**Answer#1**

**a)**

/\*\*

 \* Summary.

 \* Returns an array of employees hierarchy

 \*

 \* @param type $var $\_employee\_id. Default 0

 \* @param type $var $\_depth. Default 0

\* @param type $var $\_org\_array. Default 0

 \* @return type Array.

 \*/

First of all $this->dbh->quotesmart ($\_employee\_id) this code of line will create an issue in code because from this Quotesmart function literally says it just provides an escape function. So It it’s just escapigin then it seems redundant.

Because numbers don’t need to be escaped.

So If $this->dbh->quotesmart ($\_employee\_id) returns the original value of $\_employee\_id then employee\_manager\_id = “.$this->dbh->quotesmart($\_employee\_id)” will return all records of employee\_manager\_id = $\_employee\_id;

$\_employee\_id = $\_row[‘employee\_manager\_id ’] when the following recursion is call since the $employee\_id has not changed, it will fall into a cycle of death.

So $this->dbh->quotesmart ($\_employee\_id) should return a value that is different from $\_employee\_id

That's why he's so important.

**b)** There is no use of setting the value of $this->org\_depth as this is not going to use anywhere in function.

**c)** It’s updating the current depth fetched so same depth don’t need to be refetched.

**Answer#2** It’s returns error.

**Answer#3**

**@Solution 1 (using php array built in function)**

*function searchArray($arr,$n) {*

*if(in\_array($n,$arr)){*

*return $n;*

*}else{*

*return -1;*

*}*

*}*

***@Solution 2 (using custom alogrithm)***

*function searchArray($arr,$value){*

*$left = 0;*

*$right = count($arr) - 1;*

*while($left <= $right){*

*$mid = (int) floor(($left + $right) / 2);*

*if($arr[$mid] < $value){*

*$left = $mid + 1;*

*}elseif($arr[$mid] > $value){*

*$right = $mid - 1;*

*}else{*

*return $arr[$mid];*

*}*

*return -1;*

*}*

*}*

*$arr = [1,2,3,4,5,6,7,8];*

*echo searchArray($arr,4);*

**Answer#4**

a)

We can seperate the user\_skill table into 3 tables namely users, skills and user\_skill.

Below are the normalized tables:-

1) Users

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Null** |
| **Id** | **Int (11)** | **No** |
| first\_name | Varchar | Yes |
| **last\_name** | **Varchar** | **Yes** |

2) Skills

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Null** |
| Id | Int (11) | No |
| Name | Varchar | No |
| Level | char(255) | Yes |
| **Usage** | **char(255)** | **Yes** |

3) User\_Skills

|  |  |  |
| --- | --- | --- |
| **Field** | **Type** | **Null** |
| Id | Int (11) | No |
| user\_id | Int (11) | No |
| skill\_id | Int (11) | No |
| skill\_last\_used | Char(255) | Yes |
| user\_skill\_endorsed | Tinyint(1) | Yes |
| user\_skill\_date\_created | Datetime | Yes |
| **user\_skill\_last\_modified** | **Timestamp(14)** | **Yes** |

b) select u.firstname as firstname,u.lastname as lastname,s.name as skillName from users as u, skills as s, user\_skills as us

where us.user\_id = u.id and s.id = us.skill\_id limit 10;