# System Design and Architecture for DropIN

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## **CRC Cards**

Class Name: User

Parent: None

Subclass: None

### Responsibilities:

- Knows Username
- Knows Password
- Knows Email Address
- Knows Location
- Knows followed activities
- Knows the friend list
- Able to Login
- Able to Logout
- Able to Delete
- Able to create account

Collaborators:

- Chat
- Group

Class Name: Group

Parent: None

Subclass: None

#### Responsibilities:

- Knows all the users in the groups
- Knows the type of activities
- Knows the skill level for the group
- Knows location of the group, if any

Collaborators:

- Chat
- Users
- Activity

Class Name: Activity

Parent: None

Subclass: None

#### Responsibilities:

- Knows the type of activity
- Knows the list of all of the available activities
- Knows the list of all the groups engaged in that activity
- Knows all the users following that activity

#### Collaborators:

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Class Name: Chat

Parent: None

Subclass: None

#### Responsibilities:

- Knows all the users in the groups
- Knows the number of users
- Knows the time and date
- knows the contents of the message
- Sends the message containing the content
- Knows the user who sends the message
- Knows the user/users who receive the message

#### Collaborators:

- Users
- Activity
- Group

Class Name: DAO

Parent: None

Subclass: None

#### Responsibilities:

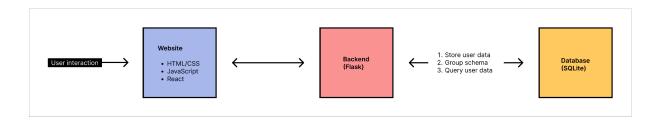
- Register user based on username, password and email
- Login users using their email and password
- Modifies account information
- verifies account information
- Deletes the account
- Store users' profile picture
- Create groups with group name, associated activity, skill level, group picture and a generated group ID
- Send and retrieve chat messages associated with a group ID
- Modifies group information
- Store and retrieve activities
- Search for groups and specific group information
- Get list of activities
- Get user account information
- Get user activity preferences (Skill level and location)
- Get user friend list
- Add/delete from user friend list
- Create user contact requests

#### Collaborators:

- Chat
- Users
- Activity
- Group

## Software Architecture Diagram

Three-tiered architecture link: <a href="https://www.linuxjournal.com/article/3508">https://www.linuxjournal.com/article/3508</a>



## System Decomposition

## Presentation Layer:

Our front-end is composed of HTML, CSS, and JavaScript (using React libraries). This is where our user will be interacting with our application.

### **Application Layer:**

Our backend uses Python3, NodeJS, and Flask and is connected to a MySQL database. When sending data between the front-end and back-end of our system, HTTP endpoints are used in the back-end. On the front-end, HTTP POST requests allow us to create and update classes through the application layer. Information is retrieved via GET requests from the database.

#### Data Layer:

Our back-end interacts with the MySQL database to make changes to the data and perform read/write operations.

#### Error Handling:

If the user inputs invalid information, they will receive an error message informing them of their error (e.g. incorrect login info, search query that yields no results). In the case of a network or external system failure, our strategy is to return the user back to their dashboard/profile page once the network is restored so that they can resume their activity.