UniChat

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Objective

UniChat is a SMS Messaging Software for students to:

- Communicate
- Organize Events
- Meet others students
- Provide aid to students
- Promote collaboration

UniChat is a place for students to interact with other students and be a platform for students to make connection, friends, networking and be part of a organization.

Costs - Hardware

- Server
  - 8tb
- Developers
  - Desktops
  - Laptops
  - Office Space, Supply

$34,500

Costs - Software

- Domain
  - Stripe
  - MailChimp
  - SurveyMonkey
- Message Testing
  - Twilio
- Software License
  - Windows

$3,900

Costs - Personnel

Decided on using a team size of 3

- Smaller team size
- Higher quality developers
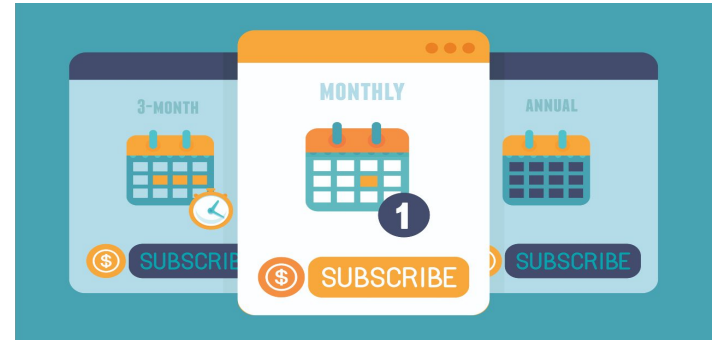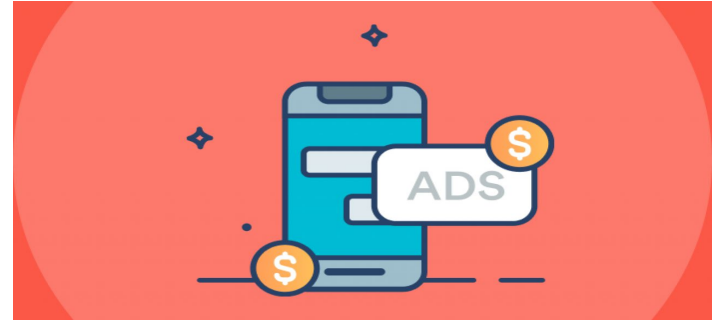- $155,000 on average per developer

$465,000

Pricing

The total cost of the project comes out to $502,890.

Pricing:

- Make it free to increase accessibility
- Possible avenues of revenue:
    - Ad monetization
    - Subscription features

Timeline

Tasks

1. Gather requirements (1 week)

2. Create project plan (1 week)

3. Design user interface and database structure (2 weeks)

4. Develop core functionality (1 month)

5. Implement user interface (¾ month ~ 3 weeks)

6. Perform test (1 month)

7. Perform debugging (1 month)

8. Collaborate with clients for feedback (1/2 month ~ 2 weeks)

9. Perform testing and quality assurance (1 month)

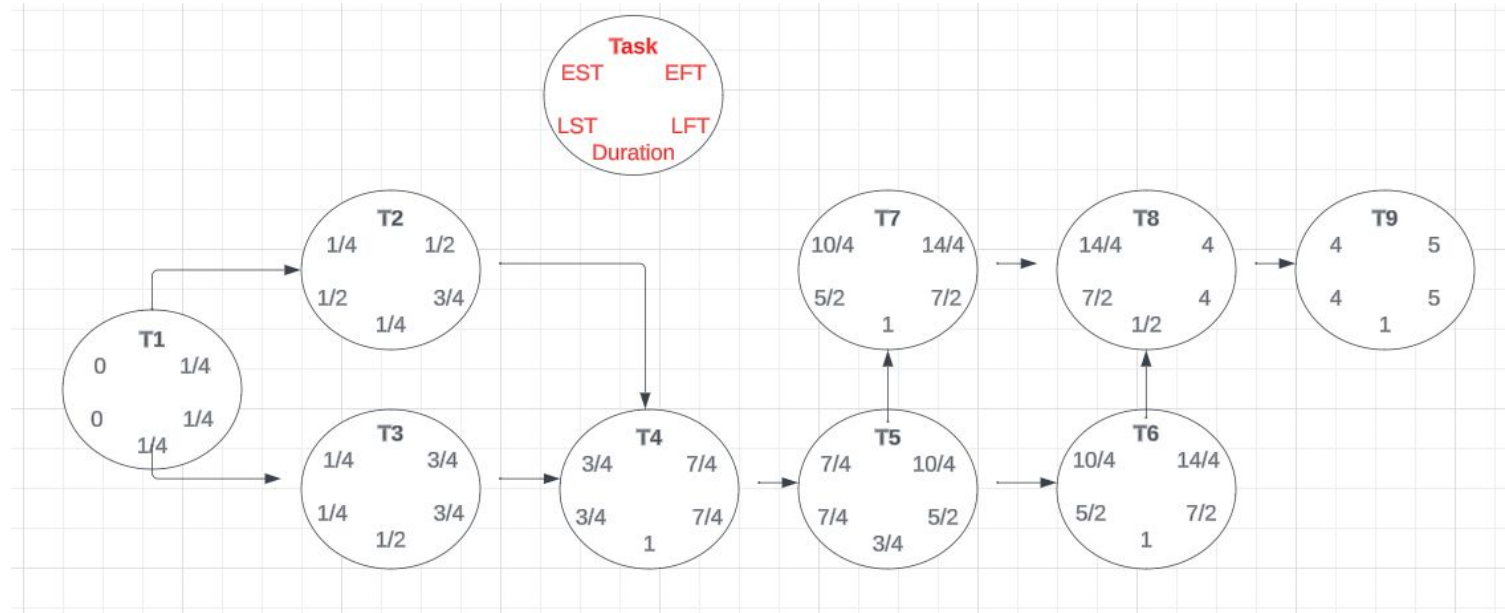| Task	Duration (weeks)	Dependencies
T1	1	
T2	1	T1
T3	2	T1
T4	4	T3
T5	3	T4
T6	4	T5
T7	4	T6
T8	2	T7
T9	4	T6, T8

Start: February

End: June

Total Duration: 5 months

- No weekends worked
- 40 hrs/wk

Activity on Node Representation

- Forward Pass calculation estimates earliest finish time is 5 months
- Backward Pass calculation estimates latest finish time at 5 months

Functional Requirements

1. Send and receive messages
2. Reply and forward messages
3. Search messages by text query
4. Join groups
5. Message organization
   a. Categorize messages by phone number (contact name)
   b. Conversation view: view all messages between you and a certain contact
   c. Sorted by sending/receiving time

Non-Functional Requirements

PRODUCT

- Usability
- Efficiency - Performance and Space
- Dependability
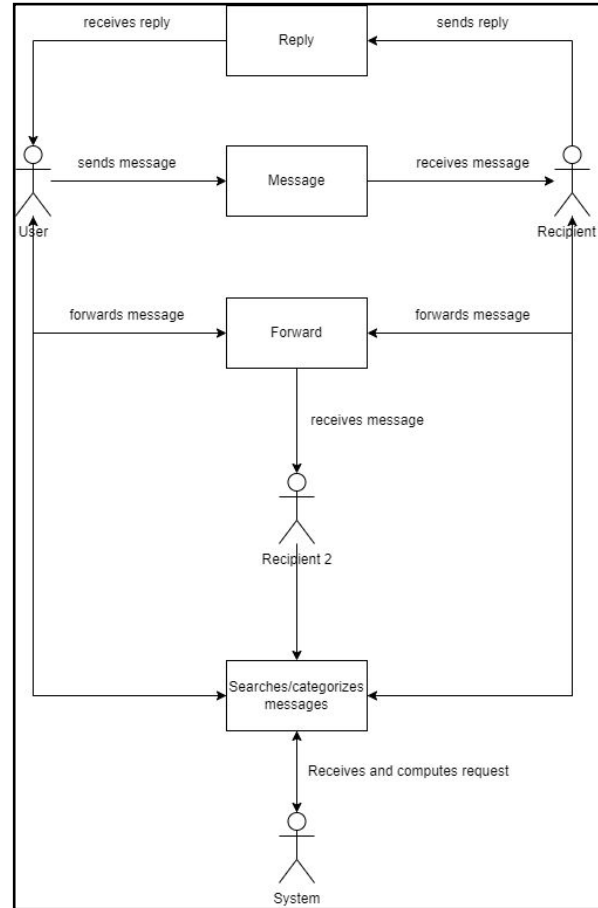- Security

ORGANIZATIONAL

- Environmental
- Operational
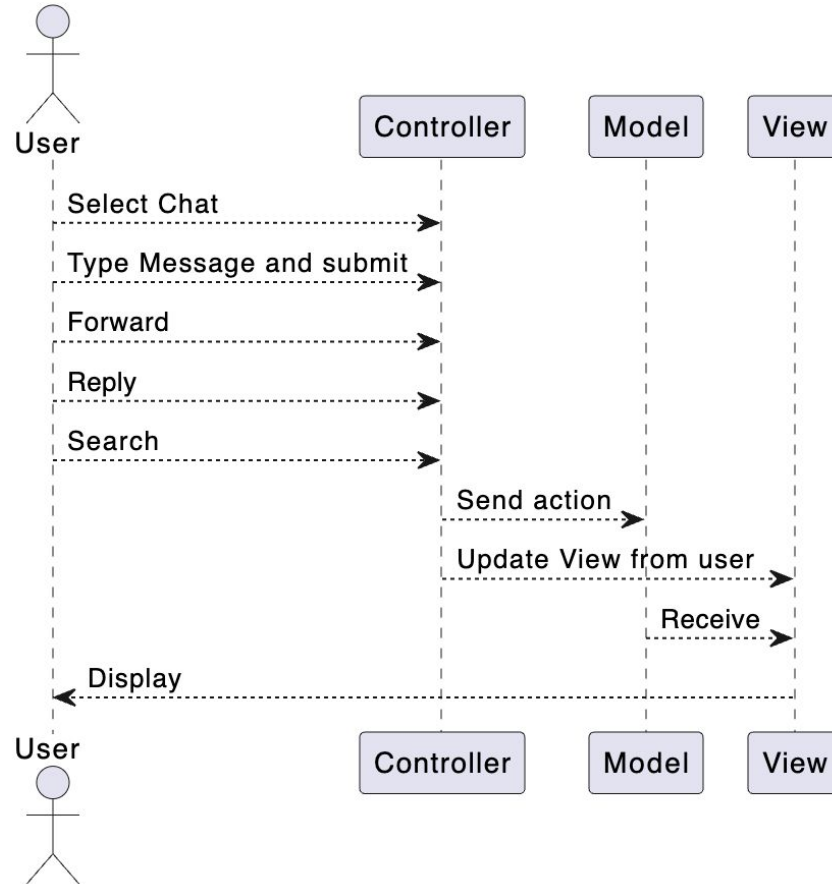- Development

Non-Functional Requirements

<u>EXTERNAL</u>

- Regulatory
- Ethical
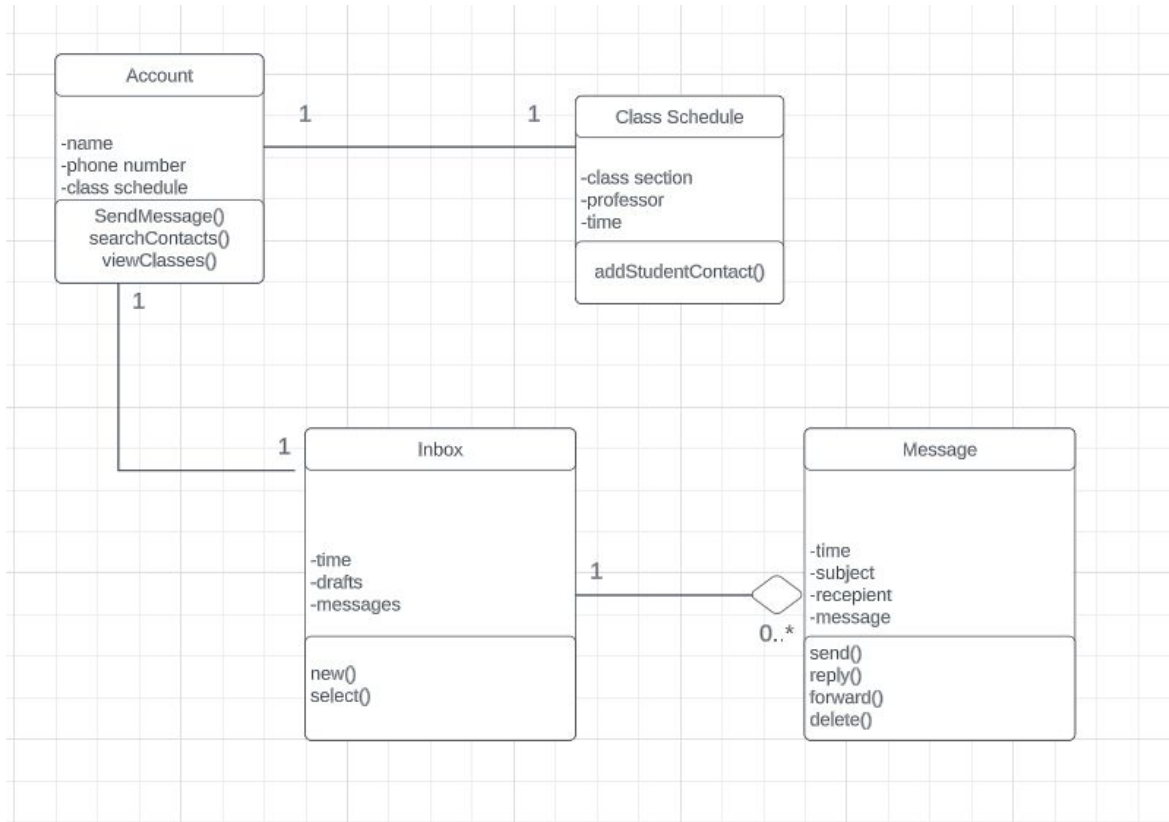- Legislative - Accounting and safety/security

Use Case Diagram
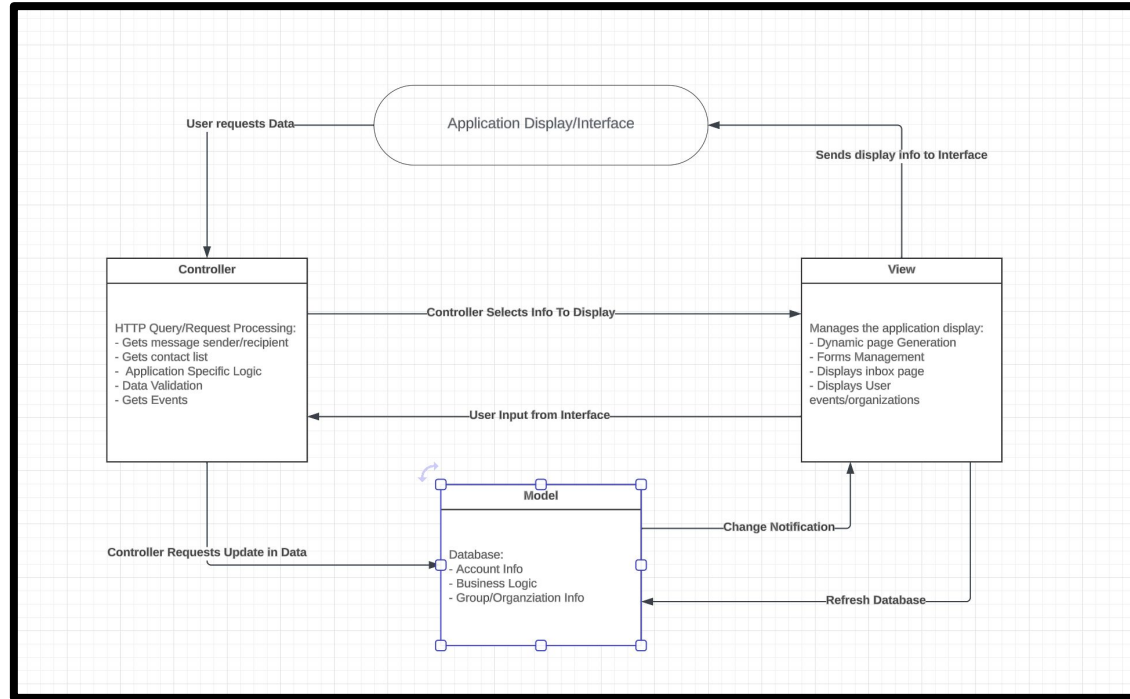
Sequence Diagram

Class Diagram

MVC Pattern

Benefits:

- Maintainability
- Independent Components
- Scalability

Testing

At the core of our messenger app functionality is the User class, designed to be the foundational element for both robust user management and heightened security. This class neatly encapsulates essential attributes, including username, password, and age, seamlessly integrating into the app's architecture.

```java
// Test case to check if the user is an adult
@Test
public void testIsAdult() {
    // Creating a user with age 25 (adult) and another with age 16 (minor)
    User adultUser = new User( username: "Adult_User", password: "password123", age: 25);
    User minorUser = new User( username: "Minor_User", password: "password456", age: 16);

    // Asserting that the isAdult() method returns true for the adult user
    assertTrue(adultUser.isAdult(), message: "Adult user test failed");

    // Asserting that the isAdult() method returns false for the minor user
    assertFalse(minorUser.isAdult(), message: "Minor user test failed");
}
```

```
v ✓ UserTest                  27 ms        ✓ Tests passed: 4 of 4 tests – 27 ms
  ✓ testUpdateAge()           22 ms
                                           "C:\Program Files\Java\jdk-19\bin\java.exe" ...
  ✓ testChangePassword()       2 ms
  ✓ testUsernameFormat()       2 ms        Process finished with exit code 0
  ✓ testIsAdult()              1 ms
```

Comparison to similar software

- Discord

- Groupme

- Messenger

- Telegram

- Whatsapp

- …

References

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