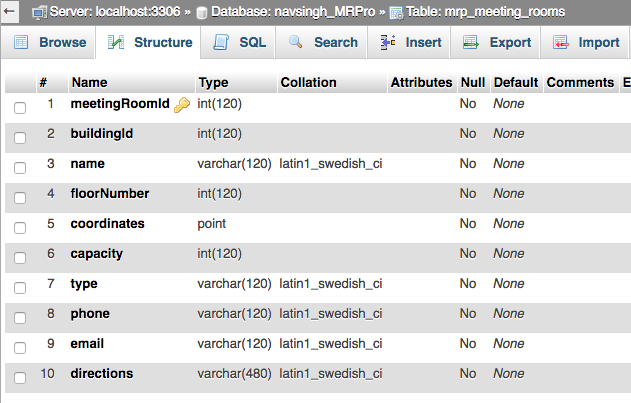
`email` VARCHAR(120) NOT NULL ,

`directions` VARCHAR(480) NOT NULL , PRIMARY KEY (`meetingRoomId`))ENGINE = MyISAM;



3 – Meeting Rooms Table (mrp\_meeting\_rooms) to store information regarding meeting rooms





[CREATE](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/create-table.html) [TABLE](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/create-table.html) `navsingh\_MRPro`.`mrp\_meeting\_rooms` ( `meetingRoomId`[INT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/numeric-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL , `buildingId` [INT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/numeric-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL , `name` [VARCHAR](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-types.html)(120)[NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL , `floorNumber` [INT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/numeric-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL , `coordinates` POINT [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not)NULL , `capacity` [INT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/numeric-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html" \l "operator_not" \t "mysql_doc) NULL , `type` [VARCHAR](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL ,`phone` [VARCHAR](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL , `email` [VARCHAR](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-types.html)(120) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL ,`directions` [VARCHAR](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/string-types.html)(480) [NOT](https://eu72.hostblast.net:2083/cpsess5429043615/3rdparty/phpMyAdmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/logical-operators.html#operator_not) NULL , PRIMARY KEY (`meetingRoomId`))ENGINE = MyISAM;

