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

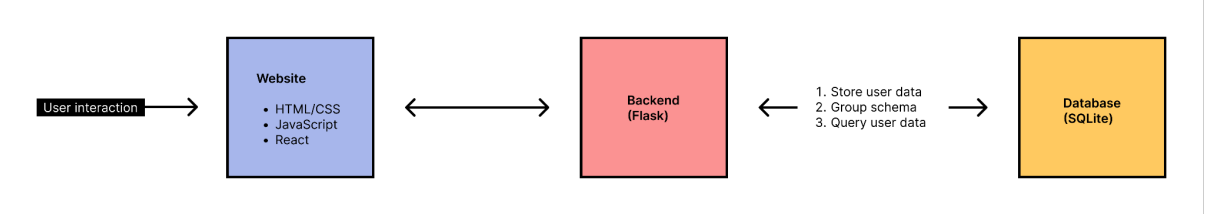
Class Name: Activity	
Parent: None	
Subclass: None	
Responsibilities: ● Knows the type of activity ● Knows the list of all of the available activities ● Knows the list of all the groups engaged in that activity ● Knows all the users following that activity	Collaborators: ●

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: https://www.linuxjournal.com/article/3508



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 SQLite 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.