Title of the Project:

Web-based Tuition Media Platform

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Content Table
1. Introduction
2. Motivation
3. System Request
4. Requirement Specification
5. Use Case Diagrams
6. Class Diagram
7. Activity Diagram
8. Sequence Diagram
9. Data Flow Diagrams
10. Conclusion

Introduction

In this report, we are going to elaborate our project extensively.

We will explain the various diagrams that we have included in regard to our Web-based Tuition Media Platform. The diagrams along with the annotations will help the clients understand the system better; how the system works and what functionalities to expect from it.

The main objective of developing our system was to simplify and integrate digitally the processes that are involved in an existing tuition media industry.

Not only does our system aim to simplify this process but to also strongly emphasize on the credibility and security expected from such tutor hiring platforms.

Motivation

Tutoring is a notable phenomenon in Bangladesh. Usually, tuition jobs and postings are posted across various social media platforms. Often times, the parties involved in this industry fail to establish a proper communication because of the lack of a credible platform.

Recognizing the underlying problem, we came up with the solution of building an Information System, namely "Web-based Tuition Media Platform", that serves as a credible platform to cater to the needs of this growing industry in our country.

With the aid of this platform, we intend to bridge the communication gaps that usually arise from the lack of accountability. Strongly emphasizing on the need to connect qualified teachers and students across the country and improving the efficiency by simplifying the process in general.

Registering through our platform is an easy process where tutors simply have to go through a sequential scrutiny process. This includes interested candidates to be evaluated through an interview session and a full background check conducted by the registered external agencies before finally filtering a potential tutor, thus

ensuring that the students are entrusted in safe hands. On the other hand, also making the process of looking up for qualified teachers within their vicinity easier for the students.

This lends tutors credibility as well as makes it easier for them to acquire a strong student base being certified tutors backed by an authorized Tuition Media.

System Request of Web Based Tuition Media Platform	
Project Sponsor	Subhi Bhuiyan, Afridi Ibn Rahman, Jasarat Zaheen.-CEO
Business Need	This Project has been initiated to create an online web based media platform where people who are interested in home tutoring can find tutoring job offers easily and also apply for those offers if they wish. Moreover, the system will allow the students as well to request for a home tutor.
Business Requirements	Using the web, potential teachers should be able to see tutoring job offers and the requirements for that. However, they can search for offers by their preferred areas as it will be more convenient for them. Teachers will be able to see the job description along with the offers so that it can help them to decide whether to apply for the job or not. Some other functionalities of the system are listed below: • Users must sign up to the system after confirming the payment of their registration fees. • Teachers must give their complete CV so that the media can assess their ability for the jobs they would apply. • The media can take online interviews of the teachers to get a better understanding of their abilities. • The job description will be brief. Other necessary details e.g. students' house address, contact number will be given to the teacher after they get selected for the job by the media. • Students will get a free subscription for trial classes for one year after registering. However, they can reclaim the subscription again after paying for it from the next year. • Media can ask the teacher to go for a free one-day trial class before appointing them for the job. • Teachers must pay 50% of their first month's salary as a commission to the media after being selected for a particular tutoring job.
Business Values	We expect that this system will help the media have a good initial income through registration fees. The possibilities of not having the 50% commission is very less since the media will have all necessary details of both the teacher as well as the student where the teacher would work. So if the teacher decides to adopt any unethical step, the media can take necessary steps and prevent themselves from occurring any financial loss. Conservative estimates of tangible value to the media company includes: • BDT 250,000 yearly income from registration fees. • BDT 200,000 yearly income from commissions. • BDT 25,000 yearly income from trial class subscription fees.
Special Constraints	• The system ought to be provided before the term for the next board exams begin. • All personal data will be will be noted complying with Data Protection Act.

Requirements Specification

Functional Requirement:

1. The system will record information details of the students and tutors.
2. The system will record the user registration-fees.
3. The system will enable students to create tuition offers according to a specified format.
4. The system will display offers adhering to the specified format.
5. The system allows tutors to search and browse tuition offers by subjects of interest.
6. The system will allow tutors to know if an offer is available or not.
7. The system enables tutors to up-vote their interest in the listed offers.
8. The system shall notify the tutors if they are selected for a tuition offer.
9. The system enables tutors to schedule their viva appointment online.
10. The system will record commission received from tutor's first salary as stated in the contract.
11. The system will keep track of the free one-year trial subscription of the registered students.

Non-functional Requirement:

1. Operational

1.1 The system should run on PCs, tablets and other handheld devices.
1.2 The system should integrate with existing tuition-media management system.
1.3 The system should be able to work on any Web browser.

2. Performance

2.1 Any interaction between the user and the system should not exceed 2 seconds.
2.2 The system supports 500 simultaneous users from 9-12 A.M. ; 100 simultaneous users all the time.
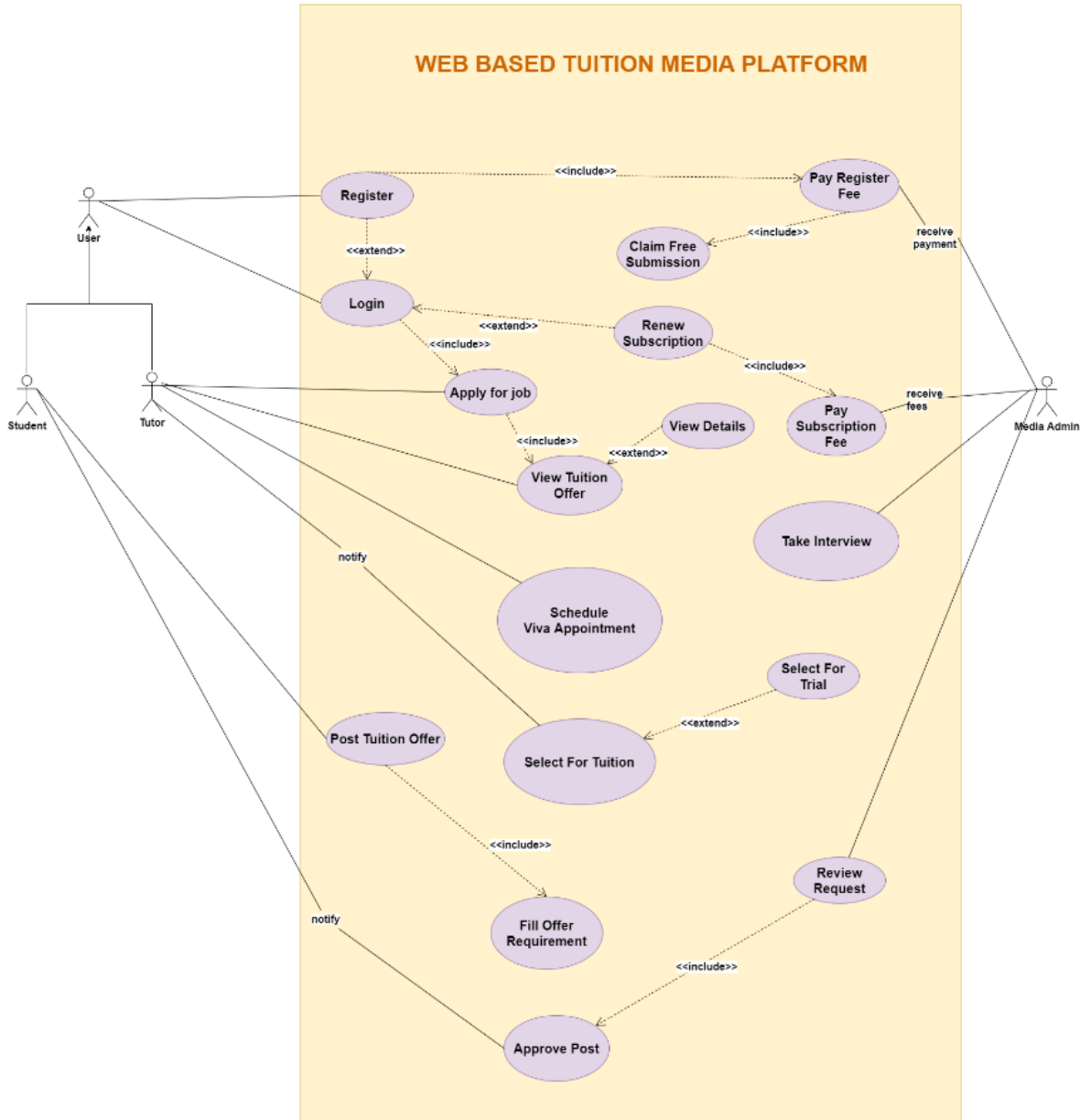2.3 The system should be available to use throughout the year.

3. Security

3.1 No unauthorized person can access the database.
3.2 Only authorized personnel can see and edit the detailed information of the records.
3.3 Only authorized personnel can approve tuition offers.
3.4 The system includes all available safeguard from viruses.

4. Cultural and Political

4.1 Personal information of students and tutors are protected in compliance with the Data Protection Act.
4.2 System available in English and Bangla languages.
4.3 Data centers located in Bangladesh.
4.4 Tuition Media company reserves the right to adopt legal actions if unethical approaches are taken by the users.

Design diagram

Use Case Diagram

WEB BASED TUITION MEDIA PLATFORM

Register
Pay Register Fee
<<include>>
receive payment
Claim Free Submission
<<include>>
User
<<extend>>
Login
Renew Subscription
<<extend>>
<<include>>
Apply for job
<<include>>
View Details
Pay Subscription Fee
receive fees
Media Admin
Student
Tutor
<<include>>
<<extend>>
View Tuition Offer
Take Interview
notify
Schedule Viva Appointment
Select For Trial
Post Tuition Offer
<<extend>>
Select For Tuition
Review Request
<<include>>
notify
Fill Offer Requirement
<<include>>
Approve Post

Description: For our web based tuition media platform, we are using a use case diagram to identify the use cases and their correlations. After that we are using two separate diagram to describe the scenario in details. The two primary actors are the student and the tutor. Both have to register first with their ID and password, and should confirm the registration by paying registration fee to the media Admin. After registration, both can login. After logging in, the student can post tuition and fill the offer requirement. After seeing the post, the media admin can approve the post and the student will be notified. On the other hand, Tutor after logging in can view tuition offers, apply for job and schedule viva. Tutor will be called for viva and media admin will take interview. The tutor will get notification of the result.
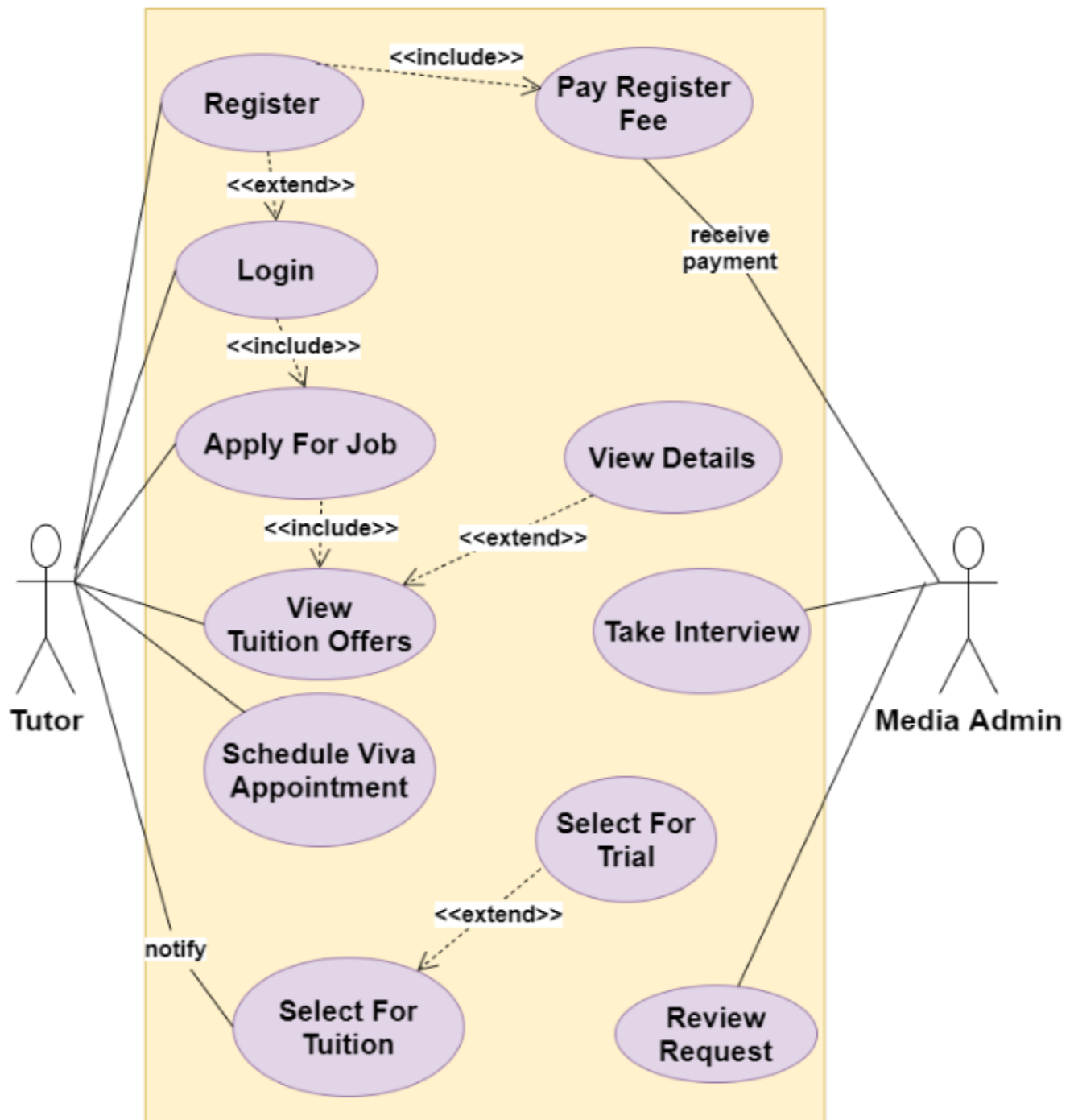
TUTOR AS A PRIMARY ACTOR

Description: In this diagram the tutor is the primary actor. They tutor can register and have to pay the registration fee to the media. After logging in the tutor can view tuition offers, apply for job if they find a suitable one and can schedule viva. Media will check the tutor's background through this system will take interview. The tutors will be notified if they get selected.After a certain period, tutor can renew subscription and have to pay for it, if they want to continue with this system.
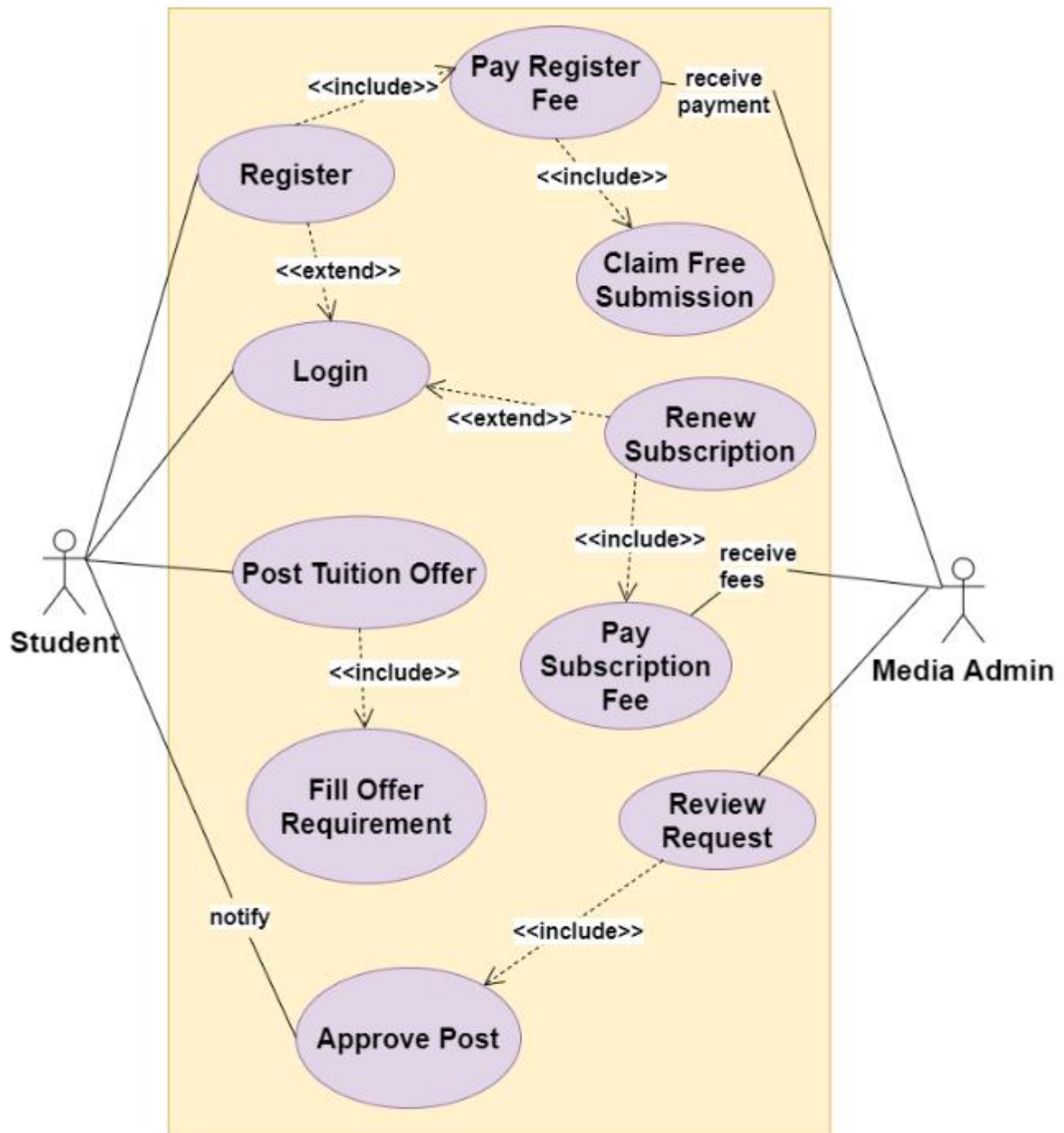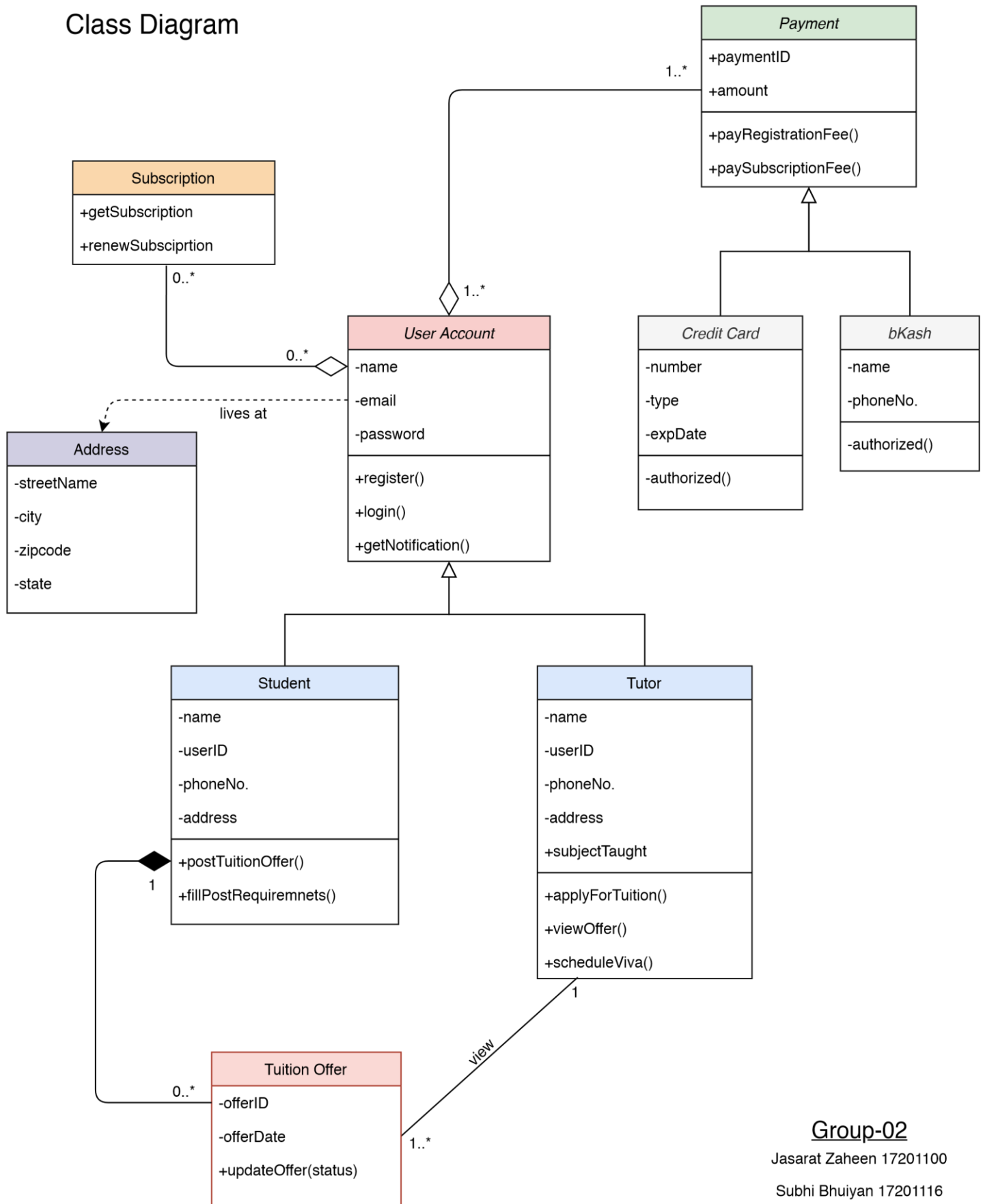
STUDENT AS A PRIMARY ACTOR

Description: In this diagram the student is the primary actor. The student can register and have to pay the registration fee to the media. After logging in the student can post an offer by filling a form to request for tutor, in that form the student should include the requirements. Media will check the post and approve it through the system. Student will get notified if their offers get approved. After a certain period, student can renew subscription and have to pay for it, if they want to continue with this system.

Class Diagram

Class Diagram

Payment

- +paymentID
- +amount

- +payRegistrationFee()
- +paySubscriptionFee()

Subscription

- +getSubscription
- +renewSubsciprtion

1..*

0..*

1..*

User Account

- -name
- -email
- -password

- +register()
- +login()
- +getNotification()

0..*

lives at

Credit Card

- -number
- -type
- -expDate

- -authorized()

bKash

- -name
- -phoneNo.

- -authorized()

Address

- -streetName
- -city
- -zipcode
- -state

Student

- -name
- -userID
- -phoneNo.
- -address

- +postTuitionOffer()
- +fillPostRequiremnets()

1

Tutor

- -name
- -userID
- -phoneNo.
- -address
- +subjectTaught

- +applyForTuition()
- +viewOffer()
- +scheduleViva()

1

view

0..*

Tuition Offer

- -offerID
- -offerDate
- +updateOffer(status)

1..*

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Description: A Class Diagram depicts classes and their interrelationships. It is used for requirement-capture and end-user interaction as it provides a conceptual model of the system in terms of objects and their relationships.

Here, we have shown inheritance with the aid of Generalization relationship.

The User Account as the parent class and, Student and Tutor as its child classes.

Similarly, Payment as the parent class with bKash and Credit Card as its child classes.

The Student and Tuition Offer classes share a Composition relationship which denotes a strong ownership between the two classes, with the Student as the 'master' in this relationship.

If the Student class is destroyed, then eventually the Tuition Offer class is also destroyed.

There exists Aggregation relationship between the Subscription class and User Account class, also between User Account class and Payment class. The hollow rectangle denotes the master in the relation, therefore, in both the aggregation relationships, the User Account class is the master.
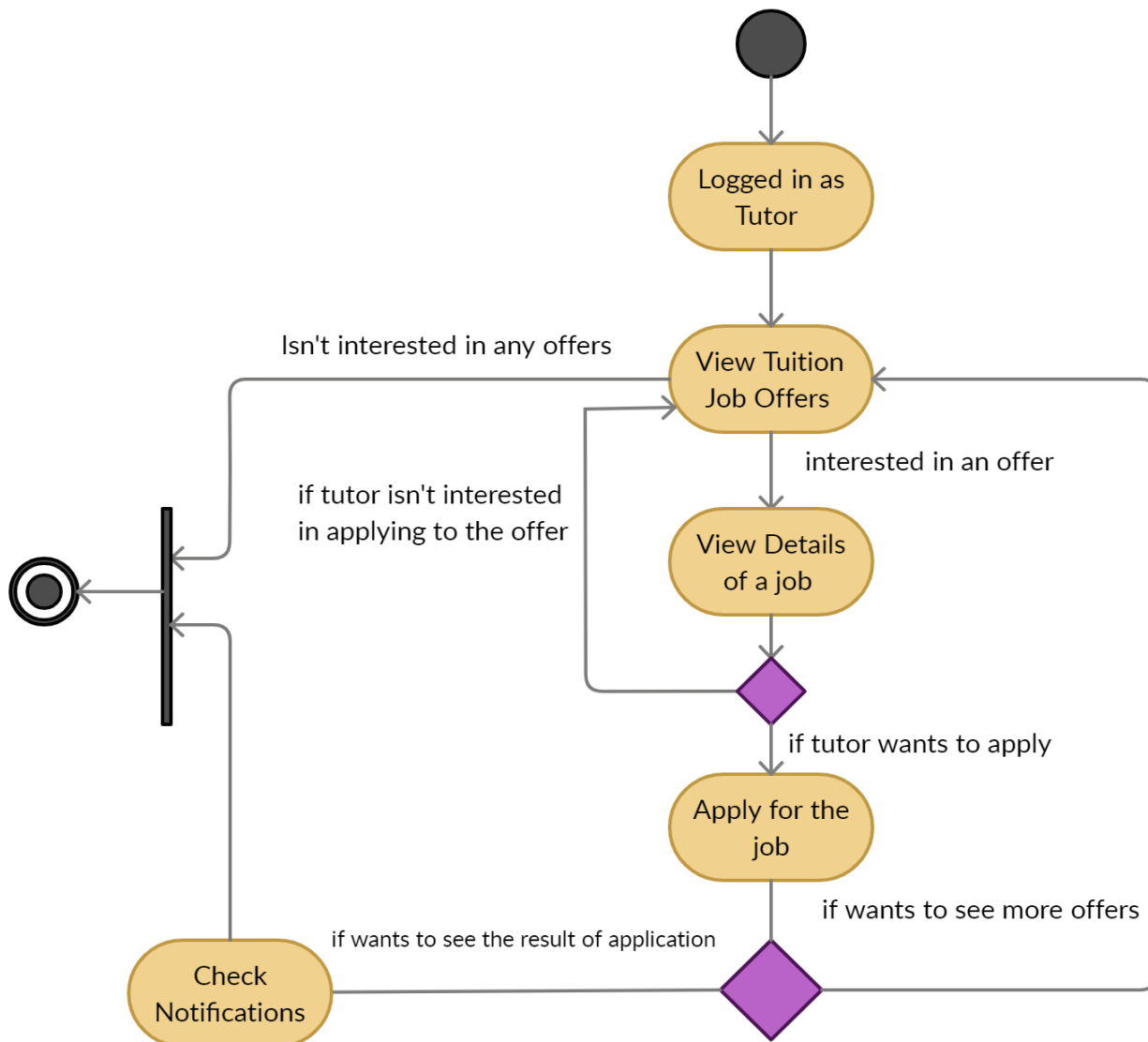
The numbers at the ends of the relationships indicate multiplicity.

Inside the class framework, visibility is denoted as follow:

+ indicating public and – indicating private visibilities.

Activity Diagram

Description: The diagram below illustrates tutor's activity one of the main activities in "web-app based tuition media". After login in to the system, the tutor will need to go through available tuition job offers. If the tutor finds any offer interesting, he/she can see more details of that offer. When the tutor completes reading the details of the job, he/she can choose either to apply for that job or go back to going through other available job offers depending on which option he/she chooses. However, after applying for a job tutor can go to his notifications to check the result of his application or he/she can also choose to go back to looking at available job offers again and do the entire process all over again. This particular activity comes to an end when the user logged in as tutor, visits the notification or he/she can also end the activity at going through the job offers if the tutor is not interested in any jobs shown to him

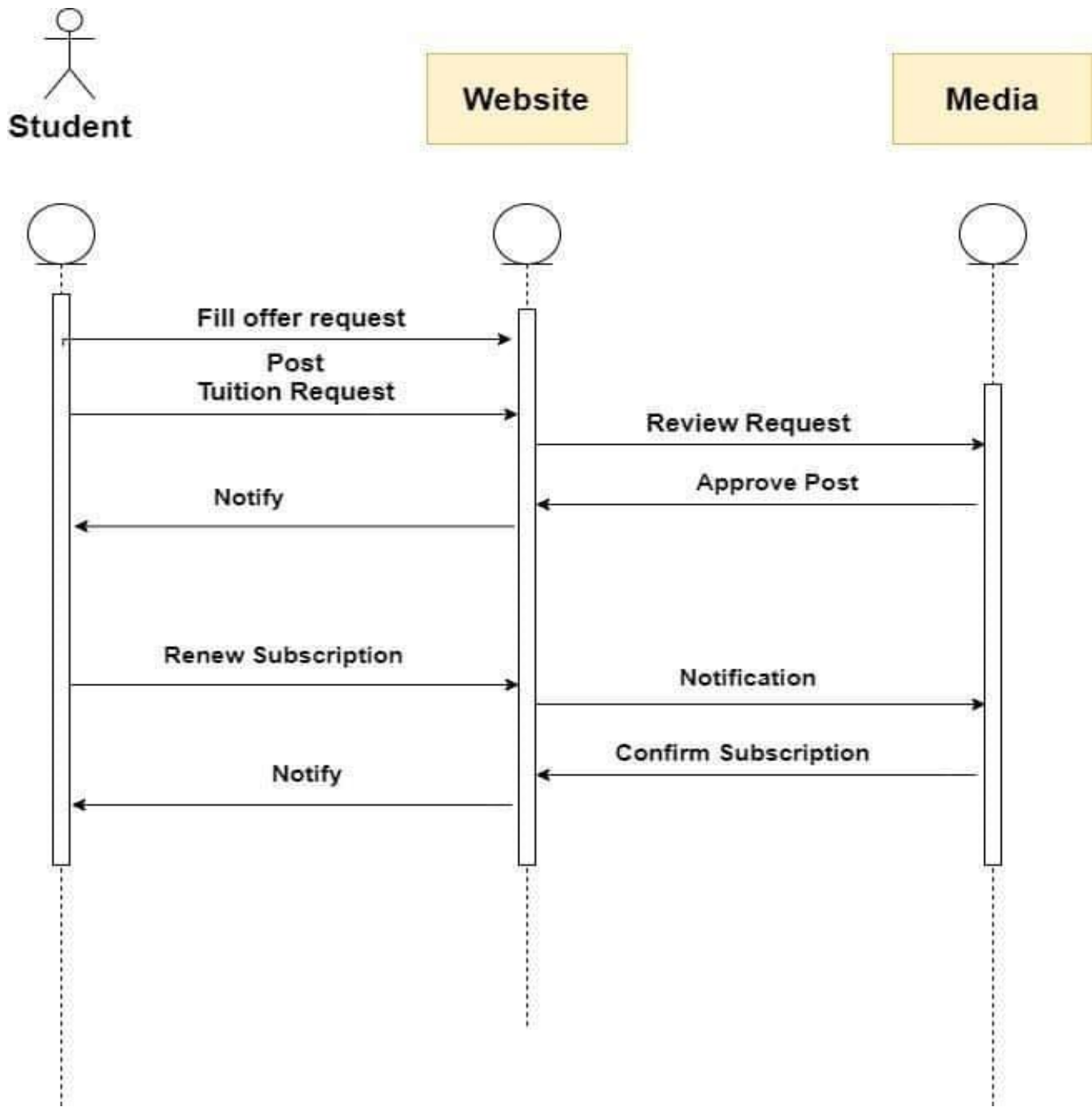*Fig: **Student Activity Diagram***
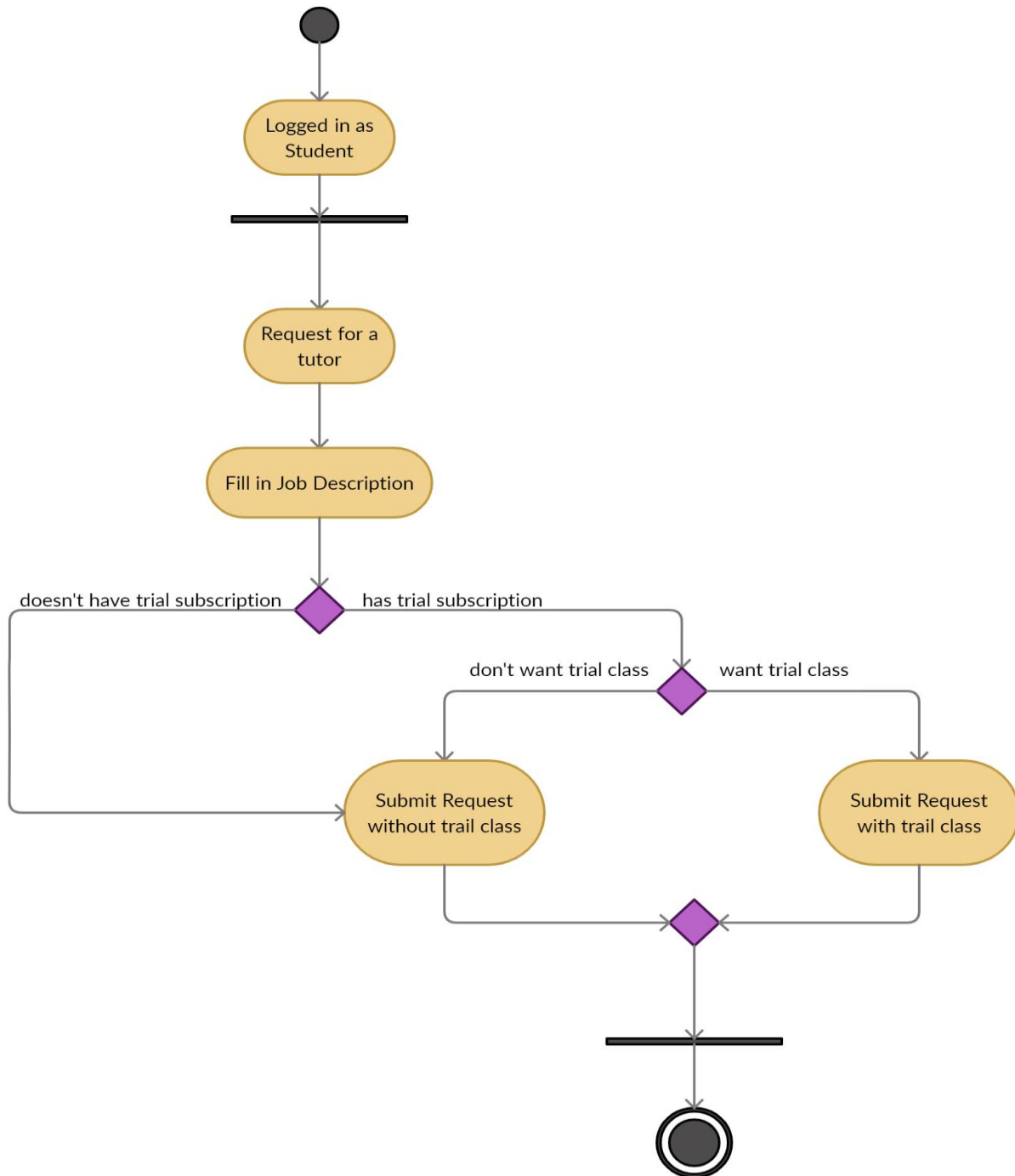
Description: The student's activity diagram of "web-app based tuition media" shows an important use case of the students in the system. A student requesting for the teacher needs to fill in the description of his desires for the teacher. Then he/she will need to confirm if they want to have a trial class, their request will be submitted according to what they chooses. If the student doesn't have any subscription for the trail class, he/she will not have to go through trial confirmation. In that case, the student will have to submit the tutor request without asking for trial class.

Fig: *Swimlane Activity Diagram*
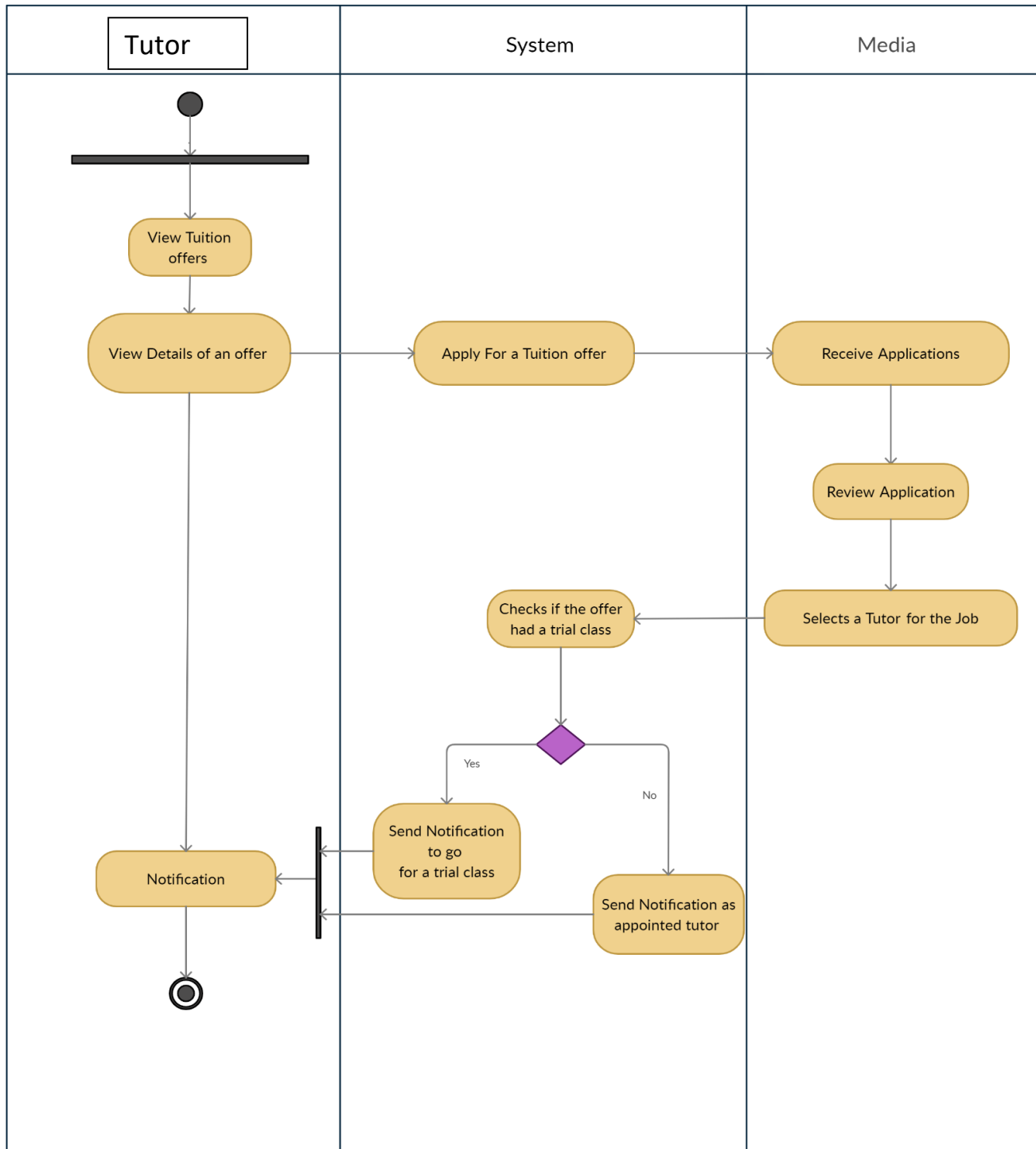
Description: This swimlane diagram distinguishes the capabilities, roles, and responsibilities for each sub-process. In the diagram, when the tutor applies for a job, the system takes the application and sends it to the media. Media after receiving the application will review it and select a best fit tutor for the job. The system then again checks if the job had any trial subscription with it, after completing checking it notifies the tutor with the information of trial subscription.

Sequence Diagram

Student | Website | Media

Fill offer request

Post Tuition Request

Review Request

Approve Post

Notify

Renew Subscription

Notification

Confirm Subscription

Notify

Description: We are using a sequence diagrams to visualize the sequences of message passing that will happen within the system. In this diagram the student is the actor whereas, the website and media are the objects. Firstly, the student first sends a message to the website requesting request for tutor, and to post the request through the system. The website then sends a request asking for review request. Afterwards, media will check the post and a message will be sent to the website to approve it. Then student will get notification message from the website if their offers get approved. After a certain period, student can renew subscription and by sending a message to the website, then website will send notification message to the media. The media then sends a message to the website to confirm subscription, the website will send notification message to the student.

Data Flow Diagram

1. Context Diagram
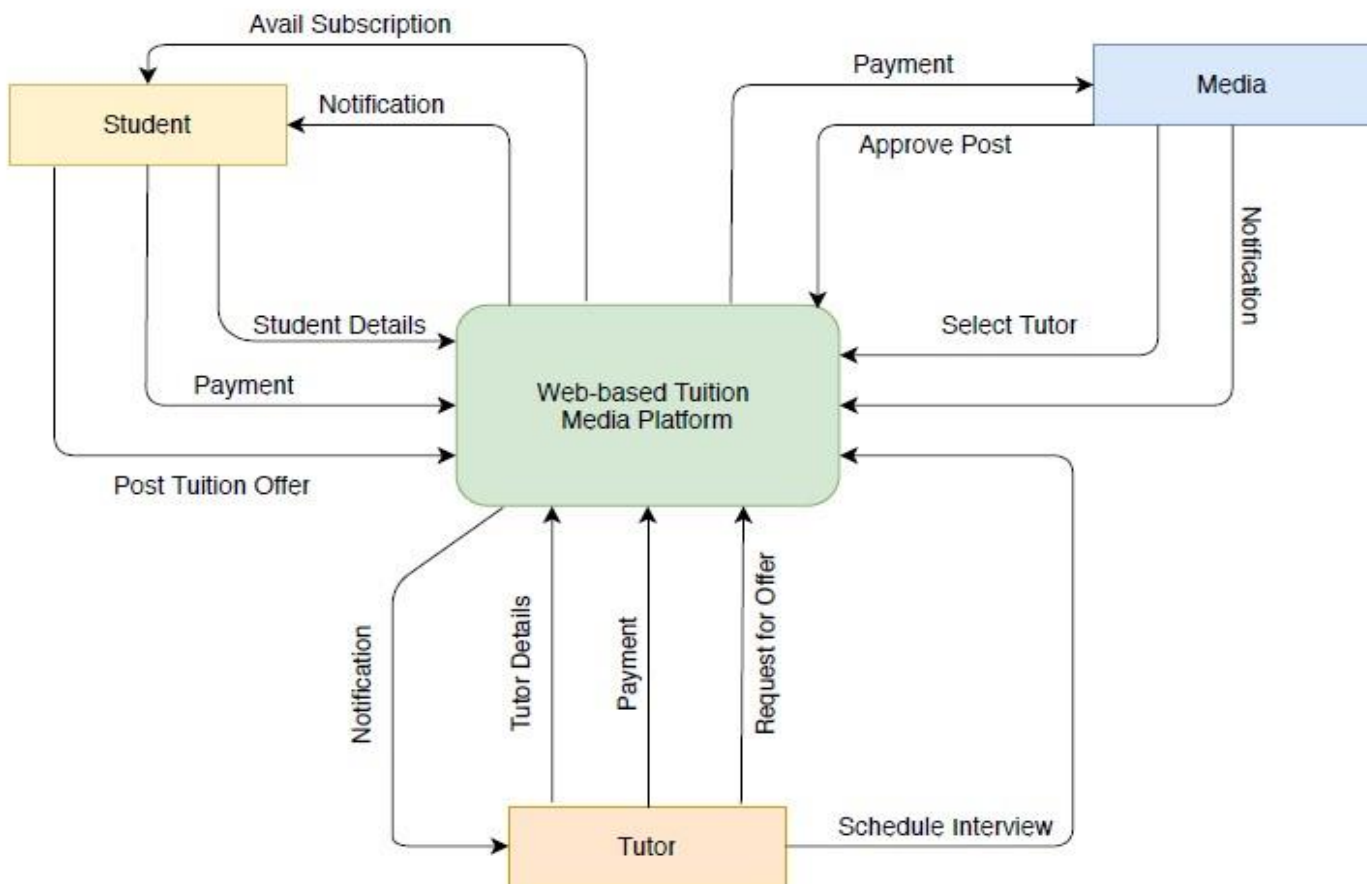
Description: The diagram illustrates the Data Flow Diagram of the Tuition Media Platform System. Here the Media, Tutor and Student are shown to be the external entities. We also outlined the movements of data that comprise within the overall system. In the Context Diagram, we have shown our System as a single process with the external entities interacting with it through the means of data flows.

For instance, payment is shown as input to this System from both the Student and Tutor entities and as an output to the Media in this graphical representation.

In DFDs, we need to ensure that all the corresponding levels are balanced.

2. Level-1 DFD
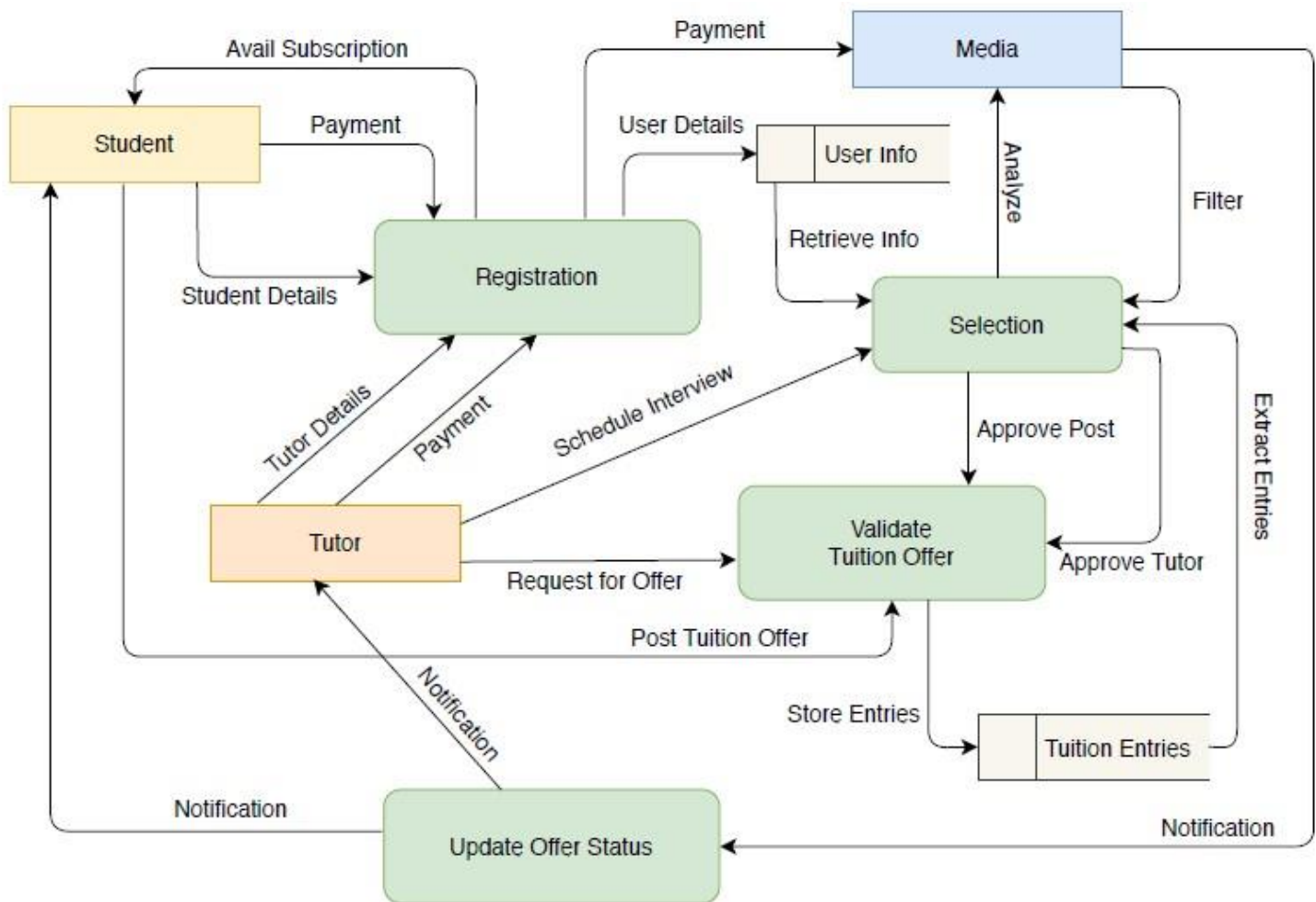
Description:

In Level-1 DFD, we decomposed the System process into four processes which are shown in green color. We demonstrated more granularly what goes on in within the system with more details. We also introduced two Data Stores "User Info" and

"Tuition Entries" which are responsible for storing data. We also ensured that the information balanced when we transitioned to Level-1 from the Context Diagram.

For instance, in the Selection Process we could clearly see from which data store the user details of the Tutor were retrieved and processed before the Media agent could use that processed output to analyze and filter potential candidates for a particular tuition posting.

Conclusion

In light to the current situation of the global pandemic, online tutoring market is opening up avenues for tutors across the country, thus providing an array of opportunities and ample scope to contribute to the economy.

Our system aims to utilize this opportunity and connect qualified teachers and students from different regions of the country.

The vision was to not only simplify the usual strenuous process of hiring tutors but to also ensure that the qualified tutors had a proper platform to monetize their skills from and that students could be entrusted with credible tutors via authorized and accountable Tuition Media companies.

Especially during these uncertain times, our project was expected to gain a decent business value and profits.