

# STUDY MATCH



**4/11/2018**

**Group name: 404 Not Found**

Software Engineering (CSc 4350) - Spring 2018

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## a) Planning and Scheduling:

### Outline Plan:

o What is the single most serious challenge you see in developing the product on schedule?

We may not have enough expertise to complete the coding on time.

o Write down 2+ risks you can foresee in completing this project (table below)

o Ways to avoid or lessen/ minimize the risks (table below)

### Scheduling:

Risk	Affects	Description	Minimize Risks
Product Competition	Business	Most students make GroupMe in each of their classes, which allows them to reach out to the people in their class There are many large Facebook groups based at GSU (Book Exchange)	We need to make aggressive advertising for the site. We can also add a report function for when a study partner is using the site for reasons other than intended and ban the user if verified.
Programming Delay	Project	Not having enough time to program enough features and security measures necessary for this product.	Plan accordingly based on a tight schedule.
Size Underestimation	Project and Product	Underestimating the necessary size of the system, based on the number of users now and future.	Perform a school wide survey to get an approximation of how many students will be using the system.
Resources	Project	Having the capability to house this system in terms of servers or other required hardware.	Potential Solution: partner with a company or organization that has the bandwidth to maintain the system.

## ▪ Scheduling

Task	Effort (person-days)	Duration (hours/or days/ etc)	Dependencies
1.Communicating on slack	5	hours per person	N/A
2.Meetings	5	50 hours per person	Task 1
3. Use Cases	5	4 hour per person	Task 2
4. Use Case Diagrams	2	8 hours per person	Task 3
5. Test Cases	5	8 hour per person	Task 2
6. Class Diagram	5	9 hours per person	Task 2
7. Sequence Diagram	5	8 hours per person	Task 6
8. System Design Diagram	5	8 hours per person	Task 7
9. Implement the System Design	5	10 hours per person	Task 8
10. System Testing	2	3 hour per person	Task 9
11. Test Documentation	2	2 hours per person	Task 10
12. Video	5	2 hours per person	Task 1-11
13. Video Editing	1	20 hours per person	Task 12

b)

## -----Use Cases-----

- **Identifier:1**
  - **Iteration: 1**
  - **Summary: GSU email sign up and verification**
  - **Actors: User, Database**
  - **Basic Course of Events:**
    1. User signs up for an account to use the system
    2. System sends verification email
    3. User verifies GSU email via system-generated email
  - **Alternative Paths: None**
  - **Exception Paths:**
    1. User enters non-GSU email.
    3. User can't reuse the email.
  - **Extension Points: User is allowed to create new account**
  - **Trigger: User is in need of study community within GSU**
  - **Assumptions: User is a GSU student**
  - **Precondition: User must have a valid GSU email**
  - **Postcondition: User requirements are sufficient to create account**
  - **Author: All**
  - **Date: 02/14/2018 (Revised: 3/5/2018)**
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- **Identifier: 2**
  - **Iteration: 1**
  - **Summary: Create new account and create password**
  - **Actors: User, Database**
  - **Basic Course of Events:**
    1. User directed to log in creator page after successful verification.
    2. User prompted to create password; Password must be at least 8 characters long and must include at least one special character.
    3. User proceeds to login
  - **Alternative Paths: If user enters invalid password, system prompts user to try again**
  - **Exception Paths:**
    1. User enters password that does not meet the requirements
  - **Extension Points: User is allowed to create account**
  - **Trigger: User clicks on verification link to bring them to account creation page**
  - **Assumptions: Username is panther email address**
  - **Precondition: Student has verified their GSU email successfully**
  - **Postcondition: User requirements are sufficient to create account**
  - **Author: All**
  - **Date: 02/14/2018; (Revised 3/5/2018)**

- **Identifier: 3**
  - **Iteration: 1**
  - **Summary: User redirected to web page home screen**
  - **Actors: User, Database**
  - **Basic Course of Events:**
    1. User enters email and password
    2. User logs in
  - **Alternative Paths: User doesn't log in/forgot password**
  - **Exception Paths: Wrong username, wrong password**
  - **Extension Points: User accesses system database**
  - **Trigger: User has credentials to log in**
  - **Assumptions: User has successfully registered to use the system (see identifier 2)**
  - **Precondition: User has successfully created login credentials to access system**
  - **Postcondition: User can search for partner(s) needing help in similar areas**
  - **Author: All**
  - **Date: 02/17/2018 (Revised: 3/5/2018)**
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- **Identifier: 4**
  - **Iteration: 1**
  - **Summary: User creates personal profile**
  - **Actors: User, Database**
  - **Basic Course of Events:**
    1. User directed to profile creation page
    2. User enters personal details (Name, Age, Sex)
    3. User is required to enter major, classes, type of student (undergrad vs grad, further classification optional)
  - **Alternative Paths: User doesn't enter information**
  - **Exception Paths: User enters invalid classes or major**
  - **Extension Points: User allowed to move on toward searching for study partner(s) and/or post and discuss their questions and topic on the discussion board**
  - **Trigger: User logs in for the first time**
  - **Assumptions: User has created an account**
  - **Precondition: User has a valid account (see identifier 3)**
  - **Postcondition: User can search for study partner(s)**
  - **Author: All**
  - **Date: 02/17/2018; (Revised 3/5/2018)**
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- **Identifier:5**
  - **Iteration: 1**
  - **Summary: User is now able to search for potential study partner(in person or online)**
  - **Actors: User, Database**
  - **Basic Course of Events:**
    1. User can access search option from home screen

2. User can filter based on major, course, student type
  3. List of potential matches based on filter parameters and their profile is provided to User
- **Alternative Paths:** User can search for discussion boards
  - **Exception Paths:** User is not accepted by any potential matches
  - **Extension Points:** User can then set up a study time and place
  - **Trigger:** User is in search of academic help
  - **Assumptions:** User is looking for a tutor, study partner, or study guides after creating an account
  - **Precondition:** User has created and built their profile, and is looking for academic assistance or is interested in providing academic assistance
  - **Postcondition:** User can now collaborate with their study match however best fits their needs, online or in person
  - **Author:** All
  - **Date:** 02/19/2018 (Revised: 3/5/2018)
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- **Identifier:** 6
  - **Iteration:** 1
  - **Summary:** Discussion board feature is available to users to post their questions or discussion topics
  - **Actors:** User, Database
  - **Basic Course of Events:**
    1. User have the option of utilizing the discussion board feature to post more specific questions or discuss matters pertaining to their classes
    2. User can utilize the “New Post” option
    3. When creating a new thread, user must enter a subject and message
    4. User must select relevant class for filtering purposes
  - **Alternative Paths:** Users can exercise Online chat or pursue study match in person
  - **Exception Paths:** None
  - **Extension Points:** Another user can respond to the original post.
  - **Trigger:** User has a specific question or would like to openly discuss something pertaining to their question.
  - **Assumptions:** User would like academic help from their peers
  - **Precondition:** User has created and built their profile, and is looking for academic assistance or is interested in providing academic assistance
  - **Postcondition:** Users will get a response to their thread from other users
  - **Author:** All
  - **Date:** 3/6/2018, (Revised: 3/7/2018)
  - **Identifier:** 7
  - **Iteration:** 1
  - **Summary:** Users can read and respond to a post in the discussion board
  - **Actors:** User, Database
  - **Basic Course of Events:**
    1. User can read other users’ post containing topic or question

- 2. User can utilize the “Reply” option
    - 3. Reply is posted underneath original post
  - **Alternative Paths:** Users can exercise Online chat or pursue study match in person
  - **Exception Paths:** None
  - **Extension Points:** Original user or other readers can rate the answer
  - **Trigger:** User has a response or answer to a specific question or topic
  - **Assumptions:** User would like to provide academic help to their peer
  - **Precondition:** User has created and built their profile, and is interested in providing academic assistance
  - **Postcondition:** User’s’ comment will be posted as a response and potentially get rated
  - **Author:** All
  - **Date:** 3/6/2018, (Revised: 3/7/2018)
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- **Identifier:** 8
  - **Iteration:** 1
  - **Summary:** The original poster can mark the original post as solved
  - **Actors:** User, Database
  - **Basic Course of Events:**
    - 1. Original poster(User) reads the responses on his thread
    - 2. User can mark the response solved if they are content with an answer
  - **Alternative Paths:** Original poster(User) does not mark any responses “Answered”
  - **Exception Paths:** None
  - **Extension Points:** None
  - **Trigger:** User searching for answer to their thread
  - **Assumptions:** User would like to receive an answer to their thread
  - **Precondition:** User has created a thread
  - **Postcondition:** Thread is marked “Answered”
  - **Author:** All
  - **Date:** 03/06/2018, Revised: (3/7/2018)
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- **Identifier:** 9
  - **Iteration:** 1
  - **Summary:** Users can rate a thread with a “Thumbs up” or “Thumbs down”
  - **Actors:** User, Database
  - **Basic Course of Events:**
    - 1. Users read threads and comments
    - 2. User can rate the threads and comments with a thumbs up or thumbs down
  - **Alternative Paths:** User can comment or leave thread
  - **Exception Paths:** None
  - **Extension Points:** None
  - **Trigger:** User is in search for academic help
  - **Assumptions:** User has some knowledge over the subject matter
  - **Precondition:** User browsing through threads
  - **Postcondition:** Comment is rated “Thumbs up” or “Thumbs down”
  - **Author:** All

- **Date: 03/06/2018, (Revised: 3/7/2018)**

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**Test Cases**

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**1) Sign Up and Verification**

Description: Ensures that a valid GSU student can sign up.

Test Inputs: GSU email to verify.

Expected Results: Verification email is sent to the GSU email.

Dependencies: None

Test Steps

1. Form values are not left blank.
2. Entered email ends with student.gsu.edu
3. Password is valid.
4. Verify that the retrieved email doesn't already exist in database.
5. Send verification email.
6. Confirm sign up.
7. Save user into Users database.

Owner: All team members (Revised: 3/7/18)

**2) Create Account**

Description: User will be allowed to enter study match website.

Test Inputs: GSU email and password.

Expected Results: User will enter initial home page and password will be stored in database.

Dependencies: Sign up and verification step

Test Steps:

1. Enter login page
2. Set password
3. Password will be stored in database.
4. User succeed to login



Owner: All team members (Revised: 3/7/18)

### **3) Login**

Description: Ensures that only registered student can access the system.

Test Inputs: GSU email and password.

Expected Results: User is allowed an access to the system.

Dependencies: User need to create account.

Initialization: Users database is loaded.

Test Steps

1. No fields are left empty.
2. Entered email and password exists in database.
3. User is redirect to the system.

Owner: All team members (Revised: 3/7/18)

### **4) Create Personal Profile**

Description: User will create their profiles in order to communicate

Test Inputs: Name, Major, Classes, approximate available time, type of student (undergrad or grad)

Expected Results: User profile information will be saved into database.

Dependencies: User log in.

Test Steps:

1. Fill in username, major, classes, student type(undergrad or grad)available time.
2. Profile information is saved in database.
3. Users have personal profile.

Owner: All team members (Revised: 3/7/18)

### **5) Search Study Partner**

Description: Users will search their potential study partner for study

Test Inputs:	Major, course, approximate available time, rate, level, location and student type.
Expected Results:	User will find their study partner based on their searching conditions.
Dependencies:	User's profile
Test Steps:	<ol style="list-style-type: none"><li>1. Select conditions</li><li>2. Search study partner</li><li>3. System will show potential study colleague</li><li>4. User will accept recommend or deny</li></ol>
Owner:	All team members (Revised: 3/7/18)

#### **6) Posting on discussion board**

Description:	Users can use discussion board instead of studying in person
Test Inputs:	posting
Expected Results:	Users can use discussion board to post to ask about their study questions.
Dependencies:	Create personal profile
Test Steps:	<ol style="list-style-type: none"><li>1. User post their question on the discussion board</li><li>2. Database will records questions.</li></ol>
Owner:	All team members (Revised: 3/7/18)

#### **7) Answer**

Description:	Users can respond to a past discussion board after they read
Test Inputs:	comments
Expected Results:	Users can share their studying and respond on the discussion board

Dependencies: discussion board

Test Steps:           1. Users read the post that is related to their studying  
                          2. Users would respond  
                          3. Database records will keep in the future for other users

Owner: All team members (Revised: 3/7/18)

## **8) Mark**

Description: Users can mark the original posters

Test Inputs: Mark

Expected Results: Users can mark the original poster if they are content with an answer

Dependencies: Respond

Test Steps:           1. Original Poster(Users) read the response on their thread  
                          2. Users can mark it as solved  
                          3. Database will keep marked threads

Owner: All team members (Revised: 3/7/18)

## **9) Rate**

Description: Users can rate thread with “Thumbs up” and “Thumbs down”

Test Inputs: “Thumbs up” and “Thumbs down”

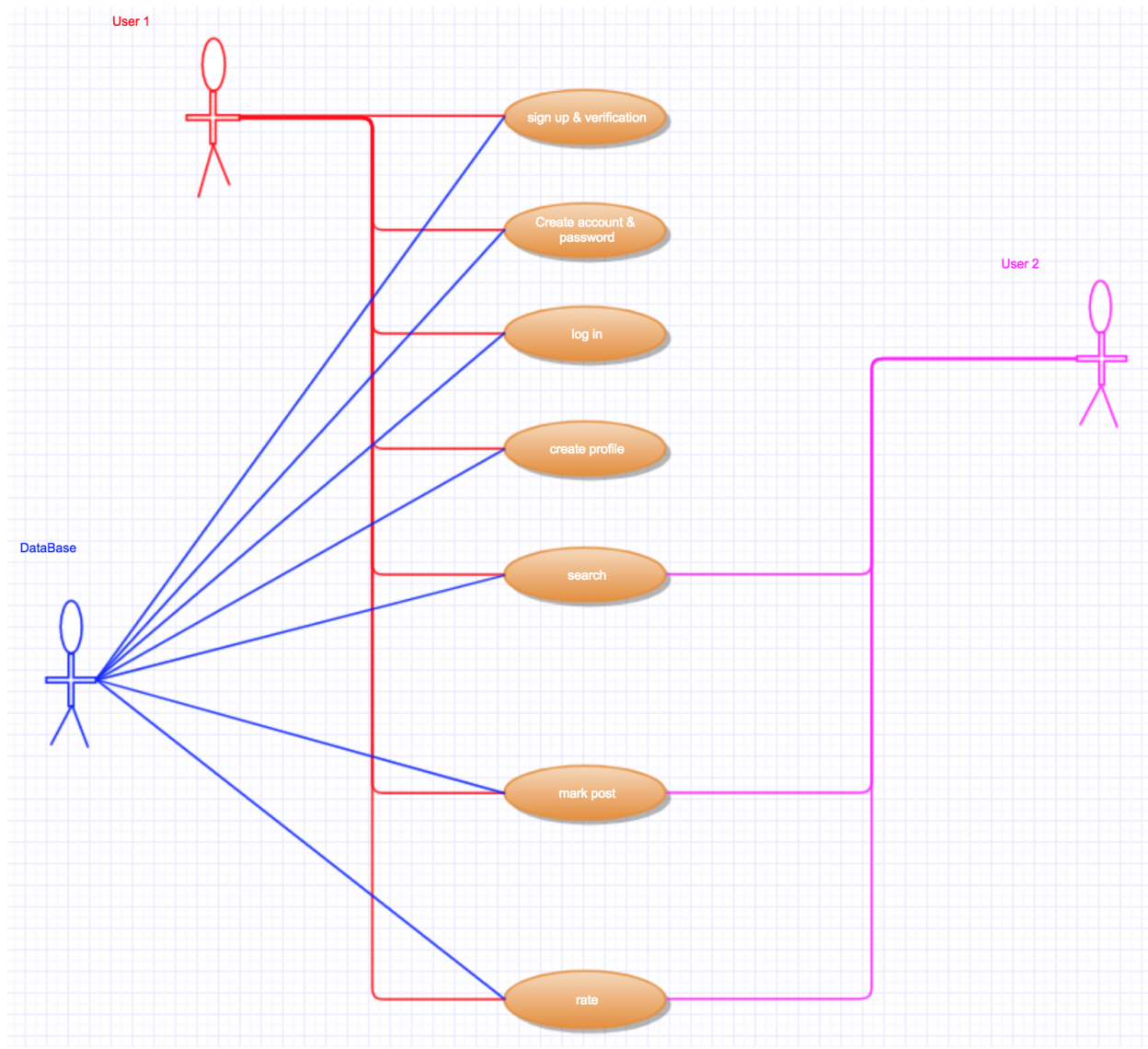
Expected Results: Users will rate people who joined study match or comments, and the rate will be shown on their profile.

Dependencies: Chat and Discussion board

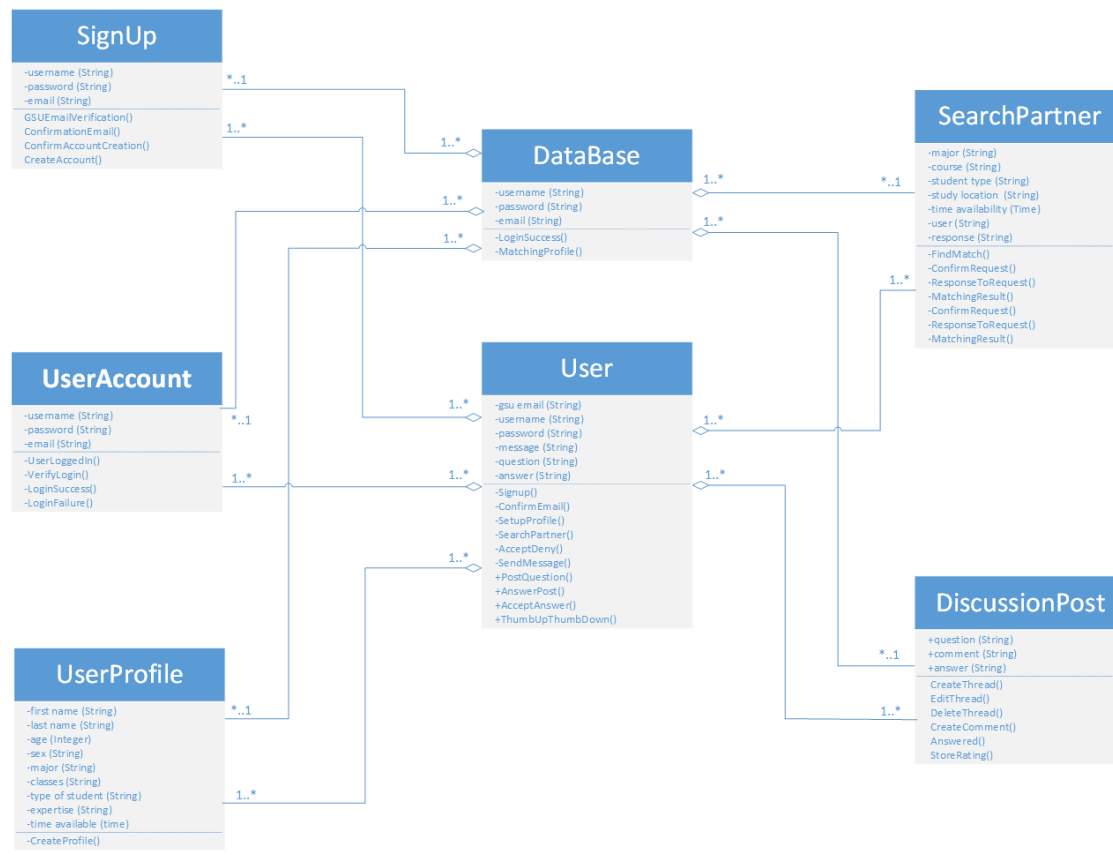
Test Steps:           1. Users rate posting by “thumbs up” or “thumbs down”  
                          2. The result will be stored in database.  
                          3. Database records will be kept in the future.

Owner: All team members (Revised: 3/7/18)

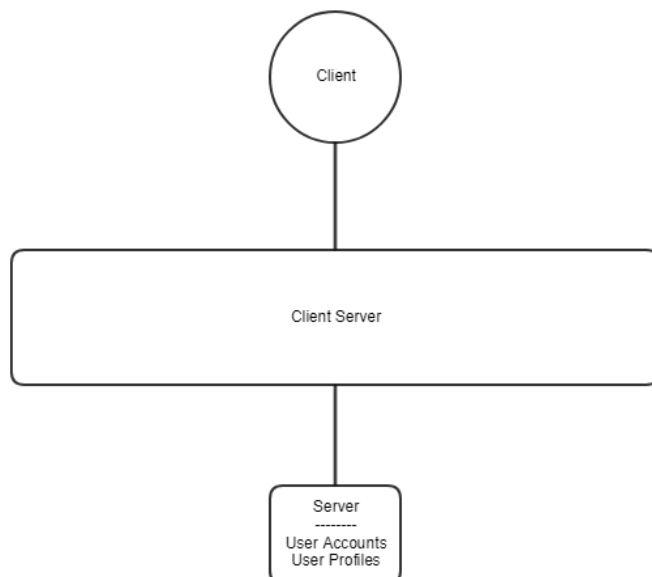
### System Use Case Diagram



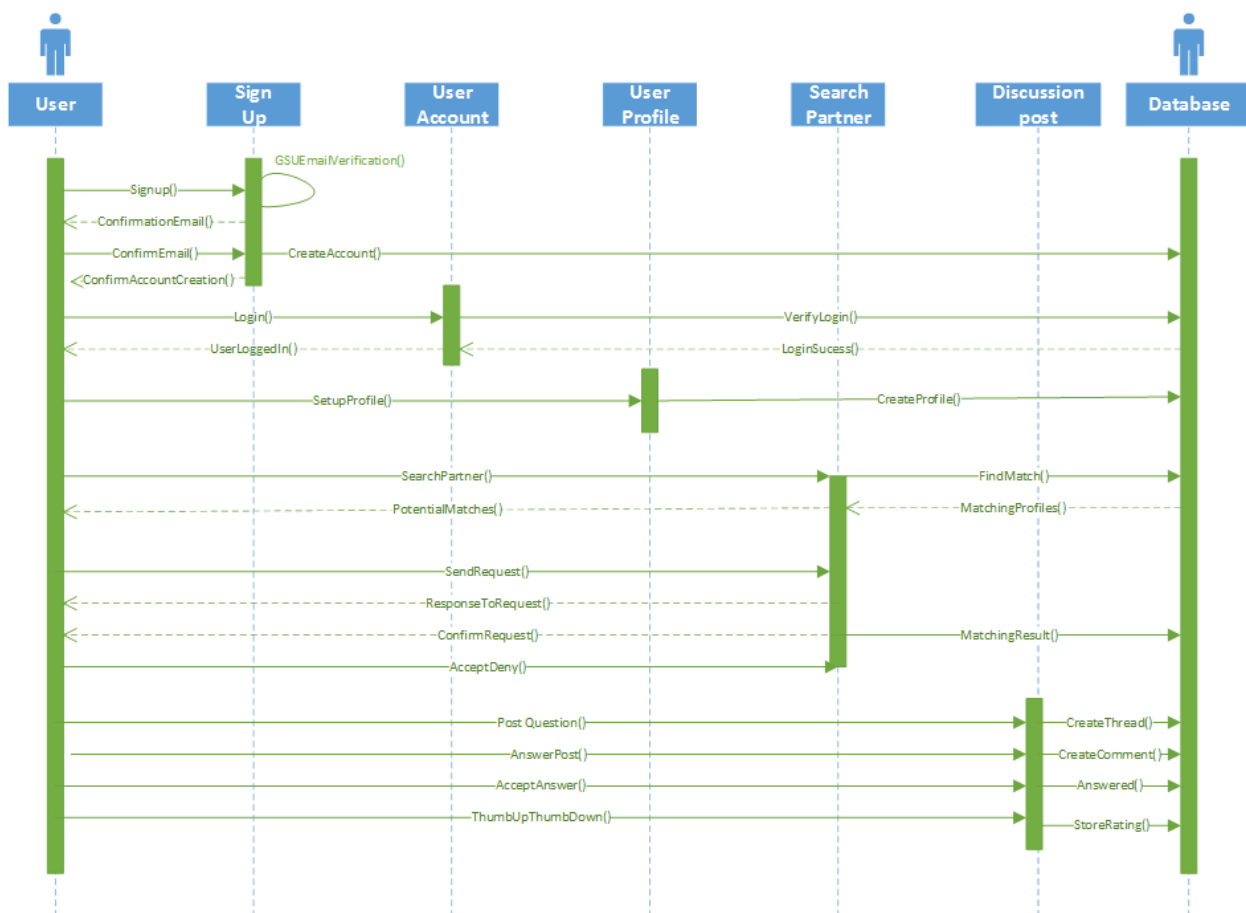
## Class Diagram



## System Model Design



## Sequence diagram



### c) Design Measures and Patterns and Cost Estimation

#### C1 - Measuring Couplings and Cohesions in Class Diagram

- **SignUp** - Medium Cohesion, Loose Coupling
- **UserAccount** - Medium Cohesion, Loose Coupling
- **UserProfile** - High Cohesion, Loose Coupling
- **DataBase** - Medium Cohesion, Tight Coupling
- **User** - Low Cohesion, Tight Coupling
- **SearchPartner** - Medium Cohesion, Loose Coupling
- **DiscussionPost** - Medium Cohesion, Loose Coupling

#### C2 -What design pattern/s would you choose for your system?

We would choose a centralized design for our system as all data are stored by the central database and all executions are controlled from that central point in the system.

### C3 - COCOMO: Estimate Personnel Cost Drivers

$$PM = A \times \text{Size}^B \times M = 2.94 \times 2^{1.22} \times 1.75 = 12 \text{ Person-Months}$$

$$A = 2.94$$

$$\text{Size} = 2 \text{ KSLOC}$$

$$B = 1 + [(5 + 3 + 5 + 3 + 5) / 100 + 0.01] = 1.22$$

Precedentedness	Development Flexibility	Architecture/risk Resolution	Team Cohesion	Process Maturity
5	3	5	3	5

$$M = 1.19 \times 0.86 \times 1.17 \times 1.17 \times 1.17 \times 1.07 = 1.75$$

Cost Driver	Rating
Required system reliability	1
Complexity of system modules	1
Extent of documentation required	1
Size of database used	1
Required percentage of reusable components	1
Execution time constraint	1
Volatility of development platform	1

<b>Memory constraints</b>	<b>1</b>
<b>Capability of project analysts</b>	<b>1.19</b>
<b>Personnel continuity</b>	<b>0.86</b>
<b>Programmer capability</b>	<b>1.17</b>
<b>Programmer experience in project domain</b>	<b>1.17</b>
<b>Analyst experience in project domain</b>	<b>1.17</b>
<b>Language and tool experience</b>	<b>1.07</b>
<b>Use of software tools</b>	<b>1</b>
<b>Development schedule compression</b>	<b>1</b>
<b>Extent of multisite working and quality of inter-site communications</b>	<b>1</b>

**d) Implement the System Design**

<https://gsustudymatch.com/>

**e)Testing**



## f) Test Documentation

Bug	Test That Uncovered The Bug	Description of Bug	Action Taken
Email Verification	Tester entered email for registration	Email verifying student's GSU email not sending	Set up email server
Log in error	Tester entered invalid username/password	When invalid credentials are entered, sign in continues to next page	Log in will now be successful if met with the requirements
Search No Results	Tester enters what they are in search of	When searched, no results are found	Search filter properly adjusted
Discussion Post Failed	Tester attempted to post on discussion boards	Questions would not display	In progress, code is currently showing all posts as comments and not discussion topics

## g) Video

<https://www.youtube.com/channel/UCN6N-YpG9qaDiOhwRU1f-Aw>