Alumni Guide

Course : Software Architecture
Group Name : Team Anonymous
Section : A
Group No : 7

Group Members

Foysal Fahim (011213040)

Sami Tahrima (011213035)

Sanowar Rahaman Siam (011213210)

Md.Tashrif Rashid Sourav(011212090)

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| Introduction

- **Project Overview**

An online platform where bonds will be created between graduate and undergrad students.Here undergraduate students will be able to follow their seniors and get opportunities to find proper internship or jobs easily while there will be opportunity to one time small jobs like collecting data sets or creating small application and more with a view to earn money from it.Here we can also post our achievements,which willappear to our news feeds like a post or status.

- **Motivation**

● Here it will be possible to reduce the struggles to find proper jobs for fresh graduates or undergraduates.
● Juniors can follow their respective seniors and follow their blogs to know more about certain fields.
● It will help new graduates or freshers to know and prepare for future works.

| Attribute Driven Design & Architectural Pattern Analysis

Design Purpose

The main design purposes of Alumni Guide project revolve around creating a user-friendly.and comprehensive platform that serves the specific needs and goals of students. We want to design a greenfield system.Here are the primary design purposes:

- **Ease of Navigation**:Ensuring a seamless and user-friendly navigation system to allow users to access different features and sections with ease.

- **Opportunity Visibility:** Designing the platform to highlight internship, job, and freelancing opportunities, making it easy for users to discover and pursue relevant options.

- **Skill Development Integration:** Incorporating features that promote skill development, such as one-time small jobs, to enhance the practical abilities of students.

- **Information Accessibility:** Ensuring that information is easily accessible through features like News feed, Career Advice, and Blogs to keep users informed about the latest updates, advice, and knowledge sharing.

- **Professional Branding Tools:**Designing tools like Resume and Portfolio sections to allow students to present themselves professionally and stand out in the competitive academic and professional landscape.

- **Collaborative Environment:** Creating a collaborative environment through features like Dataset Sharing, encouraging students to work together on projects and share resources.

- **Monetization Mechanism:**Implementing an Online Payment system to facilitate transactions for services provided on the platform, supporting the concept of earning money through freelancing opportunities.

- **Security and Privacy:**Prioritizing the security and privacy of user data to build trust among the student community.

By aligning the design with these purposes, The Alumni Guide aims to create a robust and supportive platform that enhances the overall experience of students, from networking and skill development to accessing career opportunities and earning money through various engagements.

Primary Functional Requirements

The main primary functional Requirements of Alumni Guide Project.

Functional Requirements	**Scenario**	**Associated Use Case**
1.Performance	The platform experiences a surge in user activity when a batch of new internship and job opportunities is released. ● Optimize database queries to quickly retrieve and display job listings. ● Implement caching mechanisms for frequently accessed data. ● Utilize a Content Delivery Network (CDN) to efficiently deliver static assets. ● Monitor server response times and system resource usage during peak hours. And response time should be in < 1 minutes.	**Use case1:**Monitor Online service. **Use case 3:** Provide management report
1.2 Performance	Utilize a Content Delivery Network (CDN) to efficiently deliver static assets.	**Use case 2:** Troubleshoot online service issue.
2.Scalability	Rapid Increase in User Base ● Design the system architecture for horizontal scaling, allowing the addition of more servers. ● Implement load balancing to distribute incoming traffic evenly across servers. And load the report for business users < 10 minutes latency. ● Utilize cloud services that offer scalability features, enabling the platform to adapt to varying demands. ● The Alumni Guide system will always store student information for the last 50 days.	**Use case 3:** Provide management report **Use case 4:** Support data analytics

2.2 Scalability	• Set up monitoring tools for automatic search based on predefined thresholds. (full text logs) • Utilize cloud services that offer scalability features, enabling the platform to adapt to varying demands.	**Use case 1:** Monitor online services
3.Security	User Data Privacy and Protection • Implement end-to-end encryption for data transmitted between users and the platform. • Enforce strong authentication mechanisms and proper authorization controls. • Conduct regular security audits and penetration testing to identify and address vulnerabilities. Time should be <2 minutes. • Adhere to privacy regulations and implement transparent data usage policies.(40 Mb per data) • Set up a robust monitoring and logging system to detect and respond to security incidents in real-time.	**Use case 4:** Support data analytics **Use case 6:** Provide Security reports
4. Deployability	Seamless Deployment of Platform Updates. Prior to deployment, run automated tests to ensure that new features and updates do not introduce critical bugs or regressions. Develop a rollback plan to quickly revert to the previous version of the application in case of critical issues post-deployment. Monitor user feedback and support channels for any issues reported by the user community.	All use cases.

Constraints of the project

The constraints associated with the system are presented in the following table-

ID	Constraint
CON-1	In the architectural design of The Alumni Guide project, several key constraints shape the development and implementation of the platform. The technology stack is a foundational constraint, dictating the use of specific languages, frameworks, and technologies based on team expertise, existing infrastructure, and compatibility requirements. Scalability is a paramount consideration, necessitating a design that accommodates both horizontal and vertical scaling to meet projected growth and usage patterns.
CON-2	Performance expectations, including response times and system availability, set constraints influencing design decisions. Cross-platform compatibility considerations focus on achieving accessibility across various devices, enforcing constraints related to cross-browser compatibility and responsive design. Budgetary limitations impact architectural decisions, from hosting infrastructure choices to third-party service selection.
Con-3	Adherence to security standards and regulations, such as data encryption, secure authentication, and protection against common vulnerabilities, imposes critical constraints to safeguard user data. Integration with external systems and services demands careful consideration of communication protocols and interoperability requirements. Compliance with data privacy regulations, such as BI tool with SQL interface, constrains how user data is collected, stored, and processed.
CON-4	If the project involves handling sensitive data (financial, healthcare, etc.), there may be constraints related to regulatory compliance and secure data storage.

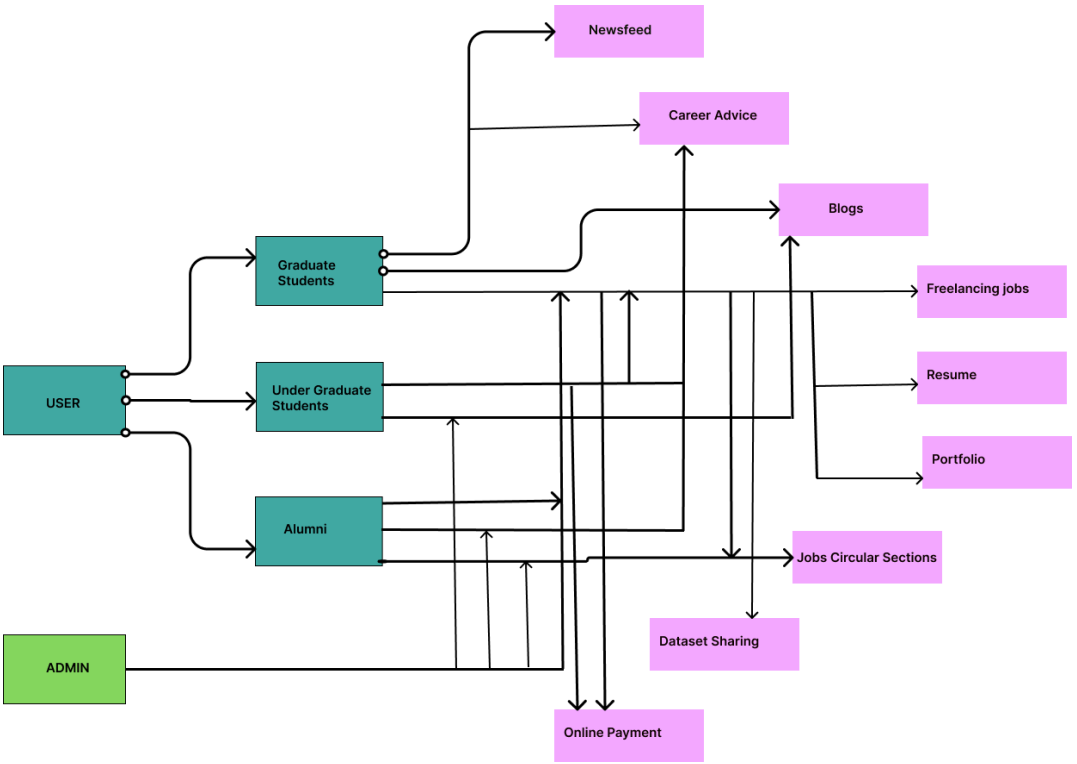
Architectural Concerns

The Architectural concerns of our project is given below:

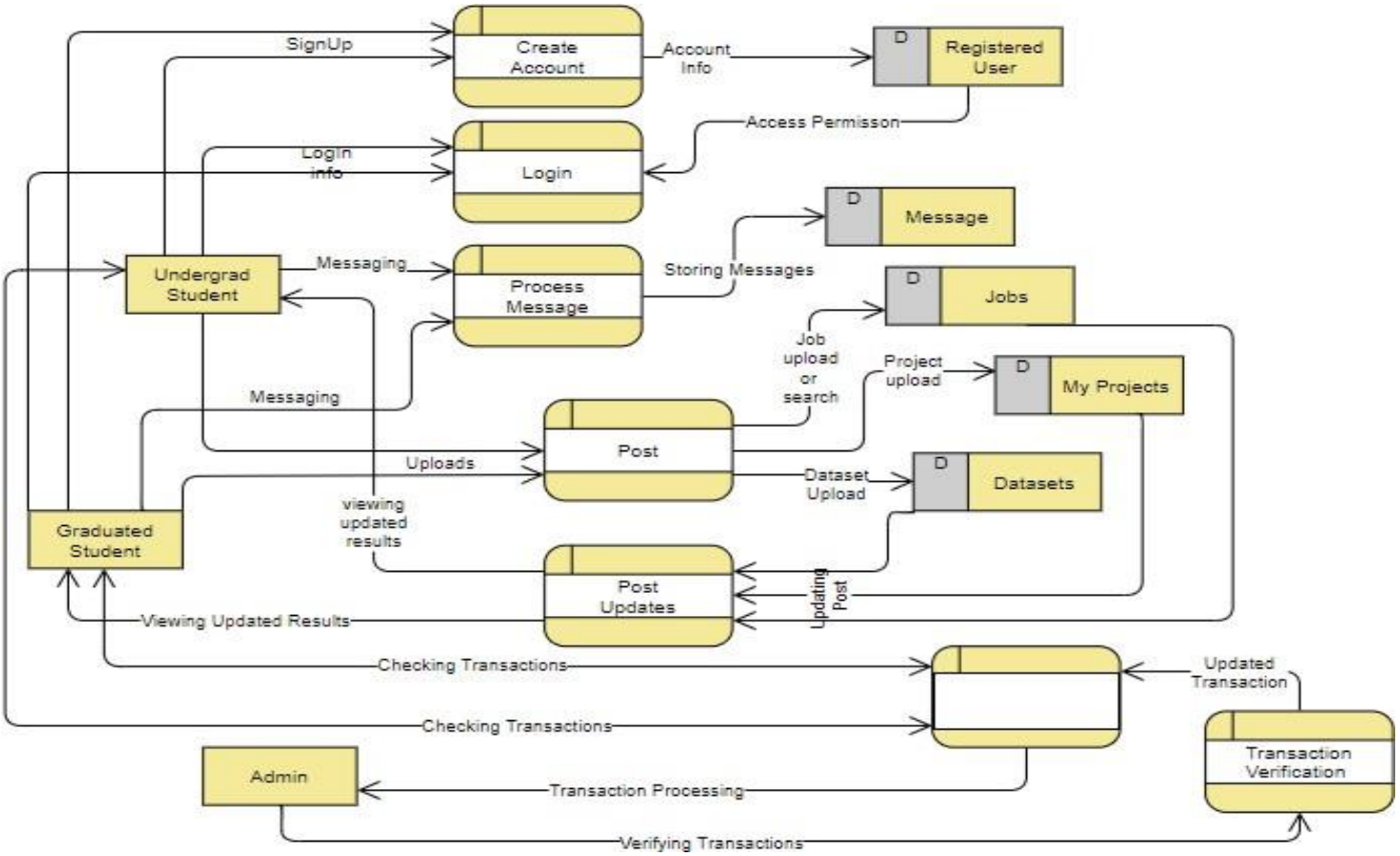
ID	Concern
CRN-1	Alumni Guide system is a greenfield system because there already similar project or system are already exist.
CEN-2	Our team has some knowledge about big data Ecosystem.

| Architecture Diagrams

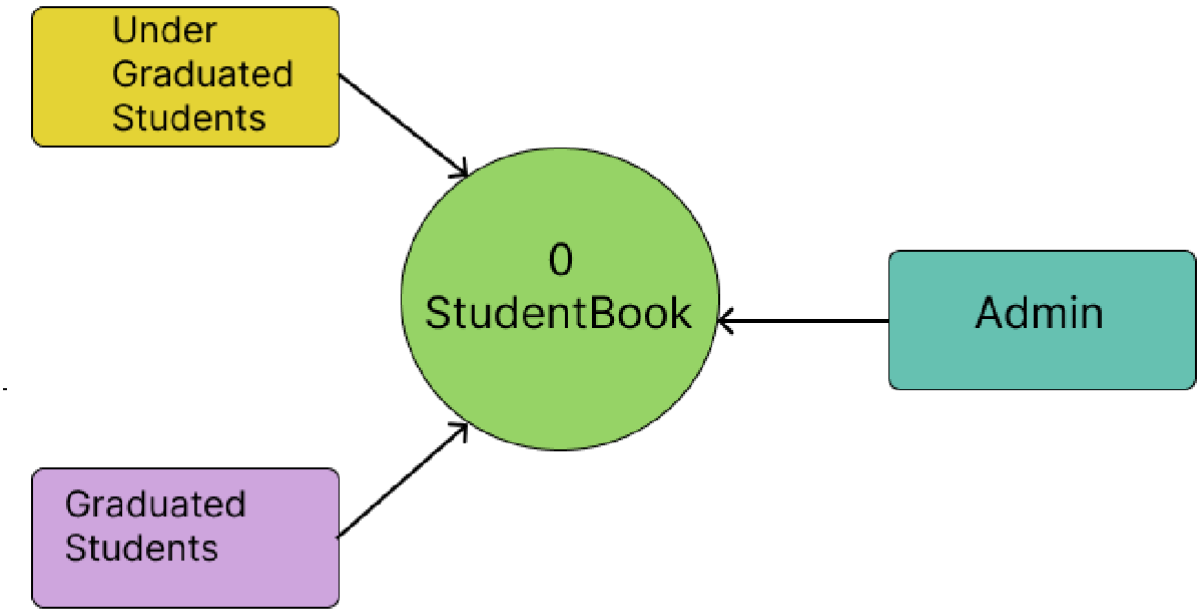
Structure Diagram-



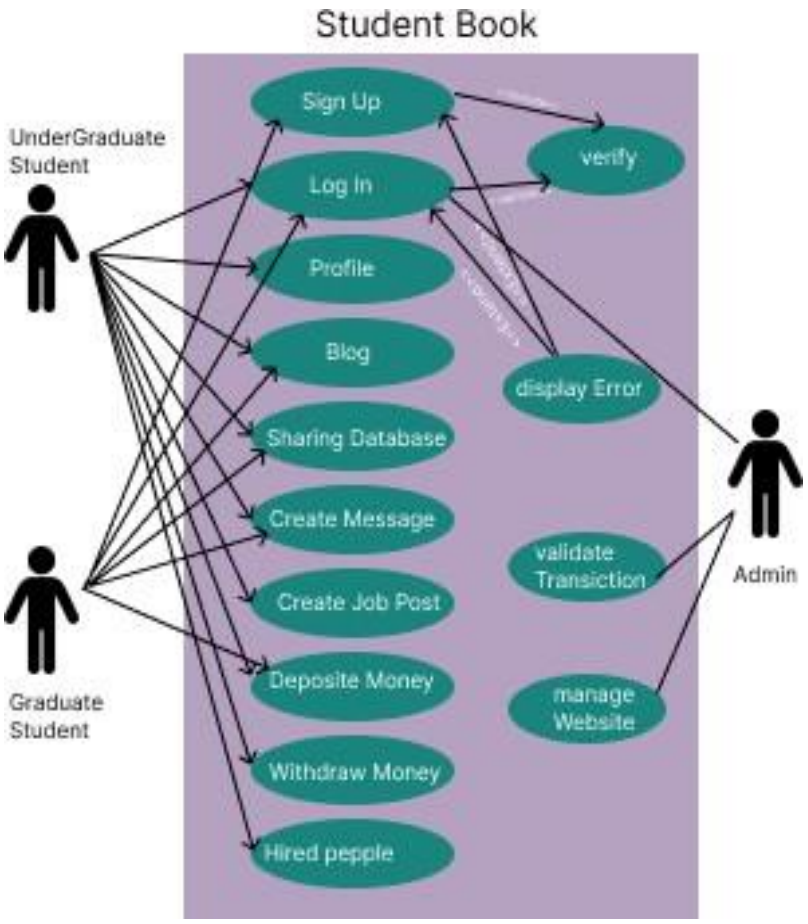
DFD-


SignUp
Create Account
Account Info
D
Registered User
Access Permisson
Login info
Login
D
Message
Undergrad Student
Messaging
Process Message
Storing Messages
D
Jobs
Job upload or search
Project upload
D
My Projects
Messaging
Post
Uploads
Dataset Upload
D
Datasets
viewing updated results
Graduated Student
Post Updates
Updating Post
Viewing Updated Results
Checking Transactions
Updated Transaction
Checking Transactions
Transaction Verification
Admin
Transaction Processing
Verifying Transactions

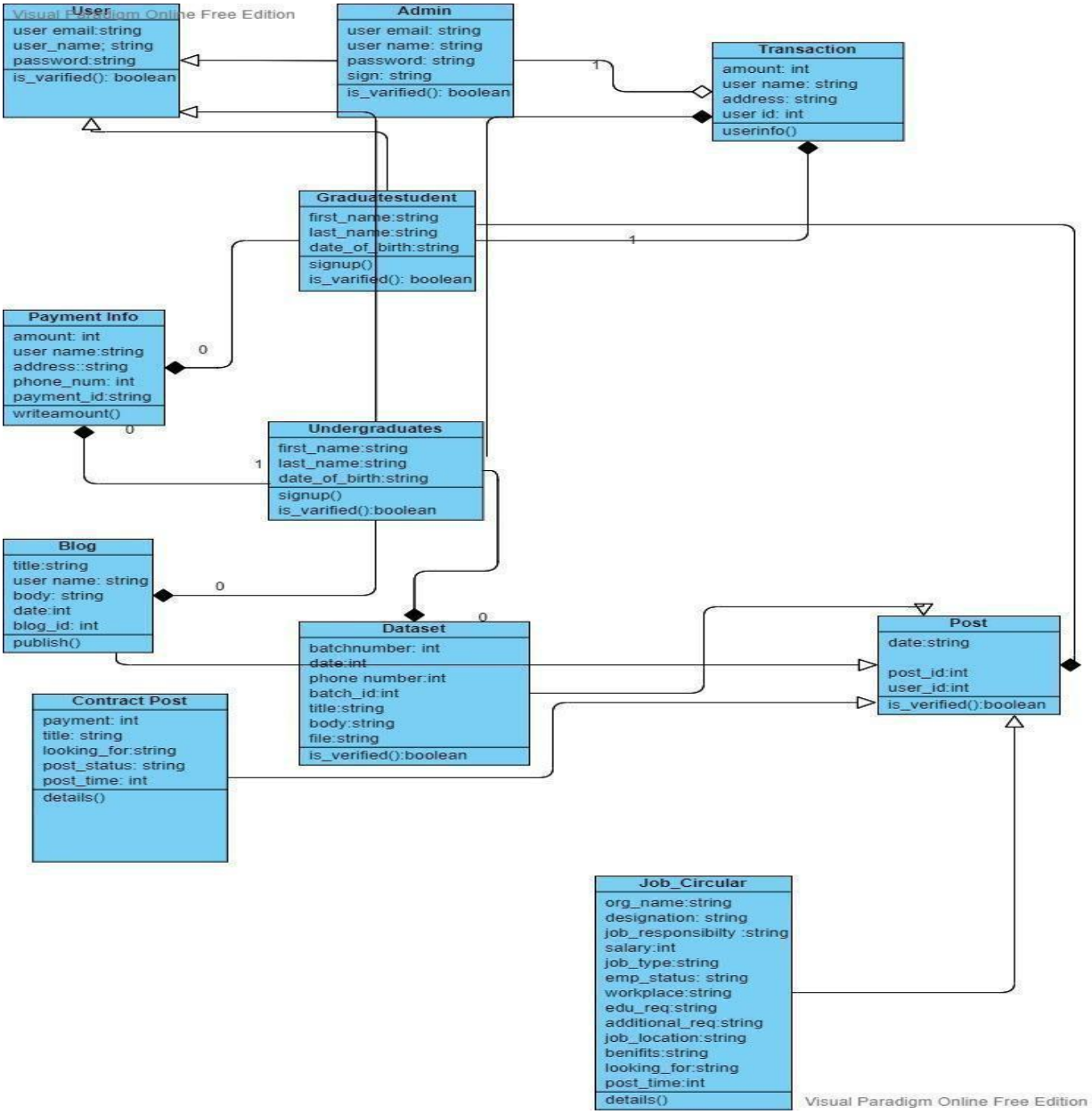
Context Diagram-



Use Case-

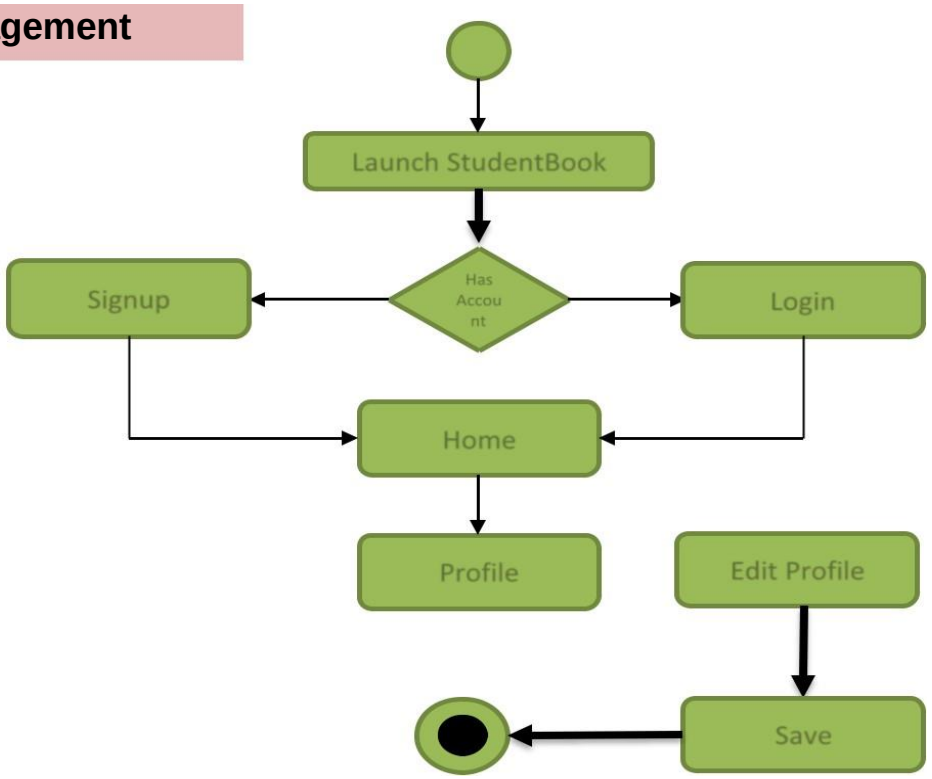

Student Book
UnderGraduate Student
Graduate Student
Admin
Sign Up
Log In
Profile
Blog
Sharing Database
Create Message
Create Job Post
Deposite Money
Withdraw Money
Hired pepple
verify
display Error
validate Transiction
manage Website

Class Diagram-

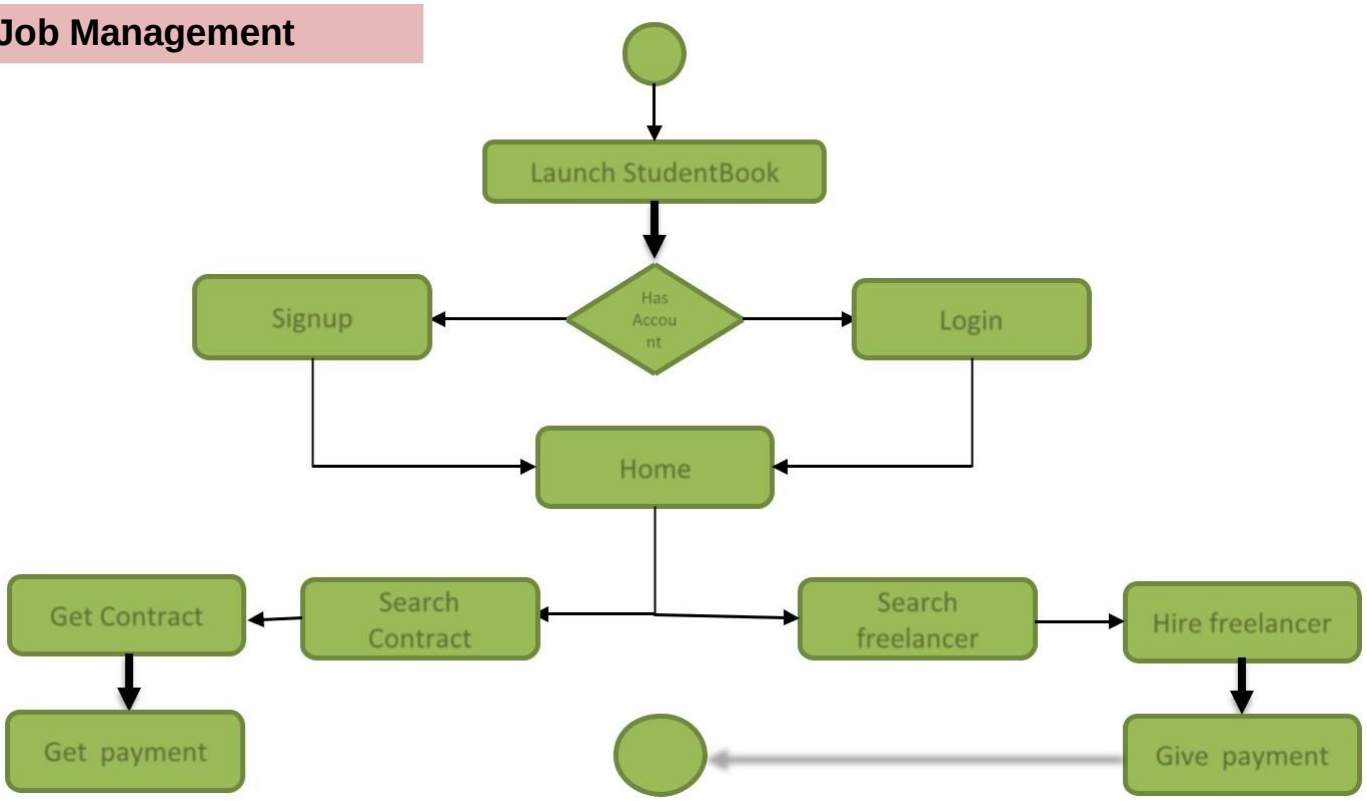


Activity Diagram-

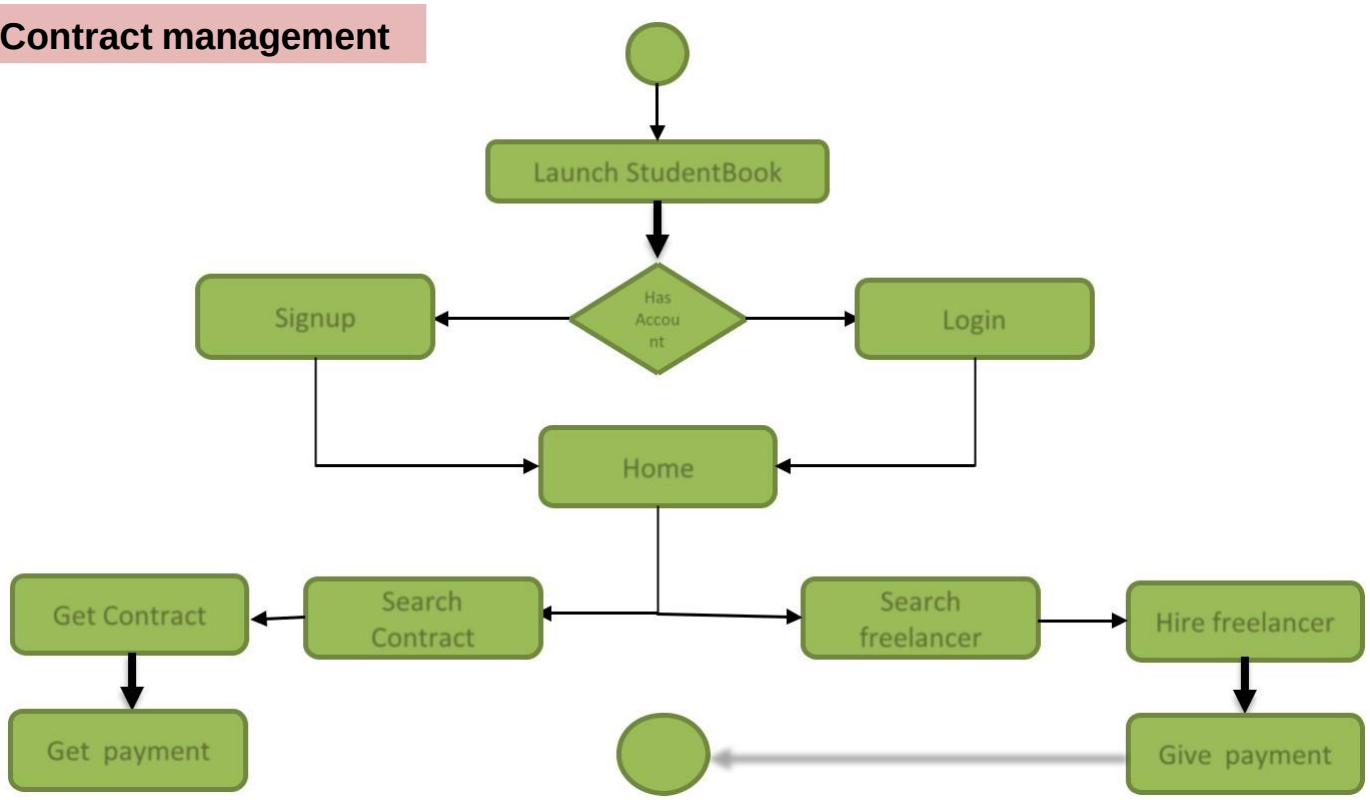
Profile Management



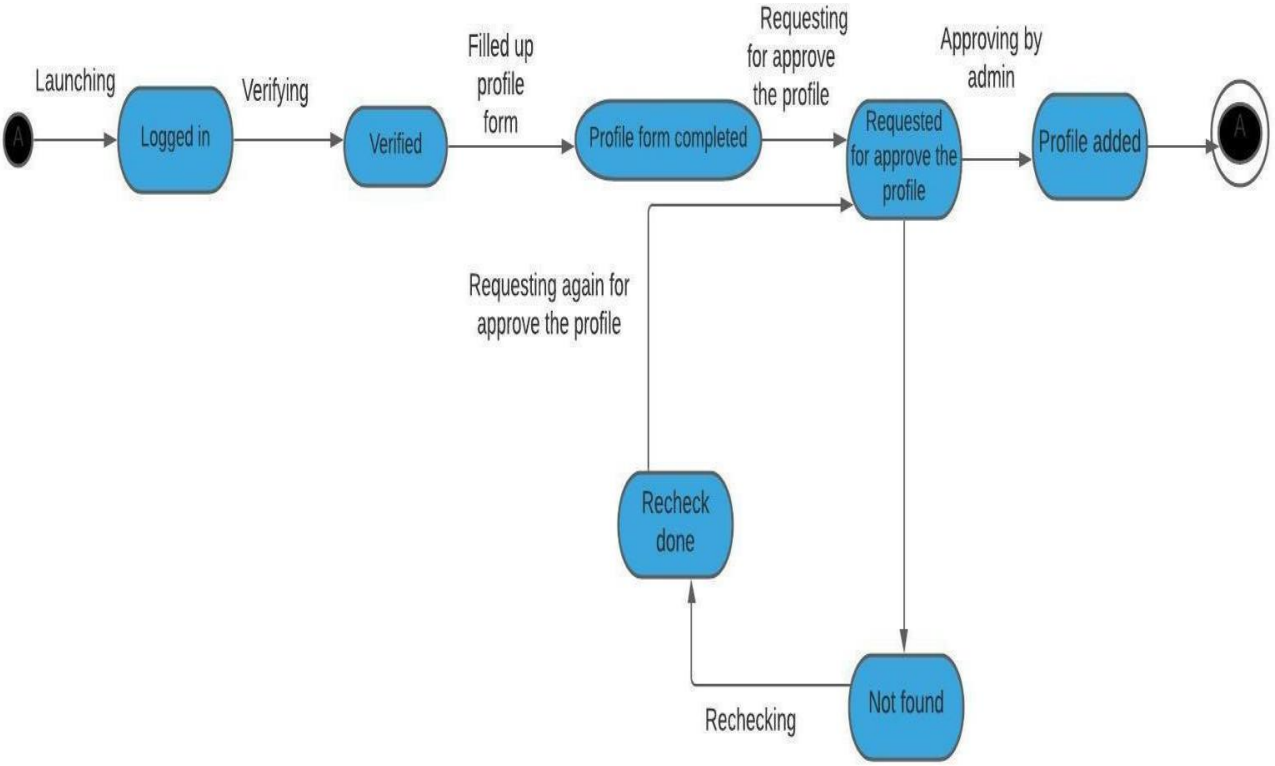
Job Management

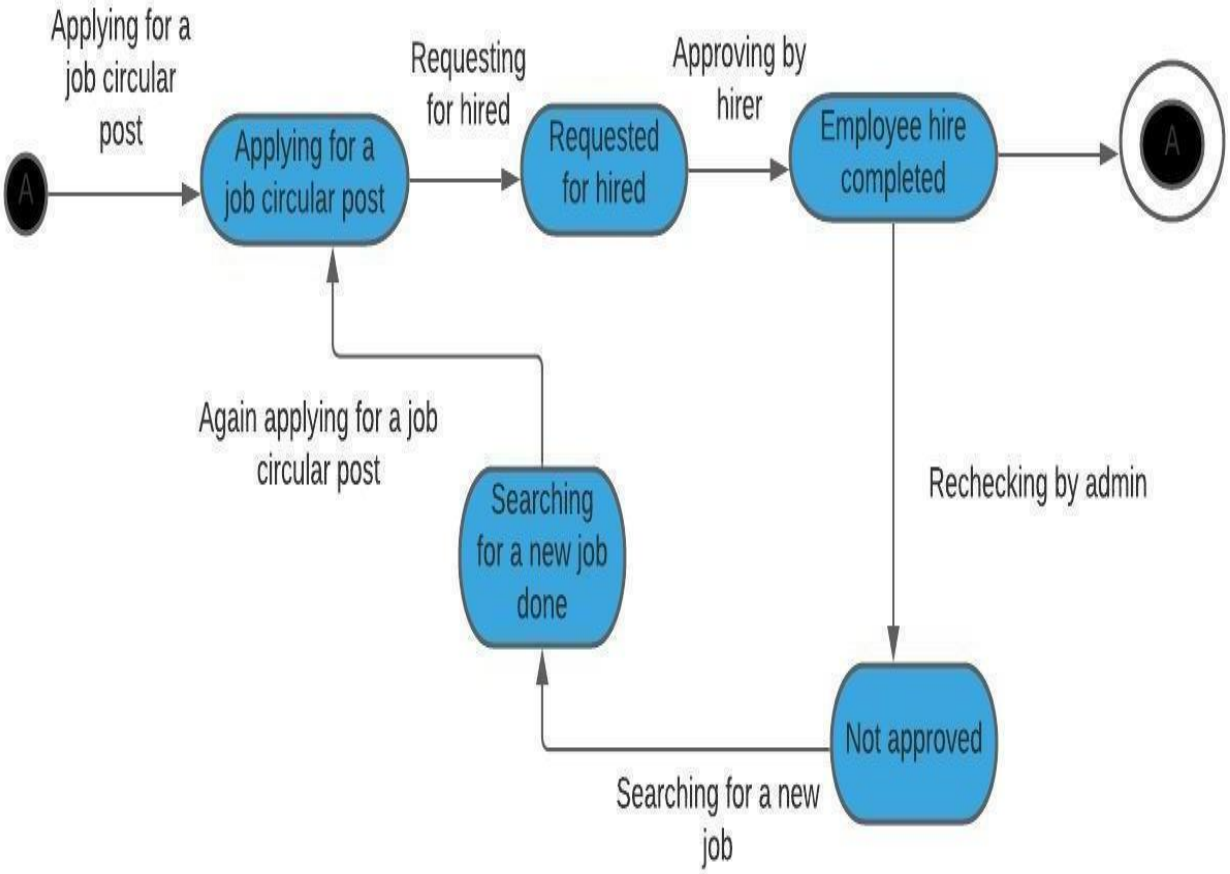


Contract management

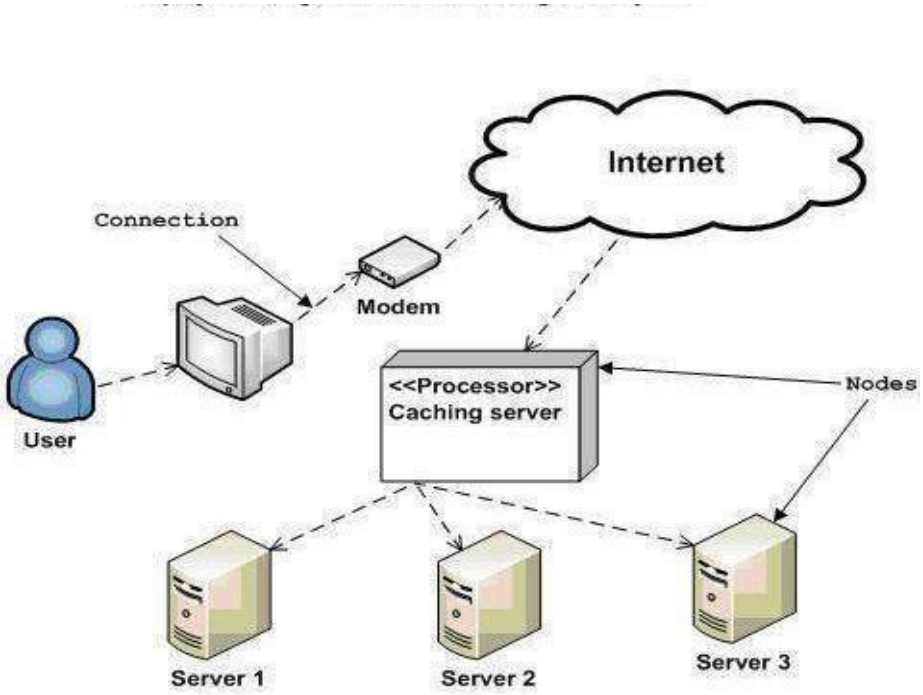


State Diagram-





Deployment Diagram-



| Conclusion

The online platform aims to connect undergraduate and graduate students, easing the job search for fresh graduates. By implementing features like mentor ship matching, skill endorsements, and learning modules, the platform supports professional growth and preparation. Real-time collaboration and virtual networking further enhance opportunities. Continuous feedback and a resource library ensure the platform evolves to meet user needs, creating a supportive ecosystem for student success.