­­MINISTRY OF EDUCATION AND TRAINING

FPT UNIVERSITY

Capstone Project Document

Cloud-based Backend as a Service for Building Mobile Applications

|  |  |
| --- | --- |
| Nhóm 7 | |
| Group member | Nguyễn Mạnh Hùng – SE61388 Nguyễn Hữu Lộc – SE61312  Phạm Bảo Toàn – SE61011  Vũ Văn Quyết – SE61071 |
| Supervisor | Kiều Trọng Khánh |
| Ext. Supervisor | N/A |
| Capstone Project code | CSBM |

-Ho Chi Minh, *11-05-2016*-

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**Definitions, Acronyms, and Abbreviations**

|  |  |
| --- | --- |
| Name | Definition |
| BaaS | Back-end as a service |

# **A. Introduction**

## **Project Information**

- Project name: **Cloud-based Backend as a Service for Building Mobile**

**Applications.**

- Project code: **CSBM.**

- Project type: **Web Application and Mobile Framework.**

- Start date: **11-05-2016.**

- End date: **21-8-2016.**

## **Introduction**

In this document, we introduce a solution for mobile developers. Developing mobile applications is more and more popular and cloud computing also extremely develops. The combination is very complex to build the effective application on smartphone. Based on our researches and analysis, we proposed a cloud-based backend as a service for mobile developers.

We provide a service that includes website application and mobile framework, which helps mobile developers to develop their application quickly, easily to change, and flexibility in modification. Somethings supported the developer building their application without worrying about the backend services.

## **Current Situation**

When developing mobile applications, developers need to concern too much about back-end such as: creating service support push notification, creating and managing database mobile… Most modern mobile applications store data and interact with other services on the internet. User accounts, shared content, documents and purchases; these things all need to be stored somewhere else, and cloud is a good solution. There is a cloud-based backend as a service of Facebook named “Parse” (https://www.parse.com), however the “Parse” is shutdown in first month 2016…

## **Problem Definition**

Others backend as a service:

* Advantages:
* Parse, Firebase… are well-known and already had much users.
* Disadvantages:
  + Parse (http://parse.com/) is shutdown in first month 2017.
  + CloudKit (<https://developer.apple.com/icloud/>) is limited to iOS and require user to use iCloud.
  + Firebase (<https://www.firebase.com/>) hasn’t push notification

Common mobile development:

* Advantages:
* Taking control everything from mobile layout to back-end component.
* Disadvantages:
* Mobile developers need to have the knowledge about web service or wait provided services from web service developer.
* Mobile developers hard to focus on creating user experience.
* Mobile application development is waste of time on building API.

## **Proposed Solution**

Our proposed solution is to develop the Cloud-based Backend as a Service named “CSBM” to support mobile developer manage application data via our provided framework and only focus on creating extraordinary user experiences. We’ll take care of the rest.

### **5.1. Feature functions**

* Web application: design for developer to manage data and configuration of their mobile application.
* Server: parse data from client side to store and sync data with our NoSQL cloud database.
* Mobile framework: provide framework for mobile developer to interact with our database.

### **5.2. Advantages and Disadvantages**

* **Advantages:**
  + Real-time database: data is stored in cloud database and synced to all connected clients in real-time.
  + Push notification: auto push notification to all connected client after data is changed.
  + Mobile framework for developers to interact with their data on server database.
* **Disadvantages:**
  + Security: users only manage their data while the security is based on the service provided.
  + Application downtime: users can’t control downtime when CSBM server has problem.

## **Functional Requirements**

* **Server component**
  + Parse data from client dashboard to system storage.
  + Notify to connected client.
  + Sync database to server automatically.
* **Web component**
  + Manage applications.
  + Manage data.
* **Mobile framework** 
  + Provide framework for mobile.

## **Role and Responsibility**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No | Full Name | Role | Position | Contact |
| 1 | Kiều Trọng Khánh | Project Manager | Supervisor | khanhkt@fpt.edu.vn |
| 2 | Nguyễn Mạnh Hùng | Developer | Leader | hungnmse61388@fpt.edu.vn |
| 3 | Nguyễn Hữu Lộc | Developer | Member | locnhse61312@fpt.edu.vn |
| 4 | Vũ Văn Quyết | Developer | Member | quyetvv61071@fpt.edu.vn |
| 5 | Phạm Bảo Toàn | Developer | Member | toanpbse61011@fpt.edu.vn |

*Table 1: Roles and Responsibilities*

# **B. Software Project Management Plan**

## **Problem Definition**

### **1.1. Name of this Capstone Project**

- Official name: Cloud-based Backend as a Service for Building Mobile Applications.

- Vietnamese name: Dịch vụ đám mây hỗ trợ developer xây dựng mobile application.

- Abbreviation: CSBM.

### **1.2. Problem Abstract**

At the moment, especially in Viet Nam, not much developer use BaaS (Backend as a Service). The development of mobile application include building back-end so it requires mobile developer have knowledge about coding web api or they may wait for web api from others developers. This situation makes mobile developers can’t focus on creating good user experiences, and then the effective of build a mobile application is always not best liked developer hope.

Besides, currently there are Parse (<http://parse.com/>), Cloud-Kit (<https://developer.apple.com/icloud/>), Firebase (<https://www.firebase.com/)>,... But they have not provided developers a good way to build a mobile application. Cloud-Kit is limited to iOS and require user to use iCloud. Firebase hasn’t push notification. Parse is stop service provider in first month 2016 and is shutdown in first month 2017, but many applications are there. If Parse shutdown, developers who are using Parse will have difficulty in finding another BaaS like Parse.

For the goal that improving mobile development, we provide a service which base on Parse Server, to reduce the time consuming in mobile development and mobile developers can focus more on user interface and user experiences. By using Parse Server, we develop a website to create new applications, and a service to sharing data between user’s different devices. The service also haves push notifications, if either of those are important to developer applications, our service will likely save develop time.

### **1.3. Project Overview**

#### **1.3.1. Current Situation**

Below are the problems encountered in this project:

* + **Disadvantages:**
    - Parse source code was developed with NodeJs that nobody in team has much knowledge about.
    - Parse source code not public function to allow users create new application.
    - Parse server now can only run one application. If developers have many application they will need many Parse server to run all of them.
    - Team hasn’t much knowledge about how to code and build a mobile framework.
  + **Advantages:**
    - The server is ready to run based on Parse source code.

#### **1.3.2. The Proposed System**

According to technology researches, we found out that Parse server of Facebook can help us resolving the problem of reducing time consuming in mobile development and also help developers who are using Parse now can move to and continue develop application.

To resolve the problem that Parse uses NodeJs as main language for the server, we can use NodeJs Tutorial from <http://www.tutorialspoint.com/nodejs/> for understanding how NodeJs work. We also find the necessary help from NodeJs development forum to solve problems.

We must to know what dashboard send request to server to create a new application to write a function allow developer can create new application from our service dashboard. According to technology researches, we decided AngularJs will be the framework for dashboard.

We assign responsibility in horizontal, it means everyone will do a whole big think and separated from the others. This decision based on that everything about this project is really new for all of the member so let each one focus on one problem is the best way.

##### **1.3.2.1. Website (Dashboard)**

Main web application is a place for developer to create a new application or register account to use main function of the service website. Developer also can use this website to management the data of their application.

* For developer
  + - Create a new application: Developer can create a new application.
    - Manage data: Create/Edit/Remove developer data in application.
  + For guest
    - Register: User can register new account to use the service.

##### **1.3.2.2. Mobile Framework**

This framework is use for Developer’s mobile Application, which provide APIs to control mobile application data. Mobile developers can control their data really easily after download framework which appropriate to their language (Android or iOS) and apply to their application.

#### **1.3.3. Boundaries of the System**

* This service is built basing on Parse server of Facebook. Our main target is improving the mobile development and help developers, whose applications is using Parse now, have an appropriate place to migrate to.
* The complete product includes:
  + A web application that allow:
    - Register account to use main function of the system
    - Create a new application
    - Manage data
  + Mobile Framework that allow:
    - Provide API

#### **1.3.4. Future Plans**

Current service only support for mobile. In future we will:

* + - Provide framework for website developers.

#### **1.3.5. Development Environment**

##### **1.3.5.1. Hardware requirements**

* + For server

|  |  |  |
| --- | --- | --- |
| Hardware | Minimum Requirements | Recommended |
| Internet Connection | 512Kbps | 4 Mbps |
| Operating System | Ubuntu Server 12 LTS | Ubuntu Server 14.04.2 LTS |
| Computer Processor | Intel® CORE i3 Quad core 2.1 GHz | Intel® CORE i7 Quad core 2.4 GHz |
| Computer Memory | 1GB of RAM | 4GB of RAM or more |

*Table 2: Hardware Requirement for server*

* + For website development

|  |  |  |
| --- | --- | --- |
| Hardware | Minimum Requirements | Recommended |
| Internet Connection | 512Kbps | 4 Mbps |
| Operating System | Ubuntu Server 12 LTS | Ubuntu Server 14.04.2 LTS |
| Computer Processor | Intel® CORE i3 Quad core 2.1 GHz | Intel® CORE i7 Quad core 2.4 GHz |
| Computer Memory | 1GB of RAM | 4GB of RAM or more |

*Table 3: Hardware Requirement for website development*

* + For mobile framework development

|  |  |  |
| --- | --- | --- |
| Hardware | Minimum Requirements | Recommended |
| Internet Connection | 512Kbps | 4 Mbps |
| Operating System | Ubuntu Server 12 LTS | Ubuntu Server 14.04.2 LTS |
| Computer Processor | Intel® CORE i3 Quad core 2.1 GHz | Intel® CORE i7 Quad core 2.4 GHz |
| Computer Memory | 1GB of RAM | 4GB of RAM or more |

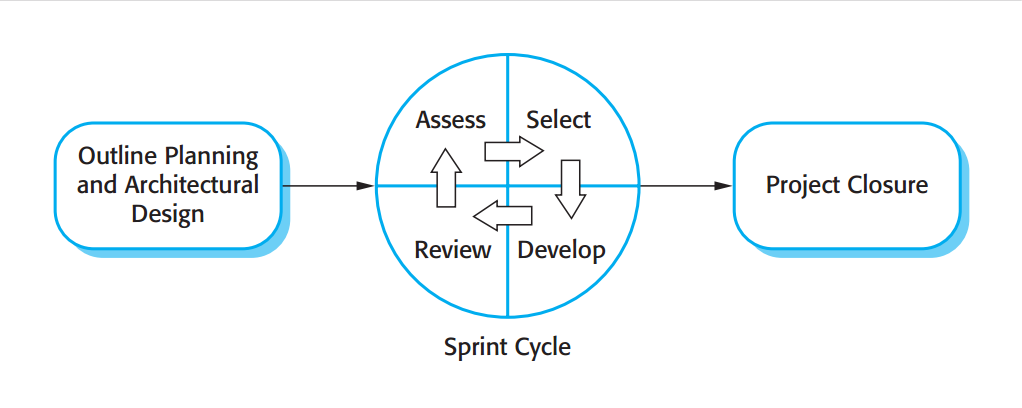
*Table 4: Hardware Requirement for mobile framework development*

## **Project organization**

### **2.1. Software Process Model**

The project is developed under Scrum model. We choose this model because the following reasons:

* + This project is about Parse server, NodeJs and building mobile framework these are really new to all of member. That why our team need focus on research, study and try our best to implement a core flow of this project early.
  + We need to provide many demo for each requirement to make sure that our team can complete this project.
  + This project is about building framework so it’s really hard to finish the document first. We need coding through some demo to understand more about the operation mechanism of Parse server and figure out how to build framework effectively.



*Figure 1: Scrum model (Source: Software Engineering, 9th Edition, Chapter 3, Figure 3.8)*

### **2.2. Roles and responsibilities**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Full name** | **Role in Group** | **Responsibilities** |
| 1 | Mr. Kiều Trọng Khánh | Scrum Product Owner – Technical Expert | * Specify user requirement * Specifying the business * Control the development process * Give advices on techniques, solutions and business analysis support |
| 2 | Nguyễn Mạnh Hùng | Scrum Master, Business Analyst, Developer, Tester | * Managing process * Researching solutions and techniques * Assigning task for members * Study Parse server for building “Create new app”. |
| 3 | Nguyễn Hữu Lộc | Team Member, Business Analyst, Developer, Tester | * Researching solutions and techniques * Build framework for iOS developers. |
| 4 | Vũ Văn Quyết | Team Member, Business Analyst, Developer, Tester | * Researching solutions and techniques * Build framework for Android developers. |
| 5 | Phạm Bảo Toàn | Team Member, Business Analyst, Developer, Tester | * Researching solutions and techniques * Build Dashboard |

*Table 5: Roles and Responsibilities Details*

### **2.3. Tools and Techniques**

|  |  |
| --- | --- |
| **Tools** | **Name / version** |
| Html, Javascript Editor | Sublime Text V3 |
| iOS IDE | Xcode 7.2 |
| Android IDE | Android Studio 2.1 |
| DBMS | Robomongo 0.9.0 RC8 |
| Source control | GitHub |
| Document | Microsoft Word 2016 |

*Table 6: Tools used for this project*

|  |  |
| --- | --- |
| **Techniques** | **Name / version** |
| Backend | NodeJs 6.2.0 |
| Frontend | AngularJs 1.5.0 |
| iOS Framework | Objective-C 2.0 |
| Android Framework | Java |
| DBMS | MongoDB 3.2.6 |

*Table 7: Techniques used for this project*

## **Project Management Plan**

### **3.1. Product Backlog**

|  |  |  |
| --- | --- | --- |
| **Id** | **User Story** | **Priority** |
| 1 | Create new application | High |
| 2 | Manage applications | High |
| 3 | Manage user account for an application | High |
| 4 | Mange user role for an application | Medium |
| 5 | Multiple application on one Parse server | High |
| 6 | Push notification | Low |
| 7 | Framework for Android | High |
| 8 | Framework for iOS | High |
| 9 | Application search | Low |
| 10 | Login | High |
| 11 | Logout | Low |
| 12 | Auto generate ApplicationId | Medium |
| 13 | Analytics | Low |

### **3.2. Deliverables**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Deliverable** | **Delivery date** | **Delivery Location** | **Note** |
| 1 | Introduction Document | 12/5/2016 | FPT-CMS | Report No.1 |
| 2 | Software Project Management Plan | 16/5/2016 | FPT-CMS | Report No.2 |
| 3 | Software Requirement Specification | 30/5/2016 | FPT-CMS | Report No.3 |
| 4 | Application Demo 1 | 16/6/2016 | FPT-University | Core flow demo |
| 5 | Application Demo 2 | 21/7/2016 | FPT-University | Features demo |
| 6 | Design 1 | 21/7/2016 | FPT-CMS | Report No.4 |
| 7 | Application Demo 3 | 7/8/2016 | FPT-University | Semi-final application demo |
| 8 | Design 2 | 7/8/2016 | FPT-CMS | Report No.5 |
| 9 | Completed Document | 14/8/2016 | FPT-CMS | Report No.6 |

### **3.3. All Meeting Minutes**

All meeting minutes here: <https://github.com/hungnm2904/CSBM/tree/report/Meeting%20Minutes>.

## **Coding Convention**

Summary:

* Naming Convention:
  + Variable names should be short yet meaningful. The choice of a variable name should be designed to indicate to the casual observer the intent of its use.
  + Methods should be verbs, in mixed case with the first letter lowercase, with the first letter of each internal word capitalized.
  + All names start with a letter.
  + Variable and function names written as **camelCase**.
* Declarations Convention:
  + One declaration per line is recommended since it encourages commenting.

Using Java Code Convention from:

<http://www.oracle.com/technetwork/java/codeconvtoc-136057.html>

<http://www.w3schools.com/js/js_conventions.asp>

<https://github.com/mgechev/angularjs-style-guide>

Programming with Objective-C summary:

* Naming Convention:
  + Class names must be unique across an entire app.
  + Method names should be expressive and unique within a Class.
  + Local Variables must be unique within The same scope.
  + Accessor method names Must follow conventions.
  + Object creation method names must follow conventions.

Using Object Convention from:

<https://developer.apple.com/library/mac/documentation/Cocoa/Conceptual/ProgrammingWithObjectiveC/Conventions/Conventions.html#//apple_ref/doc/uid/TP40011210-CH10-SW1>

# **C. Software Requirement Specification**

## **User Requirement Specification**

### **1.1. Guest Requirement**

Guest is a person who does not have access the system. Guest can use some functions in the system. To use all functions, guest must login. These are some functions guest can use:

* Login
* Register

### **1.2. User Requirement**

User is guest who already login to the system by his/her account and uses service of system. The customer can use some following functions:

* Manage application: Create New Application, Delete Application, Active Application.
* Manage class: Create Class, Update Class, Delete Class.
* Query data

### **1.3. Admin Requirement**

Person who manages account. Administrator can use some following functions:

* Change User status.
* Change Application status.

### **1.4. Authorized User Requirement**

Authorized User is the person who has accessed the system, besides the functions that user can use base on their role, authenticated user also can use the following function:

* Logout.

## **System Requirement Specification**

### **2.1. External Interface Requirement**

#### **2.1.1. User interface**

* The user interface use English language in web application and mobile framework.
* The user interface for website display best on 1024x768-screen size.

#### **2.1.2. Hardware interface**

* Computer:
  + OS: Ubuntu 14 LTS
  + CPU: Intel® CORE i3 Quad core 2.1 GHz
  + RAM: 1GB
* Mobile:

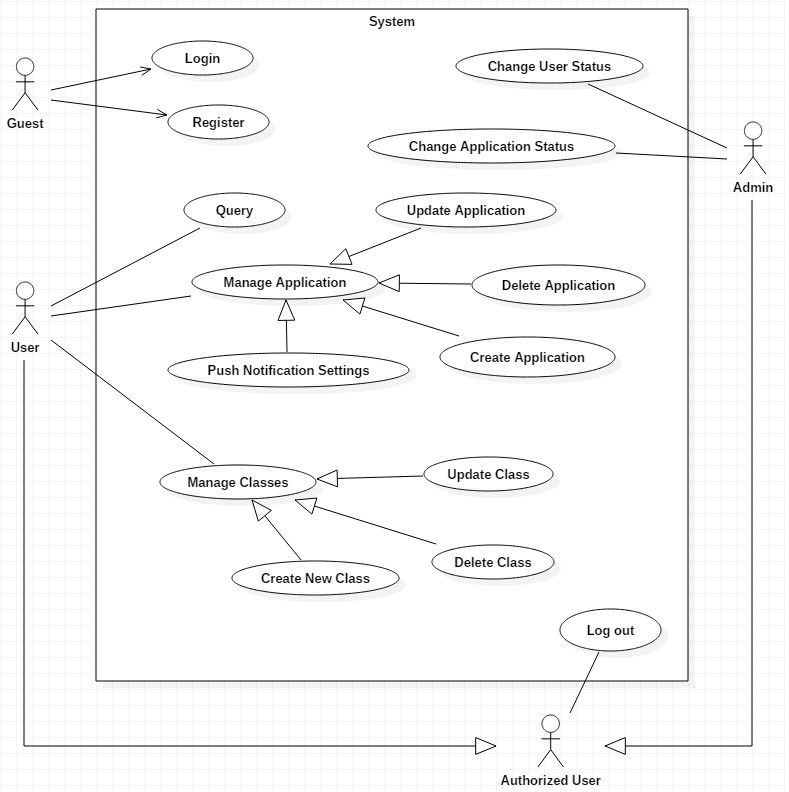
#### **2.1.3. Software Interface**

* Web application: work with Chrome (v47 or above), Internet Explorer (v10 or above), Firefox (v43 or above)
* Mobile framework: Android operation system (v 4.4 or above).

#### **2.1.4. Communication Protocol**

* Use Rest API for communication between the web browser and server.
* Use Rest API for communication between the mobile framework and server.

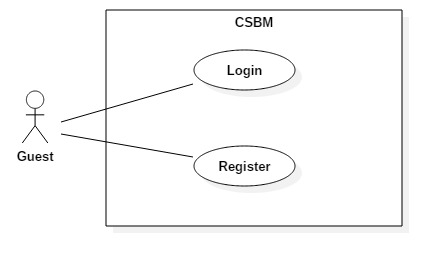
### **System Overview Use Case**



*Figure: System Overview Use Case*

### **2.3. List of Use Case**

#### **2.3.1. <Guest> Overview use case**



*Figure: <Guest> Overview Use Case*

##### **2.3.1.1. <Guest> Register**



*Figure: <Guest> Register*

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – UC001** | | | |
| **Use Case No.** | 001 | **Use Case Version** | 1.0 |
| **Use Case Name** | Register | | |
| **Author** |  | | |
| **Date** | 25/05/2016 | **Priority** |  |
| **Actor:**   * Guest   **Summary:**   * This use case allows guest register an account.   **Goal:**   * Create new account.   **Triggers:**   * Guest sends command to register.   **Preconditions:** N/A.  **Post Conditions:**   * **Success:** Guest will be logged in system with their roles. * **Fail:** Error message will be shown.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Guest sends command to request register | System requires information from Guest:   * Email: free text input, required, regex [^[\_A-Za-z0-9-\\+]+(\\.[\_A-Za-z0-9-]+)\*@"+"[A-Za-z0-9-]+(\\.[A-Za-z0-9]+)\*(\\.[A-Za-z]{2,})$] * Full name: free text input, required, length (10-50) * Username: free text input, required, length (9-20) * Password: free text input, required, length (6-12) * Repeat password: free text input, required, length (6-12) * Phone: free number input, required, length (10-12) positive integer, value: [0,9] | | 2 | Guest inputs information |  | | 3 | Guest sends command to register  [Alternative 1]  [Alternative 2] | System shows login view  Account registered  [Exception 1]  [Exception 2]  [Exception 3]  [Exception 4] |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | Guest sends command to reset | System reset all field to blank | | 2 | Guest send command to back to login view | System shows login view  Account isn’t created |   **Exceptions:**   |  |  |  | | --- | --- | --- | | No | Cause | System Response | | 1 | Guest input already exist username | System show warning message “User name already exist” | | 2 | Guest input already exist email | System shows warning message “Email already exist”. | | 3 | Guest does not input required field. | System notices that guest need to input all these field:   * “Email”: System display warning message: “please fill out this field”. * “Full name”: System display warning message: “please fill out this field”. * “Username”: System display warning message: “please fill out this field”. * “Password”: System display warning message: “please fill out this field”. * “Repeat password”: System display warning message: “please fill out this field”. * “Phone”: System display warning message: “please fill out this field”. | | 4 | Guest input wrong some fields with requirement. | System notices that guest need to re-input all these field:   * “Email”: System display warning message: “Email invalid! ([me@example.com)](mailto:me@example.com))”. * “Email”: System display warning message: “Email must be 10 - 254 characters”. * “Full name”: System display warning message: “Full name must be 10 - 50 characters”. * “Username”: System display warning message: “Username must be 6 - 20 characters”. * “Password”: System display warning message: “Password must be 6 - 12 characters”. * “Repeat password”: System display warning message: “Repeat password does not match password”. * “Phone”: System display warning message: “Phone must be numbers”. |   **Relationships:** N/A  **Business Rules:**   * After registered, information of account will be stored in database of the system with role “User” and status is “active” | | | |

**Table: Register specification**

##### **2.3.1.2. <Guest> Login**

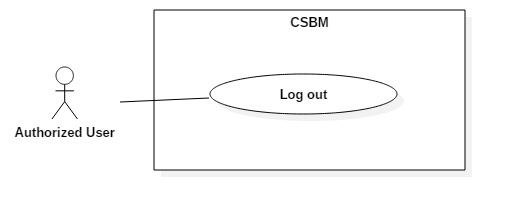


*Figure: <Guest> Login*

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – UC002** | | | |
| **Use Case No.** | 002 | **Use Case Version** | 1.0 |
| **Use Case Name** | Login | | |
| **Author** |  | | |
| **Date** | 25/5/2016 | **Priority** | High |
| **Actor:**   * Guest   **Summary:**   * This use case allows authorized user to log in system.   **Goal:**   * Authentication and authorization.   **Triggers:**   * Guest send the login command.   **Precondition:**   * N/A   **Post Condition:**   * **Success:** Guest will be logged in system with their roles. * **Fail:** Error message will be shown.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Guest goes to login view. | System requires information:   * Username: textbox, required. * Password: textbox, required. | | 2 | Input field. |  | | 3 | Guest sends login command. | Guest will login system with their roles.  [Exception 1] |   **Alternative Scenario:** N/A  **Exceptions:**   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | Guest sends login command. | Wrong username or password. Show error message: “Username or password invalid”. |   **Relationships:** N/A  **Business Rules:**   * After login successfully, guest will be redirected to specific view based on their role on the system: user or admin.   + If role is “User”, the system will display to User view.   + If role is “Admin”, the system will display to Admin view. | | | |

**Table: Login specification**

#### **2.3.2. <Authorized User> Overview use case**



*Figure: <Authorized User> Overview Use Case*

##### **2.3.2.1. <Authorized User> Logout**

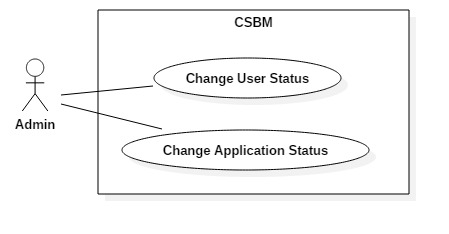


*Figure: <Authorized User> Logout*

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – UC003** | | | |
| **Use Case No.** | 003 | **Use Case Version** | 1.0 |
| **Use Case Name** | Log out | | |
| **Author** |  | | |
| **Date** | 25/5/2016 | **Priority** |  |
| **Actor:**   * Authenticated user.   **Summary:**   * This use case allows Authenticated user logouts the system.   **Goal:**   * User can log out of system.   **Triggers:**   * User sends logout command.   **Precondition:** N/A.  **Post Condition:**   * **Success:** Display login view. * **Fail:** N/A   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User click button “Logout” in menu bar. | System clear session state if have, takes user out of system.  System display login view. |   **Alternative Scenario:** N/A  **Exceptions:** N/A  **Relationships:** N/A  **Business Rules:**   * If user logout while send request to system, all request will be delete. * If user is not available longer than 30 minutes, they will see the login view when they be back. | | | |

**Table: Logout specification**

#### **2.3.3. <Admin> Overview use case**



*Figure: <Admin> Overview Use Case*

##### **2.3.3.1. <Admin> Change Application Status**

*Figure: <Admin> Change Application Status*

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – UC004** | | | |
| **Use Case No.** | 004 | **Use Case Version** | 1.0 |
| **Use Case Name** | Change Application Status | | |
| **Author** |  | | |
| **Date** | 25/05/2016 | **Priority** |  |
| **Actor:**   * Admin.   **Summary:**   * This use case allows admin to update application status.   **Goal:**   * Update existed application.   **Triggers:**   * Admin click on “Change status” on an application in “Manage Application” page.   **Precondition:**   * Application exists in storage. * User must log into the system with role admin.   **Post Condition:**   * **Success:** Application status is updated into storage. * **Fail:** N/A.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Admin click on “Change status” button. | Confirmation dialog will be shown.  [Alternative 1,2] |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Click on “Ok” button. | Maker position will be saved into storage. | | 2 | Click on “Cancel” button. | Confirmation dialog will be canceled and no change is made. |   **Exceptions:** N/A.  **Relationships:** N/A.  **Business Rules:**   * If application’s status is changed to “Deactivate”, the application won’t be able to use and users won’t be able to access the application. * In owner view, users won’t be able to access the application has banner “Deactivate” with red text. * If application’s status is changed to “Activate”, users can access the application. | | | |

**Table: Change Application Status specification**

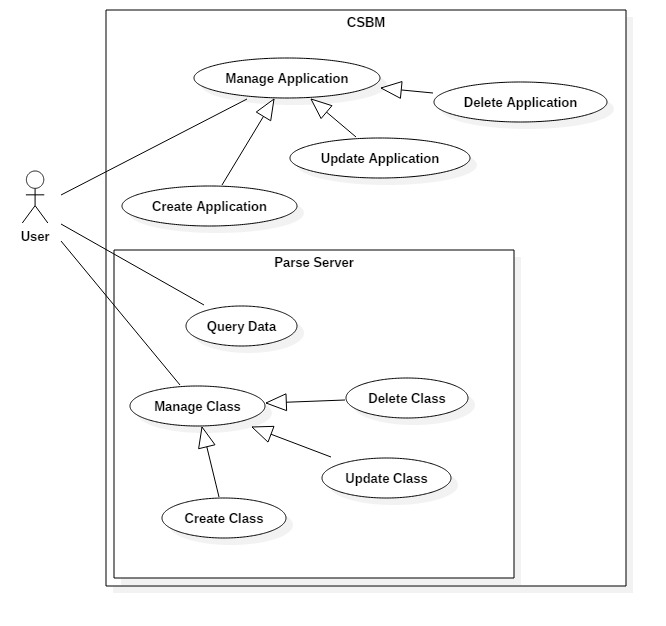
##### **2.3.3.2. <Admin> Change User Account Status**

*Figure: <Admin> Change User Account Status*

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – UC004** | | | |
| **Use Case No.** | 004 | **Use Case Version** | 1.0 |
| **Use Case Name** | Change User Account Status | | |
| **Author** |  | | |
| **Date** | 25/05/2016 | **Priority** |  |
| **Actor:**   * Admin.   **Summary:**   * This use case allows Admin to update user account.   **Goal:**   * Update exists user account.   **Triggers:**   * Admin click on “Change status” on an account in “Manage Application” page.   **Precondition:**   * Account exists in storage. * User must log into the system with role admin.   **Post Condition:**   * **Success:** Account status is updated into storage. * **Fail:** N/A.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Admin click on “Change status” button. | Confirmation dialog will be shown.  [Alternative 1,2] |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Click on “Ok” button. | Maker position will be saved into storage. | | 2 | Click on “Cancel” button. | Confirmation dialog will be canceled and no change is made. |   **Exceptions:** N/A.  **Relationships:** N/A.  **Business Rules:**   * If account’s status is changed to “Deactivate”, the account won’t be able to access the system. * Administrator can’t Deactivate himself. * If account’s status is changed to “Activate”, Guest can use this account to access the system. | | | |

**Table: Change User Status specification**

#### **2.3.4 <User> Overview use case**



*Figure: <User> Overview Use Case*

##### **2.3.4.1. <User> Create New Application**



*Figure: <User> Create New Application*

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – UC008** | | | |
| **Use Case No.** | 008 | **Use Case Version** |  |
| **Use Case Name** | Create New Application | | |
| **Author** |  | | |
| **Date** | 25/05/2016 | **Priority** |  |
| **Actor:**   * User.   **Summary:**   * This use case allows user to create new application.   **Goal:**   * New application will be stored in storage.   **Triggers:**   * User click “Create new application” button on “Manage Application” page.   **Precondition:**   * Actor login to system with role “User”.   **Post Condition:**   * **Success:** All new application’s data were saved successfully. * **Fail:** Error message will be shown.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User click “Add New Application” button. | System show dialog which contains information of:   * Application Name: textbox, min length 2, max length 10, required. * “Create”: button. | | 2 | Input field. |  | | 3 | Click on “Create” button. | Confirmation dialog will be shown  [Exception 1]  [Alternative 1, 2] |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | No | Actor action | System Response | | 1 | Click on “Ok” button | New application will be added in storage. | | 2 | Click on “Cancel” button | Confirm dialog will be canceled. A new application isn’t created. |   **Exceptions:**   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | Click on “Create” button | “Application Name” is empty or longer than 10 words. Show error message: “Application Name is limited from 2 to 10 characters”. |   **Relationships:** N/A.  **Business Rules:**   * New Application will be created with active status. * System must ensure has not duplicated application name. * System will notifies owner if the application is added fail. * When user add application from create new application form, system will automatic generate userId by Id’s user create application, random ObjectId, masterKey, generate created\_at and updated\_at by current time and save it to system, for example:  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | ObjectId | masterKey | created\_at | update\_at | name | userId | | 5759360ae77ed0391e143d45 | 38ccZfmdEJXE5axrKh1TTX7Qp3uAfLVjYZYi6mVQFNPi92hn | ISODate("2016-06-09T09:25:30.000Z") | ISODate("2016-06-09T09:25:30.000Z") | test | 5756aaaa6f9268590fa0867b | | | | |

**Table: Create New Application specification**

##### **2.3.4.2. <User> Delete Application**

*Figure: <User> Delete Application*

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – UC009** | | | |
| **Use Case No.** | 009 | **Use Case Version** |  |
| **Use Case Name** | Delete Application | | |
| **Author** |  | | |
| **Date** | 25/05/2016 | **Priority** |  |
| **Actor:**   * User   **Summary:**   * This use case allows user to delete application.   **Goal:**   * Application will be removed from the storage.   **Triggers:**   * User click “Delete Application” button in “Manage Application” page.   **Precondition:**   * Actor login to system with role “User”. * Application exists in the system.   **Post Condition:**   * **Success:** Application will be deleted from storage. * **Fail:** Application is not deleted. Error message will be shown.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | Application owner click on “Delete Application” button in “Manage Application” page. | System show dialog following information:   * “Application Name”: Dropdown list contain all application name, required. * “Delete”: button. | | 2 | Choose application name. |  | | 3 | Click on “Delete” button. | Confirmation dialog will be shown  [Exception 1]  [Alternative 1, 2] |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | No | Actor action | System Response | | 1 | Click on “Ok” button | Dialog is turn-off, Application is deleted. | | 2 | Click on “Cancel” button | Dialog is turn-off, Application is not deleted. |   **Exceptions:**   |  |  |  | | --- | --- | --- | | No | Actor action | System Response | | 1 | Click on “Ok” button | Application is not deleted. Show error message: “Delete application fail. Try again”. |   **Relationships:** N/A.  **Business Rules:**   * Application is still active. | | | |

**Table: Delete application specification**

##### **2.3.4.3. <User> Update Application**

*Figure: <User> Update Application*

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – UC008** | | | |
| **Use Case No.** | 010 | **Use Case Version** |  |
| **Use Case Name** | Update Application | | |
| **Author** |  | | |
| **Date** | 25/05/2016 | **Priority** |  |
| **Actor:**   * User.   **Summary:**   * This use case allows user to update existed application.   **Goal:**   * Update existed application.   **Triggers:**   * User click “Update Application” button in “Manage Application” page.   **Precondition:**   * Actor logged in system with role “User”. * Application exists in the system.   **Post Condition:**   * **Success:** Application will be updated with new information. * **Fail:** Application will not be updated. Error message will be shown.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User click “Update Application” button on “Manage Application” page. | System show dialog following information:   * “Application Name”: textbox, min length: 1, max length: 100, required. * “Update”: button. * “Close”: button. | | 2 | User fills in information application.  [Alternative 1] |  | | 3 | Click on “Update” button. | Confirmation dialog will be shown.  [Exception 1]  [Alternative 2, 3] |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | No | Actor action | System Response | | 1 | Click on “Close” button. | System close dialog and cancel update process. | | 2 | Click on “Update” button. | Application will be updated. | | 3 | Click on “Cancel” button. | Confirmation dialog will be canceled and no change is made. |   **Exceptions:**   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | Click on “Update” button. | “Application Name” is empty or longer than 100 words. Show error message: “Application Name is limited from 1 to 100 characters”. |   **Relationships:** N/A.  **Business Rules:**   * New information of application will be stored in storage. * System must ensure has not duplicated application name. | | | |

**Table: Update Application specification**

##### **2.3.4.4. <User> Update Class Field**

*Figure: <User> Update Class Field*

|  |  |  |  |
| --- | --- | --- | --- |
| **USE CASE – UC008** | | | |
| **Use Case No.** | 011 | **Use Case Version** |  |
| **Use Case Name** | Update Class Field | | |
| **Author** |  | | |
| **Date** | 25/05/2016 | **Priority** |  |
| **Actor:**   * User.   **Summary:**   * This use case allows user to update existed class.   **Goal:**   * Update existed class.   **Triggers:**   * User click “Change Field” button in “Manage Application” page.   **Precondition:**   * Actor logged in system with role “User”. * Class Field exists in the system.   **Post Condition:**   * **Success:** Class field will be updated with new information. * **Fail:** Class field will not be updated. Error message will be shown.   **Main Success Scenario:**   |  |  |  | | --- | --- | --- | | Step | Actor Action | System Response | | 1 | User click “Change Field” button on “Manage Application” page. | System show dialog following information:   * “Field Name”: Dropdown list contain all class field name, required. * “New Field Name”: textbox, min length: 1, max length: 100, required. * “Update”: button. * “Close”: button. | | 2 | User fills in information application.  [Alternative 1] |  | | 3 | Click on “Update” button. | Confirmation dialog will be shown.  [Exception 1]  [Alternative 2, 3] |   **Alternative Scenario:**   |  |  |  | | --- | --- | --- | | No | Actor action | System Response | | 1 | Click on “Close” button. | System close dialog and cancel update process. | | 2 | Click on “Update” button. | Application will be updated. | | 3 | Click on “Cancel” button. | Confirmation dialog will be canceled and no change is made. |   **Exceptions:**   |  |  |  | | --- | --- | --- | | No | Actor Action | System Response | | 1 | Click on “Update” button. | “New Field Name” is empty or longer than 100 words. Show error message: “Field Name is limited from 1 to 100 characters”. |   **Relationships:** N/A.  **Business Rules:**   * New information of field will be stored in storage. * System must ensure has not duplicated field name in available class. | | | |

**Table: Update Application specification**

## **Software System Attribute**

### **3.1. Usability**

#### **3.1.1. Graphic user interface**

All the test, labels and alerts of web application and mobile framework will be written by English.

#### **3.1.2. Usability**

The system usability is easy to use that will need less than 1 hour for training to use system.

#### **3.1.3. Installation**

User can follow installation and manual guide for installation. If there are any problems, user cans contacts developer for help.

### **3.2. Reliability**

* The data should be backed up everyday.

### **3.3. Availability**

* The service relates to communication so it can be available 24/7.
* Server should have back-up method to make sure that if it having problems, all necessary data can be protected and restore easily.

### **3.4. Security**

* Input data is validated if necessary before saving to database.
* Users is authenticated/authorized for all users when they logged in to the system.

### **3.5. Maintainability**

* System is separated into modules.

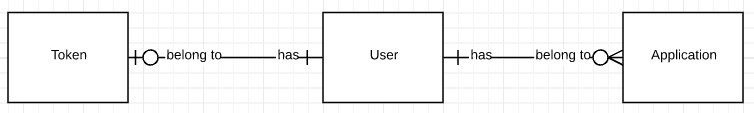
### **3.6. Portability**

* User, guest can use application on every OS supported web browsers.
* User can use mobile framework for develop any Android or iOS application.

### **3.7. Performance**

* Requests from web application are responded in less than 10 seconds at 8 Mbps bandwidth speed.

## **Conceptual Diagram**



**Figure: Conceptual Diagram**

|  |  |
| --- | --- |
| **Entity Data dictionary: describe all content of all entities** | |
| **Entity Name** | **Description** |
| User | Contain the user information |
| Token | Contain the token information |
| Application | Contain the application information |

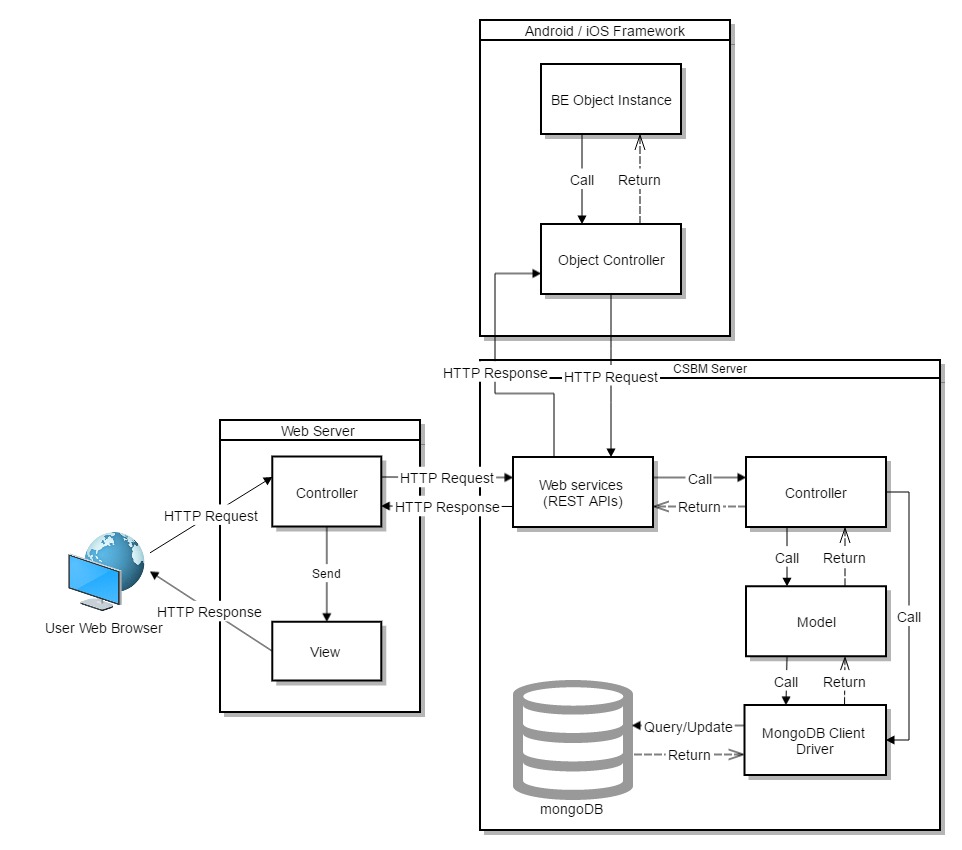
**Table: Conceptual diagram data dictionary**

# **D. Software Design Description**

## **Design Overview**

* This document describes the technical and user interface design of **CSBM System**. It includes the architectural design, the detailed design of common functions and business functions and the design of database model.
* The architectural design describes the overall architecture of the system and the architecture of each main component and subsystem.
* The detailed design describes static and dynamic structure for each component and functions. It includes class diagrams, class explanations and sequence diagrams for each use cases.
* The database design describes the relationships between entities and details of each entity.
* Document overview:
  + - Section 2: gives an overall description of the system architecture design.
    - Section 3: gives component diagrams that describe the connection and integration of the system.
    - Section 4: gives the detail design description, which includes class diagram, class explanation, and sequence diagram to details the application functions.
    - Section 5: describe screens design.
    - Section 6: describe a fully attributed ERD.
    - Section 7: describe algorithms.

## **System Architectural Design**



**Figure: System architecture design**

### **2.1 Web application architecture description**

In Web Application, the system is developed under AngularJS MVC architecture style. We choose this architecture for Web application because of following advantages:

* Web app contains a Web service with MVC architecture, we can separate business code with Controller and View, so we can use the business code in web service without repeat the code.
* We can organize the code better for maintainability, extensibility, reusability.

* In scope of 4-member team, MVC architecture make it easier to split the big project into small modules and make it easier to assign each module for members in our team.

The project follows MVC architecture with following components:

* **Controller** is the parts of the controller that acts like event handler to handles user interaction.
* **View** is the parts of the web server that acts like event handles the display of the data. The selection of View is under control of Controller.

### **2.2 CSBM server architecture description**

This project follows component:

* **Web services** is the parts of the application that acts like event handler for web and mobile communication via REST method.
* **Controller** is the parts of the application that read data from a request and calls appropriate MongoDB Client Driver’s method then return to web services.
* **Model** is the parts of the application that acts like data transfer object between the system and database.
* **Web services** is the parts of the application that acts like event handler for web and mobile communication via REST method.
* **MongoDB Client Driver** is the parts of the application that provides some methods and classes to persistent store data into database.

### **2.3 Mobile framework architecture description**

In mobile framework, the system is developed under Decoupled Architecture. We chooes this architecture for Mobile framework because of following advantages:

* Each API object instances, controllers is encapsulated to ensure separation of concerns and different implementation allow us to add new features without modifying too much code.

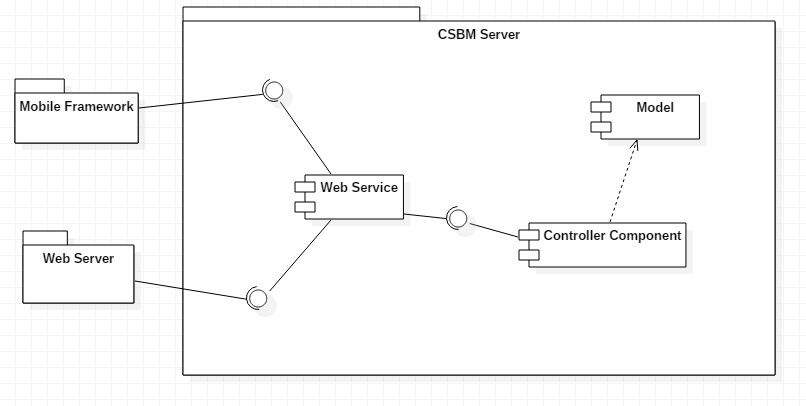


**Figure:** Decouple architecture model

The project follows Decoupled architecture with following components:

* **Oject Instance** is the part that allows us to maintain an easy-to-use and unchanging API. For *BEObject*, this is the API surface layer that contains getting and setting *BEObject* properties, as well as saving, fetching, and deleting. As long as we keep this intact, we can refactor and add new features on the underlying levels without any breaking changes.
* **State** refers to the combination of the internal state of the object. For *BEObject*, it is the current representation of itself on the server, the collection of mutations that have performed locally, and a cache of its current representation locally. These state instances also define the interface in which the object instance and controller interact. The object instance passes its current state to the controller, the controller returns a new state back, and the object instance then updates.
* **Controller** defines all the actions that can be performed on each BE type:
  + *BEObject* can be saved, fetched, and deleted.
  + *BEQuery* can be found and counted.
  + *BEFile* can be saved and fetched.

## **Component Diagram**

****

**Figure: Component Diagram**

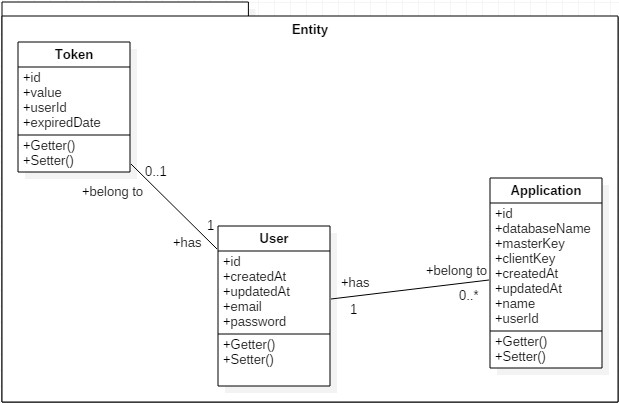
|  |  |
| --- | --- |
| Component Dictionary: Describes components | |
| **Mobile Framework** | Mobile Framework package |
| **Web Server** | Web Server package: View, Controller |
| **Web Service** | Include all web API Controllers of the system |
| **Controller Component** | Component is used to handle request |
| **Model** |  |

**Table: Component Dictionary**

## **Detail Description**

### **4.1 Class Diagram**

#### **4.1.1 Web Application Class Diagram**

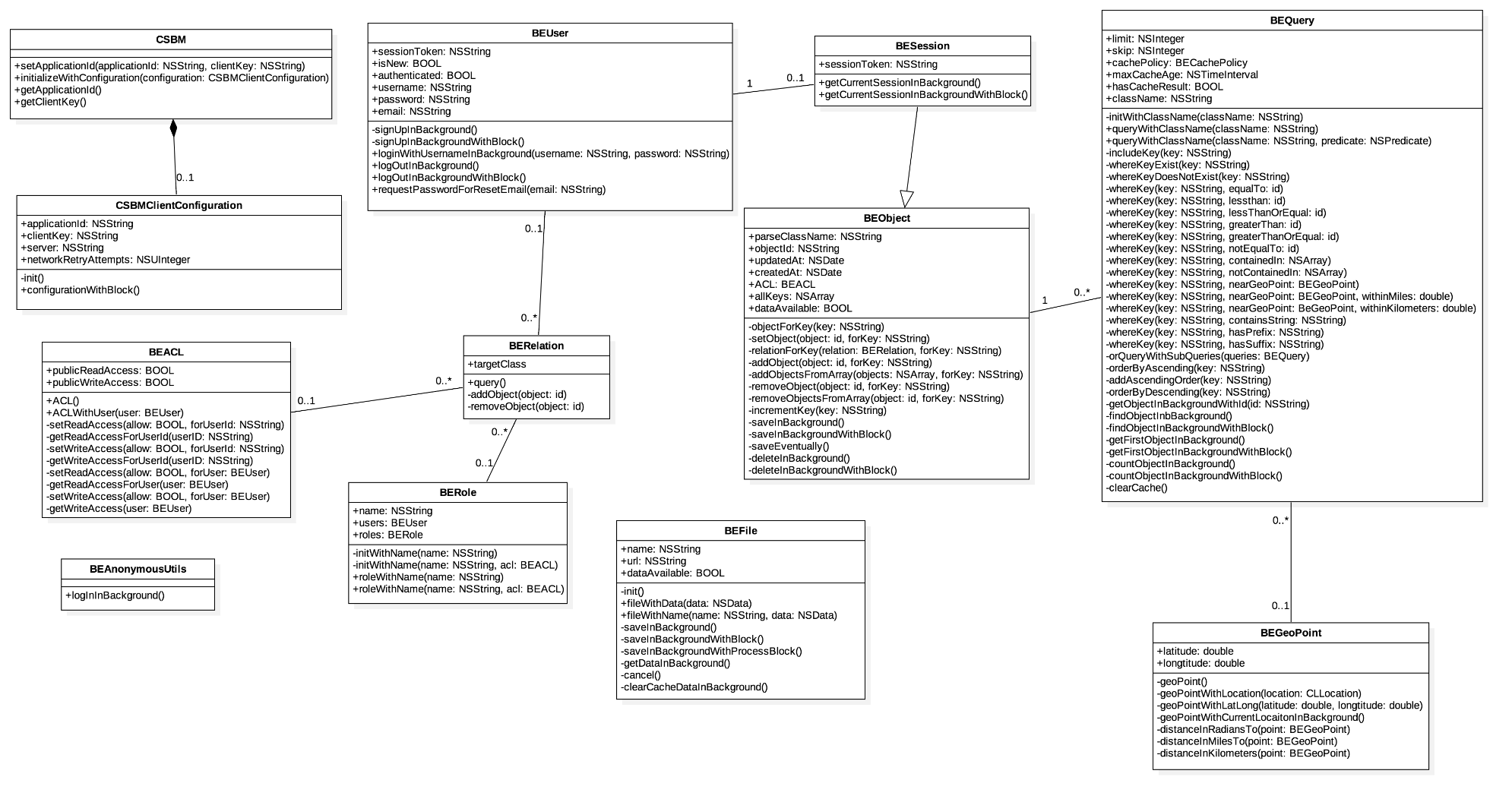
****

**Figure: Class Diagram**

|  |  |  |
| --- | --- | --- |
| Class dictionary: describe Class | | |
| Class Name | **Mapping column with Conceptual diagram** | **Description** |
| **User** | User | Contain the user information |
| **Token** | Token | Contain the token information |
| **Application** | Application | Contain the application information |

**Table: Class Dictionary**

#### **4.1.2 Mobile Framework Class Diagram**



**Figure: Mobile Framework Class Diagram**

### **4.2 Class Diagram Explanation**

#### **4.2.1 User**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| **id** | String | Private | Unique identifier of a user |
| **createdAt** | Date | Private | Date of create user |
| **updatedAt** | Date | Private | Date of update user |
| **email** | String | Private | User’s email |
| **password** | String | Private | User’s password |

**Table: Account Attributes**

#### **4.2.2 Token**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| **id** | String | Private | Unique identifier of a token |
| **value** | String | Private | Token’s value |
| **userId** | String | Private | User’s Id |
| **expiredDate** | Date | Private | Token’s expiredDate of license |

**Table: Token Attributes**

#### **4.2.3 Application**

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Type** | **Visibility** | **Description** |
| **id** | String | Private | Unique identifier of an application |
| **databaseName** | String | Private | Unique identifier of an application database |
| **masterKey** | String | Private | Application’s MasterKey |
| **clientKey** | String | Private | Application’s ClientKey |
| **createdAt** | Date | Private | Date of create application |
| **updatedAt** | Date | Private | Date of update application |
| **name** | String | Private | Application’s Name |
| **userId** | String | Private | User’s Id |

**Table: Application Attributes**

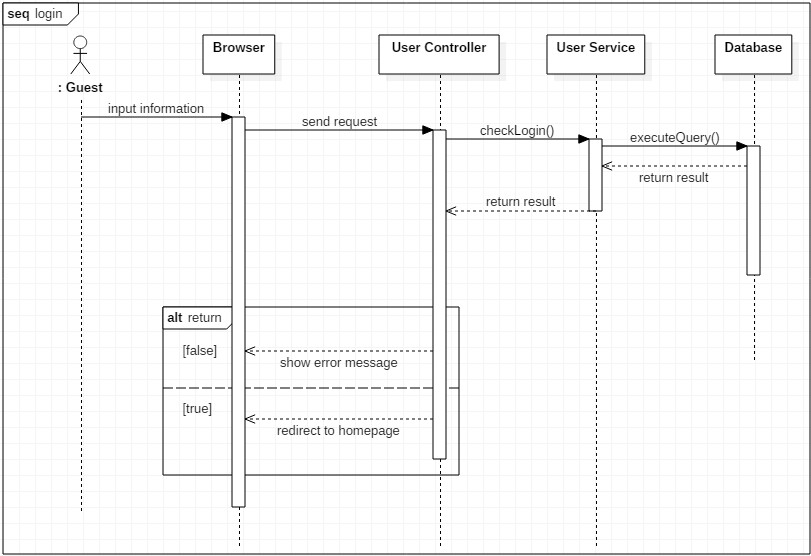
### **4.3 Interaction Diagram**

#### **4.3.1 Web Application**

##### **4.3.1.1 <Guest>**

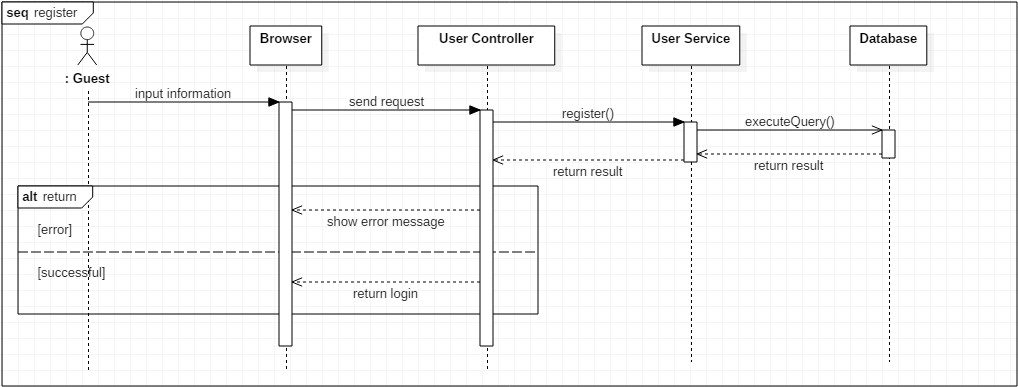
##### **4.3.1.1.1 Login**

Summary: This diagram show how a guest login system.

**Figure: Sequence Diagram - <Guest> Login**

##### **4.3.1.1.2 Register**

Summary: This diagram show process of register

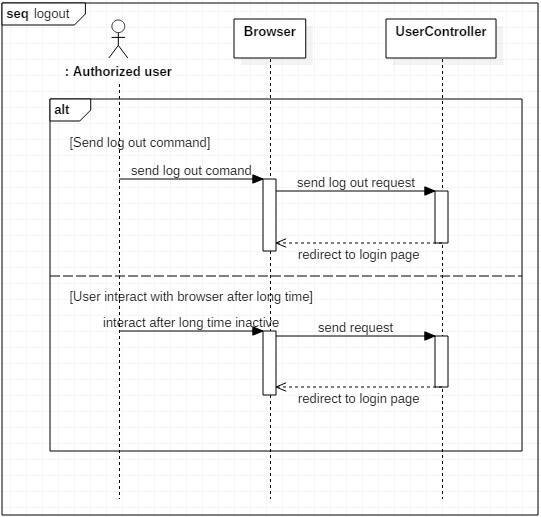


**Figure: Sequence Diagram - <Guest> Register**

##### **4.3.1.2 <Authorized User>**

##### **4.3.1.2.1 Logout**

Summary: This diagram show process of Logout

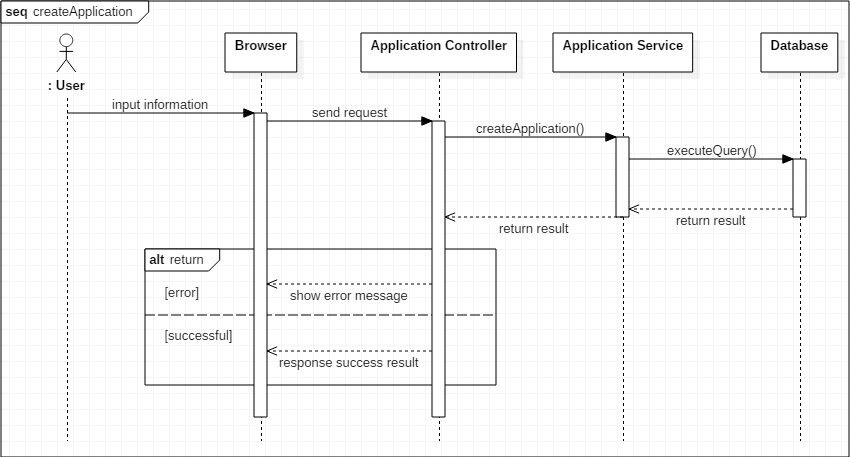
****

**Figure: Sequence Diagram - <Authorized User> Logout**

##### **4.3.1.3 <User>**

##### **4.3.1.3.1 Create New Application**

Summary: This diagram show process of Create New Application



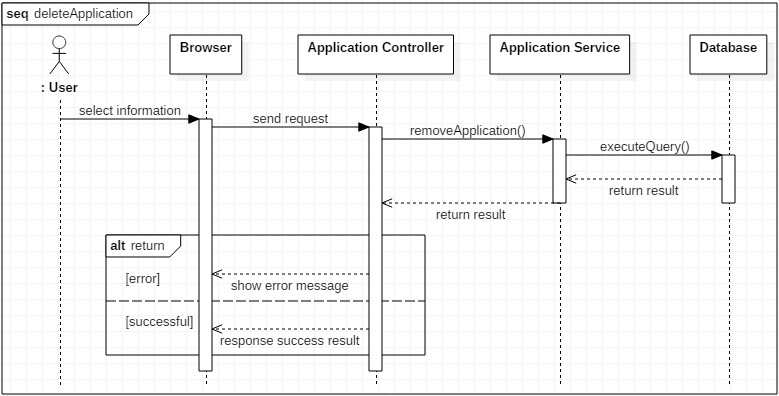
**Figure: Sequence Diagram - <User> Create New Application**

##### **4.3.1.3.2 Update Application**

Summary: This diagram show process of Update Application

##### **4.3.1.3.3 Delete Application**

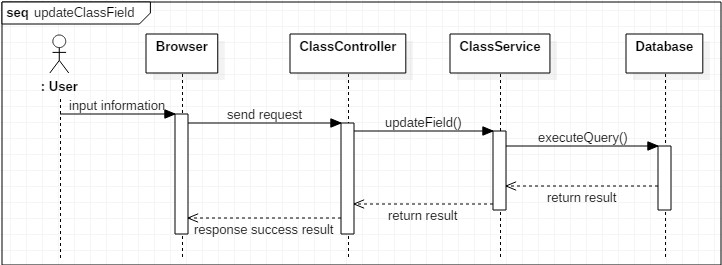
Summary: This diagram show process of Delete Application

****

**Figure: Sequence Diagram - <User> Delete Application**

##### **4.3.1.3.4 Update Class Field**

Summary: This diagram show process of Update Class Field

****

**Figure: Sequence Diagram - <User> Update Class Field**

## **Interface**

### **5.1 Component Interface**

### **5.2 Mobile Framework APIs**

#### **iOS Framework APIs**

##### **5.2.1.1 CSBM**

|  |
| --- |
| **@interface** **CSBM** : **NSObject** |

The CSBM class contains static functions that handle global configuration for the CSBM framework.

###### **5.2.1.1.1 Connecting to CSBM**

* setApplicationId:clientKey

Sets the applicationId and clientKey of your application.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (void)setApplicationId:(nonnull NSString \*)applicationId  clientKey:(nonnull NSString \*)clientKey; |

**Parameters**

|  |  |
| --- | --- |
| *applicationID* | The application id of your CSBM application |
| *clientKey* | The client key of your CSBM application |

* initializeWithConfiguration

Sets the configuration to be used for the CSBM framework. Re-setting the configuration after having previously sent requests through the framework results in undefined behavior.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (void)**initializeWithConfiguration**:  (nonnull CSBMClientConfiguration \*)**configuration**; |

**Parameters**

|  |  |
| --- | --- |
| *applicationID* | The application id of your CSBM application |

* currentConfiguration

Gets the current configuration in use by the CSBM framework.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (nonnull CSBMClientConfiguration \*)  **currentConfiguration**; |

**Return Value**

|  |
| --- |
| The current configuration in use by the framework. Returns nil if the FRAMEWORK has not been initialized yet. |

* getApplicationId

The current application id that was used to configure CSBM framework.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (nonnull NSString \*)**getApplicationId**; |

* [getClientKey](https://parse.com/docs/ios/api/Classes/Parse.html" \l "/c:objc(cs)Parse(cm)getClientKey)

The current client key that was used to configure CSBM framework.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (nonnull NSString \*)**getClientKey**; |

###### **5.2.1.1.2 Enabling Local Datastore**

* enableLocalDatastore

Enable pinning in your application. This must be called before your application can use pinning. The recommended way is to call this method before +setApplicationId:clientKey:.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (void)enableLocalDatastore; |

* isLocalDatastoreEnabled

Flag that indicates whether Local Datastore is enabled.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (BOOL)isLocalDatastoreEnabled; |

**Return Value**

|  |
| --- |
| YES if Local Datastore is enabled, otherwise NO. |

###### **5.2.1.1.3 Enabling Extensions Data Sharing**

* enableDataSharingWithApplicationGroupIdentifier:

Enables data sharing with an application group identifier.

After enabling - Local Datastore, *BEUser.+currentUser*, *BEInstallation.+currentInstallation* and all eventually commands are going to be available to every application/extension in a group that have the same CSBM applicationId.

**Warning**

|  |
| --- |
| This method is required to be called before +setApplicationId:clientKey:. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (void)enableDataSharingWithApplicationGroupIdentifier:  (nonnull NSString \*)groupIdentifier; |

**Parameters**

|  |  |
| --- | --- |
| *groupIdentifier* | Application Group Identifier to share data with. |

* enableDataSharingWithApplicationGroupIdentifier:containingApplication:

Enables data sharing with an application group identifier.

Adter enabling – Local Datastore, BEUser.+currentUser, *BEInstallation.+currentInstallation* and all eventually commands are going to be available to every application/extension in a group that have the same CSBM applicationId.

**Warning**

|  |
| --- |
| This method is required to be called before +setApplicationId:clientKey:. This method can only be used by application extensions. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (void)enableDataSharingWithApplicationGroupIdentifier:  (nonnull NSString \*)groupIdentifier  containingApplication:  (nonnull NSString \*)bundleIdentifier; |

**Parameters**

|  |  |
| --- | --- |
| *groupIdentifier* | Application Group Identifier to share data with. |
| bundleIdentifier | Bundle identifier of the containing application. |

* applicationGroupIdentifierForDataSharing

Application Group Identifier for Data Sharing.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (nonnull NSString \*)  applicationGroupIdentifierForDataSharing; |

**Return Value**

NSString value if data sharing is enabled, otherwise nil.

* containingApplicationBundleIdentifierForDataSharing

Containing application bundle identifier for Data Sharing.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (nonnull NSString \*) containingApplicationBundleIdentifierForDataSharing; |

**Return Value**

NSString value if data sharing is enabled, otherwise nil.

##### **5.2.1.2 CSBMClientConfiguration**

|  |
| --- |
| **@interface** **CSBMClientConfiguration** : **NSObject** <NSCopying> |

The CSBMClientConfiguration represents the local configuration of the framework to connect to the server with.

These configurations can be stored, copied, and compared, but cannot be safely changed once the framework is initialized.

Use this object to construct a configuration for the SDK in your application, and pass it to CSBM.+initializeWithConfiguration:.

###### **5.2.1.2.1 Connecting to CSBM**

* applicationId

The CSBM application id to configure the framework with.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, copy, nonatomic, nullable)  NSString **\*applicationId**; |

* clientKey

The CSBM client key to configure the framework with.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, copy, nonatomic, nullable)  NSString **\*clientKey**; |

* server

The URL of the server that is being used by the framework.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, copy, nonatomic)  NSString **\*\_Nonnull server**; |

###### **5.2.1.2.2 Enabling Local Datastore**

* localDatastoreEnabled

Whether or not to enable pinning in the framework.

The default value is NO.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, getter**=**isLocalDatastoreEnabled, assign, nonatomic)  BOOL **localDatastoreEnabled**; |

###### **5.2.1.2.3 Enabling Extensions Data Sharing**

* [applicationGroupIdentifier](https://parse.com/docs/ios/api/Classes/ParseClientConfiguration.html" \l "/c:objc(cs)ParseClientConfiguration(py)applicationGroupIdentifier)

When set, enables data sharing with an application group identifier.

After enabling - Local Datastore, PFUser.+currentUser, BEInstallation.+currentInstallation and all eventually commands are going to be available to every application/extension in a group that have the same Parse applicationId.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, copy, nonatomic, nullable)  NSString **\*applicationGroupIdentifier;** |

* containingApplicationBundleIdentifier

When set, controls the bundle identifier of the parent bundle to connect to.

**WARNING**

|  |
| --- |
| This property should only be set from inside an extension environment. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, copy, nonatomic, nullable)  NSString **\*containingApplicationBundleIdentifier;** |

###### **5.2.1.2.4 Other Properties**

* networkRetryAttempts

The maximum number of retry attempts to make upon a failed network request.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, assign, nonatomic)NSUInteger  **networkRetryAttempts;** |

###### **5.2.1.2.5 Creating a Configuration**

* configurationWithBlock:

Create a new FRAMEWORK configuration object. This will create a temporarily modifiable configuration, and pass it to a block to be initialized.

**Example usage:**

|  |
| --- |
| [CSBMClientConfiguration configurationWithBlock:^(id<CSBMMutableClientConfiguration> configuration) {  configuration.applicationId = ...;  configuration.clientKey = ...;  configuration.localDatastoreEnabled = ...;  }]; |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+ (nonnull instancetype)configurationWithBlock:**  **(nonnull void (^)(id<CSBMMutableClientConfiguration> \_Nonnull))**  **configurationBlock;** |

**Parameters**

|  |  |
| --- | --- |
| configurationBlock | A block used to modify the created configuration. |

**Return Value**

A newly created configuration.

##### **5.2.1.3 BEUser**

|  |
| --- |
| **@interface BEUser : BEObject** <BESubclassing> |

The BEUser class is a local representation of a user persisted to the CSBM Data. This class is a subclass of a [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html), and retains the same functionality of a [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html), but also extends it with various user specific methods, like authentication, signing up, and validation uniqueness.

Many APIs responsible for linking a BEUser with Facebook or Twitter have been deprecated in favor of dedicated utilities for each social network.

###### **5.2.1.3.1 Accessing the Current User**

* currentUser

Gets the currently logged in user from disk and returns an instance of it.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  +(nullable instancetype)**currentUser;** |

**Return Value**

Returns a BEUser that is the currently logged in user. If there is none, returns nil.

* [sessionToken](https://parse.com/docs/ios/api/Classes/PFUser.html" \l "/c:objc(cs)PFUser(py)sessionToken)

The session token for the BEUser.

This is set by the server upon successful authentication.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, copy, nonatomic, nullable) NSString  **\*sessionToken;** |

* [isNew](https://parse.com/docs/ios/api/Classes/PFUser.html" \l "/c:objc(cs)PFUser(py)isNew)

Whether the [BEUser](https://parse.com/docs/ios/api/Classes/PFUser.html) was just created from a request.

This is only set after a Facebook login.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, assign, nonatomic)BOOL **isNew;** |

* [authenticated](https://parse.com/docs/ios/api/Classes/PFUser.html" \l "/c:objc(cs)PFUser(py)authenticated)

Whether the user is an authenticated object for the device.

An authenticated BEUser is one that is obtained via a -signUp: or +logInWithUsername:password: method.

An authenticated object is required in order to save (with altered values) or delete it.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, getter=isAuthenticated, assign,  nonatomic)BOOL **authenticated;** |

###### **5.2.1.3.2 Creating a New User**

* [user](https://parse.com/docs/ios/api/Classes/PFUser.html" \l "/c:objc(cs)PFUser(cm)user)

Creates a new BEUser object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  +(nonnull instancetype)**user;** |

**Return Value**

Returns a new BEUser object.

* [username](https://parse.com/docs/ios/api/Classes/PFUser.html" \l "/c:objc(cs)PFUser(py)username)

The username for the BEUser.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readwrite, strong, nonatomic, nullable)  NSString **\*username;** |

* [password](https://parse.com/docs/ios/api/Classes/PFUser.html" \l "/c:objc(cs)PFUser(py)password)

! The password for the BEUser.

This will not be filled in from the server with the password. It is only meant to be set.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readwrite, strong, nonatomic, nullable)  NSString **\*password;** |

* email

The email for the BEUser.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readwrite, strong, nonatomic, nullable)  NSString **\*email;** |

* signUpInBackground

Signs up the user *asynchronously*.

This will also enforce that the username isn’t already taken.

**Warning**

|  |
| --- |
| Make sure that password and username are set before calling this method. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**signUpInBackground;** |

**Return Value**

The task, that encapsulates the work being done.

* signUpInBackgroundWithBlock:

Signs up the user *asynchronously*.

This will also enforce that the username isn’t already taken.

**Warning**

|  |
| --- |
| Make sure that password and username are set before calling this method. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**signUpInBackgroundWithBlock**:(nullable  BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

###### **5.2.1.3.3 Logging In**

* logInWithUsernameInBackground:password:

Makes an *asynchronous* request to login a user with specified credentials.

Returns an instance of the successfully logged in [BEUser](https://parse.com/docs/ios/api/Classes/PFUser.html). This also caches the user locally so that calls to +currentUser will use the latest logged in user.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**logInWithUsernameInBackground:**(nonnull NSString \*)**username**  **password:**(nonnull NSString \*)**password;** |

**Parameters**

|  |  |
| --- | --- |
| username | The username of the user. |
| password | The password of the user. |

**Return Value**

The task, that encapsulates the work being done.

* logInWithUsernameInBackground:password:block:

Makes an *asynchronous* request to log in a user with specified credentials.

Returns an instance of the successfully logged in [BEUser](https://parse.com/docs/ios/api/Classes/PFUser.html). This also caches the user locally so that calls to [+currentUser](https://parse.com/docs/ios/api/Classes/PFUser.html#/c:objc(cs)PFUser(cm)currentUser) will use the latest logged in user.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)**logInWithUsernameInBackground:**(nonnull NSString \*)**username**  **password:**(nonnull NSString \*)**password**  **block:**(nullable BEUserResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| username | The username of the user. |
| password | The password of the user. |
| block | The block to execute. It should have the following argument signature: ^(BEUser \*user, NSError \*error). |

###### **5.2.1.3.4 Becoming a User**

* becomeInBackground:

Makes an *asynchronous* request to become a user with the given session token.

Returns an instance of the successfully logged in [BEUser](https://parse.com/docs/ios/api/Classes/PFUser.html). This also caches the user locally so that calls to [+currentUser](https://parse.com/docs/ios/api/Classes/PFUser.html#/c:objc(cs)PFUser(cm)currentUser) will use the latest logged in user.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**becomeInBackground:**(nonnull NSString \*)**sessionToken;** |

**Parameters**

|  |  |
| --- | --- |
| sessionToken | The session token for the user. |

**Return Value**

The task, that encapsulates the work being done.

* becomeInBackground:block:

Makes an *asynchronous* request to become a user with the given session token.

Returns an instance of the successfully logged in [BEUser](https://parse.com/docs/ios/api/Classes/PFUser.html). This also caches the user locally so that calls to [+currentUser](https://parse.com/docs/ios/api/Classes/PFUser.html#/c:objc(cs)PFUser(cm)currentUser) will use the latest logged in user.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)**becomeInBackground:**(nonnull NSString \*)**sessionToken**  **block:**(nullable BEUserResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| sessionToken | The session token for the user. |
| block | The block to execute. The block should have the following argument signature:^(BEUser \*user, NSError \*error). |

###### **5.2.1.3.5 Revocable Session**

* enableRevocableSessionInBackground

Enables revocable sessions and migrates the currentUser session token to use revocable session if needed.

This method is required if you want to use BESession APIs and your application’s ‘Require Revocable Session’ setting is turned off on http://csbm.com app settings. After returned BFTask completes - BESession class and APIs will be available for use.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**enableRevocableSessionInBackground;** |

**Return Value**

An instance of BFTask that is completed when revocable sessions are enabled and currentUser token is migrated.

* enableRevocableSessionInBackgroundWithBlock:

Enables revocable sessions and upgrades the currentUser session token to use revocable session if needed.

This method is required if you want to use BESession APIs and legacy sessions are enabled in your application settings on http://parse.com/. After returned BFTask completes - BESession class and APIs will be available for use.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)**enableRevocableSessionInBackgroundWithBlock:**  (nullable BEUserSessionUpgradeResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | Block that will be called when revocable sessions are enabled and currentUser token is migrated. |

###### **5.1.2.3.6 Logging Out**

* logOutInBackground

*Asynchronously* logs out the currently logged in user.

This will also remove the session from disk, log out of linked services and all future calls to +currentUser will return nil. This is preferrable to using -logOut, unless your code is already running from a background thread.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**logOutInBackground;** |

**Return Value**

An instance of BFTask, that is resolved with nil result when logging out completes.

* logOutInBackgroundWithBlock:

*Asynchronously* logs out the currently logged in user.

This will also remove the session from disk, log out of linked services and all future calls to [+currentUser](https://parse.com/docs/ios/api/Classes/PFUser.html#/c:objc(cs)PFUser(cm)currentUser) will return nil. This is preferrable to using –logOut, unless your code is already running from a background thread.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)**logOutInBackgroundWithBlock:**(nullable  BEUserLogoutResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | A block that will be called when logging out completes or fails. |

###### **5.1.2.3.7 Requesting a Password Reset**

* requestPasswordResetForEmailInBackground:

Send a password reset request *asynchronously* for a specified email and sets an error object. If a user account exists with that email, an email will be sent to that address with instructions on how to reset their password. - parameter: email Email of the account to send a reset password request. - returns: The task, that encapsulates the work being done.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**requestPasswordResetForEmailInBackground:**(nonnull  NSString \*)**email;** |

**Parameters**

|  |  |
| --- | --- |
| email | Email of the account to send a reset password request. |

**Return Value**

The task, that encapsulates the work being done.

* requestPasswordResetForEmailInBackground:block:

Send a password reset request *asynchronously* for a specified email.

If a user account exists with that email, an email will be sent to that address with instructions on how to reset their password.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+**(void)**requestPasswordResetForEmailInBackground:**(nonnull  NSString \*)**email**  **block:**(nullable BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| email | Email of the account to send a reset password request. |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

##### **5.2.1.4 BEACL**

|  |
| --- |
| **@interface BEACL : NSObject** <NSCopying, NSCoding> |

The BEACL class is used to control which users can access or modify a particular object. Each [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) can have its own BEACL. Read and write permissions can be granted separately to specific users, to groups of users that belong to roles, or permissions to the public so that, for example, any user could read a particular object but only a particular set of users could write to that object.

###### **5.2.1.4.1 Creating an ACL**

* ACL

Creates an ACL with no permissions granted.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nonnull instancetype)**ACL;** |

**Return Value**

Returns a new BEACL.

* ACL With User

Creates an ACL where only the provided user has access.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nonnull instancetype)**ACLWithUser**:  (nonnull BEUser \*)**user;** |

**Parameter**

|  |  |
| --- | --- |
| *user* | The user to assign access. |

###### **5.2.1.4.2 Controlling Public Access**

* publicReadAccess

Controls whether the public is allowed to read this object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@propertyv**(getter=getPublicReadAccess, assign,  readwrite, nonatomic) **BOOL publicReadAccess;** |

* publicWriteAccess

Controls whether the public is allowed to write this object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (getter=getPublicWriteAccess, assign,  readwrite, nonatomic) **BOOL publicWriteAccess;** |

###### **5.2.1.4.3 Controlling Access Per-User**

* setReadAccess:forUserId:

Set whether the given user id is allowed to read this object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**setReadAccess:**(BOOL)**allowed forUserId:**(nonnull  NSString \*)**userId;** |

**Parameters**

|  |  |
| --- | --- |
| *allowed* | Whether the given user can write this object. |
| *userId* | The BEObject.objectId of the user to assign access. |

* [getReadAccessForUserId:](https://parse.com/docs/ios/api/Classes/PFACL.html#/c:objc(cs)PFACL(im)getReadAccessForUserId:)

Gets whether the given user id is explicitly allowed to read this object. Even if this returns NO, the user may still be able to access it if [publicReadAccess](https://parse.com/docs/ios/api/Classes/PFACL.html#/c:objc(cs)PFACL(py)publicReadAccess) returns YES or if the user belongs to a role that has access.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (BOOL)**getReadAccessForUserId:**(nonnull NSString \*)**userId;** |

**Parameters**

|  |  |
| --- | --- |
| *userId* | The BEObject.objectId of the user for which to retrive access. |

**Return Value**

YES if the user with this objectId has explicit read access, otherwise NO.

* setWriteAccess:forUserId:

Set whether the given user id is allowed to write this object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**setWriteAccess:**(BOOL)**allowed forUserId:**(nonnull  NSString \*)**userId;** |

**Parameters**

|  |  |
| --- | --- |
| *userId* | The BEObject.objectId of the user to assign access. |

* getWriteAccessForUserId:

Gets whether the given user id is explicitly allowed to write this object. Even if this returns NO, the user may still be able to write it if [publicWriteAccess](https://parse.com/docs/ios/api/Classes/PFACL.html#/c:objc(cs)PFACL(py)publicWriteAccess) returns YES or if the user belongs to a role that has access.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  - (BOOL)**getWriteAccessForUserId:**(nonnull NSString \*)**userId;** |

**Parameters**

|  |  |
| --- | --- |
| *userId* | The BEObject.objectId of the user to assign access. |

**Return Value**

YES if the user with this BEObject.objectId has explicit write access, otherwise NO.

* setReadAccess:forUser:

Set whether the given user is allowed to read this object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  -(void)**setReadAccess**:(BOOL)**allowed forUser:**(nonnull BEUser\*)  **user;** |

**Parameters**

|  |  |
| --- | --- |
| *allowed* | Whether the given user can read this object. |
| *user* | The user to assign access. |

* getReadAccessForUser:

Gets whether the given user is explicitly allowed to read this object. Even if this returns NO, the user may still be able to access it if [publicReadAccess](https://parse.com/docs/ios/api/Classes/PFACL.html#/c:objc(cs)PFACL(py)publicReadAccess) returns YES or if the user belongs to a role that has access.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  - (BOOL)**getReadAccessForUser:**(nonnull BEUser \*)**user;** |

**Parameters**

|  |  |
| --- | --- |
| *user* | The user for which to retrive access. |

**Return Value**

YES if the user has explicit read access, otherwise NO.

* setWriteAccess:forUser:

Set whether the given user is allowed to write this object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  - (void)**setWriteAccess:**(BOOL)**allowed forUser:**(nonnull  BEUser \*)**user;** |

**Parameters**

|  |  |
| --- | --- |
| *allowed* | Whether the given user can write this object. |
| *user* | The user to assign access. |

* getWriteAccessForUser:

Gets whether the given user is explicitly allowed to write this object. Even if this returns NO, the user may still be able to write it if publicWriteAccess returns YES or if the user belongs to a role that has access.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  - (BOOL)**getWriteAccessForUser:**(nonnull BEUser \*)**user;** |

**Parameters**

|  |  |
| --- | --- |
| *user* | The user to assign access. |

**Return Value**

YES if the user has explicit write access, otherwise NO.

###### **5.2.1.4.4 Controlling Access Per-Role**

* getReadAccessForRoleWithName:

Get whether users belonging to the role with the given name are allowed to read this object. Even if this returns NO, the role may still be able to read it if a parent role has read access.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  -(BOOL)**getReadAccessForRoleWithName:**(nonnull NSString \*)  **name;** |

**Parameters**

|  |  |
| --- | --- |
| *name* | The name of the role. |

**Return Value**

YES if the role has read access, otherwise NO.

* setReadAccess:forRoleWithName:

Set whether users belonging to the role with the given name are allowed to read this object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  - (void)**setReadAccess**:(BOOL)**allowed forRoleWithName:**(nonnull  NSString \*)**name**; |

**Parameters**

|  |  |
| --- | --- |
| *allowed* | Whether the given role can read this object. |
| *name* | The name of the role. |

* getWriteAccessForRoleWithName:

Get whether users belonging to the role with the given name are allowed to write this object. Even if this returns NO, the role may still be able to write it if a parent role has write access.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  - (BOOL)**getWriteAccessForRoleWithName:**(nonnull NSString \*)  **name;** |

**Parameters**

|  |  |
| --- | --- |
| *name* | The name of the role. |

**Return Value**

YES if the role has read access, otherwise NO.

* setWriteAccess:forRoleWithName:

Set whether users belonging to the role with the given name are allowed to write this object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  - (void)**setWriteAccess**:(BOOL)**allowed forRoleWithName:**(nonnull  NSString \*)**name;** |

**Parameters**

|  |  |
| --- | --- |
| *allowed* | Whether the given role can write this object. |
| *name* | The name of the role. |

* getReadAccessForRole:

Get whether users belonging to the given role are allowed to read this object. Even if this returns NO, the role may still be able to read it if a parent role has read access.

The role must already be saved on the server and it’s data must have been fetched in order to use this method.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  - (BOOL)**getReadAccessForRole**:(nonnull BERole \*)**role**; |

**Parameters**

|  |  |
| --- | --- |
| *name* | The name of the role. |

**Return Value**

YES if the role has read access, otherwise NO.

* setReadAccess:forRole:

Set whether users belonging to the given role are allowed to read this object.

The role must already be saved on the server and it’s data must have been fetched in order to use this method.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  - (void)**setReadAccess:**(BOOL)**allowed forRole:**(nonnull  BERole \*)**role;** |

**Parameters**

|  |  |
| --- | --- |
| *name* | The role to assign access. |

* getWriteAccessForRole:

Get whether users belonging to the given role are allowed to write this object. Even if this returns NO, the role may still be able to write it if a parent role has write access.

The role must already be saved on the server and it’s data must have been fetched in order to use this method.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  - (BOOL)**getWriteAccessForRole:**(nonnull BERole \*)**role**; |

**Parameters**

|  |  |
| --- | --- |
| *name* | The name of the role. |

**Return Value**

YES if the role has write access, otherwise NO.

* setWriteAccess:forRole:

Set whether users belonging to the given role are allowed to write this object.

The role must already be saved on the server and it’s data must have been fetched in order to use this method.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  - (void)**setWriteAccess:**(BOOL)**allowed forRole:**(nonnull  BERole \*)**role;** |

**Parameters**

|  |  |
| --- | --- |
| *allowed* | Whether the given role can write this object. |
| *name* | The role to assign access. |

###### **5.2.1.4.5 Setting Access Defaults**

* setDefaultACL:withAccessForCurrentUser:

Sets a default ACL that will be applied to all instances of PFObject when they are created.

* + If NO, the provided acl will be used without modification.
  + If acl is nil, this value is ignored.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (void)**setDefaultACL:**(nullable BEACL \*)**acl**  **withAccessForCurrentUser:**(BOOL)**currentUserAccess;** |

**Parameters**

|  |  |
| --- | --- |
| *acl* | The ACL to use as a template for all instance of BEObject created after this method has been called. This value will be copied and used as a template for the creation of new ACLs, so changes to the instance after this method has been called will not be reflected in new instance of BEObject. |
| *currentUserAccess* | * If YES, the BEACL that is applied to newly-created instance of BEObject will provide read and write access to the BEUser.+currentUser at the time of creation. * If NO, the provided acl will be used without modification. * If acl is nil, this value is ignored. |

##### **5.2.1.5 BEObject**

|  |
| --- |
| **@interface BEObject : NSObject** |

The BEObject class is a local representation of data persisted to the CSBM cloud. This is the main class that is used to interact with objects in your app.

###### **5.2.1.5.1 Creating a BEObject**

* initWithClassName:

Initializes a new empty BEObject instance with a class name.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  - (nonnull instancetype)**initWithClassName:**(nonnull  NSString \*)**newClassName;** |

**Parameters**

|  |  |
| --- | --- |
| newClassName | A class name can be any alphanumeric string that begins with a letter. It represents an object in your app, like a ‘User’ or a ‘Document’. |

**Return Value**

Returns the object that is instantiated with the given class name.

* objectWithClassName:

Creates a new BEObject with a class name.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  + (nonnull instancetype)**objectWithClassName:**(nonnull  NSString \*)**className;** |

**Parameters**

|  |  |
| --- | --- |
| className | A class name can be any alphanumeric string that begins with a letter. It represents an object in your app, like a ‘User’ or a ‘Document’. |

**Return Value**

Returns the object that is instantiated with the given class name.

* objectWithClassName:dictionary:

Creates a new [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) with a class name, initialized with data constructed from the specified set of objects and keys.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nonnull instancetype)  **objectWithClassName:**(nonnull NSString \*)**className**  **dictionary:**(nullable NSDictionary<NSString \*, id> \*)  **dictionary;** |

**Parameters**

|  |  |
| --- | --- |
| className | The object’s class. |
| dictionary | An NSDictionary of keys and objects to set on the new BEObject. |

**Return Value**

A BEObject with the given class name and set with the given data.

* objectWithoutDataWithClassName:objectId:

Creates a reference to an existing BEObject for use in creating associations between BEObjects.

Calling [dataAvailable](https://parse.com/docs/ios/api/Classes/PFObject.html#/c:objc(cs)PFObject(py)dataAvailable) on this object will return NO until -fetchIfNeeded has been called. No network request will be made.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nonnull instancetype)  **objectWithoutDataWithClassName:**(nonnull NSString \*)**className**  **objectId:**(nullable NSString \*)**objectId;** |

**Parameters**

|  |  |
| --- | --- |
| className | The object’s class. |
| objectId | The object id for the referenced object. |

**Return Value**

A [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) instance without data.

###### **5.2.1.5.2 Managing Object Properties**

* CSBMClassName

The class name of the object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, strong, nonatomic) **NSString \*\_Nonnull**  **CSBMClassName;** |

* objectId

The id of the object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readwrite, strong, nonatomic, nullable)  **NSString \*objectId;** |

* updatedAt

When the object was last updated.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, strong, nonatomic, nullable) **NSDate**  **\*updatedAt;** |

* createdAt

When the object was created.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, strong, nonatomic, nullable) **NSDate**  **\*createdAt;** |

* ACL

The ACL for this object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readwrite, strong, nonatomic, nullable) **BEACL**  **\*ACL;** |

* allKeys

Returns an array of the keys contained in this object.

This does not include createdAt, updatedAt, authData, or objectId. It does include things like username and ACL.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, copy, nonatomic) **NSArray<NSString \*>**  **\*\_Nonnull allKeys;** |

###### **5.2.1.5.3 Accessor**

* [objectForKey:](https://parse.com/docs/ios/api/Classes/PFObject.html" \l "/c:objc(cs)PFObject(im)objectForKey:)

Returns the value associated with a given key.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nullable id)**objectForKey:**(nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key for which to return the corresponding value. |

* setObject:forKey:

Sets the object associated with a given key.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**setObject:**(nonnull id)**object forKey:**(nonnull  NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| object | The object for key. A strong reference to the object is maintained by BEObject. Raises an NSInvalidArgumentException if object is nil. If you need to represent a nil value - use NSNull. |
| key | The key for object. Raises an NSInvalidArgumentException if key is nil. |

* removeObjectForKey:

Unsets a key on the object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**removeObjectForKey:**(nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key. |

* objectForKeyedSubscript:

Returns the value associated with a given key.

This method enables usage of literal syntax on [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html). E.g. NSString \*value = object[@"key"];

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nullable id)**objectForKeyedSubscript:**(nonnull  NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key for which to return the corresponding value. |

* setObject:forKeyedSubscript:

Returns the value associated with a given key.

This method enables usage of literal syntax on BEObject. E.g. object[@"key"] = @"value";

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**setObject:**(nonnull id)**object forKeyedSubscript:**(nonnull  NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| object | The object for key. A strong reference to the object is maintained by BEObject. Raises an NSInvalidArgumentException if object is nil. If you need to represent a nil value - use NSNull. |
| key | The key for object. Raises an NSInvalidArgumentException if key is nil. |

* relationForKey:

Returns the instance of BERelation class associated with the given key.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull BERelation \*)**relationForKey:**(nonnull  NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key that the relation is associated with. |

* revert

Clears any changes to this object made since the last call to save and sets it back to the server state.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**revert;** |

* revertObjectForKey:

Clears any changes to this object’s key that were done after last successful save and sets it back to the server state.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**revertObjectForKey:**(nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to revert changes for. |

###### **5.2.1.5.4 Array Accessors**

* addObject:forKey:

Adds an object to the end of the array associated with a given key.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**addObject:**(nonnull id)**object forKey:**(nonnull  NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| object | The object to add. |
| key | The key. |

* addObjectsFromArray:forKey:

Adds the objects contained in another array to the end of the array associated with a given key.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**addObjectsFromArray:**(nonnull NSArray \*)**objects**  **forKey:**(nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| object | The array of objects to add. |
| key | The key. |

* addUniqueObject:forKey:

Adds an object to the array associated with a given key, only if it is not already present in the array.

The position of the insert is not guaranteed.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**addUniqueObject:**(nonnull id)**object**  **forKey:**(nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| object | The object to add. |
| key | The key. |

* addUniqueObjectsFromArray:forKey:

Adds the objects contained in another array to the array associated with a given key, only adding elements which are not already present in the array.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**addUniqueObjectsFromArray:**(nonnull NSArray \*)**objects**  **forKey:**(nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| object | The array of objects to add. |
| key | The key. |

* removeObject:forKey:

Removes all occurrences of an object from the array associated with a given key.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**removeObject:**(nonnull id)**object forKey:**(nonnull  NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| object | The object to remove. |
| key | The key. |

* removeObjectsInArray:forKey:

Removes all occurrences of the objects contained in another array from the array associated with a given key.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**removeObjectsInArray:**(nonnull NSArray \*)**objects**  **forKey:**(nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| object | The array of objects to remove. |
| key | The key. |

###### **5.2.1.5.5 Increment**

* incrementKey:

Increments the given key by 1.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**incrementKey:**(nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key. |

* incrementKey:byAmount:

Increments the given key by a number.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**incrementKey:**(nonnull NSString \*)**key**  **byAmount:**(nonnull NSNumber \*)**amount;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key. |
| amount | The amount to increment. |

###### **5.2.1.5.6 Saving Objects**

* saveInBackground

Saves the [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) *asynchronously*.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**saveInBackground;** |

**Return Value**

The task that encapsulates the work being done.

* saveInBackgroundWithBlock:

Saves the [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) *asynchronously* and executes the given callback block.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **- (void)saveInBackgroundWithBlock:(nullable**  **BEBooleanResultBlock)block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

* saveEventually

Saves this object to the server at some unspecified time in the future, even if CSBM is currently inaccessible.

Use this when you may not have a solid network connection, and don’t need to know when the save completes. If there is some problem with the object such that it can’t be saved, it will be silently discarded.

Objects saved with this method will be stored locally in an on-disk cache until they can be delivered to CSBM. They will be sent immediately if possible. Otherwise, they will be sent the next time a network connection is available. Objects saved this way will persist even after the app is closed, in which case they will be sent the next time the app is opened. If more than 10MB of data is waiting to be sent, subsequent calls to -saveEventually will cause old saves to be silently discarded until the connection can be re-established, and the queued objects can be saved.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **- (id)saveEventually;** |

**Return Value**

The task that encapsulates the work being done.

* saveEventually:

Saves this object to the server at some unspecified time in the future, even if CSBM is currently inaccessible.

Use this when you may not have a solid network connection, and don’t need to know when the save completes. If there is some problem with the object such that it can’t be saved, it will be silently discarded. If the save completes successfully while the object is still in memory, then callback will be called.

Objects saved with this method will be stored locally in an on-disk cache until they can be delivered to CSBM. They will be sent immediately if possible. Otherwise, they will be sent the next time a network connection is available. Objects saved this way will persist even after the app is closed, in which case they will be sent the next time the app is opened. If more than 10MB of data is waiting to be sent, subsequent calls to -saveEventually: will cause old saves to be silently discarded until the connection can be re-established, and the queued objects can be saved.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**saveEventually:**(nullable BEBooleanResultBlock)**callback;** |

**Parameters**

|  |  |
| --- | --- |
| callback | The block to execute. It should have the following argument signature:  ^(BOOL succeeded, NSError \*error). |

###### **5.2.1.5.7 Saving Many Objects**

* saveAllInBackground:

Saves a collection of objects all at once *asynchronously*.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**saveAllInBackground:**(nullable NSArray<BEObject \*> \*)**objects;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The array of objects to save. |

**Return Value**

The task that encapsulates the work being done.

* saveAllInBackground:block:

Saves a collection of objects all at once asynchronously and executes the block when done.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)**saveAllInBackground:**(nullable NSArray<BEObject \*> \*)**objects**  **block:**(nullable BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The array of objects to save. |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

###### **5.2.1.5.8 Deleting Many Objects**

* deleteAllInBackground:

Deletes a collection of objects all at once asynchronously. - parameter: objects The array of objects to delete. - returns: The task that encapsulates the work being done.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+ (id)deleteAllInBackground:(nullable NSArray<BEObject \*> \*)objects;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The array of objects to delete. |

**Return Value**

The task that encapsulates the work being done.

* deleteAllInBackground:block:

Deletes a collection of objects all at once *asynchronously* and executes the block when done.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)  **deleteAllInBackground:**(nullable NSArray<BEObject \*> \*)**objects**  **block:**(nullable BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The array of objects to delete. |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

###### **5.2.1.5.9 Getting an Object**

* [dataAvailable](https://parse.com/docs/ios/api/Classes/PFObject.html" \l "/c:objc(cs)PFObject(py)dataAvailable)

Gets whether the [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) has been fetched.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property (readonly, getter=isDataAvailable, assign, nonatomic)**  **BOOL dataAvailable;** |

**Return Value**

YES if the BEObject is new or has been fetched or refreshed, otherwise NO.

* fetchInBackground

Fetches the [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) *asynchronously* and sets it as a result for the task.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**fetchInBackground;** |

**Return Value**

The task that encapsulates the work being done.

* fetchInBackgroundWithBlock:

Fetches the [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) *asynchronously* and executes the given callback block.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **- (void)**  **fetchInBackgroundWithBlock:(nullable BEObjectResultBlock)block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block to execute. It should have the following argument signature: ^(BEObject \*object, NSError \*error). |

* fetchIfNeededInBackground

Fetches the BEObject data *asynchronously* if dataAvailable is NO, then sets it as a result for the task.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**fetchIfNeededInBackground;** |

**Return Value**

The task that encapsulates the work being done.

* fetchIfNeededInBackgroundWithBlock:

Fetches the [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) data *asynchronously* if [dataAvailable](https://parse.com/docs/ios/api/Classes/PFObject.html#/c:objc(cs)PFObject(py)dataAvailable) is NO, then calls the callback block.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**fetchIfNeededInBackgroundWithBlock:**(nullable  BEObjectResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block to execute. It should have the following argument signature: ^(BEObject \*object, NSError \*error). |

###### **5.2.1.5.10 Getting Many Objects**

* fetchAllInBackground:

Fetches all of the [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) objects with the current data from the server *asynchronously*.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**fetchAllInBackground:**(nullable NSArray<BEObject \*> \*)**objects;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The list of objects to fetch. |

**Return Value**

The task that encapsulates the work being done.

* fetchAllInBackground:block:

Fetches all of the [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) objects with the current data from the server *asynchronously* and calls the given block.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)**fetchAllInBackground:**(nullable NSArray<BEObject \*> \*)**objects**  **block:**(nullable BEArrayResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The list of objects to fetch. |
| block | The block to execute. It should have the following argument signature: ^(NSArray \*objects, NSError \*error). |

* fetchAllIfNeededInBackground:

Fetches all of the BEObject objects with the current data from the server *asynchronously*.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**fetchAllIfNeededInBackground:**(nullable  NSArray<BEObject \*> \*)**objects;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The list of objects to fetch. |

**Return Value**

The task that encapsulates the work being done.

* fetchAllIfNeededInBackground:block:

Fetches all of the BEObjects with the current data from the server *asynchronously* and calls the given block.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)  **fetchAllIfNeededInBackground**:(nullable NSArray<BEObject \*> \*)**objects**  **block:**(nullable BEArrayResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The list of objects to fetch. |
| block | The block to execute. It should have the following argument signature: ^(NSArray \*objects, NSError \*error). |

###### **5.2.1.5.11 Fetching From Local Datastore**

* fetchFromLocalDatastoreInBackground

*Asynchronously* loads data from the local datastore into this object, if it has not been fetched from the server already.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **- (id)fetchFromLocalDatastoreInBackground;** |

**Return Value**

The task that encapsulates the work being done.

* fetchFromLocalDatastoreInBackgroundWithBlock:

*Asynchronously* loads data from the local datastore into this object, if it has not been fetched from the server already.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**fetchFromLocalDatastoreInBackgroundWithBlock:**  (nullable BEObjectResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block to execute. It should have the following argument signature: ^(BEObject \*object, NSError \*error). |

###### **5.2.1.5.12 Deleting an Object**

* deleteInBackground

Deletes the BEObject *asynchronously*.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**deleteInBackground;** |

**Return Value**

The task that encapsulates the work being done.

* deleteInBackgroundWithBlock:

Deletes the [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) *asynchronously* and executes the given callback block.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**deleteInBackgroundWithBlock:**(nullable  BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

* deleteEventually

Deletes this object from the server at some unspecified time in the future, even if CSBM is currently inaccessible.

Use this when you may not have a solid network connection, and don’t need to know when the delete completes. If there is some problem with the object such that it can’t be deleted, the request will be silently discarded.

Delete instructions made with this method will be stored locally in an on-disk cache until they can be transmitted to CSBM. They will be sent immediately if possible. Otherwise, they will be sent the next time a network connection is available. Delete requests will persist even after the app is closed, in which case they will be sent the next time the app is opened. If more than 10MB of -saveEventually or -deleteEventually commands are waiting to be sent, subsequent calls to -saveEventually or -deleteEventually will cause old requests to be silently discarded until the connection can be re-established, and the queued requests can go through.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**deleteEventually;** |

**Return Value**

The task that encapsulates the work being done.

###### **5.2.1.5.13 Pinning**

* pinInBackground

*Asynchronously* stores the object and every object it points to in the local datastore, recursively, using a default pin name: BEObjectDefaultPin.

If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all the changes will be retained. To get the objects back later, you can use a BEQuery that uses BEQuery.-fromLocalDatastore, or you can create an unfetched pointer with +objectWithoutDataWithClassName:objectId: and then call -fetchFromLocalDatastore on it.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**pinInBackground;** |

**Return Value**

The task that encapsulates the work being done.

* pinInBackgroundWithBlock:

*Asynchronously* stores the object and every object it points to in the local datastore, recursively, using a default pin name: BEObjectDefaultPin.

If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all the changes will be retained. To get the objects back later, you can use a BEQuery that uses BEQuery.-fromLocalDatastore, or you can create an unfetched pointer with +objectWithoutDataWithClassName:objectId: and then call -fetchFromLocalDatastore on it.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**pinInBackgroundWithBlock:**(nullable  BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

* pinInBackgroundWithName:

*Asynchronously* stores the object and every object it points to in the local datastore, recursively.

If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all the changes will be retained. To get the objects back later, you can use a BEQuery that uses BEQuery.-fromLocalDatastore, or you can create an unfetched pointer with +objectWithoutDataWithClassName:objectId: and then call -fetchFromLocalDatastore on it.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**pinInBackgroundWithName:**(nonnull NSString \*)**name;** |

**Parameters**

|  |  |
| --- | --- |
| name | The name of the pin. |

**Return Value**

The task that encapsulates the work being done.

* pinInBackgroundWithName:block:

*Asynchronously* stores the object and every object it points to in the local datastore, recursively.

If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all the changes will be retained. To get the objects back later, you can use a BEQuery that uses BEQuery.-fromLocalDatastore, or you can create an unfetched pointer with +objectWithoutDataWithClassName:objectId: and then call -fetchFromLocalDatastore on it.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**pinInBackgroundWithName:**(nonnull NSString \*)**name**  **block:**(nullable BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| name | The name of the pin. |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

###### **5.2.1.5.14 Pinning Many Objects**

* pinAllInBackground:

*Asynchronously* stores the objects and every object they point to in the local datastore, recursively, using a default pin name: BEObjectDefaultPin.

If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all the changes will be retained. To get the objects back later, you can use a BEQuery that uses BEQuery.-fromLocalDatastore, or you can create an unfetched pointer with +objectWithoutDataWithClassName:objectId: and then call fetchFromLocalDatastore: on it.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**pinAllInBackground:**(nullable NSArray<BEObject \*> \*)**objects;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The objects to be pinned. |

**Return Value**

The task that encapsulates the work being done.

* pinAllInBackground:block:

*Asynchronously* stores the objects and every object they point to in the local datastore, recursively, using a default pin name: [BEObjectDefaultPin](https://parse.com/docs/ios/api/Constants.html#/c:@PFObjectDefaultPin).

If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all the changes will be retained. To get the objects back later, you can use a BEQuery that uses BEQuery.-fromLocalDatastore, or you can create an unfetched pointer with +objectWithoutDataWithClassName:objectId: and then call fetchFromLocalDatastore: on it.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)**pinAllInBackground:**(nullable NSArray<BEObject \*> \*)**objects**  **block:**(nullable BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The objects to be pinned. |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

* pinAllInBackground:withName:

*Asynchronously* stores the objects and every object they point to in the local datastore, recursively.

If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all the changes will be retained. To get the objects back later, you can use a BEQuery that uses BEQuery.-fromLocalDatastore, or you can create an unfetched pointer with +objectWithoutDataWithClassName:objectId: and then call fetchFromLocalDatastore: on it.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**pinAllInBackground:**(nullable NSArray<BEObject \*> \*)**objects**  **withName:**(nonnull NSString \*)**name;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The objects to be pinned. |
| name | The name of the pin. |

**Return Value**

The task that encapsulates the work being done.

* pinAllInBackground:withName:block:

*Asynchronously* stores the objects and every object they point to in the local datastore, recursively.

If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all the changes will be retained. To get the objects back later, you can use a [BEQuery](https://parse.com/docs/ios/api/Classes/PFQuery.html) that uses BEQuery.-fromLocalDatastore, or you can create an unfetched pointer with +objectWithoutDataWithClassName:objectId: and then call fetchFromLocalDatastore: on it.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)**pinAllInBackground**:(nullable NSArray<BEObject \*> \*)**objects**  **withName**:(nonnull NSString \*)**name**  **block:**(nullable BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The objects to be pinned. |
| name | The name of the pin. |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

###### **5.2.1.5.15 Unpinning**

* unpinInBackground

*Asynchronously* removes the object and every object it points to in the local datastore, recursively, using a default pin name: BEObjectDefaultPin.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**unpinInBackground;** |

**Return Value**

The task that encapsulates the work being done.

* unpinInBackgroundWithBlock:

*Asynchronously* removes the object and every object it points to in the local datastore, recursively, using a default pin name: BEObjectDefaultPin.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**unpinInBackgroundWithBlock:**(nullable  BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

* unpinInBackgroundWithName:

*Asynchronously* removes the object and every object it points to in the local datastore, recursively.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**unpinInBackgroundWithName:**(nonnull NSString \*)**name;** |

**Parameters**

|  |  |
| --- | --- |
| name | The name of the pin. |

**Return Value**

The task that encapsulates the work being done.

* unpinInBackgroundWithName:block:

*Asynchronously* removes the object and every object it points to in the local datastore, recursively.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)  **unpinInBackgroundWithName:**(nonnull NSString \*)**name**  **block:**(nullable BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| name | The name of the pin. |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

###### **5.2.1.5.16 Unpinning Many Objects**

* unpinAllObjectsInBackground

*Asynchronously* removes all objects in the local datastore using a default pin name: [BEObjectDefaultPin](https://parse.com/docs/ios/api/Constants.html#/c:@PFObjectDefaultPin).

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**unpinAllObjectsInBackground;** |

**Return Value**

The task that encapsulates the work being done.

* unpinAllObjectsInBackgroundWithBlock:

Asynchronously removes all objects in the local datastore using a default pin name: [BEObjectDefaultPin](https://parse.com/docs/ios/api/Constants.html#/c:@PFObjectDefaultPin).

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)**unpinAllObjectsInBackgroundWithBlock:**  (nullable BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

* unpinAllObjectsInBackgroundWithName:

*Asynchronously* removes all objects with the specified pin name.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**unpinAllObjectsInBackgroundWithName:**(nonnull NSString \*)**name;** |

**Parameters**

|  |  |
| --- | --- |
| name | The name of the pin. |

**Return Value**

The task that encapsulates the work being done.

* unpinAllObjectsInBackgroundWithName:block:

*Asynchronously*removes all objects with the specified pin name*.*

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+ (void)unpinAllObjectsInBackgroundWithName:**  **(nonnull NSString \*)name block:(nullable BEBooleanResultBlock)block;** |

**Parameters**

|  |  |
| --- | --- |
| name | The name of the pin. |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

* unpinAllInBackground:

*Asynchronously* removes the objects and every object they point to in the local datastore, recursively, using a default pin name: BEObjectDefaultPin.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+ (id)unpinAllInBackground:(nullable NSArray<BEObject \*> \*)objects;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The objects. |

**Return Value**

The task that encapsulates the work being done.

* unpinAllInBackground:block:

*Asynchronously* removes the objects and every object they point to in the local datastore, recursively, using a default pin name: BEObjectDefaultPin.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)**unpinAllInBackground:**(nullable NSArray<BEObject \*> \*)**objects**  **block:**(nullable BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The objects. |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

* unpinAllInBackground:withName:

*Asynchronously* removes the objects and every object they point to in the local datastore, recursively.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (id)**unpinAllInBackground**:(nullable NSArray<BEObject \*> \*)**objects**  **withName:**(nonnull NSString \*)**name;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The objects. |
| name | The name of the pin. |

**Return Value**

The task that encapsulates the work being done.

* unpinAllInBackground:withName:block:

*Asynchronously* removes the objects and every object they point to in the local datastore, recursively.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)**unpinAllInBackground:**(nullable NSArray<BEObject \*> \*)**objects**  **withName:**(nonnull NSString \*)**name**  **block:**(nullable BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| objects | The objects. |
| name | The name of the pin. |
| block | The block to execute. It should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

##### **5.2.1.6 BEFile**

|  |
| --- |
| **@interface BEFile : NSObject** |

BEFile representes a file of binary data stored on the CSBM servers. This can be a image, video, or anything else that an application needs to reference in a non-relational way.

###### **5.2.1.6.1 Creating a BEFile**

* init

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**init;** |

* fileWithData:

Creates a file with given data. A name will be assigned to it by the server.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nullable instancetype)**fileWithData:**(nonnull NSData \*)**data;** |

**Parameters**

|  |  |
| --- | --- |
| data | The contents of the new BEFile. |

**Return Value**

A new BEFile.

* fileWithName:data:

Creates a file with given data and name.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nullable instancetype)**fileWithName:**(nullable NSString \*)**name**  **data:**(nonnull NSData \*)**data;** |

**Parameters**

|  |  |
| --- | --- |
| name | The name of the new BEFile. The file name must begin with and alphanumeric character, and consist of alphanumeric characters, periods, spaces, underscores, or dashes. |
| data | The contents of the new BEFile. |

**Return Value**

A new [BEFile](https://parse.com/docs/ios/api/Classes/PFFile.html) object.

* fileWithName:contentsAtPath:

Creates a file with the contents of another file.

**Warning**

|  |
| --- |
| This method raises an exception if the file at path is not accessible or if there is not enough disk space left. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nullable instancetype)**fileWithName:**(nullable NSString \*)**name**  **contentsAtPath:**(nonnull NSString \*)**path;** |

**Parameters**

|  |  |
| --- | --- |
| name | The name of the new BEFile. The file name must begin with and alphanumeric character, and consist of alphanumeric characters, periods, spaces, underscores, or dashes. |
| path | The path to the file that will be uploaded to CSBM. |

**Return Value**

A new [BEFile](https://parse.com/docs/ios/api/Classes/PFFile.html) instance.

* fileWithName:contentsAtPath:error:

Creates a file with the contents of another file.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nullable instancetype)**fileWithName:**(nullable NSString \*)**name**  **contentsAtPath:**(nonnull NSString \*)**path**  **error:**(NSError \*\_Nullable \*\_Nullable)**error;** |

**Parameters**

|  |  |
| --- | --- |
| name | The name of the new BEFile. The file name must begin with and alphanumeric character, and consist of alphanumeric characters, periods, spaces, underscores, or dashes. |
| path | The path to the file that will be uploaded to CSBM. |
| error | On input, a pointer to an error object. If an error occurs, this pointer is set to an actual error object containing the error information. You may specify nil for this parameter if you do not want the error information. |

**Return Value**

A new [BEFile](https://parse.com/docs/ios/api/Classes/PFFile.html) instance or nil if the error occured.

* fileWithName:data:contentType:

Creates a file with given data, name and content type.

**Warning**

|  |
| --- |
| This method raises an exception if the data supplied is not accessible or could not be saved. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nullable instancetype)**fileWithName:**(nullable NSString \*)**name**  **data:**(nonnull NSData \*)**data**  **contentType:**(nullable NSString \*)**contentType;** |

**Parameters**

|  |  |
| --- | --- |
| name | The name of the new BEFile. The file name must begin with and alphanumeric character, and consist of alphanumeric characters, periods, spaces, underscores, or dashes. |
| data | The contents of the new BEFile. |
| contentType | Represents MIME type of the data. |

**Return Value**

A new [BEFile](https://parse.com/docs/ios/api/Classes/PFFile.html) instance.

* fileWithName:data:contentType:error:

Creates a file with given data, name and content type.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nullable instancetype)**fileWithName:**(nullable NSString \*)**name**  **data:**(nonnull NSData \*)**data**  **contentType:**(nullable NSString \*)**contentType**  **error:**(NSError \*\_Nullable \*\_Nullable)**error;** |

**Parameters**

|  |  |
| --- | --- |
| name | The name of the new BEFile. The file name must begin with and alphanumeric character, and consist of alphanumeric characters, periods, spaces, underscores, or dashes. |
| data | The contents of the new BEFile. |
| contentType | Represents MIME type of the data. |

**Return Value**

A new BEFile instance or nil if the error occured.

* fileWithData:contentType:

Creates a file with given data and content type.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nonnull instancetype)**fileWithData:**(nonnull NSData \*)**data**  **contentType:**(nullable NSString \*)**contentType;** |

**Parameters**

|  |  |
| --- | --- |
| data | The contents of the new BEFile. |
| contentType | Represents MIME type of the data. |

**Return Value**

A new BEFile object.

###### **5.2.1.6.2 File Properties**

* [name](https://parse.com/docs/ios/api/Classes/PFFile.html" \l "/c:objc(cs)PFFile(py)name)

The name of the file.

Before the file is saved, this is the filename given by the user. After the file is saved, that name gets prefixed with a unique identifier.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property (readonly, copy, nonatomic) NSString \*\_Nonnull name;** |

* url

The url of the file.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, copy, nonatomic, nullable) **NSString \*url;** |

* dirty

Whether the file has been uploaded for the first time.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, getter=isDirty, assign, nonatomic) **BOOL dirty;** |

###### **5.2.1.6.3 Storing Data with CSBM**

* saveInBackground

Saves the file *asynchronously*.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**saveInBackground;** |

**Return Value**

The task, that encapsulates the work being done.

* saveInBackgroundWithProgressBlock:

Saves the file *asynchronously*

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**saveInBackgroundWithProgressBlock**:(nullable  BEProgressBlock)**progressBlock;** |

**Parameters**

|  |  |
| --- | --- |
| progressBlock | The block should have the following argument signature: ^(int percentDone) |

**Return Value**

The task, that encapsulates the work being done.

* saveInBackgroundWithBlock:

Saves the file *asynchronously* and executes the given block.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**saveInBackgroundWithBlock**:(nullable  BEBooleanResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block should have the following argument signature: ^(BOOL succeeded, NSError \*error). |

* saveInBackgroundWithBlock:progressBlock:

Saves the file *asynchronously* and executes the given block.

This method will execute the progressBlock periodically with the percent progress. progressBlock will get called with 100 before resultBlock is called.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)  **saveInBackgroundWithBlock**:(nullable BEBooleanResultBlock)**block**  **progressBlock**:(nullable BEProgressBlock)**progressBlock;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block should have the following argument signature: ^(BOOL succeeded, NSError \*error). |
| progressBlock | The block should have the following argument signature: ^(int percentDone). |

###### **5.2.1.6.4 Getting Data from CSBM**

* dataAvailable

Whether the data is available in memory or needs to be downloaded.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, getter=isDataAvailable, assign, nonatomic)  **BOOL dataAvailable;** |

* getDataInBackground

This method is like -getData but it fetches asynchronously to avoid blocking the current thread.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**getDataInBackground;** |

**Return Value**

The task, that encapsulates the work being done.

* getDataInBackgroundWithProgressBlock:

This method is like -getData but it fetches asynchronously to avoid blocking the current thread.

This can help applications with many large files avoid memory warnings.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**getDataInBackgroundWithProgressBlock:**  (nullable BEProgressBlock)**progressBlock;** |

**Parameters**

|  |  |
| --- | --- |
| progressBlock | The block should have the following argument signature: ^(int percentDone). |

**Return Value**

The task, that encapsulates the work being done.

* getDataStreamInBackground

This method is like -getDataInBackground but avoids ever holding the entire [BEFile](https://parse.com/docs/ios/api/Classes/PFFile.html) contents in memory at once.

This can help applications with many large files avoid memory warnings.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**getDataStreamInBackground;** |

**Return Value**

The task, that encapsulates the work being done.

* getDataDownloadStreamInBackground

This method is like -getDataStreamInBackground, but yields a live-updating stream.

Instead of -getDataStream, which yields a stream that can be read from only after the request has completed, this method gives you a stream directly written to by the HTTP session. As this stream is not pre-buffered, it is strongly advised to use the NSStreamDelegate methods, in combination with a run loop, to consume the data in the stream, to do proper async file downloading.

**Note**

|  |
| --- |
| You MUST open this stream before reading from it.  Do NOT call waitUntilFinished on this task from the main thread. It may result in a deadlock. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**getDataDownloadStreamInBackground;** |

**Return Value**

A task that produces a *live* stream that is being written to with the data from the server.

* getDataStreamInBackgroundWithProgressBlock:

This method is like [-getDataInBackground](https://parse.com/docs/ios/api/Classes/PFFile.html#/c:objc(cs)PFFile(im)getDataInBackground) but avoids ever holding the entire [BEFile](https://parse.com/docs/ios/api/Classes/PFFile.html) contents in memory at once.

This can help applications with many large files avoid memory warnings. - parameter: progressBlock The block should have the following argument signature: ^(int percentDone)

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**getDataStreamInBackgroundWithProgressBlock:**  (nullable BEProgressBlock)**progressBlock;** |

**Parameters**

|  |  |
| --- | --- |
| progressBlock | The block should have the following argument signature: ^(int percentDone). |

**Return Value**

The task, that encapsulates the work being done.

* getDataDownloadStreamInBackgroundWithProgressBlock:

This method is like -getDataStreamInBackgroundWithProgressBlock:, but yields a live-updating stream.

Instead of -getDataStream, which yields a stream that can be read from only after the request has completed, this method gives you a stream directly written to by the HTTP session. As this stream is not pre-buffered, it is strongly advised to use the NSStreamDelegate methods, in combination with a run loop, to consume the data in the stream, to do proper async file downloading.

**Note**

|  |
| --- |
| You MUST open this stream before reading from it.  Do NOT call waitUntilFinished on this task from the main thread. It may result in a deadlock. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**getDataDownloadStreamInBackgroundWithProgressBlock:**  (nullable BEProgressBlock)**progressBlock;** |

**Parameters**

|  |  |
| --- | --- |
| progressBlock | The block should have the following argument signature: ^(int percentDone). |

**Return Value**

A task that produces a *live* stream that is being written to with the data from the server.

* getDataInBackgroundWithBlock:

*Asynchronously* gets the data from cache if available or fetches its contents from the network.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**getDataInBackgroundWithBlock:**(nullable  BEDataResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block should have the following argument signature: ^(NSData \*result, NSError \*error). |

* getDataStreamInBackgroundWithBlock:

This method is like -getDataInBackgroundWithBlock: but avoids ever holding the entire [BEFile](https://parse.com/docs/ios/api/Classes/PFFile.html) contents in memory at once.

This can help applications with many large files avoid memory warnings.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**getDataStreamInBackgroundWithBlock:**  (nullable BEDataStreamResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block should have the following argument signature: (NSInputStream \*result, NSError \*error). |

* getDataInBackgroundWithBlock:progressBlock:

*Asynchronously* gets the data from cache if available or fetches its contents from the network.

This method will execute the progressBlock periodically with the percent progress. progressBlock will get called with 100 before resultBlock is called.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)  **getDataInBackgroundWithBlock**:(nullable BEDataResultBlock)**resultBlock**  **progressBlock**:(nullable BEProgressBlock)**progressBlock;** |

**Parameters**

|  |  |
| --- | --- |
| resultBlock | The block should have the following argument signature: ^(NSData \*result, NSError \*error). |
| progressBlock | The block should have the following argument signature: ^(int percentDone). |

* getDataStreamInBackgroundWithBlock:progressBlock:

This method is like -getDataInBackgroundWithBlock:progressBlock: but avoids ever holding the entire BEFile contents in memory at once.

This can help applications with many large files avoid memory warnings.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**getDataStreamInBackgroundWithBlock:**  (nullable BEDataStreamResultBlock)**resultBlock**  **progressBlock:**  (nullable BEProgressBlock)**progressBlock;** |

**Parameters**

|  |  |
| --- | --- |
| resultBlock | The block should have the following argument signature:  ^(NSInputStream \*result, NSError \*error). |
| progressBlock | The block should have the following argument signature: ^(int percentDone). |

* getFilePathInBackground

*Asynchronously* gets the file path for file from cache if available or fetches its contents from the network.

**Note**

|  |
| --- |
| The file path may change between versions of SDK.  If you overwrite the contents of the file at returned path it will  persist those change until the file cache is cleared. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**getFilePathInBackground;** |

**Return Value**

The task, with the result set to NSString representation of a file path.

* getFilePathInBackgroundWithProgressBlock:

*Asynchronously* gets the file path for file from cache if available or fetches its contents from the network.

**Note**

|  |
| --- |
| The file path may change between versions of SDK.  If you overwrite the contents of the file at returned path it will  persist those change until the file cache is cleared. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**getFilePathInBackgroundWithProgressBlock:**  (nullable BEProgressBlock)**progressBlock;** |

**Parameters**

|  |  |
| --- | --- |
| progressBlock | The block should have the following argument signature: ^(int percentDone). |

**Return Value**

The task, with the result set to NSString representation of a file path.

* getFilePathInBackgroundWithBlock:

*Asynchronously* gets the file path for file from cache if available or fetches its contents from the network.

**Note**

|  |
| --- |
| The file path may change between versions of SDK.  If you overwrite the contents of the file at returned path it will  persist those change until the file cache is cleared. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**getFilePathInBackgroundWithBlock:**  (nullable BEFilePathResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block should have the following argument signature: ^(NSString \*filePath, NSError \*error). |

* getFilePathInBackgroundWithBlock:progressBlock:

*Asynchronously* gets the file path for file from cache if available or fetches its contents from the network.

**Note**

|  |
| --- |
| The file path may change between versions of SDK.  If you overwrite the contents of the file at returned path it will  persist those change until the file cache is cleared. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**getFilePathInBackgroundWithBlock:**  (nullable BEFilePathResultBlock)**block**  **progressBlock:**  (nullable BEProgressBlock)**progressBlock;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block should have the following argument signature: ^(NSString \*filePath, NSError \*error). |
| progressBlock | The block should have the following argument signature: ^(int percentDone). |

###### **5.2.1.6.5 Interrupting a Transfer**

* cancel

Cancels the current request (upload or download of file).

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**cancel;** |

##### **5.2.1.7 BEQuery**

|  |
| --- |
| **@interface**  **BEQuery** < BEGenericObject : BEObject \* > **: NSObject**<NSCopying> |

The BEQuery class defines a query that is used to query for [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html)s.

###### **5.2.1.7.1 Creating a Query for a Class**

* initWithClassName:

Initializes the query with a class name.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **- (nonnull instancetype)initWithClassName:**  **(nonnull NSString \*)className;** |

**Parameters**

|  |  |
| --- | --- |
| className | The class name. |

* queryWithClassName:

Returns a [BEQuery](https://parse.com/docs/ios/api/Classes/PFQuery.html) for a given class.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+ (nonnull instancetype)queryWithClassName:**  **(nonnull NSString \*)className;** |

**Parameters**

|  |  |
| --- | --- |
| className | The class to query on. |

**Return Value**

A [BEQuery](https://parse.com/docs/ios/api/Classes/PFQuery.html) object.

* queryWithClassName:predicate:

Creates a BEQuery with the constraints given by predicate.

The following types of predicates are supported:

* Simple comparisons such as =, !=, <, >, <=, >=, and BETWEEN with a key and a constant.
* Containment predicates, such as x IN {1, 2, 3}.
* Key-existence predicates, such as x IN SELF.
* BEGINSWITH expressions.
* Compound predicates with AND, OR, and NOT.
* SubQueries with key IN %@, subquery.

The following types of predicates are NOT supported:

* Aggregate operations, such as ANY, SOME, ALL, or NONE.
* Regular expressions, such as LIKE, MATCHES, CONTAINS, or ENDSWITH.
* Predicates comparing one key to another.
* Complex predicates with many ORed clauses.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nonnull instancetype)**queryWithClassName:**  (nonnull NSString \*)**className**  **predicate:**  (nullable NSPredicate \*)**predicate;** |

**Parameters**

|  |  |
| --- | --- |
| className | The class to query on. |
| predicate | The predicate to create conditions from. |

* CSBMClassName

The class name to query for.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readwrite, strong, nonatomic)  **NSString \*\_Nonnull CSBMClassName;** |

###### **5.2.1.7.2 Adding Basic Constraints**

* includeKey:

Make the query include BEObjects that have a reference stored at the provided key.

This has an effect similar to a join. You can use dot notation to specify which fields in the included object are also fetch.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**includeKey:**  (nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to load child BEObjects for. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* selectKeys:

Make the query restrict the fields of the returned [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html)s to include only the provided keys.

If this is called multiple times, then all of the keys specified in each of the calls will be included.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**selectKeys:**  (nonnull NSArray<NSString \*> \*)**keys;** |

**Parameters**

|  |  |
| --- | --- |
| key | The keys to include in the result. |

**Return Value**

The same instance of [BEQuery](https://parse.com/docs/ios/api/Classes/PFQuery.html) as the receiver. This allows method chaining.

* whereKeyExists:

Add a constraint that requires a particular key exists.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKeyExists:**  (nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key that should exist. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKeyDoesNotExist:

Add a constraint that requires a key not exist.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKeyDoesNotExist:**  (nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key that should not exist. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:equalTo:

Add a constraint to the query that requires a particular key’s object to be equal to the provided object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **equalTo**:(nonnull id)**object;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| object | The object that must be equalled. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:lessThan:

Add a constraint to the query that requires a particular key’s object to be less than the provided object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **lessThan**:(nonnull id)**object;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| object | The object that provides an upper bound. |

**Return Value**

The same instance of [BEQuery](https://parse.com/docs/ios/api/Classes/PFQuery.html) as the receiver. This allows method chaining.

* whereKey:lessThanOrEqualTo:

Add a constraint to the query that requires a particular key’s object to be less than or equal to the provided object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **lessThanOrEqualTo**:(nonnull id)**object;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| object | The object that must be equalled. |

**Return Value**

The same instance of [BEQuery](https://parse.com/docs/ios/api/Classes/PFQuery.html) as the receiver. This allows method chaining.

* whereKey:greaterThan:

Add a constraint to the query that requires a particular key’s object to be greater than the provided object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **greaterThan**:(nonnull id)**object;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| object | The object that must be equalled. |

**Return Value**

The same instance of [BEQuery](https://parse.com/docs/ios/api/Classes/PFQuery.html) as the receiver. This allows method chaining.

* whereKey:greaterThanOrEqualTo:

Add a constraint to the query that requires a particular key’s object to be greater than or equal to the provided object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **greaterThanOrEqualTo**:(nonnull id)**object;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| object | The object that must be equalled. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:notEqualTo:

Add a constraint to the query that requires a particular key’s object to be not equal to the provided object.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **notEqualTo**:(nonnull id)**object;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| object | The object that must not be equalled. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:containedIn:

Add a constraint to the query that requires a particular key’s object to be contained in the provided array.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **containedIn**:(nonnull NSArray \*)**array;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| array | The possible values for the key’s object. |

**Return Value**

The same instance of [BEQuery](https://parse.com/docs/ios/api/Classes/PFQuery.html) as the receiver. This allows method chaining.

* whereKey:notContainedIn:

Add a constraint to the query that requires a particular key’s object not be contained in the provided array.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **notContainedIn**:(nonnull NSArray \*)**array;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| array | The list of values the key’s object should not be. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:containsAllObjectsInArray:

Add a constraint to the query that requires a particular key’s array contains every element of the provided array.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **containsAllObjectsInArray**:(nonnull NSArray \*)**array;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| array | The array of values to search for. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

###### **5.2.1.7.3 Adding Location Constraints**

* whereKey:nearGeoPoint:

Add a constraint to the query that requires a particular key’s coordinates (specified via [BEGeoPoint](https://parse.com/docs/ios/api/Classes/PFGeoPoint.html)) be near a reference point.

Distance is calculated based on angular distance on a sphere. Results will be sorted by distance from reference point.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey:(nonnull NSString \*)key**  **nearGeoPoint**:(nonnull BEGeoPoint \*)**geopoint;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| geopoint | The reference point represented as a BEGeoPoint. |

**Return Value**

The same instance of [BEQuery](https://parse.com/docs/ios/api/Classes/PFQuery.html) as the receiver. This allows method chaining.

* whereKey:nearGeoPoint:withinMiles:

Add a constraint to the query that requires a particular key’s coordinates (specified via BEGeoPoint) be near a reference point and within the maximum distance specified (in miles).

Distance is calculated based on a spherical coordinate system. Results will be sorted by distance (nearest to farthest) from the reference point.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **nearGeoPoint**:(nonnull BEGeoPoint \*)**geopoint**  **withinMiles**:(double)**maxDistance;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| geopoint | The reference point represented as a BEGeoPoint. |
| maxDistance | Maximum distance in miles. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:nearGeoPoint:withinKilometers:

Add a constraint to the query that requires a particular key’s coordinates (specified via BEGeoPoint) be near a reference point and within the maximum distance specified (in kilometers).

Distance is calculated based on a spherical coordinate system. Results will be sorted by distance (nearest to farthest) from the reference point.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **nearGeoPoint**:(nonnull BEGeoPoint \*)**geopoint**  **withinKilometers**:(double)**maxDistance;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| geopoint | The reference point represented as a BEGeoPoint. |
| maxDistance | Maximum distance in kilometers. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:nearGeoPoint:withinRadians:

Add a constraint to the query that requires a particular key’s coordinates (specified via BEGeoPoint) be near a reference point and within the maximum distance specified (in radians). Distance is calculated based on angular distance on a sphere. Results will be sorted by distance (nearest to farthest) from the reference point.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **nearGeoPoint**:(nonnull BEGeoPoint \*)**geopoint**  **withinRadians**:(double)**maxDistance;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| geopoint | The reference point as a BEGeoPoint. |
| maxDistance | Maximum distance in radians. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:withinGeoBoxFromSouthwest:toNortheast:

Add a constraint to the query that requires a particular key’s coordinates (specified via BEGeoPoint) be contained within a given rectangular geographic bounding box.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **withinGeoBoxFromSouthwest**:(nonnull BEGeoPoint \*)**southwest**  **toNortheast**:(nonnull BEGeoPoint \*)**northeast;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to be constrained. |
| southwest | The lower-left inclusive corner of the box. |
| northeast | The upper-right inclusive corner of the box. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

###### **5.2.1.7.4 Adding String Constraints**

* whereKey:matchesRegex:

Add a regular expression constraint for finding string values that match the provided regular expression.

**Warning**

|  |
| --- |
| This may be slow for large datasets. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **matchesRegex**:(nonnull NSString \*)**regex;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key that the string to match is stored in. |
| regex | The regular expression pattern to match. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:matchesRegex:modifiers:

Add a regular expression constraint for finding string values that match the provided regular expression.

**Warning**

|  |
| --- |
| This may be slow for large datasets. |

i - Case insensitive search

m - Search across multiple lines of input

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **matchesRegex**:(nonnull NSString \*)**regex**  **modifiers**:(nullable NSString \*)**modifiers;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key that the string to match is stored in. |
| regex | The regular expression pattern to match. |
| modifiers | Any of the following supported PCRE modifiers: - i - Case insensitive search - m - Search across multiple lines of input |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:containsString:

Add a constraint for finding string values that contain a provided substring.

**Warning**

|  |
| --- |
| This will be slow for large datasets. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **containsString**:(nullable NSString \*)**substring;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key that the string to match is stored in. |
| substring | The substring that the value must contain. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:hasPrefix:

Add a constraint for finding string values that start with a provided prefix.

This will use smart indexing, so it will be fast for large datasets.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **hasPrefix**:(nullable NSString \*)**prefix;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key that the string to match is stored in. |
| prefix | The substring that the value must start with. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:hasSuffix:

Add a constraint for finding string values that end with a provided suffix.

**Warning**

|  |
| --- |
| This will be slow for large datasets. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **hasSuffix**:(nullable NSString \*)**suffix;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key that the string to match is stored in. |
| suffix | The substring that the value must end with. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

###### **5.2.1.7.5 Adding Subqueries**

* orQueryWithSubqueries:

Returns a BEQuery that is the or of the passed in queries.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (nonnull instancetype)**orQueryWithSubqueries:**  (nonnull NSArray<BEQuery \*> \*)**queries;** |

**Parameters**

|  |  |
| --- | --- |
| queries | The list of queries to or together. |

**Return Value**

An instance of BEQuery that is the or of the passed in queries.

* whereKey:matchesKey:inQuery:

Adds a constraint that requires that a key’s value matches a value in another key in objects returned by a sub query.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **matchesKey**:(nonnull NSString \*)**otherKey**  **inQuery**:(nonnull BEQuery \*)**query;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key that the value is stored. |
| otherKey | The key in objects in the returned by the sub query whose value should match. |
| query | The query to run. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:doesNotMatchKey:inQuery:

Adds a constraint that requires that a key’s value NOT match a value in another key in objects returned by a sub query.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **doesNotMatchKey**:(nonnull NSString \*)**otherKey**  **inQuery**:(nonnull BEQuery \*)**query;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key that the value is stored. |
| otherKey | The key in objects in the returned by the sub query whose value should match. |
| query | The query to run. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:matchesQuery:

Add a constraint that requires that a key’s value matches a BEQuery constraint.

**Warning**

|  |
| --- |
| This only works where the key’s values are BEObjects or arrays of BEObjects. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **matchesQuery**:(nonnull BEQuery \*)**query;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key that the value is stored in |
| query | The query the value should match |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* whereKey:doesNotMatchQuery:

Add a constraint that requires that a key’s value to not match a BEQuery constraint.

**Warning**

|  |
| --- |
| This only works where the key’s values are BEObjects or arrays of BEObjects. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**whereKey**:(nonnull NSString \*)**key**  **doesNotMatchQuery**:(nonnull BEQuery \*)**query;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key that the value is stored in |
| query | The query the value should not match |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

###### **5.2.1.7.6 Sorting**

* orderByAscending:

Sort the results in *ascending* order with the given key.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**orderByAscending:**  (nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to order by. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* addAscendingOrder:

Additionally sort in *ascending* order by the given key.

The previous keys provided will precedence over this key.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**addAscendingOrder:**  (nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to order by. |

* orderByDescending:

Sort the results in *descending* order with the given key.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**orderByDescending:**  (nonnull NSString \*)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to order by. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* addDescendingOrder:

Additionally sort in *descending* order by the given key.

The previous keys provided will precedence over this key.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**addDescendingOrder:**  (nonnull NSString **\***)**key;** |

**Parameters**

|  |  |
| --- | --- |
| key | The key to order by. |

* orderBySortDescriptor:

Sort the results using a given sort descriptor.

**Warning**

|  |
| --- |
| If a sortDescriptor has custom selector or comparator - they aren’t going to be used. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**orderBySortDescriptor:**  (nonnull NSSortDescriptor \*)**sortDescriptor;** |

**Parameters**

|  |  |
| --- | --- |
| sortDescriptor | The NSSortDescriptor to use to sort the results of the query. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* orderBySortDescriptors:

Sort the results using a given array of sort descriptors.

**Warning**

|  |
| --- |
| If a sortDescriptor has custom selector or comparator - they aren’t going to be used. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**orderBySortDescriptors:**  (nullable NSArray<NSSortDescriptor \*> \*)**sortDescriptors;** |

**Parameters**

|  |  |
| --- | --- |
| sortDescriptors | An array of NSSortDescriptor objects to use to sort the results of the query. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

###### **5.2.1.7.7 Getting Objects by ID**

* getObjectInBackgroundWithId:

Gets a BEObject asynchronously and calls the given block with the result.

**Warning**

|  |
| --- |
| This method mutates the query. It will reset limit to 1, skip to 0 and remove all conditions, leaving onlyobjectId. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**getObjectInBackgroundWithId:**  (nonnull NSString \*)**objectId;** |

**Parameters**

|  |  |
| --- | --- |
| objectId | The id of the object that is being requested. |

**Return Value**

The task, that encapsulates the work being done.

* getObjectInBackgroundWithId:block:

Gets a BEObject asynchronously and calls the given block with the result.

**Warning**

|  |
| --- |
| This method mutates the query. It will reset limit to 1, skip to 0 and remove all conditions, leaving onlyobjectId. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)  **getObjectInBackgroundWithId**:(nonnull NSString \*)**objectId**  **block:**  (nullable void (^)(BEGenericObject \_Nullable,  NSError \*\_Nullable))**block;** |

**Parameters**

|  |  |
| --- | --- |
| objectId | The id of the object that is being requested. |
| block | The block to execute. The block should have the following argument signature:  ^(NSArray \*object, NSError \*error) |

###### **5.2.1.7.8 Getting all Matches for a Query**

* findObjectsInBackground

Finds objects *asynchronously* and sets the NSArray of [BEObject](https://parse.com/docs/ios/api/Classes/PFObject.html) objects as a result of the task.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**findObjectsInBackground;** |

**Return Value**

The task, that encapsulates the work being done.

* findObjectsInBackgroundWithBlock:

Finds objects *asynchronously* and calls the given block with the results.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**findObjectsInBackgroundWithBlock:**  (nullable BEQueryArrayResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block to execute. It should have the following argument signature:  ^(NSArray \*objects, NSError \*error) |

###### **5.2.1.7.9 Getting the First Match in Query**

* getFirstObjectInBackground

Gets an object *asynchronously* and sets it as a result of the task.

**Warning**

|  |
| --- |
| This method mutates the query. It will reset the limit to 1. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**getFirstObjectInBackground;** |

**Return Value**

The task, that encapsulates the work being done.

* getFirstObjectInBackgroundWithBlock:

Gets an object *asynchronously* and calls the given block with the result.

**Warning**

|  |
| --- |
| This method mutates the query. It will reset the limit to 1. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**getFirstObjectInBackgroundWithBlock:**  (nullable void (^)(BEGenericObject \_Nullable,  NSError \*\_Nullable))**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block to execute. It should have the following argument signature: ^(BEObject \*object, NSError \*error). result will be nil if error is set OR no object was found matching the query. error will be nil if result is set OR if the query succeeded, but found no results. |

###### **5.2.1.7.10 Counting the Mathches in a Query**

* countObjectsInBackground

Counts objects *asynchronously* and sets NSNumber with count as a result of the task.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (id)**countObjectsInBackground;** |

**Return Value**

The task, that encapsulates the work being done.

* countObjectsInBackgroundWithBlock:

Counts objects *asynchronously* and calls the given block with the counts.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**countObjectsInBackgroundWithBlock:**  (nullable BEIntegerResultBlock)**block;** |

**Parameters**

|  |  |
| --- | --- |
| block | The block to execute. It should have the following argument signature: ^(int count, NSError \*error) |

###### **5.2.1.7.11 Cancelling a Query**

* cancel

Cancels the current network request (if any). Ensures that callbacks won’t be called.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**cancel;** |

###### **5.2.1.7.12 Paginating Results**

* limit

A limit on the number of objects to return. The default limit is 100, with a maximum of 1000 results being returned at a time.

**Warning**

|  |
| --- |
| If you are calling findObjects with limit = 1, you may find it easier to use getFirst instead. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property (assign, readwrite, nonatomic) NSInteger limit;** |

* skip

The number of objects to skip before returning any.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (assign, readwrite, nonatomic) **NSInteger skip;** |

###### **5.2.1.7.13 Controlling Caching Behavior**

* cachePolicy

The cache policy to use for requests.

Not allowed when Pinning is enabled.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (assign, readwrite, nonatomic)  **BECachePolicy cachePolicy;** |

* maxCacheAge

The age after which a cached value will be ignored

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (assign, readwrite, nonatomic)  **NSTimeInterval maxCacheAge;** |

* hasCachedResult

Returns whether there is a cached result for this query.

@result YES if there is a cached result for this query, otherwise NO.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (readonly, assign, nonatomic)  **BOOL hasCachedResult;** |

* clearCachedResult

Clears the cached result for this query. If there is no cached result, this is a noop.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (void)**clearCachedResult;** |

* clearAllCachedResults

Clears the cached results for all queries.

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **+** (void)**clearAllCachedResults;** |

###### **5.2.1.7.14 Query Source**

* fromLocalDatastore

Change the source of this query to all pinned objects.

**Warning**

|  |
| --- |
| Requires Local Datastore to be enabled. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**fromLocalDatastore;** |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* fromPin

Change the source of this query to the default group of pinned objects.

**Warning**

|  |
| --- |
| Requires Local Datastore to be enabled. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**fromPin;** |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* fromPinWithName:

Change the source of this query to a specific group of pinned objects.

**Warning**

|  |
| --- |
| Requires Local Datastore to be enabled. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**fromPinWithName:**  (nullable NSString \*)**name;** |

**Parameters**

|  |  |
| --- | --- |
| name | The pinned group. |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

* ignoreACLs

Ignore ACLs when querying from the Local Datastore.

This is particularly useful when querying for objects with Role based ACLs set on them.

**Warning**

|  |
| --- |
| Requires Local Datastore to be enabled. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **-** (nonnull instancetype)**ignoreACLs;** |

**Return Value**

The same instance of BEQuery as the receiver. This allows method chaining.

###### **[5.2.1.7.15 Advanced Settings](https://parse.com/docs/ios/api/Classes/PFQuery.html" \l "/Advanced%20Settings)**

* [trace](https://parse.com/docs/ios/api/Classes/PFQuery.html" \l "/c:objc(cs)PFQuery(py)trace)

Whether or not performance tracing should be done on the query.

**Warning**

|  |
| --- |
| This should not be set to YES in most cases. |

**Declaration**

|  |
| --- |
| OBJECTIVE-C  **@property** (assign, readwrite, nonatomic) **BOOL trace;** |

#### **Android Framework APIs**

##### **Class CSBM**

|  |
| --- |
| public class **CSBM** extends **Object** |

The CSBM class contains static functions that handle global configuration for the CSBM library.

###### **Nested Class Summary**

|  |  |
| --- | --- |
| **Modifier and Type** | **Class and Description** |
| **static class** | **CSBM.Configuration**  Represents an opaque configuration for the CSBM SDK configuration. |

###### **Field Summary**

|  |  |
| --- | --- |
| **Modifier and Type** | **Class and Description** |
| static int | LOG\_LEVEL\_DEBUG |
| static int | LOG\_LEVEL\_ERROR |
| static int | LOG\_LEVEL\_INFO |
| static int | LOG\_LEVEL\_NONE |
| static int | LOG\_LEVEL\_VERBOSE |
| static int | LOG\_LEVEL\_WARNING |

###### **Method Summary**

|  |  |
| --- | --- |
| **Modifier and Type** | **Class and Description** |
| static void | **addBENetworkInterceptor**  (**BENetworkInterceptor** interceptor)  Add a *BENetworkInterceptor*. |
| static void | **enableLocalDatastore**(**Context** context)  Enable pinning in yourapplication. |
| static int | **getLogLevel**()  Returns the level of logging that will be displayed. |
| static void | **initialize**(**Context** context)  Authenticates this client as belonging to your application. |
| static void | **initialize**(**Context** context,  **String** applicationId, **String** clientKey)  Authenticates this client as belonging to your application. |
| static void | **removeBENetworkInterceptor**  (**BENetworkInterceptor** interceptor)  Remove a given *BENetworkInterceptor.* |
| static void | **setLogLevel**(**int** logLevel)  Sets the level of logging to display, where each level includes all those below it. |

###### **Method Detail**

* enableLocalDatastore

|  |
| --- |
| public static void enableLocalDatastore(**Context** context) |

Enable pinning in your application. This must be called before your application can use pinning. You must invoke *enableLocalDatastore(Context)* before *CSBM.initialize(Context)*:

|  |
| --- |
| public class MyApplication extends Application {  public void onCreate() {  CSBM.enableLocalDatastore(this);  CSBM.initialize(this);  }  } |

**Parameters**

|  |  |
| --- | --- |
| *context* | The active *Context* for your application. |

* initialize

|  |
| --- |
| public static void initialize(**Context** context) |

Authenticates this client as belonging to your application.

You must define com.csbm.APPLICATION\_ID and com.csbm.CLIENT\_KEY meta-data in your AndroidManifest.xml:

|  |
| --- |
| <manifest ...>  ...  <application ...>  <meta-data  android:name="com.csbm.APPLICATION\_ID"  android:value="@string/csbm\_app\_id" />  <meta-data  android:name="com.csbm.CLIENT\_KEY"  android:value="@string/csbm\_client\_key" />  ...  </application>  </manifest> |

This must be called before your application can use the CSBM library. The recommended way is to put a call to CSBM.initialize in your Application’s onCreate method:

|  |
| --- |
| public class MyApplication extends Application {  public void onCreate() {  CSBM.initialize(this);  }  } |

**Parameters**

|  |  |
| --- | --- |
| *context* | The active *Context* for your application. |

* initialize

|  |
| --- |
| public static void initialize(**Context** context, **String** applicationId, **String** clientKey) |

Authenticates this client as belonging to your application.

This method is only required if you intend to use a different applicationId or clientKey than is defined by com.csbm.APPLICATION\_ID or com.csbm.CLIENT\_KEY in your AndroidManifest.xml.

This must be called before your application can use the CSBM library. The recommended way is to put a call to CSBM.initialize in your Application's onCreate method:

|  |
| --- |
| public class MyApplication extends Application {  public void onCreate() {  CSBM.initialize(this, "your application id", "your client key");  }  } |

**Parameters**

|  |  |
| --- | --- |
| *context* | The active **Context** for your application. |
| *applicationId* | The application Id provided in the CSBM dashboard. |
| *clientKey* | The client key provided in the CSBM dashboard. |

* initialize

|  |
| --- |
| public static void initialize(**CSBM.Configuration** configuration) |

* setLogLevel

|  |
| --- |
| public static void setLogLevel(int logLevel) |

Sets the level of logging to display, where each level includes all those below it. The default level is CSBM.LOG\_LEVEL\_NONE. Please ensure this is set to CSBM.LOG\_LEVEL\_ERROR or CSBM.LOG\_LEVEL\_NONE before deploying your app to ensure no sensitive information is logged. The levels are:

|  |
| --- |
| CSBM.LOG\_LEVEL\_VERBOSE  CSBM.LOG\_LEVEL\_DEBUG  CSBM.LOG\_LEVEL\_INFO  CSBM.LOG\_LEVEL\_WARNING  CSBM.LOG\_LEVEL\_ERROR  CSBM.LOG\_LEVEL\_NONE |

**Parameters**

|  |  |
| --- | --- |
| *logLevel* | The level of logcat logging that Csbm should do. |

* getLogLevel

|  |
| --- |
| public static int getLogLevel() |

Returns the level of logging that will be displayed.

* addBENetworkInterceptor

|  |
| --- |
| public static void addBENetworkInterceptor(**BENetworkInterceptor** interceptor) |

Add a **BENetworkInterceptor**. You must invoke addBENetworkInterceptor(BENetworkInterceptor) before **CSBM.initialize(Context)**. You can add multiple **BENetworkInterceptor**.

**Parameters**

|  |  |
| --- | --- |
| *interceptor* | **BENetworkInterceptor** to be added. |

* removeBENetworkInterceptor

|  |
| --- |
| public static void removeBENetworkInterceptor(**BENetworkInterceptor** interceptor) |

Remove a given **BENetworkInterceptor**. You must invoke removeBENetworkInterceptor(BENetworkInterceptor) before **CSBM.initialize(Context)**.

**Parameters**

|  |  |
| --- | --- |
| *interceptor* | **BENetworkInterceptor** to be removed. |

##### **Class BEUser**

|  |
| --- |
| public class **BEUser** extends **BEObject** |

The BEUser is a local representation of user data that can be saved and retrieved from the CSBM cloud.

###### **Field Summary**

Fields inherited from class com.csbm.**BEObject**.

###### **Contructor Summary**

|  |  |
| --- | --- |
| **Constructor** | **Description** |
| **BEUser()** | Constructs a new BEUser with no data in it. |

###### **Method Summary**

|  |  |
| --- | --- |
| **Modifier and Type** | **Class and Description** |
| static **BEUser** | **become**(**String** sessionToken)  Authorize a user with a session token. |
| static **Task**<**BEUser**> | **becomeInBackground**(**String** sessionToken)  Authorize a user with a session token. |
| static void | **becomeInBackground**(**String** sessionToken, **LogInCallback** callback)  Authorize a user with a session token. |
| static void | **enableAutomaticUser**()  Enables automatic creation of anonymous users. |
| static Task<Void> | **enableRevocableSessionInBackground**()  Enables revocable sessions. |
| BEUser | **fetch**()  Fetches this object with the data from the server. |
| BEUser | **fetchIfNeeded**()  If this BEObject has not been fetched (i.e. |
| static BEUser | **getCurrentUser**()  This retrieves the currently logged in BEUser with a valid session, either from memory or disk if necessary. |
| String | **getEmail**()  Retrieves the email address. |
| static BEQuery<BEUser> | **getQuery**()  Constructs a query for BEUser. |
| String | **getSessionToken**() |
| String | **getUsername**()  Retrieves the username. |
| boolean | **isAuthenticated**()  Whether the BEUser has been authenticated on this device. |
| boolean | **isLinked**(**String** authType)  Indicates whether this user is linked with a third party authentication source. |
| boolean | **isNew**()  Indicates whether this BEUser was created during this session through a call to *BEUser.signUp()* or by logging in with a linked service such as Facebook. |
| Task<void> | **linkWithInBackground**(**String** authType, **Map**<**String**, **String**> authData)  Links this user to a third party authentication source. |
| Static BEUser | **logIn**(**String** username, **String** password)  Logs in a user with a username and password. |
| Static Task<BEUser> | **logInInBackground**(**String** username, **String** password)  Logs in a user with a username and password. |
| Static void | **logInInBackground**(**String** username, **String** password, **LogInCallback** callback)  Logs in a user with a username and password. |
| Static Task<BEUser> | **logInWithInBackground**(**String** authType, **Map**<**String**,**String**> authData)  Logs in a user with third party authentication credentials. |
| Static void | **logOut**()  Logs out the currently logged in user session. |
| Static Task<void> | **logOutInBackground**()  Logs out the currently logged in user session. |
| Void | **put**(**String** key, **Object** value)  Add a key-value pair to this object. |
| Static void | **registerAuthenticationCallback**(**String** authType, **AuthenticationCallback** callback)  Registers a third party authentication callback. |
| Void | **remove**(**String** key)  Removes a key from this object's data if it exists. |
| Static void | **requestPasswordReset**(**String** email)  Requests a password reset email to be sent to the specified email address associated with the user account. |
| Static Task<void> | **requestPasswordResetInBackground**(**String** email)  Requests a password reset email to be sent in a background thread to the specified email address associated with the user account. |
| Static void | **requestPasswordResetInBackground**(**String** email, **RequestPasswordResetCallback** callback)  Requests a password reset email to be sent in a background thread to the specified email address associated with the user account. |
| Void | **setEmail**(**String** email)  Sets the email address. |
| Void | **setPassword**(**String** password)  Sets the password. |
| Void | **setUsername**(**String** username)  Sets the username. |
| Void | **signUp**()  Signs up a new user. |
| Task<Void> | **signUpInBackground**()  Signs up a new user. |
| Void | **signUpInBackground**(**SignUpCallback** callback)  Signs up a new user. |
| Task<Void> | **unlinkFromInBackground**(**String** authType)  Unlinks this user from a third party authentication source. |

###### **Constructor Detail**

* BEUser

|  |
| --- |
| public BEUser() |

Constructs a new BEUser with no data in it. A BEUser constructed in this way will not have an objectId and will not persist to the database until *BEUser.signUp()* is called.

###### **Method Detail**

* getQuery

|  |
| --- |
| public static **BEQuery**<**BEUser**> getQuery() |

Constructs a query for BEUser.

* isAuthenticated

|  |
| --- |
| public boolean isAuthenticated() |

Whether the BEUser has been authenticated on this device. This will be true if the BEUser was obtained via a logIn or signUp method. Only an authenticated BEUser can be saved (with altered attributes) and deleted.

* remove

|  |
| --- |
| public void remove(**String** key) |

**Description copied from class:** BEObject

Removes a key from this object's data if it exists.

**Overrides**

|  |
| --- |
| remove in class BEObject. |

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to remove. |

* getSessionToken

|  |
| --- |
| public String getSessionToken() |

**Return**

|  |
| --- |
| the session token for a user, if they are logged in. |

* setUsername

|  |
| --- |
| public void setUsername(**String** username) |

Sets the username. Usernames cannot be null or blank.

**Parameters**

|  |  |
| --- | --- |
| *username* | The username to set. |

* getUsername

|  |
| --- |
| public String getUsername() |

Retrieves the username.

* setPassword

|  |
| --- |
| public void setPassword(**String** password) |

Sets the password.

**Parameters**

|  |  |
| --- | --- |
| *password* | The password to set. |

* setEmail

|  |
| --- |
| public void setEmail(**String** email) |

Sets the email address.

**Parameters**

|  |  |
| --- | --- |
| *email* | The email address to set. |

* getEmail

|  |
| --- |
| public String getEmail() |

Retrieves the email address.

* isNew

|  |
| --- |
| public boolean isNew() |

Indicates whether this BEUser was created during this session through a call to *BEUser.signUp()* or by logging in with a linked service such as Facebook.

* put

|  |
| --- |
| public void put(**String** key, **Object** value) |

**Description copied from class:** BEObject

Add a key-value pair to this object. It is recommended to name keys in camelCaseLikeThis.

**Overrides**

|  |
| --- |
| put in class BEObject. |

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to remove. |
| *value* | Values may be numerical, String, JSONObject, JSONArray, JSONObject.NULL, or other BEObjects. value may not be null. |

* fetch

|  |
| --- |
| public **BEUser** fetch() throws **BEException** |

**Description copied from class:** BEObject.

Fetches this object with the data from the server. Call this whenever you want the state of the object to reflect exactly what is on the server.

**Overrides**

|  |
| --- |
| fetch in class BEObject. |

**Returns**

|  |
| --- |
| The BEObject that was fetched. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server is inaccessible. |

* signUpInBackgroundgetQuery

|  |
| --- |
| public **Task**<**Void**> signUpInBackground() |

Signs up a new user. You should call this instead of *BEObject.save()* for new BEUsers. This will create a new BEUser on the server, and also persist the session on disk so that you can access the user using *BEUser.getCurrentUser().*

A username and password must be set before calling signUp.

This is preferable to using *BEUser.signUp()*, unless your code is already running from a background thread.

**Returns**

|  |
| --- |
| A Task that is resolved when sign up completes. |

* signUp

|  |
| --- |
| public void signUp() throws **BEException** |

Signs up a new user. You should call this instead of *BEObject.save()* for new BEUsers. This will create a new BEUser on the server, and also persist the session on disk so that you can access the user using *BEUser.getCurrentUser().*

A username and password must be set before calling signUp.

Typically, you should use *BEUser.signUpInBackground()* instead of this, unless you are managing your own threading.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server is inaccessible, or if the username has already been taken. |

* signUpInBackground

|  |
| --- |
| public void signUpInBackground(**SignUpCallback** callback) |

Signs up a new user. You should call this instead of *BEObject.save()*for new BEUsers. This will create a new BEUser on the server, and also persist the session on disk so that you can access the user using *BEUser.getCurrentUser().*

A username and password must be set before calling signUp.

This is preferable to using *BEUser.signUp()*, unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *callback* | callback.done(user, e) is called when the signUp completes. |

* logInInBackground

|  |
| --- |
| public static **Task**<**BEUser**> logInInBackground(**String** username, **String** password) |

Logs in a user with a username and password. On success, this saves the session to disk, so you can retrieve the currently logged in user using *BEUser.getCurrentUser().*

This is preferable to using *BEUser.logIn(java.lang.String, java.lang.String),* unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *username* | The username to log in with. |
| *password* | The password to log in with. |

**Returns**

|  |
| --- |
| A Task that is resolved when logging in completes. |

* logIn

|  |
| --- |
| public static **BEUser** logIn(**String** username, **String** password) throws **BEException** |

Logs in a user with a username and password. On success, this saves the session to disk, so you can retrieve the currently logged in user using *BEUser.getCurrentUser().*

Typically, you should use *BEUser.logInInBackground(java.lang.String, java.lang.String)* instead of this, unless you are managing your own threading.

**Parameters**

|  |  |
| --- | --- |
| *username* | The username to log in with. |
| *password* | The password to log in with. |

**Returns**

|  |
| --- |
| The user if the login was successful. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the login was unsuccessful. |

* logInInBackground

|  |
| --- |
| public static void logInInBackground(**String** username, **String** password, **LogInCallback** callback) |

Logs in a user with a username and password. On success, this saves the session to disk, so you can retrieve the currently logged in user using *BEUser.getCurrentUser().*

This is preferable to using *BEUser.logIn(java.lang.String, java.lang.String),* unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *username* | The username to log in with. |
| *password* | The password to log in with. |
| *callback* | callback.done(user, e) is called when the login completes. |

* becomeInBackground

|  |
| --- |
| public static **Task**<**BEUser**> becomeInBackground(**String** sessionToken) |

Authorize a user with a session token. On success, this saves the session to disk, so you can retrieve the currently logged in user using *BEUser.getCurrentUser().*

This is preferable to using *BEUser.become(java.lang.String),* unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *sessionToken* | The session token to authorize with. |

**Returns**

|  |
| --- |
| A Task that is resolved when authorization completes. |

* become

|  |
| --- |
| public static **BEUser** become(**String** sessionToken) throws **BEException** |

Authorize a user with a session token. On success, this saves the session to disk, so you can retrieve the currently logged in user using *BEUser.getCurrentUser().*

Typically, you should use *BEUser.becomeInBackground(java.lang.String)* instead of this, unless you are managing your own threading.

**Parameters**

|  |  |
| --- | --- |
| *sessionToken* | The session token to authorize with. |

**Returns**

|  |
| --- |
| The user if the login was successful. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the login was unsuccessful. |

* becomeInBackground

|  |
| --- |
| public static void becomeInBackground(**String** sessionToken, **LogInCallback** callback) |

Authorize a user with a session token. On success, this saves the session to disk, so you can retrieve the currently logged in user using *BEUser.getCurrentUser().*

This is preferable to using *BEUser.become(java.lang.String),* unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *sessionToken* | The session token to authorize with. |
| *callback* | callback.done(user, e) is called when the authorization completes. |

* getCurrentUser

|  |
| --- |
| public static **BEUser** getCurrentUser() |

This retrieves the currently logged in BEUser with a valid session, either from memory or disk if necessary.

**Returns**

|  |
| --- |
| The currently logged in BEUser. |

* logOutInBackground

|  |
| --- |
| public static **Task**<**Void**> logOutInBackground() |

Logs out the currently logged in user session. This will remove the session from disk, log out of linked services, and future calls to *BEUser.getCurrentUser()*will return null.

This is preferable to using *BEUser.logOut(),* unless your code is already running from a background thread.

**Returns**

|  |
| --- |
| A Task that is resolved when logging out completes. |

* logOutInBackground

|  |
| --- |
| public static void logOutInBackground(**LogOutCallback** callback) |

Logs out the currently logged in user session. This will remove the session from disk, log out of linked services, and future calls to *BEUser.getCurrentUser()* will return null.

This is preferable to using *BEUser.logOut(),* unless your code is already running from a background thread.

* logOut

|  |
| --- |
| public static void logOut() |

Logs out the currently logged in user session. This will remove the session from disk, log out of linked services, and future calls to *BEUser.getCurrentUser()* will return null.

Typically, you should use *BEUser.logOutInBackground()* instead of this, unless you are managing your own threading.

**Note:** Any errors in the log out flow will be swallowed due to backward-compatibility reasons. Please use *BEUser.logOutInBackground()* if you'd wish to handle them.

* requestPasswordResetInBackground

|  |
| --- |
| public static **Task**<**Void**> requestPasswordResetInBackground(**String** email) |

Requests a password reset email to be sent in a background thread to the specified email address associated with the user account. This email allows the user to securely reset their password on the CSBM site.

This is preferable to using *BEUser.requestPasswordReset(String)*, unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *email* | The email address associated with the user that forgot their password. |

**Returns**

|  |
| --- |
| A Task that is resolved when the command completes. |

* requestPasswordReset

|  |
| --- |
| public static void requestPasswordReset(**String** email) throws **BEException** |

Requests a password reset email to be sent to the specified email address associated with the user account. This email allows the user to securely reset their password on the CSBM site.

Typically, you should use *BEUser.requestPasswordResetInBackground(java.lang.String)* instead of this, unless you are managing your own threading.

**Parameters**

|  |  |
| --- | --- |
| *email* | The email address associated with the user that forgot their password. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server is inaccessible, or if an account with that email doesn't exist. |

* requestPasswordResetInBackground

|  |
| --- |
| public static void requestPasswordResetInBackground (**String** email, **RequestPasswordResetCallback** callback) |

Requests a password reset email to be sent in a background thread to the specified email address associated with the user account. This email allows the user to securely reset their password on the CSBM site.

This is preferable to using *BEUser.requestPasswordReset(String)*, unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *email* | The email address associated with the user that forgot their password. |
| *callback* | callback.done(e) is called when the request completes |

* fetchIfNeeded

|  |
| --- |
| public **BEUser** fetchIfNeeded() throws **BEException** |

**Description copied from class:** BEObject.

If this BEObject has not been fetched (i.e. *BEObject.isDataAvailable()* returns false), fetches this object with the data from the server.

**Overrides**

|  |
| --- |
| fetchIfNeeded in class BEObject. |

**Returns**

|  |
| --- |
| The fetched BEObject. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server is inaccessible. |

* registerAuthenticationCallback

|  |
| --- |
| public static void registerAuthenticationCallback (**String** authType, **AuthenticationCallback** callback) |

Registers a third party authentication callback.

**Note:** This shouldn't be called directly unless developing a third party authentication library.

**Parameters**

|  |  |
| --- | --- |
| *authType* | The name of the third party authentication source. |
| *callback* | The third party authentication callback to be registered. |

* logInWithInBackground

|  |
| --- |
| public static **Task**<**BEUser**> logInWithInBackground(**String** authType, **Map**<**String**,**String**> authData) |

Logs in a user with third party authentication credentials.

**Note:** This shouldn't be called directly unless developing a third party authentication library.

**Parameters**

|  |  |
| --- | --- |
| *authType* | The name of the third party authentication source. |
| *authData* | The user credentials of the third party authentication source. |

**Returns**

|  |
| --- |
| A Task is resolved when logging in completes. |

* isLinked

|  |
| --- |
| public boolean isLinked(**String** authType) |

Indicates whether this user is linked with a third party authentication source.

**Note:** This shouldn't be called directly unless developing a third party authentication library.

**Parameters**

|  |  |
| --- | --- |
| *authType* | The name of the third party authentication source. |

**Returns**

|  |
| --- |
| true if linked, otherwise false. |

* linkWithInBackground

|  |
| --- |
| public **Task**<**Void**> linkWithInBackground(**String** authType, **Map**<**String**,**String**> authData) |

Links this user to a third party authentication source.

**Note:** This shouldn't be called directly unless developing a third party authentication library.

**Parameters**

|  |  |
| --- | --- |
| *authType* | The name of the third party authentication source. |
| *authData* | The user credentials of the third party authentication source. |

**Returns**

|  |
| --- |
| A Task is resolved when linking completes. |

* unlinkFromInBackground

|  |
| --- |
| public **Task**<**Void**> unlinkFromInBackground(**String** authType) |

Unlinks this user from a third party authentication source.

**Note:** This shouldn't be called directly unless developing a third party authentication library.

**Parameters**

|  |  |
| --- | --- |
| *authType* | The name of the third party authentication source. |

**Returns**

|  |
| --- |
| A Task is resolved when unlinking completes. |

* enableAutomaticUser

|  |
| --- |
| public static void enableAutomaticUser() |

Enables automatic creation of anonymous users. After calling this method, *BEUser.getCurrentUser()* will always have a value. The user will only be created on the server once the user has been saved, or once an object with a relation to that user or an ACL that refers to the user has been saved.

**Note:** *BEObject.saveEventually()* will not work if an item being saved has a relation to an automatic user that has never been saved.

* enableRevocableSessionInBackground

|  |
| --- |
| public static **Task**<**Void**> enableRevocableSessionInBackground() |

Enables revocable sessions. This method is only required if you wish to use BESession APIs and do not have revocable sessions enabled in your application settings server.

Upon successful completion of this Task, BESession APIs will be available for use.

**Returns**

|  |
| --- |
| A Task that will resolve when enabling revocable session. |

##### **Class BEACL**

|  |
| --- |
| public class **BEACL** extends **Object** |

A BEACL is used to control which users can access or modify a particular object. Each BEObject can have its own BEACL. You can grant read and write permissions separately to specific users, to groups of users that belong to roles, or you can grant permissions to "the public" so that, for example, any user could read a particular object but only a particular set of users could write to that object.

###### **Constructor Summary**

|  |  |
| --- | --- |
| **Constructor** | **Description** |
| **BEACL()** | Creates an ACL with no permissions granted. |
| **BEACL(BEACL** acl**)** | Creates a copy of acl. |
| **BEACL(BEUser** owner**)** | Creates an ACL where only the provided user has access. |

###### **Method Summary**

|  |  |
| --- | --- |
| **Modifier and Type** | **Class and Description** |
| boolean | **getPublicReadAccess()**  Get whether the public is allowed to read this object. |
| boolean | **getPublicWriteAccess()**  Set whether the public is allowed to write this object. |
| boolean | **getReadAccess(BEUser**user**)**  Get whether the given user id is \*explicitly\* allowed to read this object. |
| boolean | **getReadAccess(String**userId**)**  Get whether the given user id is \*explicitly\* allowed to read this object. |
| boolean | **getRoleReadAccess(BERole**role**)**  Get whether users belonging to the given role are allowed to read this object. |
| boolean | **getRoleReadAccess(String**roleName**)**  Get whether users belonging to the role with the given roleName are allowed to read this object. |
|  | **getRoleWriteAccess(BERole** role**)**  Get whether users belonging to the given role are allowed to write this object. |
| boolean | **getRoleWriteAccess(String**roleName**)**  Get whether users belonging to the role with the given roleName are allowed to write this object. |
| boolean | **getWriteAccess(BEUser**user**)**  Get whether the given user id is \*explicitly\* allowed to write this object. |
| boolean | **getWriteAccess(String**userId**)**  Get whether the given user id is \*explicitly\* allowed to write this object. |
| static void | **setDefaultACL(BEACL**acl**, boolean**withAccessForCurrentUser**)**  Sets a default ACL that will be applied to all BEObjects when they are created. |
| void | **setPublicReadAccess(boolean**allowed**)**  Set whether the public is allowed to read this object. |
| void | **setPublicWriteAccess(boolean**allowed**)**  Set whether the public is allowed to write this object. |
| void | **setReadAccess(BEUser**user**, boolean**allowed**)**  Set whether the given user is allowed to read this object. |
| void | **setReadAccess(String**userId**, boolean**allowed**)**  Set whether the given user id is allowed to read this object. |
| void | **setRoleReadAccess(BERole**role**, boolean**allowed**)**  Set whether users belonging to the given role are allowed to read this object. |
| void | **setRoleReadAccess(String**roleName**, boolean**allowed**)**  Set whether users belonging to the role with the given roleName are allowed to read this object. |
| void | **setRoleWriteAccess(BERole**role**, boolean**allowed**)**  Set whether users belonging to the given role are allowed to write this object. |
| void | **setRoleWriteAccess(String**roleName**, boolean**allowed**)**  Set whether users belonging to the role with the given roleName are allowed to write this object. |
| void | **setWriteAccess(BEUser**user**, boolean**allowed**)**  Set whether the given user is allowed to write this object. |
| void | **setWriteAccess(String**userId**, boolean**allowed**)**  Set whether the given user id is allowed to write this object. |

###### **Constructor Detail**

* BEACL

|  |
| --- |
| public BEACL() |

Creates an ACL with no permissions granted.

* BEACL

|  |
| --- |
| public BEACL(**BEACL** acl) |

Creates a copy of acl.

**Parameters**

|  |  |
| --- | --- |
| *acl* | The acl to copy. |

* BEACL

|  |
| --- |
| public BEACL(**BEUser** owner) |

Creates an ACL where only the provided user has access.

**Parameters**

|  |  |
| --- | --- |
| *owner* | The only user that can read or write objects governed by this ACL. |

###### **Method Detail**

* setDefaultACL

|  |
| --- |
| public static void setDefaultACL(**BEACL** acl, **boolean** withAccessForCurrentUser) |

Sets a default ACL that will be applied to all BEObjects when they are created.

**Parameters**

|  |  |
| --- | --- |
| *acl* | The ACL to use as a template for all *BEObjects* created after setDefaultACL has been called. This value will be copied and used as a template for the creation of new ACLs, so changes to the instance after setDefaultACL(BEACL, boolean) has been called will not be reflected in new *BEObjects*. |
| *withAccessForCurrentUser* | If true, the BEACL that is applied to newly-created *BEObjects* will provide read and write access to the *BEUser.getCurrentUser()* at the time of creation. If false, the provided ACL will be used without modification. If acl is null, this value is ignored. |

* setPublicReadAccess

|  |
| --- |
| public void setPublicReadAccess(**boolean** allowed) |

Set whether the public is allowed to read this object.

* setPublicReadAccess

|  |
| --- |
| public boolean getPublicReadAccess() |

Get whether the public is allowed to read this object.

* setPublicWriteAccess

|  |
| --- |
| public void setPublicWriteAccess(**boolean** allowed) |

Set whether the public is allowed to write this object.

* getPublicWriteAccess

|  |
| --- |
| public boolean getPublicWriteAccess() |

Get whether the public is allowed to write this object.

* setReadAccess

|  |
| --- |
| public void setReadAccess(**String** userId, **boolean** allowed) |

Set whether the given user id is allowed to read this object.

* getReadAccess

|  |
| --- |
| public boolean getReadAccess(**String** userId) |

Get whether the given user id is \*explicitly\* allowed to read this object. Even if this returns false, the user may still be able to access it if getPublicReadAccess returns true or a role that the user belongs to has read access.

* setWriteAccess

|  |
| --- |
| public void setWriteAccess(**String** userId, **boolean** allowed) |

Set whether the given user id is allowed to write this object.

* getWriteAccess

|  |
| --- |
| public boolean getWriteAccess(**String** userId) |

Get whether the given user id is \*explicitly\* allowed to write this object. Even if this returns false, the user may still be able to write it if getPublicWriteAccess returns true or a role that the user belongs to has write access.

* setReadAccess

|  |
| --- |
| public void setReadAccess(**BEUser** user, **boolean** allowed) |

Set whether the given user is allowed to read this object.

* getReadAccess

|  |
| --- |
| public boolean getReadAccess(**BEUser** user) |

Get whether the given user id is \*explicitly\* allowed to read this object. Even if this returns false, the user may still be able to access it if getPublicReadAccess returns true or a role that the user belongs to has read access.

* setWriteAccess

|  |
| --- |
| public void setWriteAccess(**BEUser** user, **boolean** allowed) |

Set whether the given user is allowed to write this object.

* getWriteAccess

|  |
| --- |
| public boolean getWriteAccess(**BEUser** user) |

Get whether the given user id is \*explicitly\* allowed to write this object. Even if this returns false, the user may still be able to write it if getPublicWriteAccess returns true or a role that the user belongs to has write access.

* getRoleReadAccess

|  |
| --- |
| public boolean getRoleReadAccess(**String** roleName) |

Get whether users belonging to the role with the given roleName are allowed to read this object. Even if this returns false, the role may still be able to read it if a parent role has read access.

**Parameters**

|  |  |
| --- | --- |
| *roleName* | The name of the role. |

**Returns**

|  |
| --- |
| true if the role has read access. false otherwise |

* setRoleReadAccess

|  |
| --- |
| public void setRoleReadAccess(**String** roleName, **boolean** allowed) |

Set whether users belonging to the role with the given roleName are allowed to read this object.

**Parameters**

|  |  |
| --- | --- |
| *roleName* | The name of the role. |
| *allowed* | Whether the given role can read this object. |

* getRoleWriteAccess

|  |
| --- |
| public boolean getRoleWriteAccess(**String** roleName) |

Get whether users belonging to the role with the given roleName are allowed to write this object. Even if this returns false, the role may still be able to write it if a parent role has write access.

**Parameters**

|  |  |
| --- | --- |
| *roleName* | The name of the role. |

**Returns**

|  |
| --- |
| true if the role has read access. false otherwise |

* setRoleWriteAccess

|  |
| --- |
| public void setRoleWriteAccess(**String** roleName, **boolean** allowed) |

Set whether users belonging to the role with the given roleName are allowed to write this object.

**Parameters**

|  |  |
| --- | --- |
| *roleName* | The name of the role. |
| *allowed* | Whether the given role can read this object. |

* getRoleReadAccess

|  |
| --- |
| public boolean getRoleReadAccess(**String** roleName) |

Get whether users belonging to the given role are allowed to read this object. Even if this returns false, the role may still be able to read it if a parent role has read access. The role must already be saved on the server and its data must have been fetched in order to use this method.

**Parameters**

|  |  |
| --- | --- |
| *roleName* | The name of the role. |

**Returns**

|  |
| --- |
| true if the role has read access. false otherwise |

* setRoleReadAccess

|  |
| --- |
| public void setRoleReadAccess(**BERole** role, **boolean** allowed) |

Set whether users belonging to the given role are allowed to read this object. The role must already be saved on the server and its data must have been fetched in order to use this method.

**Parameters**

|  |  |
| --- | --- |
| *role* | The role to assign access. |
| *allowed* | Whether the given role can read this object. |

* getRoleWriteAccess

|  |
| --- |
| public boolean getRoleWriteAccess(**BERole** role) |

Get whether users belonging to the given role are allowed to write this object. Even if this returns false, the role may still be able to write it if a parent role has write access. The role must already be saved on the server and its data must have been fetched in order to use this method.

**Parameters**

|  |  |
| --- | --- |
| *role* | - The role to check for access. |

**Returns**

|  |
| --- |
| true if the role has read access. false otherwise |

* setRoleWriteAccess

|  |
| --- |
| public void setRoleWriteAccess(**BERole** role, **boolean** allowed) |

Set whether users belonging to the given role are allowed to write this object. The role must already be saved on the server and its data must have been fetched in order to use this method.

**Parameters**

|  |  |
| --- | --- |
| *role* | The role to assign access. |
| *allowed* | Whether the given role can read this object. |

##### **Class BEObject**

|  |
| --- |
| public class **BEObject** extends **Object** |

The BEObject is a local representation of data that can be saved and retrieved from the CSBM cloud.

The basic workflow for creating new data is to construct a new BEObject, use *BEObject.put(String, Object)* to fill it with data, and then use *BEObject.saveInBackground()* to persist to the cloud.

The basic workflow for accessing existing data is to use a BEQuery to specify which existing data to retrieve.

###### **Field Summary**

|  |  |
| --- | --- |
| **Modifier and Type** | **Class and Description** |
| static **String** | **DEFAULT\_PIN**  Default name for pinning if not specified. |

###### **Constructor Summary**

|  |  |
| --- | --- |
| **Modifier** | **Constructor and Description** |
| protected | **BEObject()**  The base class constructor to call in subclasses. |
|  | **BEObject(String** theClassName**)**  Constructs a new BEObject with no data in it. |

###### **Method Summary**

|  |  |
| --- | --- |
| **Modifier and Type** | **Class and Description** |
| void | **add(String** key**, Object** value**)**  Atomically adds an object to the end of the array associated with a given key. |
| void | **addAll(String** key**, Collection<?>** values**)**  Atomically adds the objects contained in a Collection to the end of the array associated with a given key. |
| void | **addAllUnique(String**key**, Collection<?>** values**)**  Atomically adds the objects contained in a Collection to the array associated with a given key, only adding elements which are not already present in the array. |
| void | **addUnique(String**key**, Object**value**)**  Atomically adds an object to the array associated with a given key, only if it is not already present in the array. |
| boolean | **containsKey(String**key**)**  Whether this object has a particular key. |
| static <T extends **BEObject**> T | **create(Class<T>**subclass**)**  Creates a new BEObject based upon a subclass type. |
| static **BEObject** | **create(String**className**)**  Creates a new BEObject based upon a class name. |
| static <T extends **BEObject**> T | **createWithoutData(Class<T>**subclass**,**  **String**objectId**)**  Creates a reference to an existing BEObject for use in creating associations between BEObjects. |
| static **BEObject** | **createWithoutData(String**className**,**  **String**objectId**)**  Creates a reference to an existing BEObject for use in creating associations between BEObjects. |
| void | **delete()**  Deletes this object on the server. |
| static <T extends **BEObject**> | **deleteAll(List<T>**objects**)**  Deletes each object in the provided list. |
| static <T extends **BEObject**>  void | **deleteAllInBackground(List<T>**objects**,**  **DeleteCallback**callback**)**  Deletes each object in the provided list. |
| **Task**<**Void**> | **deleteEventually()**  Deletes this object from the server at some unspecified time in the future, even if CSBM is currently inaccessible. |
| void | **deleteEventually(DeleteCallback** callback**)**  Deletes this object from the server at some unspecified time in the future, even if CSBM is currently inaccessible. |
| **Task**<**Void**> | **deleteInBackground()**  Deletes this object on the server in a background thread. |
| void | **deleteInBackground(DeleteCallback** callback**)**  Deletes this object on the server in a background thread. |
| <T extends **BEObject**> T | **fetch()**  Fetches this object with the data from the server. |
| static <T extends **BEObject**>  **List**<T> | **fetchAll(List<T>**objects**)**  Fetches all the objects in the provided list. |
| static <T extends **BEObject**>  **List**<T> | **fetchAllIfNeeded(List<T>**objects**)**  Fetches all the objects that don't have data in the provided list. |
| static <T extends **BEObject**>  **Task**<**List**<T>> | **fetchAllIfNeededInBackground(List<T>** objects**)**  Fetches all the objects that don't have data in the provided list in the background. |
| static <T extends **BEObject**>  void | **fetchAllIfNeededInBackground(List<T>**  objects**, FindCallback<T>**callback**)**  Fetches all the objects that don't have data in the provided list in the background. |
| static <T extends **BEObject**>  **Task**<**List**<T>> | **fetchAllInBackground(List<T>**objects**)**  Fetches all the objects in the provided list in the background. |
| static <T extends **BEObject**>  void | **fetchAllInBackground(List<T>**objects**, FindCallback<T>**callback**)**  Fetches all the objects in the provided list in the background. |
| void | **fetchFromLocalDatastore()**  Loads data from the local datastore into this object, if it has not been fetched from the server already. |
| <T extends **BEObject**>  void | **fetchFromLocalDatastoreInBackground**  **(GetCallback<T>**callback**)**  Loads data from the local datastore into this object, if it has not been fetched from the server already. |
| <T extends **BEObject**> T | **fetchIfNeeded()**  If this BEObject has not been fetched (i.e. |
| <T extends **BEObject**>  Task<T> | **fetchIfNeededInBackground()**  If this BEObject has not been fetched (i.e. |
| <T extends **BEObject**>  void | **fetchIfNeededInBackground**  **(GetCallback<T>**callback**)**  If this BEObject has not been fetched (i.e. |
| <T extends **BEObject**>  **Task**<T> | **fetchInBackground()**  Fetches this object with the data from the server in a background thread. |
| <T extends **BEObject**>  void | **fetchInBackground(GetCallback<T>** callback**)**  Fetches this object with the data from the server in a background thread. |
| **Object** | **get(String**key**)**  Access a value. |
| **BEACL** | **getACL()**  Access the BEACL governing this object. |
| boolean | **getBoolean(String**key**)**  Access a boolean value. |
| byte[] | **getBytes(String**key**)**  Access a byte[] value. |
| **String** | **getClassName()**  Accessor to the class name. |
| **Date** | **getCreatedAt()**  This reports time as the server sees it, so that if you create a BEObject, then wait a while, and then call **BEObject.save()**, the creation time will be the time of the first **BEObject.save()** call rather than the time the object was created locally. |
| **Date** | **getDate(String**key**)**  Access a Date value. |
| double | **getDouble(String**key**)**  Access a double value. |
| int | getInt(String key)  Access an int value. |
| **JSONArray** | **getJSONArray(String**key**)**  Access a JSONArray value. |
| **JSONObject** | **getJSONObject(String**key**)**  Access a JSONObject value. |
| <T> **List**<T> | **getList(String**key**)**  Access a List value. |
| long | **getLong(String**key**)**  Access a long value. |
| <V> **Map**<**String**,V> | **getMap(String**key**)**  Access a Map value |
| **Number** | **getNumber(String**key**)**  Access a Number value. |
| **String** | **getObjectId()**  Accessor to the object id. |
| **BEFile** | **getBEFile(String**key**)**  Access a BEFile value. |
| **BEGeoPoint** | **getBEGeoPoint(String**key**)**  Access a BEGeoPoint value. |
| **BEObject** | **getBEObject(String**key**)**  Access a BEObject value. |
| **BEUser** | **getBEUser(String**key**)**  Access a BEUser value. |
| <T extends **BEObject**>  **BERelation**<T> | **getRelation(String** key**)**  Access or create a BERelation value for a key |
| **String** | **getString(String** key**)**  Access a String value. |
| **Date** | **getUpdatedAt()**  This reports time as the server sees it, so that if you make changes to a BEObject, then wait a while, and then call BEObject.save(), the updated time will be the time of the BEObject.save() call rather than the time the object was changed locally. |
| boolean | **has(String** key**)**  Whether this object has a particular key. |
| boolean | **hasSameId(BEObject** other**)** |
| void | **increment(String** key**)**  Atomically increments the given key by 1. |
| void | **increment(String** key**, Number** amount**)**  Atomically increments the given key by the given number. |
| boolean | **isDataAvailable()**  Gets whether the BEObject has been fetched. |
| **Set**<**String**> | **keySet()**  Returns a set view of the keys contained in this object. |
| void | **pin()**  Stores the object and every object it points to in the local datastore, recursively. |
| void | **pin(String** name**)**  Stores the object and every object it points to in the local datastore, recursively. |
| static <T extends **BEObject**> void | **pinAll(List<T>** objects**)**  Stores the objects and every object they point to in the local datastore, recursively. |
| static <T extends **BEObject**> void | **pinAll(String** name**, List<T>** objects**)**  Stores the objects and every object they point to in the local datastore, recursively. |
| static <T extends **BEObject**>  **Task**<**Void**> | **pinAllInBackground(List<T>** objects**)**  Stores the objects and every object they point to in the local datastore, recursively. |
| static <T extends **BEObject**> void | **pinAllInBackground(List<T>** objects**, SaveCallback** callback**)**  Stores the objects and every object they point to in the local datastore, recursively. |
| static <T extends **BEObject**>  **Task**<**Void**> | **pinAllInBackground(String** name**, List<T>** objects**)**  Stores the objects and every object they point to in the local datastore, recursively. |
| static <T extends **BEObject**> void | **pinAllInBackground(String** name**, List<T>** objects**, SaveCallback** callback**)**  Stores the objects and every object they point to in the local datastore, recursively. |
| **Task**<**Void**> | **pinInBackground()**  Stores the object and every object it points to in the local datastore, recursively. |
| void | **pinInBackground(SaveCallback**callback**)**  Stores the object and every object it points to in the local datastore, recursively. |
| **Task**<**Void**> | **pinInBackground(String**name**)**  Stores the object and every object it points to in the local datastore, recursively. |
| void | **pinInBackground(String**name**,**  **SaveCallback**callback**)**  Stores the object and every object it points to in the local datastore, recursively. |
| void | **put(String**key**, Object**value**)**  Add a key-value pair to this object. |
| void | **refresh()**  Deprecated.  Please use *BEObject.fetch()* instead. |
| void | **refreshInBackground(RefreshCallback** callback**)**  Deprecated.  Please use *BEObject.fetchInBackground(GetCallback)* instead. |
| static void | **registerSubclass**  **(Class<?** extends**BEObject> subclass)**  Registers a custom subclass type with the CSBM SDK, enabling strong-typing of those BEObjects whenever they appear. |
| void | **remove(String**key**)**  Removes a key from this object's data if it exists. |
| void | **removeAll(String**key**, Collection<?>**values**)**  Atomically removes all instances of the objects contained in a Collection from the array associated with a given key. |
| void | **revert()**  Clears any changes to this object made since the last to *BEObject.save()* or *BEObject.saveInBackground().* |
| void | **revert(String**key**)**  Clears changes to this object’s key made since the last call to *BEObject.save()* or *BEObject.saveInBackground().* |
| void | **save()**  Saves this object to the server. |
| static <T extends **BEObject**> void | **saveAll(List<T>** objects**)**  Saves each object in the provided list. |
| static <T extends **BEObject**>  **Task**<**Void**> | **saveAllInBackground(List<T>** objects**)**  Saves each object in the provided list to the server in a background thread. |
| static <T extends **BEObject**> void | **saveAllInBackground(List<T>** objects**, SaveCallback** callback**)**  Saves each object in the provided list to the server in a background thread. |
| **Task**<**Void**> | **saveEventually()**  Saves this object to the server at some unspecified time in the future, even if CSBM is currently inaccessible. |
| void | **saveEventually(SaveCallback**callback**)**  Saves this object to the server at some unspecified time in the future, even if CSBM is currently inaccessible. |
| **Task**<**Void**> | **saveInBackground()**  Saves this object to the server in a background thread. |
| void | **saveInBackground(SaveCallback**callback**)**  Saves this object to the server in a background thread. |
| void | **setACL(BEACL**acl**)**  Set the BEACL governing this object. |
| void | **setObjectId(String**newObjectId**)**  Setter for the object id. |
| void | **unpin()**  Removes the object and every object it points to in the local datastore, recursively. |
| void | **unpin(String**name**)**  Removes the object and every object it points to in the local datastore, recursively. |
| static void | **unpinAll()**  Removes the objects and every object they point to in the local datastore, recursively. |
| static <T extends **BEObject**> void | **unpinAll(List<T>** objects**)**  Removes the objects and every object they point to in the local datastore, recursively. |
| static void | **unpinAll(String** name**)**  Removes the objects and every object they point to in the local datastore, recursively. |
| static <T extends **BEObject**> void | **unpinAll(String** name**, List<T>** objects**)**  Removes the objects and every object they point to in the local datastore, recursively. |
| static **Task**<**Void**> | **unpinAllInBackground()**  Removes the objects and every object they point to in the local datastore, recursively. |
| static void | **unpinAllInBackground(DeleteCallback** callback**)**  Removes the objects and every object they point to in the local datastore, recursively. |
| static <T extends **BEObject**>  **Task**<**Void**> | **unpinAllInBackground(List<T>** objects**)**  Removes the objects and every object they point to in the local datastore, recursively. |
| static <T extends **BEObject**> void | **unpinAllInBackground(List<T>** objects**, DeleteCallback** callback**)**  Removes the objects and every object they point to in the local datastore, recursively. |
| static **Task**<**Void**> | **unpinAllInBackground(String** name**)**  Removes the objects and every object they point to in the local datastore, recursively. |
| static void | **unpinAllInBackground(String** name**, DeleteCallback** callback**)**  Removes the objects and every object they point to in the local datastore, recursively. |
| static <T extends **BEObject**>  **Task**<**Void**> | **unpinAllInBackground(String** name**, List<T>** objects**)**  Removes the objects and every object they point to in the local datastore, recursively. |
| static <T extends **BEObject**> void | **unpinAllInBackground(String** name**, List<T>** objects**, DeleteCallback** callback**)**  Removes the objects and every object they point to in the local datastore, recursively. |
| **Task**<**Void**> | **unpinInBackground()**  Removes the object and every object it points to in the local datastore, recursively. |
| void | **unpinInBackground(DeleteCallback** callback**)**  Removes the object and every object it points to in the local datastore, recursively. |
| **Task**<**Void**> | **unpinInBackground(String** name**)**  Removes the object and every object it points to in the local datastore, recursively. |
| void | **unpinInBackground(String** name**, DeleteCallback** callback**)**  Removes the object and every object it points to in the local datastore, recursively. |

###### **Field Detail**

* DEFAULT\_PIN

|  |
| --- |
| public static final String DEFAULT\_PIN |

Default name for pinning if not specified.

###### **Constructor Detail**

* BEObject

|  |
| --- |
| protected BEObject() |

The base class constructor to call in subclasses. Uses the class name specified with the *BEClassName* annotation on the subclass.

* BEObject

|  |
| --- |
| public BEObject(**String** theClassName) |

Constructs a new BEObject with no data in it. A BEObject constructed in this way will not have an objectId and will not persist to the database until *BEObject.save()* is called.

Class names must be alphanumerical plus underscore, and start with a letter. It is recommended to name classes in PascalCaseLikeThis.

**Parameters**

|  |  |
| --- | --- |
| *theClassName* | The className for this BEObject. |

###### **Method Detail**

* create

|  |
| --- |
| public static **BEObject** create(**String** className) |

Creates a new BEObject based upon a class name. If the class name is a special type (e.g. for BEUser), then the appropriate type of BEObject is returned.

**Parameters**

|  |  |
| --- | --- |
| *className* | The class of object to create. |

**Returns**

|  |
| --- |
| A new BEObject for the given class name. |

* create

|  |
| --- |
| public static <T extends **BEObject**> T create(**Class**<T> subclass) |

Creates a new BEObject based upon a subclass type. Note that the object will be created based upon the BEClassName of the given subclass type. For example, calling create(*BEUser.class*) may create an instance of a custom subclass of BEUser.

**Parameters**

|  |  |
| --- | --- |
| *subclass* | The class of object to create. |

**Returns**

|  |
| --- |
| A new BEObject based upon the class name of the given subclass type. |

* createWithoutData

|  |
| --- |
| public static **BEObject** createWithoutData(**String** className, **String** objectId) |

Creates a reference to an existing BEObject for use in creating associations between BEObjects. Calling *BEObject.isDataAvailable()* on this object will return false until *BEObject.fetchIfNeeded()* or *BEObject.refresh()* has been called. No network request will be made.

**Parameters**

|  |  |
| --- | --- |
| *className* | The object's class. |
| *objectId* | The object id for the referenced object. |

**Returns**

|  |
| --- |
| A BEObject without data. |

* createWithoutData

|  |
| --- |
| public static <T extends **BEObject**> T createWithoutData(**Class**<T> subclass, **String** objectId) |

Creates a reference to an existing BEObject for use in creating associations between BEObjects. Calling *BEObject.isDataAvailable()* on this object will return false until *BEObject.fetchIfNeeded()* or *BEObject.refresh()* has been called. No network request will be made.

**Parameters**

|  |  |
| --- | --- |
| *subclass* | The BEObject subclass to create. |
| *objectId* | The object id for the referenced object. |

**Returns**

|  |
| --- |
| A BEObject without data. |

* registerSubclass

|  |
| --- |
| public static void registerSubclass(**Class**<? extends **BEObject**> subclass) |

Registers a custom subclass type with the CSBM SDK, enabling strong-typing of those BEObjects whenever they appear. Subclasses must specify the BEClassName annotation and have a default constructor.

**Parameters**

|  |  |
| --- | --- |
| *subclass* | The subclass type to register. |

* getClassName

|  |
| --- |
| public **String** getClassName() |

Accessor to the class name.

* getUpdatedAt

|  |
| --- |
| public **Date** getUpdatedAt() |

This reports time as the server sees it, so that if you make changes to a BEObject, then wait a while, and then call *BEObject.save()*, the updated time will be the time of the *BEObject.save()* call rather than the time the object was changed locally.

**Returns**

|  |
| --- |
| The last time this object was updated on the server. |

* getCreatedAt

|  |
| --- |
| public **Date** getCreatedAt() |

This reports time as the server sees it, so that if you create a BEObject, then wait a while, and then call *BEObject.save()*, the creation time will be the time of the first *BEObject.save()* call rather than the time the object was created locally.

**Returns**

|  |
| --- |
| The first time this object was saved on the server. |

* keySet

|  |
| --- |
| public **Set**<**String**> keySet() |

Returns a set view of the keys contained in this object. This does not include createdAt, updatedAt, authData, or objectId. It does include things like username and ACL.

* revert

|  |
| --- |
| public void revert(**String** key) |

Clears changes to this object's key made since the last call to *BEObject.save()* or *BEObject.saveInBackground()*.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to revert changes for. |

* revert

|  |
| --- |
| public void revert() |

Clears any changes to this object made since the last call to *BEObject.save()* or *BEObject.saveInBackground()*.

* getObjectId

|  |
| --- |
| public **String** getObjectId() |

Accessor to the object id. An object id is assigned as soon as an object is saved to the server. The combination of a className and an objectId uniquely identifies an object in your application.

**Returns**

|  |
| --- |
| The object id. |

* setObjectId

|  |
| --- |
| public void setObjectId(**String** newObjectId) |

Setter for the object id. In general you do not need to use this. However, in some cases this can be convenient. For example, if you are serializing a BEObject yourself and wish to recreate it, you can use this to recreate the BEObject exactly.

* save

|  |
| --- |
| public final void save() throws **BEException** |

Saves this object to the server. Typically, you should use *BEObject.saveInBackground()* instead of this, unless you are managing your own threading.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server is inaccessible. |

* saveInBackground

|  |
| --- |
| public final **Task**<**Void**> saveInBackground() |

Saves this object to the server in a background thread. This is preferable to using *BEObject.save(),* unless your code is already running from a background thread.

**Returns**

|  |
| --- |
| A Task that is resolved when the save completes. |

* saveInBackground

|  |
| --- |
| public final void saveInBackground(**SaveCallback** callback) |

Saves this object to the server in a background thread. This is preferable to using *BEObject.save()*, unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *callback* | callback.done(e) is called when the save completes. |

* saveEventually

|  |
| --- |
| public final void saveEventually(**SaveCallback** callback) |

Saves this object to the server at some unspecified time in the future, even if CSBM is currently inaccessible. Use this when you may not have a solid network connection, and don't need to know when the save completes. If there is some problem with the object such that it can't be saved, it will be silently discarded. Objects saved with this method will be stored locally in an on-disk cache until they can be delivered to CSBM. They will be sent immediately if possible. Otherwise, they will be sent the next time a network connection is available. Objects saved this way will persist even after the app is closed, in which case they will be sent the next time the app is opened. If more than 10MB of data is waiting to be sent, subsequent calls to #saveEventually() or *BEObject.deleteEventually()* will cause old saves to be silently discarded until the connection can be re-established, and the queued objects can be saved.

**Parameters**

|  |  |
| --- | --- |
| *callback* | A callback which will be called if the save completes before the app exits. |

* saveEventually

|  |
| --- |
| public final **Task**<**Void**> saveEventually() |

Saves this object to the server at some unspecified time in the future, even if CSBM is currently inaccessible. Use this when you may not have a solid network connection, and don't need to know when the save completes. If there is some problem with the object such that it can't be saved, it will be silently discarded. Objects saved with this method will be stored locally in an on-disk cache until they can be delivered to CSBM. They will be sent immediately if possible. Otherwise, they will be sent the next time a network connection is available. Objects saved this way will persist even after the app is closed, in which case they will be sent the next time the app is opened. If more than 10MB of data is waiting to be sent, subsequent calls to #saveEventually() or *BEObject.deleteEventually()* will cause old saves to be silently discarded until the connection can be re-established, and the queued objects can be saved.

**Returns**

|  |
| --- |
| A Task that is resolved when the save completes. |

* deleteEventually

|  |
| --- |
| public final void deleteEventually(**DeleteCallback** callback) |

Deletes this object from the server at some unspecified time in the future, even if CSBM is currently inaccessible. Use this when you may not have a solid network connection, and don't need to know when the delete completes. If there is some problem with the object such that it can't be deleted, the request will be silently discarded. Delete requests made with this method will be stored locally in an on-disk cache until they can be transmitted to CSBM. They will be sent immediately if possible. Otherwise, they will be sent the next time a network connection is available. Delete instructions saved this way will persist even after the app is closed, in which case they will be sent the next time the app is opened. If more than 10MB of commands are waiting to be sent, subsequent calls to #deleteEventually() or *BEObject.saveEventually()* will cause old instructions to be silently discarded until the connection can be re-established, and the queued objects can be saved.

**Parameters**

|  |  |
| --- | --- |
| *callback* | A callback which will be called if the delete completes before the app exits. |

* deleteEventually

|  |
| --- |
| public final **Task**<**Void**> deleteEventually() |

Deletes this object from the server at some unspecified time in the future, even if CSBM is currently inaccessible. Use this when you may not have a solid network connection, and don't need to know when the delete completes. If there is some problem with the object such that it can't be deleted, the request will be silently discarded. Delete requests made with this method will be stored locally in an on-disk cache until they can be transmitted to CSBM. They will be sent immediately if possible. Otherwise, they will be sent the next time a network connection is available. Delete instructions saved this way will persist even after the app is closed, in which case they will be sent the next time the app is opened. If more than 10MB of commands are waiting to be sent, subsequent calls to #deleteEventually() or *BEObject.saveEventually()* will cause old instructions to be silently discarded until the connection can be re-established, and the queued objects can be saved.

**Returns**

|  |
| --- |
| A Task that is resolved when the delete completes. |

* refresh

|  |
| --- |
| @**Deprecated**  public final void refresh() throws **BEException** |

**Deprecated:** Please use *BEObject.fetch()* instead.

Refreshes this object with the data from the server. Call this whenever you want the state of the object to reflect exactly what is on the server.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server is inaccessible. |

* refreshInBackground

|  |
| --- |
| @**Deprecated**  public final void refreshInBackground(**RefreshCallback** callback) |

**Deprecated:** Please use *BEObject.fetchInBackground(GetCallback)* instead.

Refreshes this object with the data from the server in a background thread. This is preferable to using refresh(), unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *callback* | callback.done(object, e) is called when the refresh completes. |

* fetch

|  |
| --- |
| public <T extends **BEObject**> T fetch() throws **BEException** |

Fetches this object with the data from the server. Call this whenever you want the state of the object to reflect exactly what is on the server.

**Returns**

|  |
| --- |
| The BEObject that was fetched. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server is inaccessible. |

* fetchInBackground

|  |
| --- |
| public final <T extends **BEObject**> **Task**<T> fetchInBackground() |

Fetches this object with the data from the server in a background thread. This is preferable to using *fetch()*, unless your code is already running from a background thread.

**Returns**

|  |
| --- |
| A Task that is resolved when fetch completes. |

* fetchInBackground

|  |
| --- |
| public final <T extends **BEObject**> void fetchInBackground(**GetCallback**<T> callback) |

Fetches this object with the data from the server in a background thread. This is preferable to using *fetch()*, unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *callback* | callback.done(object, e) is called when the fetch completes. |

* fetchIfNeededInBackground

|  |
| --- |
| public final <T extends **BEObject**> **Task**<T> fetchIfNeededInBackground() |

If this BEObject has not been fetched (i.e. *BEObject.isDataAvailable()* returns false), fetches this object with the data from the server in a background thread. This is preferable to using *BEObject.fetchIfNeeded()*, unless your code is already running from a background thread.

**Returns**

|  |
| --- |
| A Task that is resolved when fetch completes. |

* fetchIfNeeded

|  |
| --- |
| public <T extends **BEObject**> T fetchIfNeeded() throws **BEException** |

If this BEObject has not been fetched (i.e. *BEObject.isDataAvailable()* returns false), fetches this object with the data from the server.

**Returns**

|  |
| --- |
| The fetched BEObject. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server is inaccessible. |

* fetchIfNeededInBackground

|  |
| --- |
| public final <T extends **BEObject**> void fetchIfNeededInBackground(**GetCallback**<T> callback) |

If this BEObject has not been fetched (i.e. *BEObject.isDataAvailable()* returns false), fetches this object with the data from the server in a background thread. This is preferable to using *BEObject.fetchIfNeeded()*, unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *callback* | callback.done(object, e) is called when the fetch completes. |

* deleteInBackground

|  |
| --- |
| public final **Task**<**Void**> deleteInBackground() |

Deletes this object on the server in a background thread. This is preferable to using *BEObject.delete()*, unless your code is already running from a background thread.

**Returns**

|  |
| --- |
| A Task that is resolved when delete completes. |

* delete

|  |
| --- |
| public final void delete() throws **BEException** |

Deletes this object on the server. This does not delete or destroy the object locally.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an error if the object does not exist or if the internet fails. |

* deleteInBackground

|  |
| --- |
| public final void deleteInBackground(**DeleteCallback** callback) |

Deletes this object on the server in a background thread. This is preferable to using *BEObject.delete(),* unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *callback* | callback.done(e) is called when the save completes. |

* deleteAll

|  |
| --- |
| public static <T extends **BEObject**> void deleteAll(**List**<T> objects) throws **BEException** |

Deletes each object in the provided list. This is faster than deleting each object individually because it batches the requests.

**Parameters**

|  |  |
| --- | --- |
| *objects* | The objects to delete. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* deleteAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> void deleteAllInBackground(**List**<T> **objects**, **DeleteCallback** callback) |

Deletes each object in the provided list. This is faster than deleting each object individually because it batches the requests.

**Parameters**

|  |  |
| --- | --- |
| *objects* | The objects to delete. |
| *callback* | The callback method to execute when completed. |

* deleteAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> **Task**<**Void**> deleteAllInBackground(**List**<T> objects) |

Deletes each object in the provided list. This is faster than deleting each object individually because it batches the requests.

**Parameters**

|  |  |
| --- | --- |
| *objects* | The objects to delete. |

**Returns**

|  |
| --- |
| A Task that is resolved when deleteAll completes. |

* saveAll

|  |
| --- |
| public static <T extends **BEObject**> void saveAll(**List**<T> objects) throws **BEException** |

Saves each object in the provided list. This is faster than saving each object individually because it batches the requests.

**Parameters**

|  |  |
| --- | --- |
| *objects* | The objects to save. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* saveAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> void saveAllInBackground(**List**<T> objects, **SaveCallback** callback) |

Saves each object in the provided list to the server in a background thread. This is preferable to using saveAll, unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *objects* | The objects to save. |
| *callback* | callback.done(e) is called when the save completes. |

* saveAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> **Task**<**Void**> saveAllInBackground(**List**<T> objects) |

Saves each object in the provided list to the server in a background thread. This is preferable to using saveAll, unless your code is already running from a background thread.

**Parameters**

|  |  |
| --- | --- |
| *objects* | The objects to save. |

**Returns**

|  |
| --- |
| A Task that is resolved when saveAll completes. |

* fetchAllIfNeededInBackground

|  |
| --- |
| public static <T extends **BEObject**> **Task**<**List**<T>> fetchAllIfNeededInBackground(**List**<T> objects) |

Fetches all the objects that don't have data in the provided list in the background.

**Parameters**

|  |  |
| --- | --- |
| *objects* | The list of objects to fetch. |

**Returns**

|  |
| --- |
| A Task that is resolved when fetchAllIfNeeded completes. |

* fetchAllIfNeeded

|  |
| --- |
| public static <T extends **BEObject**> **List**<T> fetchAllIfNeeded(**List**<T> objects) throws **BEException** |

Fetches all the objects that don't have data in the provided list.

**Parameters**

|  |  |
| --- | --- |
| *objects* | The list of objects to fetch. |

**Returns**

|  |
| --- |
| The list passed in for convenience. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* fetchAllIfNeededInBackground

|  |
| --- |
| public static <T extends **BEObject**> void fetchAllIfNeededInBackground(**List**<T> objects, **FindCallback**<T> callback) |

Fetches all the objects that don't have data in the provided list in the background.

**Parameters**

|  |  |
| --- | --- |
| *objects* | The list of objects to fetch. |
| *callback* | callback.done(result, e) is called when the fetch completes. |

* fetchAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> **Task**<**List**<T>> fetchAllInBackground(**List**<T> objects) |

Fetches all the objects in the provided list in the background.

**Parameters**

|  |  |
| --- | --- |
| *objects* | The list of objects to fetch. |

**Returns**

|  |
| --- |
| A Task that is resolved when fetch completes. |

* fetchAll

|  |
| --- |
| public static <T extends **BEObject**> **List**<T> fetchAll(**List**<T> objects) throws **BEException** |

Fetches all the objects in the provided list.

**Parameters**

|  |  |
| --- | --- |
| *objects* | The list of objects to fetch. |

**Returns**

|  |
| --- |
| The list passed in. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* fetchAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> void fetchAllInBackground(**List**<T> objects, **FindCallback**<T> callback) |

Fetches all the objects in the provided list in the background.

**Parameters**

|  |  |
| --- | --- |
| *objects* | The list of objects to fetch. |
| *callback* | callback.done(result, e) is called when the fetch completes |

* put

|  |
| --- |
| public void put(**String** key, **Object** value) |

Add a key-value pair to this object. It is recommended to name keys in camelCaseLikeThis.

**Parameters**

|  |  |
| --- | --- |
| *key* | Keys must be alphanumerical plus underscore, and start with a letter. |
| *value* | Values may be numerical, String, JSONObject, JSONArray, JSONObject.NULL, or other BEObjects. value may not be null. |

* has

|  |
| --- |
| public boolean has(**String** key) |

Whether this object has a particular key. Same as *BEObject.containsKey(String)*.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check for. |

**Returns**

|  |
| --- |
| Whether this object contains the key. |

* increment

|  |
| --- |
| public void increment(**String** key) |

Atomically increments the given key by 1.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to increment. |

* increment

|  |
| --- |
| public void increment(**String** key, **Number** amount) |

Atomically increments the given key by the given number.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to increment. |
| *amount* | The amount to increment by. |

* add

|  |
| --- |
| public void add(**String** key, **Object** value) |

Atomically adds an object to the end of the array associated with a given key.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key. |
| *value* | The object to add. |

* addAll

|  |
| --- |
| public void addAll(**String** key, **Collection**<?> values) |

Atomically adds the objects contained in a Collection to the end of the array associated with a given key.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key. |
| *value* | The object to add. |

* addUnique

|  |
| --- |
| public void addUnique(String key, Object value) |

Atomically adds an object to the array associated with a given key, only if it is not already present in the array. The position of the insert is not guaranteed.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key. |
| *value* | The object to add. |

* addAllUnique

|  |
| --- |
| public void addAllUnique(**String** key, **Collection**<?> values) |

Atomically adds the objects contained in a Collection to the array associated with a given key, only adding elements which are not already present in the array. The position of the insert is not guaranteed.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key. |
| *value* | The object to add. |

* remove

|  |
| --- |
| public void remove(**String** key) |

Removes a key from this object's data if it exists.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to remove. |

* removeAll

|  |
| --- |
| public void removeAll(**String** key, **Collection**<?> values) |

Atomically removes all instances of the objects contained in a Collection from the array associated with a given key. To maintain consistency with the Java Collection API, there is no method removing all instances of a single object. Instead, you can call *BEObject.removeAll(key, Arrays.asList(value))*.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key. |
| *values* | The objects to remove. |

* containsKey

|  |
| --- |
| public boolean containsKey(**String** key) |

Whether this object has a particular key. Same as *BEObject.has(String).*

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check for. |

**Returns**

|  |
| --- |
| Whether this object contains the key. |

* getString

|  |
| --- |
| public **String** getString(**String** key) |

Access a String value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key or if it is not a String. |

* getBytes

|  |
| --- |
| public byte[] getBytes(**String** key) |

Access a byte[] value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key or if it is not a byte[]. |

* getNumber

|  |
| --- |
| public **Number** getNumber(**String** key) |

Access a Number value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key or if it is not a Number. |

* getJSONArray

|  |
| --- |
| public **JSONArray** getJSONArray(**String** key) |

Access a JSONArray value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key or if it is not a JSONArray. |

* getList

|  |
| --- |
| public <T> **List**<T> getList(**String** key) |

Access a List value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key or if the value can't be converted to a List. |

* getMap

|  |
| --- |
| public <V> **Map**<**String**,V> getMap(**String** key) |

Access a Map value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key or if the value can't be converted to a Map. |

* getJSONObject

|  |
| --- |
| public **JSONObject** getJSONObject(**String** key) |

Access a JSONObject value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key or if it is not a JSONObject. |

* getInt

|  |
| --- |
| public int getInt(**String** key) |

Access a JSONObject value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| 0 if there is no such key or if it is not a int. |

* getDouble

|  |
| --- |
| public double getDouble(**String** key) |

Access a double value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| 0 if there is no such key or if it is not a double. |

* getLong

|  |
| --- |
| public long getLong(**String** key) |

Access a long value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| 0 if there is no such key or if it is not a long. |

* getBoolean

|  |
| --- |
| public boolean getBoolean(**String** key) |

Access a boolean value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| false if there is no such key or if it is not a boolean. |

* getDate

|  |
| --- |
| public **Date** getDate(**String** key) |

Access a Date value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key or if it is not a Date. |

* getBEObject

|  |
| --- |
| public **BEObject** getBEObject(**String** key) |

Access a BEObject value. This function will not perform a network request. Unless the BEObject has been downloaded (e.g. by a *BEQuery.include(String)* or by calling *BEObject.fetchIfNeeded()* or *BEObject.refresh()*), *BEObject.isDataAvailable()* will return false.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key or if it is not a BEObject. |

* getBEUser

|  |
| --- |
| public **BEUser** getBEUser(**String** key) |

Access a BEUser value. This function will not perform a network request. Unless the BEObject has been downloaded (e.g. by a *BEQuery.include(String)* or by calling *BEObject.fetchIfNeeded()* or *BEObject.refresh()*), *BEObject.isDataAvailable()* will return false.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key or if it is not a BEUser. |

* getBEFile

|  |
| --- |
| public **BEFile** getBEFile(**String** key) |

Access a BEFile value. This function will not perform a network request. Unless the BEFile has been downloaded (e.g. by calling *BEFile.getData()*), *BEFile.isDataAvailable()* will return false.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key or if it is not a BEFile. |

* getBEGeoPoint

|  |
| --- |
| public **BEGeoPoint** getBEGeoPoint(**String** key) |

Access a BEGeoPoint value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key or if it is not a BEGeoPoint. |

* getACL

|  |
| --- |
| public **BEACL** getACL() |

Access the BEACL governing this object.

* setACL

|  |
| --- |
| public void setACL(**BEACL** acl) |

Set the BEACL governing this object.

* isDataAvailable

|  |
| --- |
| public boolean isDataAvailable() |

Gets whether the BEObject has been fetched.

**Returns**

|  |
| --- |
| true if the BEObject is new or has been fetched or refreshed. false otherwise. |

* getRelation

|  |
| --- |
| public <T extends **BEObject**> **BERelation**<T> getRelation(**String** key) |

Access or create a BERelation value for a key.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| the BERelation object if the relation already exists for the key or can be created for this key. |

* get

|  |
| --- |
| public **Object** get(**String** key) |

Access a value. In most cases it is more convenient to use a helper function such as *BEObject.getString(String)* or *BEObject.getInt(String)*.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to access the value for. |

**Returns**

|  |
| --- |
| null if there is no such key. |

* hasSameId

|  |
| --- |
| public boolean hasSameId(**BEObject** other) |

* pinAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> void pinAllInBackground(**String** name, **List**<T> objects, **SaveCallback** callback) |

Stores the objects and every object they point to in the local datastore, recursively. If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all of the changes will be retained. To get the objects back later, you can use *BEQuery.fromLocalDatastore()*, or you can create an unfetched pointer with *BEObject.createWithoutData(Class, String)* and then call *BEObject.fetchFromLocalDatastore()* on it.

**Parameters**

|  |  |
| --- | --- |
| *name* | the name. |
| *objects* | the objects to be pinned. |
| *callback* | the callback. |

* pinAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> **Task**<**Void**> pinAllInBackground(**String** name, **List**<T> objects) |

Stores the objects and every object they point to in the local datastore, recursively. If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all of the changes will be retained. To get the objects back later, you can use *BEQuery.fromLocalDatastore()*, or you can create an unfetched pointer with *BEObject.createWithoutData(Class, String)* and then call *BEObject.fetchFromLocalDatastore()* on it.

**Parameters**

|  |  |
| --- | --- |
| *name* | the name. |
| *objects* | the objects to be pinned. |

**Returns**

|  |
| --- |
| A Task that is resolved when pinning all completes. |

* pinAll

|  |
| --- |
| public static <T extends **BEObject**> void pinAll(**String** name, **List**<T> objects) throws **BEException** |

Stores the objects and every object they point to in the local datastore, recursively. If those other objects have not been fetched from BE, they will not be stored. However, if they have changed data, all of the changes will be retained. To get the objects back later, you can use *BEQuery.fromLocalDatastore()*, or you can create an unfetched pointer with *BEObject.createWithoutData(Class, String)* and then call *BEObject.fetchFromLocalDatastore()* on it.

**Parameters**

|  |  |
| --- | --- |
| *name* | the name. |
| *objects* | the objects to be pinned. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* pinAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> void pinAllInBackground(**List**<T> objects, **SaveCallback** callback) |

Stores the objects and every object they point to in the local datastore, recursively. If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all of the changes will be retained. To get the objects back later, you can use *BEQuery.fromLocalDatastore()*, or you can create an unfetched pointer with *BEObject.createWithoutData(Class, String)*and then call *BEObject.fetchFromLocalDatastore()* on it.

**Parameters**

|  |  |
| --- | --- |
| *objects* | the objects to be pinned. |
| *callback* | the callback. |

* pinAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> **Task**<**Void**> pinAllInBackground(**List**<T> objects) |

Stores the objects and every object they point to in the local datastore, recursively. If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all of the changes will be retained. To get the objects back later, you can use *BEQuery.fromLocalDatastore()*, or you can create an unfetched pointer with *BEObject.createWithoutData(Class, String)* and then call *BEObject.fetchFromLocalDatastore()* on it.

**Parameters**

|  |  |
| --- | --- |
| *objects* | the objects to be pinned. |

**Returns**

|  |
| --- |
| A Task that is resolved when pinning all completes. |

* pinAll

|  |
| --- |
| public static <T extends **BEObject**> void pinAll(**List**<T> objects) throws **BEException** |

Stores the objects and every object they point to in the local datastore, recursively. If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all of the changes will be retained. To get the objects back later, you can use *BEQuery.fromLocalDatastore()*, or you can create an unfetched pointer with *BEObject.createWithoutData(Class, String)* and then call *BEObject.fetchFromLocalDatastore()*on it.

**Parameters**

|  |  |
| --- | --- |
| *objects* | the objects to be pinned. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* unpinAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> void unpinAllInBackground(**String** name, **List**<T> objects, **DeleteCallback** callback) |

Removes the objects and every object they point to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *name* | the name. |
| *objects* | the objects. |
| *callback* | the callback. |

* unpinAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> **Task**<**Void**> unpinAllInBackground(**String** name, **List**<T> objects) |

Removes the objects and every object they point to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *name* | the name. |
| *objects* | the objects. |

**Returns**

|  |
| --- |
| A Task that is resolved when unpinning all completes. |

* unpinAll

|  |
| --- |
| public static <T extends **BEObject**> void unpinAll(**String** name, **List**<T> objects) throws **BEException** |

Removes the objects and every object they point to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *name* | the name. |
| *objects* | the objects. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* unpinAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> void unpinAllInBackground(**List**<T> objects, **DeleteCallback** callback) |

Removes the objects and every object they point to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *objects* | the objects. |
| *callback* | the callback. |

* unpinAllInBackground

|  |
| --- |
| public static <T extends **BEObject**> **Task**<**Void**> unpinAllInBackground(**List**<T> objects) |

Removes the objects and every object they point to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *objects* | the objects. |

**Returns**

|  |
| --- |
| A Task that is resolved when unpinning all completes. |

* unpinAll

|  |
| --- |
| public static <T extends **BEObject**> void unpinAll(**List**<T> objects) throws **BEException** |

Removes the objects and every object they point to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *objects* | the objects. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* unpinAllInBackground

|  |
| --- |
| public static void unpinAllInBackground(**String** name, **DeleteCallback** callback) |

Removes the objects and every object they point to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *name* | the name. |
| *callback* | the callback. |

* unpinAllInBackground

|  |
| --- |
| public static **Task**<**Void**> unpinAllInBackground(**String** name) |

Removes the objects and every object they point to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *name* | the name. |

**Returns**

|  |
| --- |
| A Task that is resolved when unpinning all completes. |

* unpinAll

|  |
| --- |
| public static void unpinAll(**String** name) throws **BEException** |

Removes the objects and every object they point to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *name* | the name. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* unpinAllInBackground

|  |
| --- |
| public static void unpinAllInBackground(**DeleteCallback** callback) |

Removes the objects and every object they point to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *callback* | the callback. |

* unpinAllInBackground

|  |
| --- |
| public static **Task**<**Void**> unpinAllInBackground() |

Removes the objects and every object they point to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *name* | the name. |

**Returns**

|  |
| --- |
| A Task that is resolved when unpinning all completes. |

* unpinAll

|  |
| --- |
| public static void unpinAll() throws **BEException** |

Removes the objects and every object they point to in the local datastore, recursively.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* fetchFromLocalDatastoreInBackground

|  |
| --- |
| public <T extends **BEObject**> void fetchFromLocalDatastoreInBackground(**GetCallback**<T> callback) |

Loads data from the local datastore into this object, if it has not been fetched from the server already. If the object is not stored in the local datastore, this method with do nothing.

* fetchFromLocalDatastore

|  |
| --- |
| public void fetchFromLocalDatastore() throws **BEException** |

Loads data from the local datastore into this object, if it has not been fetched from the server already. If the object is not stored in the local datastore, this method with throw a *CACHE\_MISS* exception.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* pinInBackground

|  |
| --- |
| public void pinInBackground(**String** name, **SaveCallback** callback) |

Stores the object and every object it points to in the local datastore, recursively. If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all of the changes will be retained. To get the objects back later, you can use *BEQuery.fromLocalDatastore()*, or you can create an unfetched pointer with *BEObject.createWithoutData(Class, String)* and then call *BEObject.fetchFromLocalDatastore()* on it.

**Parameters**

|  |  |
| --- | --- |
| *callback* | the callback |

* pinInBackground

|  |
| --- |
| public **Task**<**Void**> pinInBackground(**String** name) |

Stores the object and every object it points to in the local datastore, recursively. If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all of the changes will be retained. To get the objects back later, you can use *BEQuery.fromLocalDatastore()*, or you can create an unfetched pointer with *BEObject.createWithoutData(Class, String)* and then call *BEObject.fetchFromLocalDatastore()* on it.

**Returns**

|  |
| --- |
| A Task that is resolved when pinning completes. |

* pin

|  |
| --- |
| public void pin(**String** name) throws **BEException** |

Stores the object and every object it points to in the local datastore, recursively. If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all of the changes will be retained. To get the objects back later, you can use *BEQuery.fromLocalDatastore()*, or you can create an unfetched pointer with *BEObject.createWithoutData(Class, String)* and then call *BEObject.fetchFromLocalDatastore()* on it.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* pinInBackground

|  |
| --- |
| public void pinInBackground(**SaveCallback** callback) |

Stores the object and every object it points to in the local datastore, recursively. If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all of the changes will be retained. To get the objects back later, you can use *BEQuery.fromLocalDatastore()*, or you can create an unfetched pointer with *BEObject.createWithoutData(Class, String)*and then call *BEObject.fetchFromLocalDatastore()* on it.

**Parameters**

|  |  |
| --- | --- |
| *callback* | the callback |

* pinInBackground

|  |
| --- |
| public **Task**<**Void**> pinInBackground() |

Stores the object and every object it points to in the local datastore, recursively. If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all of the changes will be retained. To get the objects back later, you can use *BEQuery.fromLocalDatastore()*, or you can create an unfetched pointer with *BEObject.createWithoutData(Class, String)* and then call *BEObject.fetchFromLocalDatastore()* on it.

**Returns**

|  |
| --- |
| A Task that is resolved when pinning completes. |

* pin

|  |
| --- |
| public void pin() throws **BEException** |

Stores the object and every object it points to in the local datastore, recursively. If those other objects have not been fetched from CSBM, they will not be stored. However, if they have changed data, all of the changes will be retained. To get the objects back later, you can use *BEQuery.fromLocalDatastore()*, or you can create an unfetched pointer with *BEObject.createWithoutData(Class, String)* and then call *BEObject.fetchFromLocalDatastore()* on it.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* unpinInBackground

|  |
| --- |
| public void unpinInBackground(**String** name,**DeleteCallback** callback) |

Removes the object and every object it points to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *callback* | the callback |

* unpinInBackground

|  |
| --- |
| public **Task**<**Void**> unpinInBackground(**String** name) |

Removes the object and every object it points to in the local datastore, recursively.

**Returns**

|  |
| --- |
| A Task that is resolved when unpinning completes. |

* unpin

|  |
| --- |
| public void unpin(**String** name) throws **BEException** |

Removes the object and every object it points to in the local datastore, recursively.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* unpinInBackground

|  |
| --- |
| public void unpinInBackground(**DeleteCallback** callback) |

Removes the object and every object it points to in the local datastore, recursively.

**Parameters**

|  |  |
| --- | --- |
| *callback* | the callback |

* unpinInBackground

|  |
| --- |
| public **Task**<**Void**> unpinInBackground() |

Removes the object and every object it points to in the local datastore, recursively.

**Returns**

|  |
| --- |
| A Task that is resolved when unpinning completes. |

* unpin

|  |
| --- |
| public void unpin()throws **BEException** |

Removes the object and every object it points to in the local datastore, recursively.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

##### **Class BEFile**

|  |
| --- |
| public class **BEFile** extends **Object** |

The workflow is to construct a BEFile with data and optionally a filename. Then save it and set it as a field on a BEObject.

**Example**:

|  |
| --- |
| BEFile file = new BEFile("hello".getBytes());  file.save();  BEObject object = new BEObject("TestObject");  object.put("file", file);  object.save(); |

###### **Constructor Summary**

|  |  |
| --- | --- |
| **Constructor** | **Description** |
| **BEFile(byte[]** data**)** | Creates a new file from a byte array. |
| **BEFile(byte[]** data**, String** contentType**)** | Creates a new file from a byte array, and content type. |
| **BEFile(File** file**)** | Creates a new file from a file pointer. |
| **BEFile(File** file**, String** contentType**)** | Creates a new file from a file pointer, and content type. |
| **BEFile(String** name**, byte[]** data**)** | Creates a new file from a byte array and a name. |
| **BEFile(String** name**, byte[]** data**, String** contentType**)** | Creates a new file from a byte array, file name, and content type. |

###### **Method Summary**

|  |  |
| --- | --- |
| **Modifier and Type** | **Class and Description** |
| void | **cancel()**  Cancels the operations for this BEFile if they are still in the task queue. |
| byte[] | **getData()**  Synchronously gets the data from cache if available or fetches its content from the network. |
| **Task**<byte[]> | **getDataInBackground()**  Asynchronously gets the data from cache if available or fetches its content from the network. |
| void | **getDataInBackground(GetDataCallback** dataCallback**)**  Asynchronously gets the data from cache if available or fetches its content from the network. |
| void | **getDataInBackground(GetDataCallback** dataCallback**, ProgressCallback** progressCallback**)**  Asynchronously gets the data from cache if available or fetches its content from the network. |
| **Task**<byte[]> | **getDataInBackground(ProgressCallback** progressCallback**)**  Asynchronously gets the data from cache if available or fetches its content from the network |
| **InputStream** | **getDataStream()**  Synchronously gets the data stream from cached file if available or fetches its content from the network, saves the content as cached file and returns the data stream of the cached file. |
| **Task**<**InputStream**> | **getDataStreamInBackground()**  Asynchronously gets the data stream from cached file if available or fetches its content from the network, saves the content as cached file and returns the data stream of the cached file. |
| void | **getDataStreamInBackground(GetDataStreamCallback** dataStreamCallback**)**  Asynchronously gets the data stream from cached file if available or fetches its content from the network, saves the content as cached file and returns the data stream of the cached file. |
| void | **getDataStreamInBackground(GetDataStreamCallback** dataStreamCallback**, ProgressCallback** progressCallback**)**  Asynchronously gets the data stream from cached file if available or fetches its content from the network, saves the content as cached file and returns the data stream of the cached file. |
| **Task**<**InputStream**> | **getDataStreamInBackground(ProgressCallback** progressCallback**)**  Asynchronously gets the data stream from cached file if available or fetches its content from the network, saves the content as cached file and returns the data stream of the cached file. |
| File | **getFile()**  Synchronously gets the file pointer from cache if available or fetches its content from the network. |
| **Task**<**File**> | **getFileInBackground()**  Asynchronously gets the file pointer from cache if available or fetches its content from the network. |
| void | **getFileInBackground(GetFileCallback** fileCallback**)**  Asynchronously gets the file pointer from cache if available or fetches its content from the network. |
| void | **getFileInBackground(GetFileCallback** fileCallback**, ProgressCallback** progressCallback**)**  Asynchronously gets the file pointer from cache if available or fetches its content from the network. |
| **Task**<**File**> | **getFileInBackground(ProgressCallback** progressCallback**)**  Asynchronously gets the file pointer from cache if available or fetches its content from the network. |
| String | **getName()**  The filename. |
| String | **getUrl()**  This returns the url of the file. |
| boolean | **isDataAvailable()**  Whether the file has available data. |
| void | **save()**  Saves the file to the CSBM cloud synchronously. |
| **Task**<**Void**> | **saveInBackground()**  Saves the file to the CSBM cloud in a background thread. |
| **Task**<**Void**> | **saveInBackground(ProgressCallback** uploadProgressCallback**)**  Saves the file to the CSBM cloud in a background thread. |
| void | **saveInBackground(SaveCallback** callback**)**  Saves the file to the CSBM cloud in a background thread. |
| void | **saveInBackground(SaveCallback** saveCallback**, ProgressCallback** progressCallback**)**  Saves the file to the CSBM cloud in a background thread. |

###### **Constructor Detail**

* BEFile

|  |
| --- |
| public **BEFile**(**File** file) |

Creates a new file from a file pointer.

**Parameters**

|  |  |
| --- | --- |
| *file* | The file. |

* BEFile

|  |
| --- |
| public **BEFile**(**File** file, **String** contentType) |

Creates a new file from a file pointer, and content type. Content type will be used instead of auto-detection by file extension.

**Parameters**

|  |  |
| --- | --- |
| *file* | The file. |
| *contentType* | the file’s content type. |

* BEFile

|  |
| --- |
| public **BEFile**(**String** name, [] data, **String** contentType) |

Creates a new file from a byte array, file name, and content type. Content type will be used instead of auto-detection by file extension.

**Parameters**

|  |  |
| --- | --- |
| *name* | The file's name, ideally with extension. The file name must begin with an alphanumeric character, and consist of alphanumeric characters, periods, spaces, underscores, or dashes. |
| *data* | The file’s data. |
| *contentType* | The file’s content type. |

* BEFile

|  |
| --- |
| public **BEFile**(byte[] data) |

Creates a new file from a byte array.

**Parameters**

|  |  |
| --- | --- |
| *data* | The file’s data. |

* BEFile

|  |
| --- |
| public **BEFile**(**String** name, byte[] data) |

Creates a new file from a byte array and a name. Giving a name with a proper file extension (e.g. ".png") is ideal because it allows CSBM to deduce the content type of the file and set appropriate HTTP headers when it is fetched.

**Parameters**

|  |  |
| --- | --- |
| *name* | The file's name, ideally with extension. The file name must begin with an alphanumeric character, and consist of alphanumeric characters, periods, spaces, underscores, or dashes. |
| *data* | The file’s data. |

* BEFile

|  |
| --- |
| public **BEFile**(byte[] data, **String** contentType) |

Creates a new file from a byte array, and content type. Content type will be used instead of auto-detection by file extension.

**Parameters**

|  |  |
| --- | --- |
| *data* | The file’s data. |
| *contentType* | The file’s content type. |

###### **Method Detail**

* getName

|  |
| --- |
| public **String** getName() |

The filename. Before save is called, this is just the filename given by the user (if any). After save is called, that name gets prefixed with a unique identifier.

**Returns**

|  |
| --- |
| The file's name. |

* isDataAvailable

|  |
| --- |
| public boolean isDataAvailable() |

Whether the file has available data.

* getUrl

|  |
| --- |
| public **String** getUrl() |

This returns the url of the file. It's only available after you save or after you get the file from a BEObject.

**Returns**

|  |
| --- |
| The url of the file. |

* save

|  |
| --- |
| public void save() throws **BEException** |

Saves the file to the CSBM cloud synchronously.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* saveInBackground

|  |
| --- |
| public **Task**<**Void**> saveInBackground(**ProgressCallback** uploadProgressCallback) |

Saves the file to the CSBM cloud in a background thread. `progressCallback` is guaranteed to be called with 100 before saveCallback is called.

**Parameters**

|  |  |
| --- | --- |
| *uploadProgressCallback* | A ProgressCallback that is called periodically with progress updates. |

**Returns**

|  |
| --- |
| A Task that will be resolved when the save completes. |

* saveInBackground

|  |
| --- |
| public **Task**<**Void**> saveInBackground() |

Saves the file to the CSBM cloud in a background thread.

**Returns**

|  |
| --- |
| A Task that will be resolved when the save completes. |

* saveInBackground

|  |
| --- |
| public void saveInBackground(**SaveCallback** saveCallback, **ProgressCallback** progressCallback) |

Saves the file to the CSBM cloud in a background thread. `progressCallback` is guaranteed to be called with 100 before saveCallback is called.

**Parameters**

|  |  |
| --- | --- |
| *saveCallback* | A SaveCallback that gets called when the save completes. |
| *progressCallback* | A ProgressCallback that is called periodically with progress updates. |

* saveInBackground

|  |
| --- |
| public void saveInBackground(**SaveCallback** callback) |

Saves the file to the CSBM cloud in a background thread.

**Parameters**

|  |  |
| --- | --- |
| *callback* | A SaveCallback that gets called when the save completes. |

* getData

|  |
| --- |
| public byte[] getData() throws **BEException** |

Synchronously gets the data from cache if available or fetches its content from the network. You probably want to use *BEFile.getDataInBackground()* instead unless you're already in a background thread.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* getDataInBackground

|  |
| --- |
| public **Task**<byte[]> getDataInBackground(**ProgressCallback** progressCallback) |

Asynchronously gets the data from cache if available or fetches its content from the network. A ProgressCallback will be called periodically with progress updates.

**Parameters**

|  |  |
| --- | --- |
| *progressCallback* | A ProgressCallback that is called periodically with progress updates. |

**Returns**

|  |
| --- |
| A Task that is resolved when the data has been fetched. |

* getDataInBackground

|  |
| --- |
| public **Task**<byte[]> getDataInBackground() |

Asynchronously gets the data from cache if available or fetches its content from the network.

**Returns**

|  |
| --- |
| A Task that is resolved when the data has been fetched. |

* getDataInBackground

|  |
| --- |
| public void getDataInBackground(**GetDataCallback** dataCallback, **ProgressCallback** progressCallback) |

Asynchronously gets the data from cache if available or fetches its content from the network. A ProgressCallback will be called periodically with progress updates. A GetDataCallback will be called when the get completes.

**Parameters**

|  |  |
| --- | --- |
| *dataCallback* | A GetDataCallback that is called when the get completes. |
| *progressCallback* | A ProgressCallback that is called periodically with progress updates. |

* getDataInBackground

|  |
| --- |
| public void getDataInBackground(**GetDataCallback** dataCallback) |

Asynchronously gets the data from cache if available or fetches its content from the network. A GetDataCallback will be called when the get completes.

**Parameters**

|  |  |
| --- | --- |
| *dataCallback* | A GetDataCallback that is called when the get completes. |

* getFile

|  |
| --- |
| public **File** getFile() throws **BEException** |

Synchronously gets the file pointer from cache if available or fetches its content from the network. You probably want to use *BEFile.getFileInBackground()* instead unless you're already in a background thread.

**Note:** The File location may change without notice and should not be stored to be accessed later.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* getFileInBackground

|  |
| --- |
| public **Task**<**File**> getFileInBackground(**ProgressCallback** progressCallback) |

Asynchronously gets the file pointer from cache if available or fetches its content from the network. The ProgressCallback will be called periodically with progress updates.

**Note:** The File location may change without notice and should not be stored to be accessed later.

**Parameters**

|  |  |
| --- | --- |
| *progressCallback* | A ProgressCallback that is called periodically with progress updates. |

**Returns**

|  |
| --- |
| A Task that is resolved when the file pointer of this object has been fetched. |

* getFileInBackground

|  |
| --- |
| public **Task**<**File**> getFileInBackground() |

Asynchronously gets the file pointer from cache if available or fetches its content from the network.

**Note:** The File location may change without notice and should not be stored to be accessed later.

**Returns**

|  |
| --- |
| A Task that is resolved when the data has been fetched. |

* getFileInBackground

|  |
| --- |
| public void getFileInBackground(**GetFileCallback** fileCallback, **ProgressCallback** progressCallback) |

Asynchronously gets the file pointer from cache if available or fetches its content from the network. The GetFileCallback will be called when the get completes. The ProgressCallback will be called periodically with progress updates. The ProgressCallback is guaranteed to be called with 100 before the GetFileCallback is called.

**Note:** The File location may change without notice and should not be stored to be accessed later.

**Parameters**

|  |  |
| --- | --- |
| *fileCallback* | A GetFileCallback that is called when the get completes. |
| *progressCallback* | A ProgressCallback that is called periodically with progress updates. |

* getFileInBackground

|  |
| --- |
| public void getFileInBackground(**GetFileCallback** fileCallback) |

Asynchronously gets the file pointer from cache if available or fetches its content from the network. The GetFileCallback will be called when the get completes.

**Note:** The File location may change without notice and should not be stored to be accessed later.

**Parameters**

|  |  |
| --- | --- |
| *fileCallback* | A GetFileCallback that is called when the get completes. |

* getDataStream

|  |
| --- |
| public **InputStream** getDataStream() throws **BEException** |

Synchronously gets the data stream from cached file if available or fetches its content from the network, saves the content as cached file and returns the data stream of the cached file. You probably want to use *BEFile.getDataStreamInBackground(com.csbm.ProgressCallback)* instead unless you're already in a background thread.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception if the server returns an error or is inaccessible. |

* getDataStreamInBackground

|  |
| --- |
| public **Task**<**InputStream**> getDataStreamInBackground(**ProgressCallback** progressCallback) |

Asynchronously gets the data stream from cached file if available or fetches its content from the network, saves the content as cached file and returns the data stream of the cached file. The ProgressCallback will be called periodically with progress updates.

**Parameters**

|  |  |
| --- | --- |
| *progressCallback* | A ProgressCallback that is called periodically with progress updates. |

**Returns**

|  |
| --- |
| A Task that is resolved when the data stream of this object has been fetched. |

* getDataStreamInBackground

|  |
| --- |
| public **Task**<**InputStream**> getDataStreamInBackground() |

Asynchronously gets the data stream from cached file if available or fetches its content from the network, saves the content as cached file and returns the data stream of the cached file.

**Returns**

|  |
| --- |
| A Task that is resolved when the data stream has been fetched. |

* getDataStreamInBackground

|  |
| --- |
| public void getDataStreamInBackground(**GetDataStreamCallback** dataStreamCallback, **ProgressCallback** progressCallback) |

Asynchronously gets the data stream from cached file if available or fetches its content from the network, saves the content as cached file and returns the data stream of the cached file. The GetDataStreamCallback will be called when the get completes. The ProgressCallback will be called periodically with progress updates. The ProgressCallback is guaranteed to be called with 100 before GetDataStreamCallback is called.

**Parameters**

|  |  |
| --- | --- |
| *dataStreamCallback* | A GetDataStreamCallback that is called when the get completes. |
| *progressCallback* | A ProgressCallback that is called periodically with progress updates. |

* getDataStreamInBackground

|  |
| --- |
| public void getDataStreamInBackground(**GetDataStreamCallback** dataStreamCallback) |

Asynchronously gets the data stream from cached file if available or fetches its content from the network, saves the content as cached file and returns the data stream of the cached file. The GetDataStreamCallback will be called when the get completes.

**Parameters**

|  |  |
| --- | --- |
| *dataStreamCallback* | A GetDataStreamCallback that is called when the get completes. |

* cancel

|  |
| --- |
| public void cancel() |

Cancels the operations for this *BEFile* if they are still in the task queue. However, if a network request has already been started for an operation, the network request will not be canceled.

##### **Class BEQuery**

|  |
| --- |
| public class **BEQuery**<T extends **BEObject**> extends **Object** |

The BEQuery class defines a query that is used to fetch BEObjects. The most common use case is finding all objects that match a query through the *BEQuery.findInBackground()* method, using a FindCallback. For example, this sample code fetches all objects of class "MyClass". It calls a different function depending on whether the fetch succeeded or not.

|  |
| --- |
| BEQuery<BEObject> query = BEQuery.getQuery("MyClass");  query.findInBackground(new FindCallback<BEObject>() {  public void done(List<BEObject> objects, BEException e) {  if (e == null) {  objectsWereRetrievedSuccessfully(objects);  } else {  objectRetrievalFailed();  }  }  } |

A BEQuery can also be used to retrieve a single object whose id is known, through the **BEQuery.getInBackground(String)** method, using a GetCallback. For example, this sample code fetches an object of class "MyClass" and id myId. It calls a different function depending on whether the fetch succeeded or not.

|  |
| --- |
| BEQuery<BEObject> query = BEQuery.getQuery("MyClass");  query.getInBackground(myId, new GetCallback<BEObject>() {  public void done(BEObject object, BEException e) {  if (e == null) {  objectWasRetrievedSuccessfully(object);  } else {  objectRetrievalFailed();  }  }  } |

A BEQuery can also be used to count the number of objects that match the query without retrieving all of those objects. For example, this sample code counts the number of objects of the class "MyClass".

|  |
| --- |
| BEQuery<BEObject> query = BEQuery.getQuery("MyClass");  query.countInBackground(new CountCallback() {  public void done(int count, BEException e) {  if (e == null) {  objectsWereCounted(count);  } else {  objectCountFailed();  }  }  } |

Using the callback methods is usually preferred because the network operation will not block the calling thread. However, in some cases it may be easier to use the *BEQuery.find()*, *BEQuery.get(String)* or *BEQuery.count()* calls, which do block the calling thread. For example, if your application has already spawned a background task to perform work, that background task could use the blocking calls and avoid the code complexity of callbacks.

###### **Nested Class Summary**

|  |  |
| --- | --- |
| **Modifier and Type** | **Class and Description** |
| **static class** | **BEQuery.CachePolicy**  CachePolicy specifies different caching policies that could be used with BEQuery. |

###### **Constructor Summary**

|  |  |
| --- | --- |
| **Constructor** | **Description** |
| **BEQuery(Class<T>** subclass**)** | Constructs a query for a BEObject subclass type. |
| **BEQuery(BEQuery<T>** query**)** | Constructs a copy of query; |
| **BEQuery(String** theClassName**)** | Constructs a query. |

###### **Method Summary**

|  |  |
| --- | --- |
| **Modifier and Type** | **Class and Description** |
| **BEQuery**<T> | **addAscendingOrder(String** key**)**  Also sorts the results in ascending order by the given key. |
| **BEQuery**<T> | **addDescendingOrder(String** key**)**  Also sorts the results in descending order by the given key. |
| void | **cancel()**  Cancels the current network request (if one is running). |
| static void | **clearAllCachedResults()**  Clears the cached result for all queries. |
| void | **clearCachedResult()**  Removes the previously cached result for this query, forcing the next find() to hit the network. |
| int | **count()**  Counts the number of objects that match this query. |
| **Task**<**Integer**> | **countInBackground()**  Counts the number of objects that match this query in a background thread. |
| void | **countInBackground(CountCallback** callback**)**  Counts the number of objects that match this query in a background thread. |
| **List**<**T**> | **find()**  Retrieves a list of BEObjects that satisfy this query. |
| **Task**<**List**<**T**>> | **findInBackground()**  Retrieves a list of BEObjects that satisfy this query from the source in a background thread. |
| void | **findInBackground(FindCallback<T>** callback**)**  Retrieves a list of BEObjects that satisfy this query from the source in a background thread. |
| **BEQuery**<**T**> | **fromLocalDatastore()**  Change the source of this query to all pinned objects. |
| **BEQuery**<**T**> | **fromPin()**  Change the source of this query to the default group of pinned objects. |
| **BEQuery**<**T**> | **fromPin(String** name**)**  Change the source of this query to a specific group of pinned objects. |
| **T** | **get(String** objectId**)**  Constructs a BEObject whose id is already known by fetching data from the source. |
| **BEQuery**.**CachePolicy** | **getCachePolicy()** |
| **String** | **getClassName()**  Accessor for the class name. |
| **T** | **getFirst()**  Retrieves at most one BEObject that satisfies this query. |
| **Task**<**T**> | **getFirstInBackground()**  Retrieves at most one BEObject that satisfies this query from the source in a background thread. |
| void | **getFirstInBackground(GetCallback<T>** callback**)**  Retrieves at most one BEObject that satisfies this query from the source in a background thread. |
| **Task**<**T**> | **getInBackground(String** objectId**)**  Constructs a BEObject whose id is already known by fetching data from the source in a background thread. |
| void | **getInBackground(String** objectId**, GetCallback<T>** callback**)**  Constructs a BEObject whose id is already known by fetching data from the source in a background thread. |
| int | **getLimit()**  Accessor for the limit. |
| long | **getMaxCacheAge()**  Gets the maximum age of cached data that will be considered in this query. |
| static <T extends **BEObject**>  **BEQuery**<T> | **getQuery(Class<T>** subclass**)**  Creates a new query for the given BEObject subclass type. |
| static <T extends **BEObject**>  **BEQuery**<T> | **getQuery(String** className**)**  Creates a new query for the given class name. |
| int | **getSkip()**  Accessor for the skip value. |
| static **BEQuery**<**BEUser**> | **getUserQuery()**  Deprecated.  Please use BEUser.getQuery() instead. |
| boolean | **hasCachedResult()**  Returns whether or not this query has a cached result. |
| **BEQuery**<**T**> | **ignoreACLs()**  Ignore ACLs when querying from the Local Datastore. |
| **BEQuery**<**T**> | **include(String** key**)**  Include nested BEObjects for the provided key. |
| static <T extends **BEObject**>  **BEQuery**<T> | **or(List<BEQuery<T>>** queries**)**  Constructs a query that is the or of the given queries. |
| **BEQuery**<**T**> | **orderByAscending(String** key**)**  Sorts the results in ascending order by the given key. |
| **BEQuery**<**T**> | **orderByDescending(String** key**)**  Sorts the results in descending order by the given key. |
| **BEQuery**<**T**> | **selectKeys(Collection<String>** keys**)**  Restrict the fields of returned BEObjects to only include the provided keys. |
| **BEQuery**<**T**> | **setCachePolicy(BEQuery.CachePolicy** newCachePolicy**)**  Change the caching policy of this query. |
| **BEQuery**<**T**> | **setLimit(int** newLimit**)**  Controls the maximum number of results that are returned. |
| **BEQuery**<**T**> | **setMaxCacheAge(long** maxAgeInMilliseconds**)**  Sets the maximum age of cached data that will be considered in this query. |
| **BEQuery**<**T**> | **setSkip(int** newSkip**)**  Controls the number of results to skip before returning any results. |
| **BEQuery**<**T**> | **setTrace(boolean** shouldTrace**)**  Turn on performance tracing of finds. |
| **BEQuery**<**T**> | **whereContainedIn(String** key**, Collection<? extends Object>** values**)**  Add a constraint to the query that requires a particular key's value to be contained in the provided list of values. |
| **BEQuery**<**T**> | **whereContains(String** key**, String** substring**)**  Add a constraint for finding string values that contain a provided string. |
| **BEQuery**<**T**> | **whereContainsAll(String** key**, Collection<?>** values**)**  Add a constraint to the query that requires a particular key's value match another BEQuery. |
| **BEQuery**<**T**> | **whereDoesNotExist(String** key**)**  Add a constraint for finding objects that do not contain a given key. |
| **BEQuery**<**T**> | **whereDoesNotMatchKeyInQuery(String** key**, String** keyInQuery**, BEQuery<?>** query**)**  Add a constraint to the query that requires a particular key's value does not match any value for a key in the results of another BEQuery. |
| **BEQuery**<**T**> | **whereDoesNotMatchQuery(String** key**, BEQuery<?>** query**)**  Add a constraint to the query that requires a particular key's value does not match another BEQuery. |
| **BEQuery**<**T**> | **whereEndsWith(String** key**, String** suffix**)**  Add a constraint for finding string values that end with a provided string. |
| **BEQuery**<**T**> | **whereEqualTo(String** key**, Object** value**)**  Add a constraint to the query that requires a particular key's value to be equal to the provided value. |
| **BEQuery**<**T**> | **whereExists(String** key**)**  Add a constraint for finding objects that contain the given key. |
| **BEQuery**<**T**> | **whereGreaterThan(String** key**, Object** value**)**  Add a constraint to the query that requires a particular key's value to be greater than the provided value. |
| **BEQuery**<**T**> | **whereGreaterThanOrEqualTo(String** key**, Object** value**)**  Add a constraint to the query that requires a particular key's value to be greater than or equal to the provided value. |
| **BEQuery**<**T**> | **whereLessThan(String** key**, Object** value**)**  Add a constraint to the query that requires a particular key's value to be less than the provided value. |
| **BEQuery**<**T**> | **whereLessThanOrEqualTo(String** key**, Object** value**)**  Add a constraint to the query that requires a particular key's value to be less than or equal to the provided value. |
| **BEQuery**<**T**> | **whereMatches(String** key**, String** regex**)**  Add a regular expression constraint for finding string values that match the provided regular expression. |
| **BEQuery**<**T**> | **whereMatches(String** key**, String** regex**, String** modifiers**)**  Add a regular expression constraint for finding string values that match the provided regular expression. |
| **BEQuery**<**T**> | **whereMatchesKeyInQuery(String** key**, String** keyInQuery**, BEQuery<?>** query**)**  Add a constraint to the query that requires a particular key's value matches a value for a key in the results of another BEQuery. |
| **BEQuery**<**T**> | **whereMatchesQuery(String** key**, BEQuery<?>** query**)**  Add a constraint to the query that requires a particular key's value match another BEQuery. |
| **BEQuery**<**T**> | **whereNear(String** key**, BEGeoPoint** point**)**  Add a proximity based constraint for finding objects with key point values near the point given. |
| **BEQuery**<**T**> | **whereNotContainedIn(String** key**, Collection<? extends Object>** values**)**  Add a constraint to the query that requires a particular key's value not be contained in the provided list of values. |
| **BEQuery**<**T**> | **whereNotEqualTo(String** key**, Object** value**)**  Add a constraint to the query that requires a particular key's value to be not equal to the provided value. |
| **BEQuery**<**T**> | **whereStartsWith(String** key**, String** prefix**)**  Add a constraint for finding string values that start with a provided string. |
| **BEQuery**<**T**> | **whereWithinGeoBox(String** key**, BEGeoPoint** southwest**, BEGeoPoint** northeast**)**  Add a constraint to the query that requires a particular key's coordinates be contained within a given rectangular geographic bounding box. |
| **BEQuery**<**T**> | **whereWithinKilometers(String** key**, BEGeoPoint** point**, double** maxDistance**)**  Add a proximity based constraint for finding objects with key point values near the point given and within the maximum distance given. |
| **BEQuery**<**T**> | **whereWithinMiles(String** key**, BEGeoPoint** point**, double** maxDistance**)**  Add a proximity based constraint for finding objects with key point values near the point given and within the maximum distance given. |
| **BEQuery**<**T**> | **whereWithinRadians(String** key**, BEGeoPoint** point**, double** maxDistance**)**  Add a proximity based constraint for finding objects with key point values near the point given and within the maximum distance given. |

###### **Constructor Detail**

* BEQuery

|  |
| --- |
| public **BEQuery**(**Class**<T> subclass) |

Constructs a query for a BEObject subclass type. A default query with no further parameters will retrieve all BEObjects of the provided class.

**Parameters**

|  |  |
| --- | --- |
| *subclass* | The BEObject subclass type to retrieve. |

* BEQuery

|  |
| --- |
| public **BEQuery**(**String** theClassName) |

Constructs a query. A default query with no further parameters will retrieve all BEObjects of the provided class.

**Parameters**

|  |  |
| --- | --- |
| *theClassName* | The name of the class to retrieve BEObjects for. |

* BEQuery

|  |
| --- |
| public **BEQuery**(**BEQuery**<T> query) |

Constructs a copy of query.

**Parameters**

|  |  |
| --- | --- |
| *query* | The query to copy. |

###### **Method Detail**

* or

|  |
| --- |
| public static <T extends **BEObject**> **BEQuery**<T> or(**List**<**BEQuery**<T>> queries) |

Constructs a query that is the or of the given queries.

**Parameters**

|  |  |
| --- | --- |
| *queries* | The list of BEQuerys to ‘or’ together. |

**Returns**

|  |
| --- |
| A BEQuery that is the 'or' of the passed in queries. |

* getQuery

|  |
| --- |
| public static <T extends **BEObject**> **BEQuery**<T> getQuery(**Class**<T> subclass) |

Creates a new query for the given BEObject subclass type. A default query with no further parameters will retrieve all BEObjects of the provided class.

**Parameters**

|  |  |
| --- | --- |
| *subclass* | The BEObject subclass type to retrieve. |

**Returns**

|  |
| --- |
| A new BEQuery. |

* getQuery

|  |
| --- |
| public static <T extends **BEObject**> **BEQuery**<T> getQuery(**String** className) |

Creates a new query for the given class name. A default query with no further parameters will retrieve all BEObjects of the provided class name.

**Parameters**

|  |  |
| --- | --- |
| *className* | The name of the class to retrieve BEObjects for. |

**Returns**

|  |
| --- |
| A new BEQuery. |

* getUserQuery

|  |
| --- |
| @**Deprecated**  public static **BEQuery**<**BEUser**> getUserQuery() |

**Deprecated:** Please use *BEUser.getQuery()* instead.

Constructs a query for BEUsers.

* cancel

|  |
| --- |
| public void cancel() |

Cancels the current network request (if one is running).

* find

|  |
| --- |
| public **List**<T> find() throws **BEException** |

Retrieves a list of BEObjects that satisfy this query.

**Returns**

|  |
| --- |
| A list of all BEObjects obeying the conditions set in this query. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws a BEException if no object is found. |

* getFirst

|  |
| --- |
| public **T** getFirst() throws **BEException** |

Retrieves at most one BEObject that satisfies this query.

**Note:** This mutates the BEQuery

**Returns**

|  |
| --- |
| A BEObject obeying the conditions set in this query. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws a BEException if no object is found. |

* setCachePolicy

|  |
| --- |
| public **BEQuery**<T> setCachePolicy(**BEQuery.CachePolicy** newCachePolicy) |

Change the caching policy of this query.

Unsupported when Local Datastore is enabled.

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* getCachePolicy

|  |
| --- |
| public **BEQuery.CachePolicy** getCachePolicy() |

**Returns**

|  |
| --- |
| the caching policy. |

* fromLocalDatastore

|  |
| --- |
| public **BEQuery**<T> fromLocalDatastore() |

Change the source of this query to all pinned objects.

Requires Local Datastore to be enabled.

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* fromPin

|  |
| --- |
| public **BEQuery**<T> fromPin() |

Change the source of this query to the default group of pinned objects.

Requires Local Datastore to be enabled.

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* fromPin

|  |
| --- |
| public **BEQuery**<T> fromPin(**String** name) |

Change the source of this query to a specific group of pinned objects.

Requires Local Datastore to be enabled.

**Parameters**

|  |  |
| --- | --- |
| *name* | the pinned group. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* ignoreACLs

|  |
| --- |
| public **BEQuery**<T> ignoreACLs() |

Ignore ACLs when querying from the Local Datastore.

This is particularly useful when querying for objects with Role based ACLs set on them.

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* setMaxCacheAge

|  |
| --- |
| public **BEQuery**<T> setMaxCacheAge(long **maxAgeInMilliseconds**) |

Sets the maximum age of cached data that will be considered in this query.

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* getMaxCacheAge

|  |
| --- |
| public long getMaxCacheAge() |

Gets the maximum age of cached data that will be considered in this query. The returned value is in milliseconds.

* findInBackground

|  |
| --- |
| public **Task**<**List**<T>> findInBackground() |

Retrieves a list of BEObjects that satisfy this query from the source in a background thread.

This is preferable to using *BEQuery.find()*, unless your code is already running in a background thread.

**Returns**

|  |
| --- |
| A Task that will be resolved when the find has completed. |

* findInBackground

|  |
| --- |
| public void findInBackground(**FindCallback**<T> callback) |

Retrieves a list of BEObjects that satisfy this query from the source in a background thread.

This is preferable to using *BEQuery.find()*, unless your code is already running in a background thread.

**Parameters**

|  |  |
| --- | --- |
| *callback* | callback.done(objectList, e) is called when the find completes. |

* getFirstInBackground

|  |
| --- |
| public **Task**<T> getFirstInBackground() |

Retrieves at most one BEObject that satisfies this query from the source in a background thread.

This is preferable to using *BEQuery.getFirst()*, unless your code is already running in a background thread.

**Note:** This mutates the BEQuery.

**Returns**

|  |
| --- |
| A Task that will be resolved when the get has completed. |

* getFirstInBackground

|  |
| --- |
| public void getFirstInBackground(**GetCallback**<T> callback) |

Retrieves at most one BEObject that satisfies this query from the source in a background thread.

This is preferable to using *BEQuery.getFirst()*, unless your code is already running in a background thread.

**Note:** This mutates the BEQuery.

**Parameters**

|  |  |
| --- | --- |
| *callback* | callback.done(objectList, e) is called when the find completes. |

* count

|  |
| --- |
| public int count() throws **BEException** |

Counts the number of objects that match this query. This does not use caching.

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception when the network connection fails or when the query is invalid. |

* countInBackground

|  |
| --- |
| public **Task**<**Integer**> countInBackground() |

Counts the number of objects that match this query in a background thread. This does not use caching.

**Returns**

|  |
| --- |
| A Task that will be resolved when the count has completed. |

* countInBackground

|  |
| --- |
| public void countInBackground(**CountCallback** callback) |

Counts the number of objects that match this query in a background thread. This does not use caching.

**Parameters**

|  |  |
| --- | --- |
| *callback* | callback.done(count, e) will be called when the count completes. |

* get

|  |
| --- |
| public **T** get(**String** objectId) throws **BEException** |

Constructs a BEObject whose id is already known by fetching data from the source.

**Note:** This mutates the BEQuery.

**Parameters**

|  |  |
| --- | --- |
| *objectId* | Object id of the BEObject to fetch. |

**Throws**

|  |  |
| --- | --- |
| *BEException* | Throws an exception when there is no such object or when the network connection fails. |

* hasCachedResult

|  |
| --- |
| public boolean hasCachedResult() |

Returns whether or not this query has a cached result.

* clearCachedResult

|  |
| --- |
| public void clearCachedResult() |

Removes the previously cached result for this query, forcing the next find() to hit the network. If there is no cached result for this query, then this is a no-op.

* clearAllCachedResult

|  |
| --- |
| public static void clearAllCachedResults() |

Clears the cached result for all queries.

* getInBackground

|  |
| --- |
| public **Task**<**T**> getInBackground(**String** objectId) |

Constructs a BEObject whose id is already known by fetching data from the source in a background thread. This does not use caching.

This is preferable to using the *BEObject.createWithoutData(String, String)*, unless your code is already running in a background thread.

**Parameters**

|  |  |
| --- | --- |
| *objectId* | Object id of the BEObject to fetch. |

**Returns**

|  |
| --- |
| A Task that is resolved when the fetch completes. |

* getInBackground

|  |
| --- |
| public void getInBackground(**String** objectId, <**T**> callback) |

Constructs a BEObject whose id is already known by fetching data from the source in a background thread. This does not use caching.

This is preferable to using the *BEObject.createWithoutData(String, String)*, unless your code is already running in a background thread.

**Parameters**

|  |  |
| --- | --- |
| *objectId* | Object id of the BEObject to fetch. |
| *callback* | callback.done(object, e) will be called when the fetch completes. |

* whereEqualTo

|  |
| --- |
| public **BEQuery**<**T**> whereEqualTo(**String** key, **Object** value) |

Add a constraint to the query that requires a particular key's value to be equal to the provided value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check. |
| *value* | The value that the BEObject must contain. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereLessThan

|  |
| --- |
| public **BEQuery**<**T**> whereLessThan(**String** key, **Object** value) |

Add a constraint to the query that requires a particular key's value to be less than the provided value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check. |
| *value* | The value that provides an upper bound. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereNotEqualTo

|  |
| --- |
| public **BEQuery**<**T**> whereNotEqualTo(**String** key, **Object** value) |

Add a constraint to the query that requires a particular key's value to be not equal to the provided value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check. |
| *value* | The value that must not be equalled. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereGreaterThan

|  |
| --- |
| public **BEQuery**<**T**> whereGreaterThan(**String** key, **Object** value) |

Add a constraint to the query that requires a particular key's value to be greater than the provided value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check. |
| *value* | The value that provides an lower bound. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereLessThanOrEqualTo

|  |
| --- |
| public **BEQuery**<**T**> whereLessThanOrEqualTo(**String** key, **Object** value) |

Add a constraint to the query that requires a particular key's value to be less than or equal to the provided value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check. |
| *value* | The value that provides an upper bound. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereGreaterThanOrEqualTo

|  |
| --- |
| public **BEQuery**<**T**> whereGreaterThanOrEqualTo(**String** key, **Object** value) |

Add a constraint to the query that requires a particular key's value to be greater than or equal to the provided value.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check. |
| *value* | The value that provides an lower bound. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereContainedIn

|  |
| --- |
| public **BEQuery**<T> whereContainedIn(**String** key, **Collection**<? extends **Object**> values) |

Add a constraint to the query that requires a particular key's value to be contained in the provided list of values.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check. |
| *values* | The values that will match. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereContainsAll

|  |
| --- |
| public **BEQuery**<**T**> whereContainsAll(**String** key, **Collection**<?> values) |

Add a constraint to the query that requires a particular key's value match another BEQuery.

This only works on keys whose values are BEObjects or lists of BEObjects. Add a constraint to the query that requires a particular key's value to contain every one of the provided list of values.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check. This key's value must be an array. |
| *values* | The values that will match. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereMatchesQuery

|  |
| --- |
| public **BEQuery**<T> whereMatchesQuery(**String** key, **BEQuery**<?> query) |

Add a constraint to the query that requires a particular key's value match another BEQuery.

This only works on keys whose values are BEObjects or lists of BEObjects.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check. |
| *query* | The query that the value should match. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereDoesNotMatchesQuery

|  |
| --- |
| public **BEQuery**<T> whereDoesNotMatchQuery(**String** key, **BEQuery**<?> query) |

Add a constraint to the query that requires a particular key's value does not match another BEQuery.

This only works on keys whose values are BEObjects or lists of BEObjects.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check. |
| *query* | The query that the value should not match. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereMatchesKeyInQuery

|  |
| --- |
| public **BEQuery**<**T**> whereMatchesKeyInQuery(**String** key, **String** keyInQuery, **BEQuery**<?> query) |

Add a constraint to the query that requires a particular key's value matches a value for a key in the results of another BEQuery.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key whose value is being checked. |
| *keyInQuery* | The key in the objects from the sub query to look in. |
| *query* | The sub query to run. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereDoesNotMatchesKeyInQuery

|  |
| --- |
| public **BEQuery**<**T**> whereDoesNotMatchKeyInQuery(**String** key, **String** keyInQuery, **BEQuery**<?> query) |

Add a constraint to the query that requires a particular key's value does not match any value for a key in the results of another BEQuery.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key whose value is being checked and excluded. |
| *keyInQuery* | The key in the objects from the sub query to look in. |
| *query* | The sub query to run. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereNotContainedIn

|  |
| --- |
| public **BEQuery**<**T**> whereNotContainedIn(**String** key, **Collection**<? extends **Object**> values) |

Add a constraint to the query that requires a particular key's value not be contained in the provided list of values.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to check. |
| *values* | The values that will not match. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereNear

|  |
| --- |
| public **BEQuery**<**T**> whereNear(**String** key, **BEGeoPoint** point) |

Add a proximity based constraint for finding objects with key point values near the point given.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key that the BEGeoPoint is stored in. |
| *point* | The reference BEGeoPoint that is used. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereWithinMiles

|  |
| --- |
| public **BEQuery**<**T**> whereWithinMiles(**String** key, **BEGeoPoint** point, **double** maxDistance) |

Add a proximity based constraint for finding objects with key point values near the point given and within the maximum distance given.

Radius of earth used is 3958.8 miles.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key that the BEGeoPoint is stored in. |
| *point* | The reference BEGeoPoint that is used. |
| *maxDistance* | Maximum distance (in miles) of results to return. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereWithinKilometers

|  |
| --- |
| public **BEQuery**<**T**> whereWithinKilometers(**String** key, **BEGeoPoint** point, **double** maxDistance) |

Add a proximity based constraint for finding objects with key point values near the point given and within the maximum distance given.

Radius of earth used is 6371.0 kilometers.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key that the BEGeoPoint is stored in. |
| *point* | The reference BEGeoPoint that is used. |
| *maxDistance* | Maximum distance (in kilometers) of results to return. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereWithinRadians

|  |
| --- |
| public **BEQuery**<**T**> whereWithinRadians(**String** key, **BEGeoPoint** point, **double** maxDistance) |

Add a proximity based constraint for finding objects with key point values near the point given and within the maximum distance given.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key that the BEGeoPoint is stored in. |
| *point* | The reference BEGeoPoint that is used. |
| *maxDistance* | Maximum distance (in radians) of results to return. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereWithinGeoBox

|  |
| --- |
| public **BEQuery**<**T**> whereWithinGeoBox(**String** key, **BEGeoPoint** southwest, **BEGeoPoint** northeast) |

Add a constraint to the query that requires a particular key's coordinates be contained within a given rectangular geographic bounding box.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to be constrained. |
| *southwest* | The lower-left inclusive corner of the box. |
| *northeast* | The upper-right inclusive corner of the box. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereMatches

|  |
| --- |
| public **BEQuery**<**T**> whereMatches(**String** key, **String** regex) |

Add a regular expression constraint for finding string values that match the provided regular expression.

This may be slow for large datasets.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key that the string to match is stored in. |
| *regex* | The regular expression pattern to match. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereMatches

|  |
| --- |
| public **BEQuery**<**T**> whereMatches(**String** key, **String** regex, **String** modifiers) |

Add a regular expression constraint for finding string values that match the provided regular expression.

This may be slow for large datasets.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key that the string to match is stored in. |
| *regex* | The regular expression pattern to match. |
| *modifiers* | Any of the following supported PCRE modifiers:  i – Case insensitive search.  m – Search across multiple lines of input. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereContains

|  |
| --- |
| public **BEQuery**<**T**> whereContains(**String** key, **String** substring) |

Add a constraint for finding string values that contain a provided string.

This will be slow for large datasets.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key that the string to match is stored in. |
| *substring* | The substring that the value must contain. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereStartsWith

|  |
| --- |
| public **BEQuery**<**T**> whereStartsWith(**String** key, **String** prefix) |

Add a constraint for finding string values that start with a provided string.

This query will use the backend index, so it will be fast even for large datasets.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key that the string to match is stored in. |
| *prefix* | The substring that the value must start with. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* wherEndsWith

|  |
| --- |
| public **BEQuery**<**T**> whereEndsWith(**String** key, **String** suffix) |

Add a constraint for finding string values that end with a provided string.

This will be slow for large datasets.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key that the string to match is stored in. |
| *suffix* | The substring that the value must end with. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* include

|  |
| --- |
| public **BEQuery**<**T**> include(**String** key) |

Include nested BEObjects for the provided key.

You can use dot notation to specify which fields in the included object that are also fetched.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key that should be included. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* selectKeys

|  |
| --- |
| public **BEQuery**<**T**> selectKeys(**Collection**<**String**> keys) |

Restrict the fields of returned BEObjects to only include the provided keys.

If this is called multiple times, then all of the keys specified in each of the calls will be included.

**Note:** This option will be ignored when querying from the local datastore. This is done since all the keys will be in memory anyway and there will be no performance gain from removing them.

**Parameters**

|  |  |
| --- | --- |
| *key* | The set of keys to include in the result. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereExists

|  |
| --- |
| public **BEQuery**<**T**> whereExists(**String** key) |

Add a constraint for finding objects that contain the given key.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key that should exist. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* whereDoesNotExists

|  |
| --- |
| public **BEQuery**<**T**> whereDoesNotExist(**String** key) |

Add a constraint for finding objects that do not contain a given key.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key that should exist. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* orderByAscending

|  |
| --- |
| public **BEQuery**<T> orderByAscending(**String** key) |

Sorts the results in ascending order by the given key.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to order by. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* addAscendingOrder

|  |
| --- |
| public **BEQuery**<**T**> addAscendingOrder(**String** key) |

Also sorts the results in ascending order by the given key.

The previous sort keys have precedence over this key.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to order by. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* orderByDescending

|  |
| --- |
| public **BEQuery**<**T**> orderByDescending(**String** key) |

Sorts the results in descending order by the given key.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to order by. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* addDescendingOrder

|  |
| --- |
| public **BEQuery**<**T**> addDescendingOrder(**String** key) |

Also sorts the results in descending order by the given key.

The previous sort keys have precedence over this key.

**Parameters**

|  |  |
| --- | --- |
| *key* | The key to order by. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* setLimit

|  |
| --- |
| public **BEQuery**<**T**> setLimit(**int** newLimit) |

Controls the maximum number of results that are returned.

Setting a negative limit denotes retrieval without a limit. The default limit is 100, with a maximum of 1000 results being returned at a time.

**Parameters**

|  |  |
| --- | --- |
| *newLimit* | The new limit. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* getLimit

|  |
| --- |
| public **int** getLimit() |

Accessor for the limit.

* setSkip

|  |
| --- |
| public **BEQuery**<**T**> setSkip(**int** newSkip) |

Controls the number of results to skip before returning any results.

This is useful for pagination. Default is to skip zero results.

**Parameters**

|  |  |
| --- | --- |
| *newSkip* | The new skip. |

**Returns**

|  |
| --- |
| this, so you can chain this call. |

* getSkip

|  |
| --- |
| public **int** getSkip() |

Accessor for the skip value.

* getClassName

|  |
| --- |
| public **String** getClassName() |

Accessor for the class name.

* setTrace

|  |
| --- |
| public **BEQuery**<**T**> setTrace(**boolean** shouldTrace) |

Turn on performance tracing of finds.

If performance tracing is already turned on this does nothing. In general you don't need to call trace.

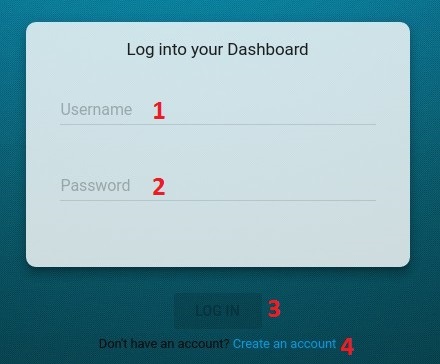
**Returns**

|  |
| --- |
| this, so you can chain this call. |

### **Web Application Design**

#### **Guest**

##### **Login**

****

**Figure: Web Application Desgin - <Guest> Login**

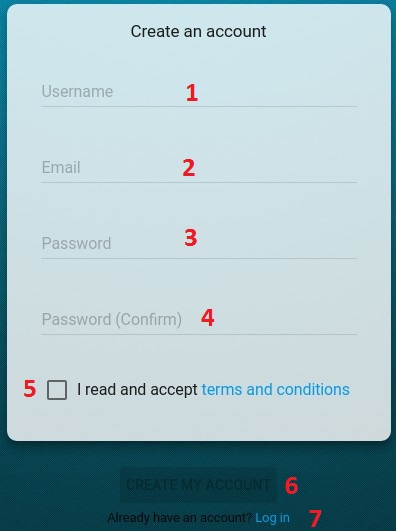
**Fields**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field Name** | **Description** | **Read Only** | **Mandatory** | **Control Type** | **Data Type** | **Length** |
| 1 | txtUsername | Fill username | No | Yes | Textbox | String | 6 - 20 |
| 2 | txtPassword | Fill password | No | Yes | Textbox | String | 6 - 12 |

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 3 | btnLogin | Send login command | Validation username and password fields | Hone screen |
| 4 | linkToRegister | View register page | N/A | Transfer to register page |

##### **Register**

****

**Figure: Web Application Desgin - <Guest> Register**

**Fields**

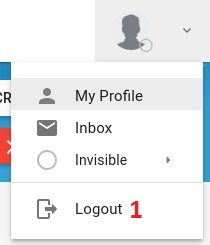
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field Name** | **Description** | **Read Only** | **Mandatory** | **Control Type** | **Data Type** | **Length** |
| 1 | txtUsername | Fill username | No | Yes | Textbox | String | 6 - 20 |
| 2 | txtEmail | Fill email | No | Yes | Textbox | String | 10 - 254 |
| 3 | txtPassword | Fill password | No | Yes | Textbox | String | 6 – 12 |
| 4 | txtPasswordConfirm | Fill password confirm | No | Yes | Textbox | String | 6 - 12 |

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 5 | btnAccept | Accept terms and conditions | N/A | N/A |
| 6 | btnRegister | Send register command | Validation username and password fields | Transfer to login page |
| 7 | linkToLogin | View login page | N/A | Transfer to login page |

#### **Authorized User**

##### **Logout**

****

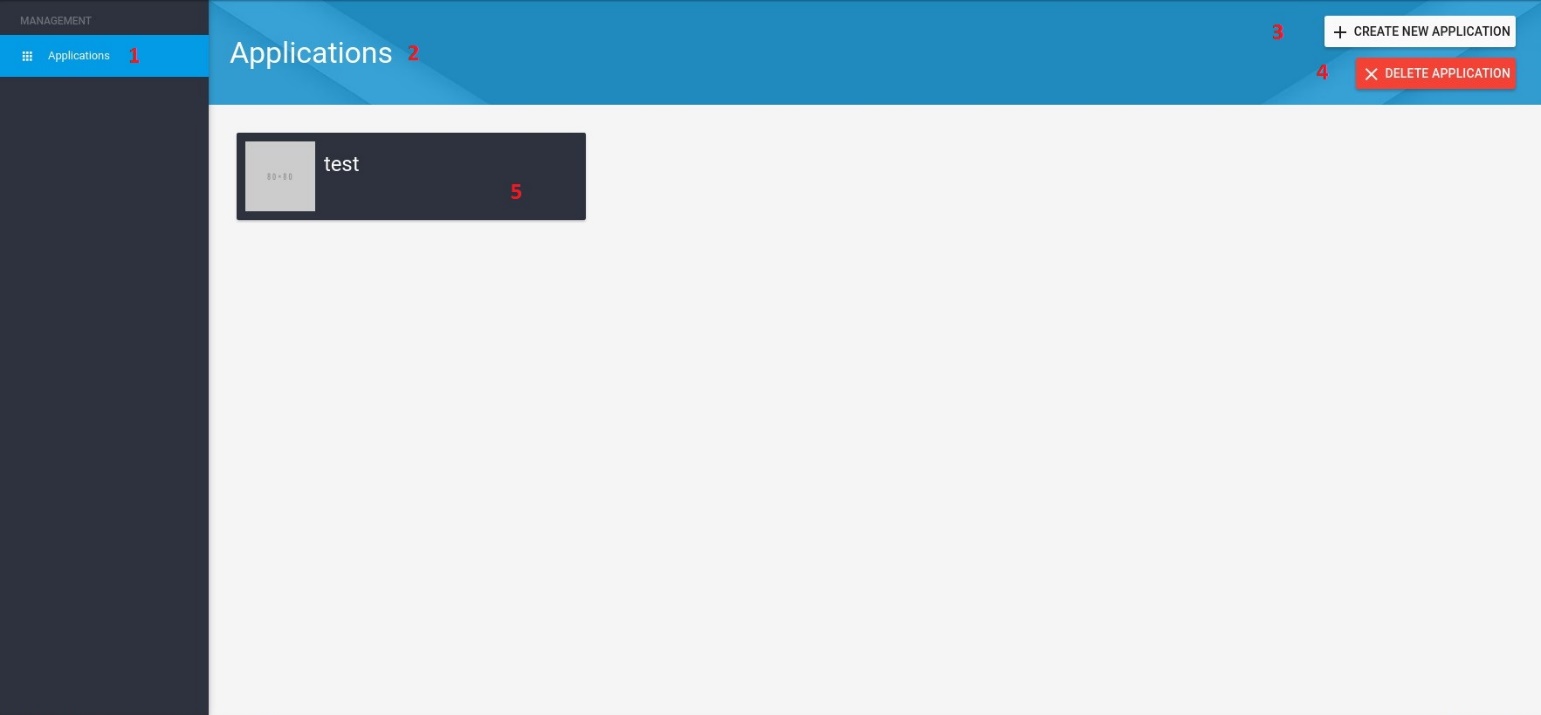
**Figure: Web Application - <Authorized User> Logout**

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 1 | btnLogout | Send log out command | N/A | Destroy session and redirect to login page |

#### **User**

##### **Manage Applications**



**Figure: Web Application Design - <User> Manage Applications**

**Fields**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field Name** | **Description** | **Read Only** | **Mandatory** | **Control Type** | **Data Type** | **Length** |
| 1 | Menu | Navigation bar | Yes | Yes | Menu bar | N/A | N/A |
| 2 | Title | Title of the page | Yes | Yes | Label | N/A | N/A |
| 5 | Application Card | List Applications | Yes | Yes | Card | N/A | N/A |

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 3 | btnCreateDialog | Create application dialog button | N/A | Show create application dialog |
| 4 | btnDeleteDialog | Delete application dialog button | N/A | Show delete application dialog |

##### **Create Application**

****

**Figure: Web Application Design - <User> Create Application**

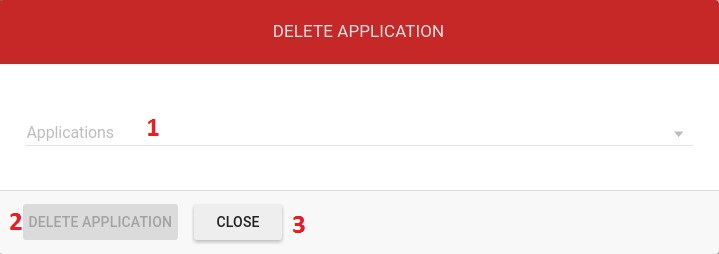
**Fields**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field Name** | **Description** | **Read Only** | **Mandatory** | **Control Type** | **Data Type** | **Length** |
| 1 | txtApplicationName | Fill application name | No | Yes | Textbox | String | 1 - 12 |

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 2 | btnCreateApp | Send create application command | N/A | Submit create application |

##### **Delete Application**

****

**Figure: Web Application Design - <User> Delete Application**

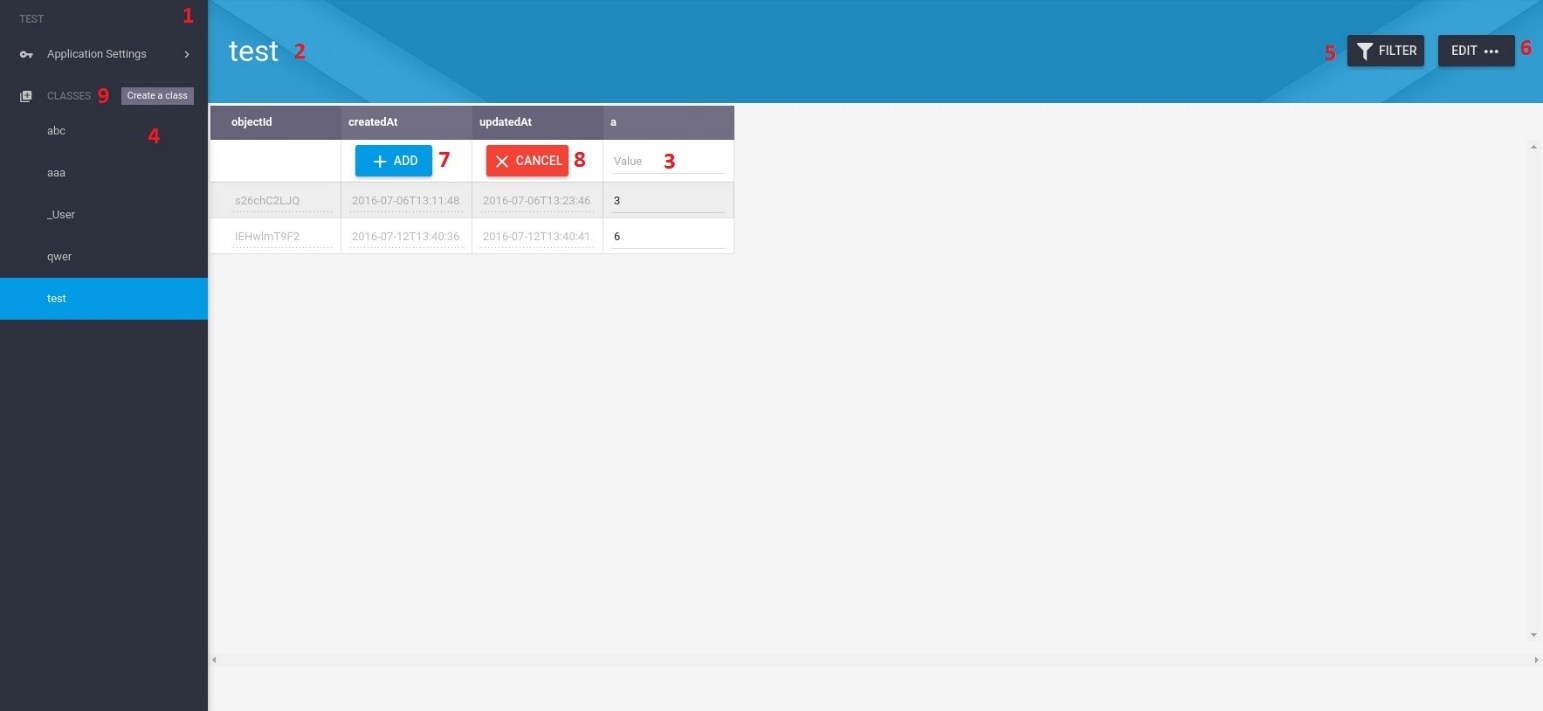
**Fields**

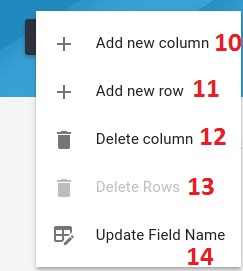
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field Name** | **Description** | **Read Only** | **Mandatory** | **Control Type** | **Data Type** | **Length** |
| 1 | optApplications | Application will be delete | No | Yes | Select box | Integer | N/A |

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 2 | btnDeleteApp | Send delete application command | Validate all required fields before submit | Submit delete application |
| 3 | btnCloeDialog | Close dialog button | N/A | Close delete application dialog |

##### **Manage Classes**

****

****

**Figure: Web Application Design - <User> Manage Classes**

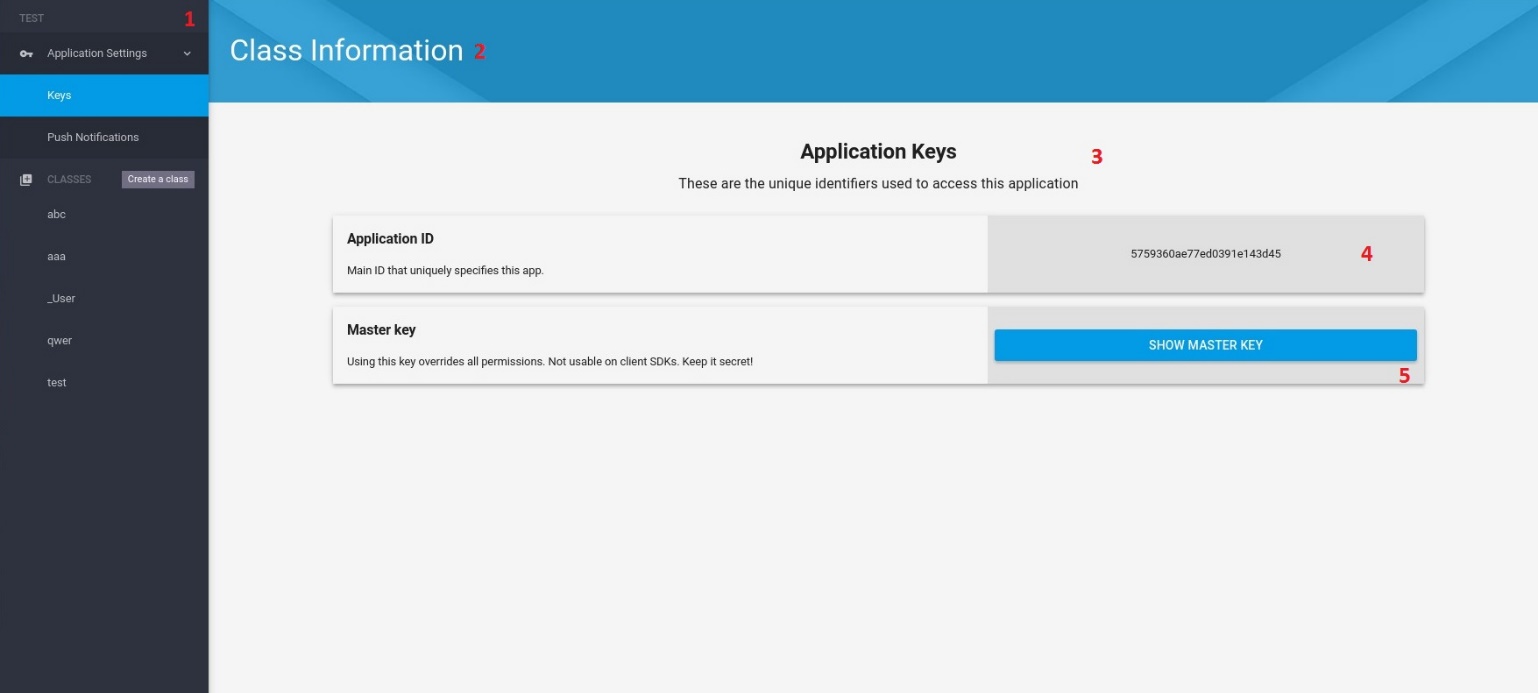
**Fields**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field Name** | **Description** | **Read Only** | **Mandatory** | **Control Type** | **Data Type** | **Length** |
| 1 | Menu | Navigation bar | Yes | Yes | Menu bar | N/A | N/A |
| 2 | Title | Title of the page | Yes | Yes | Label | N/A | N/A |
| 3 | txtValue | Fields Value | No | No | Textbox | String | 0 – 254 |
| 4 | Classes Menu | Navigation bar | Yes | Yes | Menu bar | N/A | N/A |

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 5 | btnFilterDialog | Filter dialog button | N/A | Show filter dialog |
| 6 | btnEdit | List action button | N/A | Show list Action |
| 7 | btnAdd | Send add new schema command | N/A | Add new row to list data |
| 8 | btnCancel | Cancel add new data to list button | N/A | Hide add new row to list data |
| 9 | btnCreateClassDialog | Create new class dialog button | N/A | Show create new class dialog |
| 10 | btnAddColumnDialog | Add new field to list dialog button | N/A | Show add new column to table dialog |
| 11 | btnAddNewRow | Add a new data to list button | N/A | Show information row to add new |
| 12 | btnDeleteClumnDialog | Delete exists field list dialog button | N/A | Show delete column dialog |
| 13 | btnDeleteRow | Send delete schema(s) command | N/A | Delete schema(s) is selected in list data |
| 14 | btnUpdateFieldDialog | Update field name dialog button | N/A | Show update field name dialog |

##### **Application Key**

****

**Figure: Web Application Design - <User> Application Key**

**Fields**

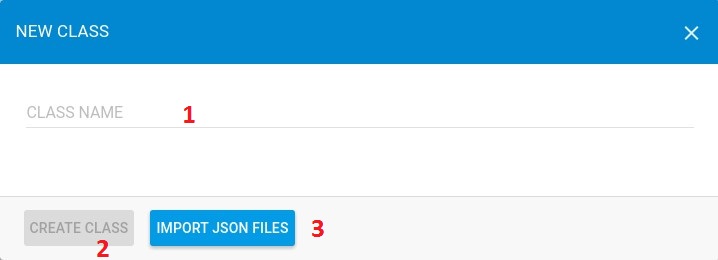
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field Name** | **Description** | **Read Only** | **Mandatory** | **Control Type** | **Data Type** | **Length** |
| 1 | Menu | Navigation bar | Yes | Yes | Menu bar | N/A | N/A |
| 2 | Title | Title of the page | Yes | Yes | Label | N/A | N/A |
| 3 | lbDescription | Description of application key | Yes | Yes | Label | N/A | N/A |
| 4 | lbApplicationId | Application Id | Yes | Yes | Label | N/A | N/A |

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 5 | btnMasterKey | Send get application master key command | N/A | Show application master key |

##### **Push Notification**

##### **Create Class**



**Figure: Web Application Design - <User> Create Class**

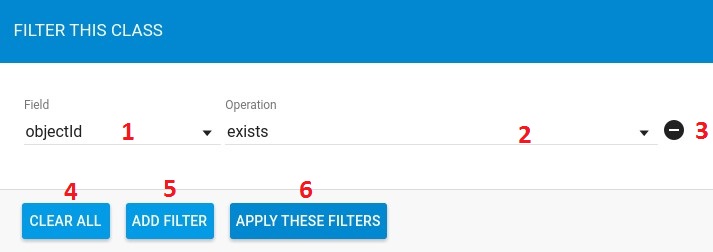
**Fields**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field Name** | **Description** | **Read Only** | **Mandatory** | **Control Type** | **Data Type** | **Length** |
| 1 | txtClassName | Fill class name | No | Yes | Textbox | String | 1 - 12 |

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 2 | btnCreateClass | Send create class command | N/A | Submit create class |
| 3 | btnImportFileDialog | Import file dialog button | N/A | Show import file dialog |

##### **Filter Class Fileds**



**Figure: Web Application Design - <User> Filter Class Fields**

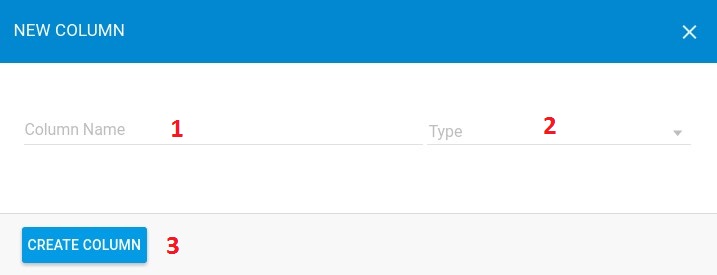
**Fields**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field Name** | **Description** | **Read Only** | **Mandatory** | **Control Type** | **Data Type** | **Length** |
| 1 | optFields | Fields will be filter | No | Yes | Select box | Integer | N/A |
| 2 | optOperation | Operation will be use to filter | No | Yes | Select box | Integer | N/A |

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 3 | btnRemoveFilter | Remove filter option button | N/A | Filter option will be remove |
| 4 | btnClearAll | Remove all filter option button | N/A | All Filter option will be remove |
| 5 | btnAddFilter | Add new filter option button | N/A | Add new filter option |
| 6 | btnApply | Apply filter button | N/A | Apply all fiter option to list data |

##### **Add New Column**



**Figure: Web Application Design - <User> Add New Column**

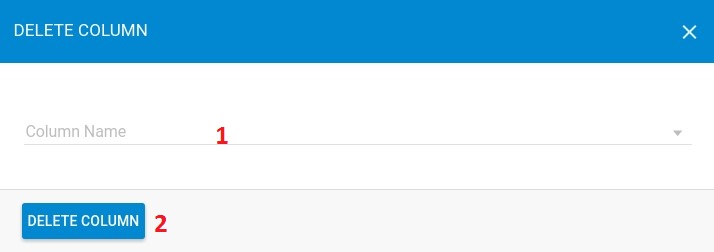
**Fields**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field Name** | **Description** | **Read Only** | **Mandatory** | **Control Type** | **Data Type** | **Length** |
| 1 | txtColName | Fill column name | No | Yes | Textbox | String | 1 - 12 |
| 2 | optType | Select column type | No | Yes | Select box | Integer | N/A |

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 3 | btnCreateCol | Send create new field command | N/A | Submit create column |

##### **Delete Column**



**Figure: Web Application Design - <User> Delete Column**

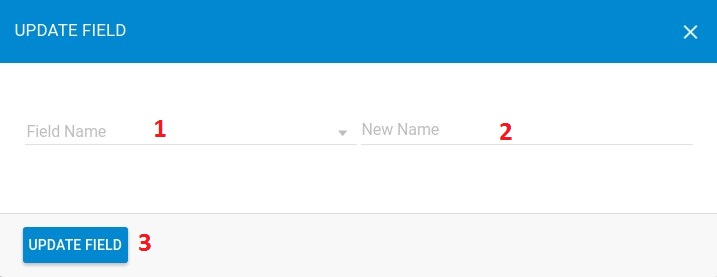
**Fields**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field Name** | **Description** | **Read Only** | **Mandatory** | **Control Type** | **Data Type** | **Length** |
| 1 | optColName | Select Column Name | No | Yes | Select box | Integer | N/A |

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 2 | btnDeleteCol | Send delete field command | N/A | Submit delete column |

##### **Update Field Name**



**Figure: Web Application Design - <User> Update Field Name**

**Fields**

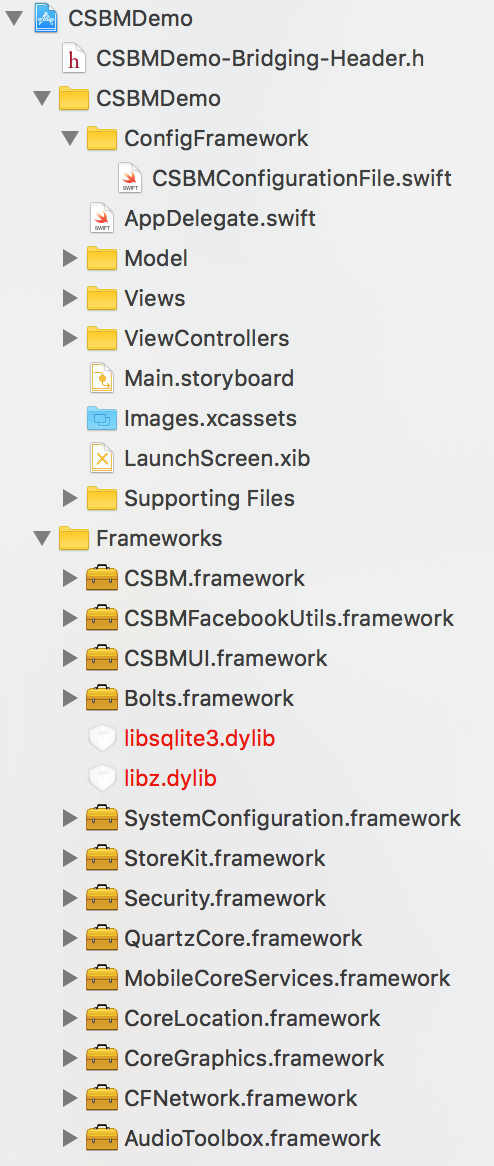
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **No** | **Field Name** | **Description** | **Read Only** | **Mandatory** | **Control Type** | **Data Type** | **Length** |
| 1 | optFieldName | Select field name to update | No | Yes | Select box | Integer | N/A |
| 2 | txtFieldNewName | Fill field new name | No | Yes | Textbox | String | 1 - 12 |

**Buttons/Hyperlinks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Function** | **Description** | **Validation** | **Outcome** |
| 3 | btnUpdateField | Send update field command | N/A | Submit update field command |

* 1. Mobie Framework Design

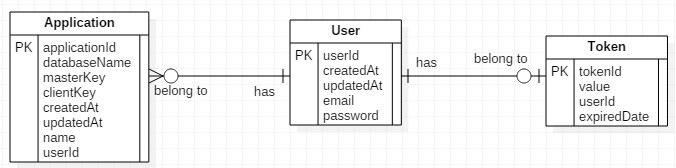
#### **iOS**



**Figure: iOS**

## **Database Design**

### **6.1 Entity Relationship Diagram**

****

**Figure: Entity relationship diagram**

### **6.2 Data Dictionary**

|  |  |  |
| --- | --- | --- |
| **Entity Data Dictionary: describe content of all entities** | | |
| **Entity name** | **Description** | **Mapping column with Conceptual diagram** |
| **User** | Contain the user information | user |
| **Application** | Contain the application information | application |
| **Token** | Contain the token information | token |

**Table: Entity dictionary**

**< Mô tả các thành phần bên trong thực thể >**

**……………………..**

## **Algorithms**

# **E. System Implementation & Test**

## **Introduction**

### **Overview**

This section describes the approach and methodologies used by group to plan, organize and manage the testing of CSBM system. It provides in the detail all necessary information about the implementation and testing procedure of the system included test plans, test cases, test result, test environments, pass/fail criteria and risks estimations as well as a checklist to cover all possible cases.

### **Test Approach**

* Goal: Test all features in the whole CSBM system based on the core flow.
* Method: black-box testing
* Technique: check list

The testing for this project will consists of Integration System test level. Testing the program which was integrated and as a complete system to ensure that the software requirements have been met.

* Integration testing would be performed by all member of team and approved by team leader.
* System testing is focused on assessing the system’s reliability. This process is concerned with finding errors that result from unanticipated interactions between components and component interface problems.

## **Database Relationship Diagram**

### **Physical Diagram**

### **Data Dictionary**

## **Performance Measures**

### **Mobile application load speed**

#### **Definition**

This section tests the load speed of mobile apps when connection to server through API.

#### **Test Environment**

**Server:**

* **Operating system:** Ubuntu 14.04 Server 32 bit
* **Ram:** 4GB
* **Storage:** 50GB
* **Processor:** Intel CORE i7 Quad core 2.0 GHz
* **Network:** Wi-Fi 1Mbps

**Client:**

|  |  |  |
| --- | --- | --- |
| **Android** | **Minimum Requirements** | **Recommended** |
| **Internet Connection** | Wi-Fi (4 Mbps) | Wi-Fi (8 Mbps) |
| **Operating System** | Android 4.4:Kitkat | Android 5.1.1: Lollipop |
| **Memory** | 512 MB of RAM | 2GB of RAM or more |

#### **Test Cases**

Using mobile application to send the entire API request to CSBM server.

List of APIs:

|  |  |  |
| --- | --- | --- |
| **No** | **API** | **Description** |
| **1** | create | Creates a new BEObject |
| **2** | saveInBackground | Saves this object to the server in a background thread. |
| **3** | deleteInBackground | Deletes this object on the server in a background thread. |
| **4** | getQuery | Creates a new query. |
| **5** | getFirstInBackground | Retrieves at most one BEObject that satisfies this query from the source in a background thread. |
| **6** | whereExists | Add a constraint for finding objects that contain the given key |

#### **Test Result**

The test is run 20 times, each time we run all the test cases listed above and log down the average API respone time.

|  |  |  |
| --- | --- | --- |
| **Test No** | **Average load time (second)** | **Execute date** |
| **1** | 0.85 | 28 July 2016 |
| **2** | 1.1 | 28 July 2016 |
| **3** | 0.7 | 28 July 2016 |
| **4** | 0.9 | 28 July 2016 |
| **5** | 1.3 | 28 July 2016 |
| **6** | 0.75 | 28 July 2016 |
| **7** | 0.8 | 28 July 2016 |
| **8** | 1.2 | 28 July 2016 |
| **9** | 1 | 28 July 2016 |
| **10** | 0.93 | 28 July 2016 |
| **11** | 0.89 | 28 July 2016 |
| **12** | 0.8 | 28 July 2016 |
| **13** | 0.83 | 28 July 2016 |
| **14** | 0.93 | 28 July 2016 |
| **15** | 1.1 | 28 July 2016 |
| **16** | 1 | 28 July 2016 |
| **17** | 0.9 | 28 July 2016 |
| **18** | 0.85 | 28 July 2016 |
| **19** | 0.83 | 28 July 2016 |
| **20** | 0.93 | 28 July 2016 |
|  | **Average: 0.93(seconds)** |  |

## **Test Plan**

### **Features to be tested**

### **Features not to be tested**

## **System Testing Test Case**

### **Communication Diagram**

### **Test Cases**

#### **Mobile Framework Test Case**

##### **<BEObject> Using BEObject**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ID** | **Test Case Description** | **Test case procedure** | **Expected output** | **Inter-test case dependence** | **Result** | **Test Date** |
| **BEO-1** | Creates a new BEObject with class name. | 1. Create new mobile application with CSBM Android - Framework. 2. Call function *create(String className)* with class name is “testCreateBEObject”. 3. Call function *saveInBackground()*. | New database with name is “testCreateBEObject” has been created. | N/A. | Pass | From 20/07/2016 To 28/07/2016  (over 40 times) |
| **BEO-2** | Add a key-value pair to object. | 1. Create new BEObject with function *BEObject object = new BEObject(String className)*, with class name is “testCreateBEObject”. 2. Call function *put(String key, String value)* with key is “name” and value “CSBM”. 3. Call function *saveInBackground()*. | New record with key is “name” and value “CSBM” has been added into “testCreateBEObject” database. | N/A. | Pass | From 20/07/2016 To 28/07/2016  (over 40 times) |
| **BEO-3** | Delete object on the server. | 1. Call function *deleteInBackground()*. | Database with name “testCreateBEObject” has been deleted. | CBEO-2 | Pass | From 20/07/2016 To 28/07/2016  (over 40 times) |

##### **<BEFile> Using BEFile**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ID** | **Test Case Description** | **Test case procedure** | **Expected output** | **Inter-test case dependence** | **Result** | **Test Date** |
| **BEF-1** |  |  |  |  |  |  |

##### **<BEUser> Using BEUser**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ID** | **Test Case Description** | **Test case procedure** | **Expected output** | **Inter-test case dependence** | **Result** | **Test Date** |
| **BEU-1** | Signs up the user. | 1. Create new mobile application with CSBM Android - Framework. 2. Create new BEUser with function *BEUser user = new BEUser()*. 3. Call function *setUsername(String username)* with username is “hung”. 4. Call function *setPassword(String password)* with password is “123123”. 5. Call function *signUpInBackground()*. | New record with username: “hung” and password: “123123” has been added into “User” database. | N/A. | Pass |  |
| **BEU-2** | Log in a user with a user name and password. | 1. Call function *logInInBackground(String username, String password)* with username is “hung” and password is “123123”. | The session from background of current user can retrieve by using *BEUser.getCurrentUser().* | BEU-1 | Pass |  |
| **BEU-3** | Log out the currently logged in user session. | 1. Call function *logOutInBackground()*. | The session from background of current user will be removed.  Calls to *BEUser.getCurrentUser()* will return null. | BEU-2 | Pass |  |

##### **<BEQuery> Using BEQuery**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ID** | **Test Case Description** | **Test case procedure** | **Expected output** | **Inter-test case dependence** | **Result** | **Test Date** |
| **BEQ-1** | Create a new query for the given class name. | 1. Create new mobile application with CSBM Android – Framework. 2. Call function *getQuery(String className)* | A new BEQuery Object has been created. | N/A. | Pass |  |
| **BEQ-2** | Make the query restrict the fields of the returned BEObjects. | 1. Call function *selectKeys(Collection<String> keys)* with keys is the set of keys to include in the result. | Restrict the fields of returned BEObjects to only include the provided keys. | BEQ-1 | Pass |  |
| **BEQ-3** |  |  |  |  |  |  |