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Abstract Code:

Authenticate:

Abstract Code

- User enters *email* ('\$Email') and *pin* ('\$Pin') input fields
- If data validation is successful for both input fields then:
 - When **Login** button is clicked:

```
SELECT PIN FROM `User` WHERE Email = $Email;
```

- If \$Email is found in User and User.pin = \$Pin then:
 - Store the login information in the HTTP Session Cookie with \$Email as the ID of the current user
 - Go to **Home Screen** form
 - Else:
 - Redirect to **Login** form with error message displayed
- Else:
 - Redirect to **Login** form with error message displayed

Show Home Page:

Abstract Code

- Run the **Show Homepage** task.
 - Query for information about the current user using \$Email
 - Find the current user and display User.FirstName and User.LastName

```
SELECT CONCAT(FirstName, ' ', LastName) AS UserName FROM
`User` WHERE Email = $Email;
```

- If current user owns at least 1 CorkBoard then:
 - Try: Select all CorkBoards where the current user participates in the Owns relationship with the CorkBoard
 - Join in PushPin and count how many pushpins each corkboard has
 - Display in the **My CorkBoards** sub form on the **Home Page** form

```
SELECT Corkboard.Title, COUNT(PushPin.URL) FROM Corkboard
INNER JOIN PushPin ON Corkboard.Email = PushPin.Email AND Corkboard.Title =
PushPin.Title
WHERE Corkboard.Email = $Email
GROUP BY Corkboard.Title;
```

- Except: Display Error “Could not load My CorkBoards”
- Else:
 - Display message “You have no CorkBoards”
- Try: Query information to be displayed on the **Recent CorkBoard Updates** subform
 - Select all CorkBoards where the current user participates in either the Owns or the Watches relationship with CorkBoard
 - Order by TimePinned in descending order
 - Display the top 4 results in the **Recent CorkBoard Updates** subform of the **Home Page** form

```
((SELECT CONCAT(`User`.FirstName, ' ', `User`.LastName) AS Owner, Corkboard.Title,
Corkboard.DateUpdated, Corkboard.`Type`, Category.Category
```

```
FROM `User`
```

```
INNER JOIN Corkboard ON `User`.Email = 'Corkboard'.Email
```

```
INNER JOIN Category ON Corkboard.Email = Category.Email AND Corkboard.Title =
Category.Title
```

```
WHERE `User`.Email = $Email)
```

```
UNION ALL
```

```
(SELECT CONCAT(`User`.FirstName, ' ', `User`.LastName) AS Owner, Corkboard.Title,
Corkboard.DateUpdated, Corkboard.`Type`, Category.`Category`
```

```
FROM `User`
```

```
INNER JOIN Corkboard ON `User`.Email = 'Corkboard'.Email
```

```
INNER JOIN Category ON Corkboard.Email = Category.Email AND Corkboard.Title =
Category.Title
```

```
LEFT JOIN Watches ON Corkboard.Email = Watches.OwnerEmail AND Corkboard.Title =
Watches.Title
```

```
LEFT JOIN Follows ON Corkboard.Email = Follows.FollowersEmail
```

```
WHERE Watches.Email = $Email OR Follows.OwnerEmail = $Email))
```

```
ORDER BY Corkboard.DateUpdated DESC
```

```
LIMIT 4;
```

- Except: Display Error “Could not load Recent Updates”
- **Show “Popular Tags”, “Add CorkBoard”, “Popular Sites”, “CorkBoard Statistics” and “PushPin Search”** buttons
- If click **Popular Tags** button then jump to **Popular Tags** task
- Else if click **Add CorkBoard** button then jump to **Add CorkBoard** task
- Else if click **PushPin Search** button then jump to **Query PushPin Search** task

Authenticate Private:

Abstract Code

- User clicked on a **CorkBoard** that was marked private
 - Store CorkBoard Title as \$Title in session cookie
- Redirect to **Password Protected CorkBoard** form
- Display **OK** and **Cancel** buttons
- User enters the password ('\$Password')
- If data validation is successful for the password input field then:
 - When **OK** button is clicked:

```
SELECT Password FROM Corkboard WHERE Email = $Email AND  
Title= $Title;
```

- If \$Password == CorkBoard.Password:
 - Jump to **Get CorkBoard Data** task
- Else:
 - Redirect back to **Password Protected CorkBoard** form and display an error message
- When **Cancel** button is clicked:
 - Redirect back to **Home Page** form

Get CorkBoard Stats:

Abstract Code

- User clicked on the **CorkBoard Stats** button on the main menu
- Query for information about all the CorkBoardIt Users
 - Sort all the users by the number of Public CorkBoards owned by them
 - If more than one user has the same number of Public CorkBoards then:
 - Sort by the number of Public PushPins
 - If more than one user has the same number of Public CorkBoards and Public PushPins then:
 - Sort by the number of Private CorkBoards
 - If more than one user has the same number of Public CorkBoards, Public PushPins and Private CorkBoards then:
 - Sort by the number of Private PushPins

```

SELECT CONCAT(`User`.FirstName, ' ', `User`.LastName) AS UserName,
COUNT(Public_Corkboard.Title) AS 'Public CorkBoards', COUNT(Public_PushPin.URL)
AS 'Public PushPins', COUNT(Private_Corkboard.Title) AS 'Private CorkBoards',
COUNT(Private_PushPin.URL) AS 'Private PushPins'

FROM `User`

LEFT JOIN Corkboard AS Public_Corkboard ON `User`.Email = Public_Corkboard.Email
AND Public_Corkboard.`Type` = 'Public'

LEFT JOIN PushPin AS Public_PushPin ON Public_Corkboard.Email =
Public_PushPin.Email AND Public_Corkboard.Title = Public_PushPin.Title

LEFT JOIN Corkboard AS Private_Corkboard ON `User`.Email =
Private_Corkboard.Email AND Private_Corkboard.`Type` = 'Private'

LEFT JOIN PushPin AS Private_PushPin ON Private_Corkboard.Email =
Private_PushPin.Email AND Private_Corkboard.Title = Private_PushPin.Title

WHERE Public_Corkboard.Email = $Email

GROUP BY UserName

ORDER BY 'Public CorkBoards' DESC, 'Public PushPins' DESC, 'Private CorkBoards'
DESC, 'Private PushPins' DESC;

```

- Display queried data on **CorkBoard Statistics** form
- Find the current user using \$Email stored in the HTTP Session Cookie
 - Color the current users row red on the **CorkBoard Statistics** form
- When user is finished they can click on **CorkBoardIt** logo button to return to **Home Page**

Get Site Data:

Abstract Code

- User clicked **Popular Sites** button from **Home Page**
- Select All PushPin.URL
- Trim each URL starting after “http://” or “https://” and until the next forward slash
- Group By trimmed URL and count all

```

SELECT CASE
    WHEN LEFT(URL,5) = 'https' THEN TRIM(LEADING 'https://' FROM URL)
    ELSE TRIM(LEADING 'http://' FROM URL)
END AS Site,
COUNT(URL) AS PushPins
FROM PushPin
GROUP BY Site
ORDER BY PushPins DESC;

```

- Display results on **Popular Sites** form
- When user is finished they can click on **CorkBoardIt** logo button to return to **Home Page**

Get PushPin Info:

Abstract Code

- User clicks on **Add PushPin** button from **View CorkBoard** form
 - Current CorkBoard \$Title is stored in the HTTP Session Cookie using CorkBoard.Title
 - Corkboard type, \$Visibility, is also stored in the session cookie
 - \$Email of the current user is also stored in the HTTP Session Cookie
- User enters URL ('\$URL'), Description ('\$Description'), Tags ('\$Tags') input fields
- '\$TimePinned' is autogenerated with the system time
- If all input fields are successfully validated then:
 - When **Add** button is clicked:
 - Parse \$Tags and create a list \$TagsList
 - PushPin with values \$URL, \$Description, \$TimePinned is added to the current CorkBoard

```
INSERT INTO PushPin(Email, Title, URL, Description, TimePinned)
Values ($Email, $Title, $URL, $Description, $TimePinned);
```

- Loop through each item ('\$TagItem') in \$TagsList and insert value into Tag Table

```
INSERT INTO Tag(Email, URL, Tag)
Values ($Email, $URL, $TagItem);
```

- Update the DateUpdated field for the current corkboard

```
UPDATE Corkboard
SET DateUpdated = $TimePinned
WHERE Email = $Email AND Title = $Title;
```

- Redirect to **View CorkBoard** form of current CorkBoard
- Else:
 - When **Add** button is clicked:
 - Redirect to **Add PushPin** form with error message displayed

Add Corkboard:

Abstract Code

- User clicked on **Add CorkBoard** button from the **Home Page** form
- Load Category list from database and populate drop down options
- User enters Title ('\$Title'), Category ('\$Category'), Type ('\$Visibility') and if \$Visibility == 'Private' then Password ('\$Password') input fields
- If all input fields are successfully validated then:
 - When **Add** button is clicked:
 - If \$Visibility == 'Public' then:
 - \$Password = NULL
 - '\$DateUpdated' is autogenerated from system time
 - Set the current user as the identifying entity of the CorkBoard

```
INSERT INTO Corkboard(Email, Title, DateUpdated, Password)
```

```
Values ($Email, $Title, $DateUpdated, $Password);
```

```
INSERT INTO Category(Email, Title, Category)
```

```
Values ($Email, $Title, $Category);
```

- Redirect to **View CorkBoard** form, showing newly created PrivateCorkBoard
- Else:
 - When **Add** button is clicked:
 - Redirect to **Add CorkBoard** form with error message displayed

Query Pushpin Search:

Abstract Code

- User entered a search term ('\$SearchTerm') into input field and clicked **PushPin Search** button from **Home Page** form
- If \$SearchTerm is successfully validated then:
 - Select All PushPin instances and related CorkBoard instances WHERE PushPin.Description contains \$SearchTerm AND WHERE the PushPin instance belongs to a public CorkBoard instance

```

SELECT PushPin.Description AS 'PushPin Description', Corkboard.Title AS CorkBoard,
CONCAT(`User`.FirstName, ' ', `User`.LastName) AS Owner

FROM PushPin

INNER JOIN Corkboard ON PushPin.Email = Corkboard.Email AND PushPin.Title =
Corkboard.Title AND Corkboard.`Type` = 'Public'

INNER JOIN `User` ON Corkboard.Email = `User`.Email

INNER JOIN Tag ON Tag.Email = PushPin.Email AND Tag.Title = PushPin.Title AND Tag.URL
= PushPin.URL

INNER JOIN Category ON Corkboard.Email = Category.Email AND Corkboard.Title =
Category.Title

WHERE Description LIKE CONCAT('%',$SearchTerm,'%') OR Tag.Tag LIKE
CONCAT('%',$SearchTerm,'%') OR Category.Category LIKE CONCAT('%',$SearchTerm,'%');

```

- Display the query results on the **PushPin Search Results** form
- Else:
 - Redirect to **Home Page** form and display an error message
- When user is finished they can click on ***CorkBoardIt*** logo button to return to **Home Page**

Get Popular Tags:

Abstract Code

- User clicks ***Popular Tags*** button from the **Home Page** form
- Select a count of PushPin instances and a count distinct of CorkBoard Instances Grouped By Tag

```

SELECT Tag.Tag, COUNT(PushPin.URL) AS PushPins, COUNT(DISTINCT
Public_Corkboard.Title) + COUNT(DISTINCT Private_Corkboard.Title) AS 'Unique
CorkBoards'

FROM Tag

LEFT JOIN PushPin ON Tag.URL = PushPin.URL

LEFT JOIN Corkboard AS Public_Corkboard ON PushPin.Email = Public_Corkboard.Email
AND PushPin.Title = Public_Corkboard.Title AND Public_Corkboard.`Type` = 'Public'

LEFT JOIN Corkboard AS Private_Corkboard ON PushPin.Email = Private_Corkboard.Email
AND PushPin.Title = Private_Corkboard.Title AND Private_Corkboard.`Type` = 'Private'

GROUP BY Tag.Tag

ORDER BY PushPins, 'Unique Corkboards' DESC;

```


- Display query results on **Popular Tags** form
- Display popular tags as hyperlinks buttons
- If user clicks a hyperlink jump to **Query PushPin Search**
- When user is finished they can click on **CorkBoardIt** logo button to return to **Home Page**

Post Comment:

Abstract Code

- User enters description ('\$Description') and clicks the **Post Comment** button from the **View PushPin** form
- \$Email of the current user is grabbed from the Session Cookie and the current users User.Name value is looked up
- If \$Description is successfully validated then:
 - When **Post Comment** button is clicked:
 - A comment is added to the database with the current PushPin participating as the identifying entity \$OwnerEmail, \$Title, \$URL
 - The values \$Email, \$Description and the current system datetime is added as values for the new comment

```
INSERT INTO Comment(Email, Title, URL, userEmail, CommentTime, Description)
Values ($OwnerEmail, $Title, $URL, $Email, $CommentTime, $Description);
```

- Redirect back to the **View PushPin** form of the current PushPin with the new comment added to the list of comments
- Else:
 - When **Post Comment** button is clicked:
 - Redirect back to the **View PushPin** form of the current PushPin and display an error message
- When user is finished they can click on **CorkBoardIt** logo button to return to **Home Page**

Like/Unlike PushPin:

Abstract Code

- User clicks the **Like/Unlike** button on the **View PushPin** form
- The current user, \$Email, the pushpin owner, \$OwnerEmail, and the pushpin URL, \$URL are taken from the session cookie
- If the user is currently participating in the Likes relationship with the current PushPin then:
 - Remove that instance of the Likes relationship

```
DELETE FROM Likes WHERE Likes.Email = $Email AND Likes.OwnerEmail = $OwnerEmail
AND Likes.URL = $URL;
```

- Redirect to **View PushPin** form with the **Like/Unlike** button flipped to 'Like'
 - Else:
 - Add an instance to the Likes relationship with the current user and the current PushPin
- ```
INSERT INTO Likes(Email, OwnerEmail, URL)
Values ($Email, $OwnerEmail, $URL);
```
- Redirect to **View PushPin** form with the **Like/Unlike** button flipped to 'Unlike'

#### Follow User:

##### Abstract Code

- User clicked on **Follow/Unfollow** button from either the **View CorkBoard** or **View PushPin** form
- The current user, \$Email, the pushpin owner, \$OwnerEmail, and the pushpin URL, \$URL are taken from the session cookie
- If current user does not participate in the Follows relationship with the target user then:
  - When current user clicks **Follow** button:
    - Add target user to list of users the current user follows

```
INSERT INTO Follows(OwnerEmail, FollowersEmail)
Values ($OwnerEmail, $Email);
```

- Redirect to the **View PushPin** form for the current pushpin with **Follow** button replaced with an **Unfollow** button
- Else:
  - When the current user clicks **Unfollow** button:
    - Remove target user from the list of users the current user follows

```
DELETE FROM Follows WHERE Follows.FollowersEmail = $Email AND Follows.OwnerEmail
= $OwnerEmail;
```

- Redirect to the **View PushPin** form for the current pushpin with **Unfollow** button replaced with the **Follow** button

#### Get PushPin Data:

##### Abstract Code

- User clicked on a PushPin from either the **View CorkBoard** or **PushPin Search Results** forms
- Redirect to **View PushPin** form

- Get Pushpin data \$Email, \$Title, \$URL from Session Cookie
- If current user owns this PushPin then:
  - Show **Post Comment** button
- Else:
  - Show **Follow/Unfollow, Like/Unlike, Post Comment** buttons
- If **Follow/Unfollow** button is clicked then jump to **Follow User** task
- If **Like/Unlike** button is clicked then jump to **Like/Unlike PushPin** task
- If **Post Comment** button is clicked then jump to **Post Comment** task
- Query data related to the current PushPin
  - Try: Select User.FirstName and User.LastName and display the results

```
SELECT CONCAT(FirstName, ' ', LastName) FROM `User` WHERE Email = $Email;
```

- Except: Display error “Could not load User name”

- Try: Select TimePinned and display the result under the user’s first and last names

```
SELECT TimePinned FROM PushPin WHERE Email = $Email AND Title = $Title AND URL= $URL ;
```

- Except: Display Error “Could not load Date last updated”

- Try: Select the CorkBoard the PushPin is pinned to and display the result as a hyperlink next to the TimePinned

```
SELECT Title FROM PushPin WHERE Email = $Email AND Title = $Title AND URL= $URL ;
```

- Except: Display Error “Could not load CorkBoard Name”

- Try: Select PushPin.Tags and display in alphabetical order

```
SELECT Tag FROM Tag WHERE Email = $Email AND Title = $Title AND URL= $URL
ORDER BY Tag DESC;
```

- Except: Display Error “Could not load tags”

- Try: Select all related comments and display the results in time order with newest comments first

```
SELECT CONCAT(`User`.FirstName, ' ', `User`.LastName) AS UserName,
Comment.Description
FROM Comment
INNER JOIN `User` ON Comment.Email = `User`.Email
WHERE Email = $Email AND Title = $Title AND URL= $URL
ORDER BY CommentTime DESC;
```

- Except: Display Error “Could not load comments”

- Try: Select all Likes and display the results

```
SELECT CONCAT(`User`.FirstName, ' ', `User`.LastName) AS UserName FROM Likes
INNER JOIN `User` ON Likes.Email = `User`.Email
WHERE Email = $Email AND Title = $Title AND URL= $URL ;
```

- Except: Display Error “Could not load likes”
- Try: Select PushPin.URL and pull image from the Web. Display picture as a hyperlink to the original URL

```
SELECT URL FROM PushPin WHERE Email = $Email AND Title = $Title AND URL= $URL
;
```

- Except: Display Error “Could not load images”
- If the hyperlinked CorkBoard is clicked then jump to **View CorkBoard** task
- When user is finished they can click on **CorkBoardIt** logo button to return to Home Page

#### Get CorkBoard Data:

##### Abstract Code

- User clicked on hyperlink to CorkBoard in one of many places on the site
- Redirect to View CorkBoard form
- Get corkboard data \$Email, \$Title, \$Visibility from session cookie
- Show **Follow/Unfollow**, **Add PushPin**, **Watch** buttons
- If **Follow/Unfollow** button is clicked then jump to **Follow User** task
- If **Add PushPin** button is clicked then jump to **Add PushPin** task
- If the current user owns this CorkBoard instance, the CorkBoard instance is private or the User is already watching the CorkBoard instance then disable the **Watch** button
- If **Watch** button is clicked then jump to **Watch CorkBoard** task
- Query data related to current CorkBoard

- Select User.FirstName and User.LastName of the identifying user and display it on the View CorkBoard form

```
SELECT FirstName, LastName FROM `User` WHERE Email = $Email
```

- Select CorkBoard.Title, CorkBoard.Category and display them on View CorkBoard form

```
SELECT Title, Category FROM Corkboard WHERE Email = $Email AND Title = $Title;
```

- Select the newest TimePinned and display it on **View CorkBoard** form as the last updated date

```
SELECT MAX(TimePinned) FROM Corkboard

INNER JOIN PushPin ON Corkboard.Email = PushPin.Email AND Corkboard.Title =
PushPin.Title

WHERE Email = $Email AND Title = $Title;
```

- Count the number of users watching the this CorkBoard instance

```
SELECT COUNT(WatcherEmail) FROM Corkboard

INNER JOIN Watches ON Corkboard.Email = Watches.OwnerEmail AND
Corkboard.Title = Watches.Title

WHERE Email = $Email AND Title = $Title;
```

- Select PushPin.URL for any PushPin instances that participate in the pinned relationship with the current CorkBoard instance

```
SELECT PushPin.URL FROM Corkboard

INNER JOIN PushPin ON Corkboard.Email = PushPin.Email AND Corkboard.Title =
PushPin.Title

WHERE Email = $Email AND Title = $Title;
```

- For each PushPin.URL pull image from the web and format it as a hyperlinked thumbnail leading back to the URL
- When user is finished they can click on ***CorkBoardIt*** logo button to return to **Home Page**

#### Watch CorkBoard:

##### Abstract Code

- User clicks on the ***Watch/Unwatch*** button from the **View CorkBoard** form
- Get \$Email, \$OwnerEmail, \$Title from Session Cookie
- If the user is currently participating in the Watches relationship with the current PushPin then:
  - Remove that instance of the Likes relationship

```
DELETE FROM Watches WHERE Watches.WatcherEmail = $Email AND
Watches.OwnerEmail = $OwnerEmail AND Watches.Title = $Title;
```

- Redirect to **View PushPin** form with the ***Watch/Unwatch*** button flipped to 'Watch'
- Else:
  - Add an instance to the Likes relationship with the current user and the current PushPin

```
INSERT INTO Watches(WatcherEmail, OwnerEmail, Title)
Values ($Email, $OwnerEmail, $Title);
```

- Redirect to **View PushPin** form with the ***Watch/Unwatch*** button flipped to 'Unwatch'
- Add CorkBoard instance to the list of CorkBoards that the current user is watching
- Redirect to the **View CorkBoard** of the current CorkBoard instance