Description of class attributes and class operations

1. **Class: RegisteredUser**
   1. **Attributes:**
      1. **userID**: its data type is a String. Every user should have a unique identifier, no user should have the same userID as other users. The UserID can contain characters and numbers.
      2. **username**: String - User’s chosen name, can be up to 18-20 characters. It can contain numbers but not special characters.
      3. **emailAddress**: Its data type is a String. User’s email address for communication and verification.
      4. **Password**: its data type is also a String. Password is case sensitive. It should include at least one uppercase, the length of password should not be less than 8 characters, and it should include one special character.
      5. **phoneNumber**: its data type is int. Its length should not be less than 10 or more than 10 digits.
   2. **Operations:**
      1. **Login():** Its data type is Boolean which verifies user credentials and logs them in if correct; returns true if successful. Returns false and asks for verification again.
      2. **Logout():** It is void so it doesn’t return a value. Essentially, it terminates the user's session and ensures that they are no longer authenticated or authorized.
      3. **createAccount():** Its data type is Boolean. It creates a new user account; if requirements are met then returns true, and the account will be successfully created.
      4. **DeleteAccount():** Boolean - Deletes the user’s account; returns true if successful.
      5. **resetPassword():** Its data type is a Asks for user last password and then to enter a new one. Returns true if the new password meets all the criteria.
2. **Class: Bubble**
   1. **Attributes:**
      1. **bubbleID**: its data type is an int. It is composed of a unique number identifier for each bubble**.**
      2. **name**: its data type is a String. This is how the bubble is going to be named. It can contain an indefinity number of characters.
      3. **category**: This is going to have an array of all the different categories the user can look up. The category is the theme in which the user wants to start seen content of.
      4. **linkedBubble**: It’s a list that includes all bubbleID’s. bubbleID’s will show up depending on the category the user picks**.**
   2. **Operations:**
      1. **createBubble():** This is going to be Boolean It basically creates a new bubble. The bubble is typically created successfully if this function returns true. In the case of a naming conflict, it may return false to indicate that the creation was unsuccessful.
      2. **editBubble():** This is going to be Boolean. This function allows creators and administrators with the resources to adapt their virtual spaces to better serve the needs and preferences of their communities. At the end of the changes, it should return true if the changes were made successfully.
      3. **linkBubble():** This is going to be Boolean. During the linkBubble operation, validation checks may be performed to ensure that the process complies with platform guidelines and rules. A true return indicates that the linking process was successful, and the source bubble and target bubble have now been linked.
      4. **browseBubble():** A list of posts or content items is usually returned by the browseBubble operation. The content within the bubble can be accessed and engaged with by users through this list.
      5. **likeBubble():** Its Void because it would not return anything to the user. This allows the users to like other bubbles and keep them stored if they want to go back to it, now is easier for them to access it again. Returns true if successful.
      6. **followBubble():** This is going to be Boolean. FollowBubble() returns a Boolean value, with true indicating success following the bubble. It will allow users to establish a connection or subscription to other bubbles or communities.
3. **Class: Post**
   1. **Attributes:**
      1. **postID**: Its data type is an int - the postID attribute is a crucial element in managing and organizing posts within a system, providing a reliable means to uniquely identify and interact with individual posts.
      2. **content**: Its data type is a String. Content is a fundamental component of a post, containing the actual information, message, or media that the user or creator intends to share.
      3. **timeStamp**: Its data type is a String, and it helps users and system administrators track the chronological order of posts and understand when specific content was shared.
      4. **userID**: Its data type is a String; this is simple as just sharing the user who created the post which can contains characters and numbers.
   2. **Operations:**
      1. **createPost():** It is Boolean. When a user initiates this operation, a new Post object is generated, and the content, timeStamp, and userID are associated with it. If the post creation is successful, the operation returns true.
      2. **editPost():** It is a Boolean and this operation allows users to modify the content of an existing post. Users may want to correct typos, update information, or make other changes to their posts. If the edit is successful, the operation returns true.
      3. **deletePost():** It’s a Boolean. Deleting a post removes it from the public view. If the deletion is successful, the operation returns true.
      4. **likePost():** It’s a Boolean. This operation may influence content visibility or what appear in bubbles. If the user successfully likes the post, the operation returns true.
      5. **sharePost():** It’s a Boolean and this operation permits users to share a post with other bubbles. If the sharing process is successful, the operation returns true.
      6. **dislikePost():** Boolean - dislikePost() enables users to express their negative sentiment toward a post. This operation serves to reflect user opinions. If the user successfully dislikes the post, the operation returns true.
      7. **favoritePost():** This is a Boolean. This operation allows users to mark a post as a favorite or bookmark it for future reference. If the post was added successfully then it will return true.
4. **Class: Algorithm**
   1. **Attributes:**
      1. **algorithmID**: Its data type is int. This attribute serves as a unique identifier for each algorithm instance within the system. It's essential for precise tracking and organization.
   2. **Operations:**
      1. **manageAlgorithm():** This is a Boolean. The manageAlgorithm() operation takes charge of supervising and controlling the behavior and performance of the algorithm. It returns a true value to indicate successful management.
      2. **generateBubble():** A new bubble or content group is generated and presented as a Bubble object. Bubbles are used to categorize and organize content within the system.
      3. **suggestMoreLikeThis():** This operation offers content recommendations. It returns a list of similar content or "bubbles" for the user to explore further.
      4. **suggestLessLikeThis():** This suggests content that deviates from the user's current preferences, but user is being able to reduce that content.
      5. **removeContentContaining():** It is a Boolean - Removes content based on certain criteria; returns true if successfully achieved.
5. Class: BrowserInterface
   1. **Attributes:**
      1. **userInterface**: The data type is a String. HTML, CSS, JavaScript representing the UI (user interface). UI oversees displaying everything to the user and allowing inputs.
      2. **versionID**: The data type is a String. Current version of the browser interface. It contains a combination of characters and numbers, allowing users and developers to track and identify the specific version of the interface they are using.
   2. **Operations:**
      1. **displayBubble():** It is Void because it does not return any value. operation is responsible for rendering and displaying a "bubble" on the user interface.
      2. **increaseBubbleSize():** It does not return a value, so it is Void. Operation enlarges the size of the displayed bubble within the interface enhancing user’s experience.
      3. **decreaseBubbleSize():** It does not return a value, so it is Void. This operation reduces the size of the bubble. Also, to enhance user’s experience.
6. **Class: AppInterface**
   1. **Attributes:**
      1. **userInterface**: Data type is String. The userInterface attribute represents the user interface (UI) of the mobile application. It specifies the technology stack used to build the UI, which can vary depending on the platform. This can include XML for Android, Java/Kotlin for Android, or Swift for iOS.
      2. **versionID**: Data type String. Stores the current version identifier of the app interface. It is a combination of characters and numbers that uniquely identifies the specific version of the app.
   2. **Operations:**
      1. **displayBubble():** It is Void because it does not return any value. This operation is responsible for rendering and displaying a "bubble" on the app interface.
      2. **openFeed():** This is Void because it does not return any value. It essentially opens the section of the app where users can view content shared by others.
      3. **refreshFeed():** It is Void because it does not return any value. It's a common feature in apps to ensure that users see the latest content and updates. When executed, this operation refreshes the feed.
      4. **lightMode():** This is Void because it does not return any value. Switches the app interface to light, this is user’s preference to enhance app.
      5. **darkMode():** This is Void because it does not return any value. Switches the app interface to dark, this is user’s preference to enhance app.
7. **Class: Comment**
   1. **Attributes:**
      1. **userID**: Its data type is a String. The ID of the user who made the comment will be displayed along with its comment. The userID can contain numbers and characters.
      2. **content**: Its data type is a String. This is where the users get to interact and express their thoughts. It can be visible to other users in the same bubble.
      3. **postID**: String - attribute serves as an identifier for the post to which the comment belongs. It's crucial for establishing a connection between a comment and the specific post it is commenting on.
   2. **Operations:**
      1. **createComment():** This is a Boolean. User gets to decide if he/she wants to make a comment. When done typing comments it will return true if successfully posted.
      2. **deleteComment():** This is a Boolean. This operation deletes any comment made by the user. If another user wants to delete it but is not the creator of the comment, then he will not be allowed to delete that comment. Returns true if successfully deleted.
      3. **editComment():** This is a Boolean. Here, the user can edits its own content of any comment he/she had make. Returns true if successfully updated.
8. **Class: Analytics**
   1. **Attributes:**
      1. **userID**: Its data type is a String. This attribute represents the unique identifier of the user associated with the analytics. It can contain a combination of characters and numbers. It helps identify which used did what.
      2. **bubbleID**: Its data type is a String. Serves as a unique identifier for the bubble or content to which the analytics are related. Like userID, it can contain characters and numbers.
      3. **viewCount**: Its data type is an int. It keeps track of the number of times the associated content has been viewed by users. It provides insights into the popularity and visibility of the content.
      4. **shareCount**: Its data type is an int. It keeps track of the number of times something has been shared.
      5. **interactionCount**: Its data type is int. It keeps track of the number of times users have interacted with content. Interactions may include likes, comments, and other user engagements.
   2. **Operations:**
      1. **trackView():** This is Void because it does not return any value. Increments the view count for the associated content. It updates the viewCount to reflect the increased view count accurately.
      2. **trackShare():** This is Void because it does not return any value. increments the shareCount attribute by one each time a user shares the associated content.