# EXL EXCHANGE

FREELANCING PLATFORM FOR UNDERGRADUATES

**PROJECT PROPOSAL**
UCSC SECOND YEAR GROUP PROJECT
2020
GROUP 44

# Group and Supervisor Details

## Proposed Project Supervisor

Name of the supervisor: Ms Lakshika Nanayakkara

Signature of the supervisor

Date: 05/25/2020

## Proposed Project Co-Supervisor

Name of the co-supervisor: Ms S. Hamsavasini

Signature of the co-supervisor

Date: 05/25/2020

## Group Number And Members Details

Group Number : 44

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# Contents

# 1. Introduction to the project

In Sri Lankan universities there are so many students with versatile skills. But they don't have any specific platform to use their skills, either they have to market on social media or depend on contacts they have with the relevant audience. Therefore, getting good use of their respected skills is somewhat hard for university students. Another specific issue that we encountered is the lack of awareness of freelancing. State university students normally face financial difficulties. although there are some scholarships offered to students it is not that much enough to carry their burden.

Therefore we came with a solution that will directly impact these issues. The idea is that introducing a freelancing platform to university students. We are presenting a web application that will basically be a freelancing platform. Via the website, the freelancer and the buyer will be able to interconnect. Because of this, the above-addressed issues will solve providing better outcomes.

There are freelancing websites already available in Sri Lanka like Work.lk, Workdesk.lk etc. But the uniqueness in our application is that it is directly focusing on university undergraduates.

This freelancing platform contains two basic parties such as buyer and seller. Among those two, sellers must be university undergraduate students and buyers can be anyone. And the other unique thing is, a beginner can get comparatively better recognition among others. This is achieved through a special rating and reviewing system.

The main outcomes that this project will deliver is a freelancing platform specialized for undergraduates. As mentioned in the problem statement our targeted audience will be university students Who are freelancers, students with versatile skills such as designing, compering, skills on different languages, writing skills etc, who don't have a better platform to showcase their abilities as well as students who have financial issues. And another main targeted audience is buyers who are in search of freelancers to fulfil their work delightfully.

# 2. Project goal

The ultimate project goal is to develop a freelancing platform mainly targeting undergraduates in Sri Lanka. This platform will influence students to get engaged in freelancing trade. On the other hand, students will be able to learn through experience. Ultimately the monetary needs of students will be covered by the income they can earn. Student's technical knowledge will boost eventually, alongside they will be able to learn other skills like Time Management, collaborative activities, workload adjustment with university activities. All these will help students immensely in industrial exposure.

# 3.  Scope of the project

Considering the targeted audience the web application will be introduced in a responsive manner. Freelancer (the seller), admin, moderator, visitor, and the buyer will be the main actors of the system. The mainly recognized boundaries are

- The freelancer must be an undergraduate of a university in Sri Lanka with a recognized university email id.
- The buyer role is open for anyone from local or international content.
- The system moderators are hired by the system admins.
- The freelancers can sell any number of skills (a specific seller may sell compering, article writing, web and app development skills at the same time).
- The payment can only be done by the given options.

**In Scope**

- Creating and managing user profiles
- Selling the advertisement on the EXL Exchange
- Publish creation samples done by beginners in a special section
- Rating and review system
- Group of sellers contribution (managed by the main project seller)
- Group communication system (the chat system)
- Payment management system
- Notification system
- Report generating system

**Out Scope**

- Embracing any seller (no constraint)
- Tutorials on high demand categories for beginners
- A selling package system for sellers.
- Measuring the progress of given projects

**Limitations**

- Through our proposed system it allows university students to act as sellers and they must have a valid student email id in their authentication process. However, a university student's email address is valid only for 4 years from their enrollment date. Therefore, in this content seller account is only valid for a short period (4 years)

- At this moment for our ease, we are only focusing on students of the University of Colombo

- There is only one valid user account for specific email id.

- The maximum number of participants for the provided chatting communication system is 5 members.

- Since the time duration is quite short, we had to choose the scope relevant to that.

This proposed project contains clear and not changing or stable requirements. Because at the beginning of the project we can clearly identify specific requirements regarding each faculty. Therefore, we choose the waterfall model as our software process model. On the other hand, we are not focusing on frequent deliverables and we were only concerned about the final outcome of the project.
Due to that reason also we select waterfall as our software development process model, which helps to develop our system in a sequential manner.

# 4. Objectives of the project

Turning a new page in the Sri Lankan freelancing industry EXL Exchange will facilitate and help the undergraduates to embrace this industry and gain more experience which will help them to become more experienced and efficient workers. We intend to achieve this through the following objectives.

- Building a freelancing web application for freelancers in the university context and reducing the insecurities and vulnerabilities that users face in the freelancing industry.

- Building a freelancing community within Sri Lankan universities uplifting the betterment of students.

- The seller can add collaborators to their specific projects through our platform for their needs.

- The newbie freelancers won't get left behind because of the introducing rating system in the platform.

- Mobile Responsive and simple UI for the web application.

- Identify sub levels in the Software Development Life Cycle in real applications.

- Improve soft skills such as communication, teamwork, adaptability, creativity etc.

- Learn technical background related to the web application and improve documentation skills.

# 5.   Project feasibility

## 5.1   Technical Feasibility

In order to complete the project on time to meet its expectations, we need to have the following technologies and resources.

1. Software tools to code, test, and team collaboration, etc.

2. Server facilities to host the web application.

3. Necessary computer hardware to perform the development process.

4. Back end developers and front end developers.

5. Developers to test, debug, and deploy the system.

Since we are not allowed to use frameworks, we choose to use the most fundamental technologies to implement our system. It's much easier for us to access all those technologies and resources.
Hence, the system is technologically feasible.

## 5.2   Operational Feasibility

The proposed system will be beneficial only if it can be turned into a system that will meet the requirements of the platform when it is deployed. Sellers and buyers are the most important part of the system and the proposed system will provide them with a convenient mode of operation.
The system will provide a better platform for undergraduates to learn from a practical and more convenient way. From the buyer's perspective, they will get a platform to find the most suitable product and services just for affordable money. As most of the users are from a non-technical background, the main point to be considered is the user-friendly interface including colour scheme proper navigation, performance, and mobile compatibility so that users can easily access the application using their smartphones. Also the proposed project will have data security and the beginner-friendly environment provided for sellers.
Hence, the system is operationally feasible.

## 5.3 Social Feasibility

We performed a survey on 150 public and private university undergraduates from around the country, to know our user better. As we can see in the figure 5.1 copied from our survey, 92% of the students are willing to sell their skills in our freelancing application.

Figure 5.1: Pie chart from the survey conducted on 150 undergraduates
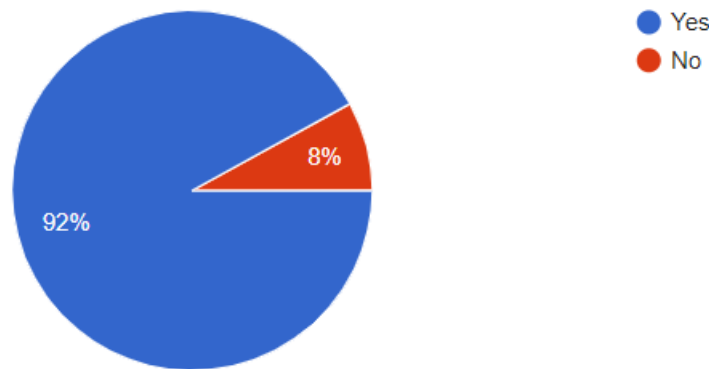


When we consider buyers, All our sellers are university undergraduates. There is no need to worry about product quality and efficiency. Buyers can find almost anything from our system to a fair price because it's a vast community with different types of skills. There is no other platform to find such a highly skilled seller community for a lesser cost.

And also the proposed beginner-friendly feature attracts more users to the system. We came up with an idea to make our system as beginner-friendly as possible due to the high demand of the users. Our special beginner rating feature helps even for a beginner to sell their skill without facing any obstacle.

Hence, the system is socially feasible.

## 5.4 Economical Feasibility

**Economical Issues**

Web hosting cost and the cost of a payment gateway are the two main costs that we have to spend in order to build the system and deploy it.

**Solutions**

Regarding the web-hosting cost, we are planning to deploy our system on UCSC servers. And when we consider

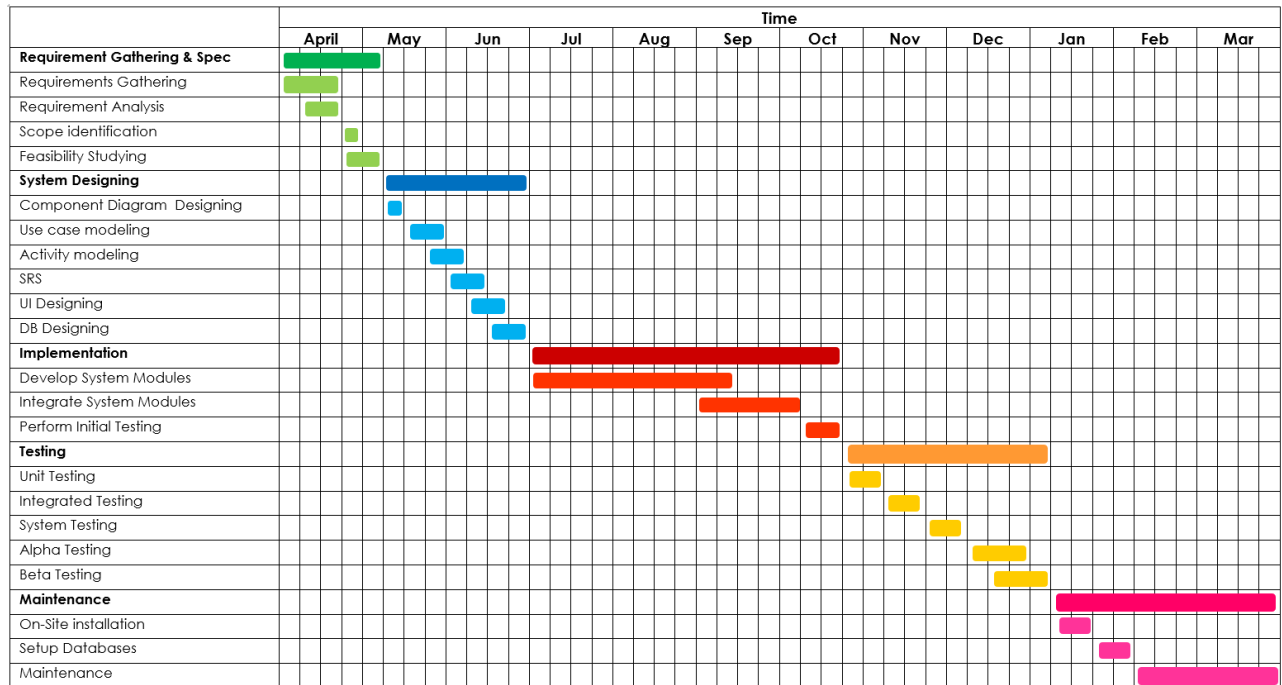the payment gateway cost, we are intending to use a sandbox to simulate the payment gateway.
Instead of using market technologies, we are going to use free and open-source ones such as Git, GitHub etc.
So it won't cost any additional money for us.
We can obtain full marks for our project even if we use the above-stated methods instead of spending money
The proposed application is a web application. Which means we don't need to use any kind of hardware other than our personal computers to complete the project.
Therefore, our system is economically feasible.

## 5.5 Schedule Feasibility

We have planned and divided all the work according to the time given. As we can see in the figure 5.2 we can finish our project around march of 2021.

Figure 5.2: Gantt chart of the project time-line

| Task | April | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Requirement Gathering & Spec** | ■ | | | | | | | | | | | |
| Requirements Gathering | ■ | | | | | | | | | | | |
| Requirement Analysis | ■ | | | | | | | | | | | |
| Scope identification | | ■ | | | | | | | | | | |
| Feasibility Studying | | ■ | | | | | | | | | | |
| **System Designing** | | ■ | ■ | | | | | | | | | |
| Component Diagram Designing | | ■ | | | | | | | | | | |
| Use case modeling | | ■ | | | | | | | | | | |
| Activity modeling | | ■ | | | | | | | | | | |
| SRS | | | ■ | | | | | | | | | |
| UI Designing | | | ■ | | | | | | | | | |
| DB Designing | | | ■ | | | | | | | | | |
| **Implementation** | | | | ■ | ■ | ■ | ■ | | | | | |
| Develop System Modules | | | | ■ | ■ | | | | | | | |
| Integrate System Modules | | | | | ■ | ■ | | | | | | |
| Perform Initial Testing | | | | | | | ■ | | | | | |
| **Testing** | | | | | | | ■ | ■ | ■ | ■ | | |
| Unit Testing | | | | | | | ■ | | | | | |
| Integrated Testing | | | | | | | | ■ | | | | |
| System Testing | | | | | | | | | ■ | | | |
| Alpha Testing | | | | | | | | | ■ | | | |
| Beta Testing | | | | | | | | | ■ | ■ | | |
| **Maintenance** | | | | | | | | | | ■ | ■ | ■ |
| On-Site installation | | | | | | | | | | ■ | | |
| Setup Databases | | | | | | | | | | | ■ | |
| Maintenance | | | | | | | | | | | ■ | ■ |

Hence, We will be able to finish the system in time.

## 5.6 Legal and Ethical Feasibility

**Legal and Ethical Issues**

1. We are mainly focusing on Sri Lankan university undergraduates in our system. Only a university undergraduate can sell their skill using our system. So when someone wants to create a seller account we need a special process to only allow undergraduates. In order to do this, we need to access undergraduate databases of all the universities. But in order to do that we need to be concerned about so many legal and ethical aspects.

2. In order to complete the proposed project, we are planning to use many open source applications services. We have to be concerned about their guidelines and agreements.

3. The proposed system will contain large databases of sensitive user data. We have to protect our databases from unauthorized intruders and also guarantee the user's privacy and confidentiality.

**Solutions**

1. Instead of doing that we came up with a simple process. Every undergraduate student has a student email given by the university. So when someone wants to create a seller account, he/she has to submit their student email. Then our system checks whether it is a valid university email and sends a verification link to the email.

2. Since we are not developing the proposed project for a commercial purpose. We can complete the project without violating open-source licenses and agreeing to them.

3. We are planning to add all our privacy policies to our user agreement. So that users can read the agreement document before entering their data into our databases.

Hence, Our system is legally and ethically feasible.

# 6.   Deliverables of the project

1. The web application.

2. User manuals for buyers and sellers with screenshots.

3. License agreements for sellers and buyers.

4. Installation guide, how do you set this up on a server.

5. Software requirement specification

# 7.  Project constraints and assumptions

**Assumptions**

1. All the undergraduates have specific university e-mail ids

2. All the users will enter valid information for the systems

3. Sellers and buyers will adhere to rules and regulations.

4. Admins and moderators will constantly monitor the system

5. Every seller in the system have at least intermediate knowledge on their skill category

6. Users have the knowledge to interact with the user interface of the system.

7. The system will not slow down after a foreseeable amount of time.

**Constraints**

1. The freelancer must be an undergraduate of a university in Sri Lanka with a recognized university email id.

2. After someone completes their undergraduate time period, they can't sell their skill on our system anymore.

3. The buyer role is open for anyone from local or international content.

4. The system moderators are hired by the system admins.

5. Admins can remove moderators of systems.

6. The freelancers can sell any number of skills.

7. The payment can only be done by the given options.

8. Since the targeted users of the platform use smartphones, the design should be responsive

9. Since the system will be running in a third party environment as a precaution we have to have a backup of user information and transaction details.

# 8. Requirements of the project

## 8.1 Functional Requirements

**There are five main actors in the system,**

- Seller
- Buyer
- Visitor
- Admin
- Moderator

**Functional requirements according to the actors in the proposed system are stated in the below section.**

- The buyer has the following functional requirements
    - Register
    - Login/Logout
    - Search advertisement
    - Requesting to advertisements
    - Do a payment
    - Rate sellers
    - Do Complaints
    - Ask help/support desk
- The seller has the below mentioned functional requirements.
    - Register
    - Login/Logout
    - Create profile
    - Create advertisements
    - Add Collaborators to advertisement
    - Rate buyer
    - Accept job request
    - Ask help/support desk
- The moderator has the below mentioned functional requirements

- login/logout
- Handling reports /complaints
- Inquiries and banning
- Validate manual bank payments
- Generate statistical reports

- The Admin has the below mentioned functional requirements

  - login/logout
  - Add/Remove moderators
  - Generate statistical reports

- The visitor has these specific functional requirements

  - Request help
  - Search seller advertisements
  - View seller advertisements

### 8.1.1 Component Diagram
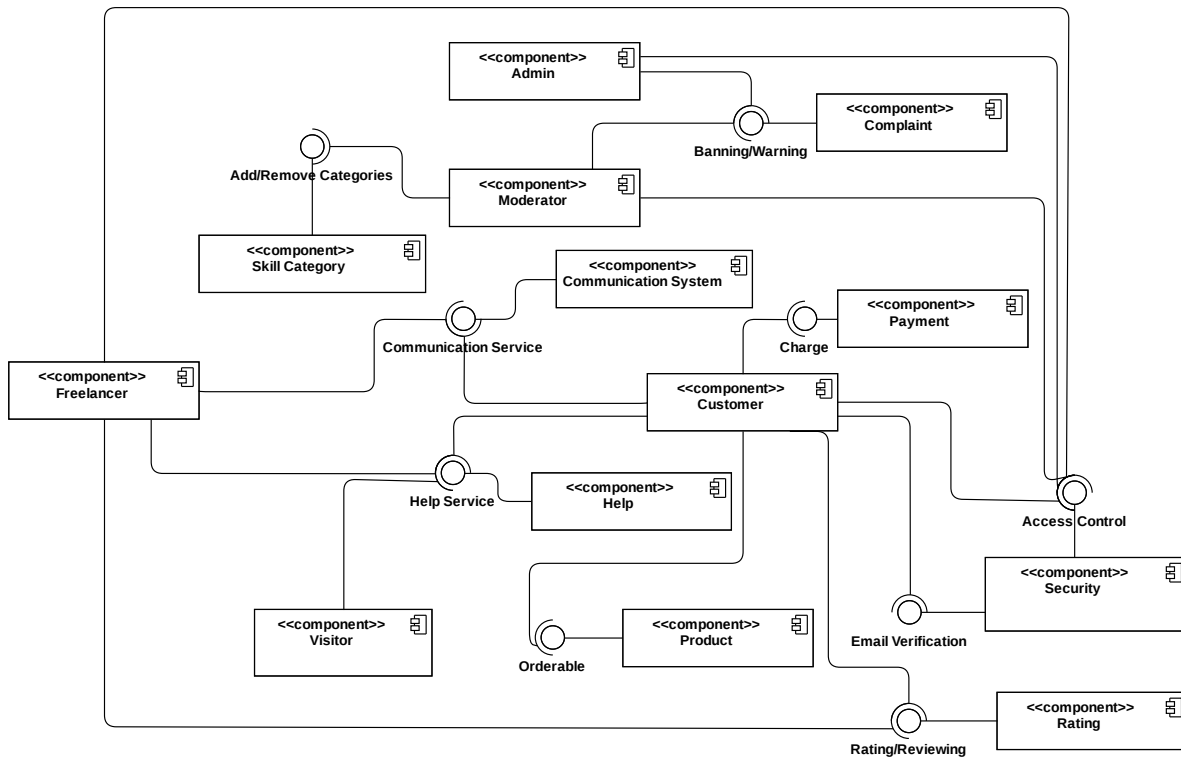
### 8.1.2   Use Case Diagram

**Use Case Diagram Assumptions**

- The Admin and moderators can't generate reports from the very beginning. Once the system has some data to analyze, then the admin and moderators can generate reports.

- There is only one admin but there can be few moderators.

- When verifying a seller email, the system also checks whether it is a valid university email.

- Manipulating a seller advertisement includes adding, updating removing, and deleting a one.

# EXL Exchange Use Case Diagram

# Use Case Descriptions

| | |
|---|---|
| **Use-Case Name** | Login |
| **Use-Case ID** | 01 |
| **Summary** | Users can login to the  system |
| **Actors** | Buyer, Seller, Moderator, Admin |
| **Pre-conditions** | User must not be currently logged into the system<br><br>User must have an account |
| **Course of Events** | 1. The user submits a form with username and password Hash the password<br>2. Check the username with the corresponding hash password in the database and see if they match<br>3. Start a session<br>4. User will be logged into the system with relevant dashboard |
| **Exceptions** | If the authentication details are invalid, then the user will receive an error message and suggest to sign up<br><br>If the user clicks on the forget password, the system will password reset mail to the user's email. |
| **Post-conditions** | User is logged into the system under the relevant user privilege |

| Use-Case Name | Logout |
|---|---|
| Use-Case ID | 02 |
| Summary | |
| Actors | Buyer, Seller, Moderator, Admin |
| Pre-conditions | User must be currently logged into the system |
| Course of Events | 1. Ask to verify the logout<br>2. End the session and logout |
| Exceptions | If cancel the logout in verification redirect to the current page |
| Post-conditions | User redirected to the homepage |

| Use-Case Name | Create an account |
|---|---|
| Use-Case ID | 03 |
| Summary | Users can create their profiles. |
| Actors | Buyer, Seller, |
| Pre-conditions | User must be currently logged into the system |
| Course of Events | 1. User selects the account type.<br>2. Enter relevant personal details with the email.<br>3. Verify the email address<br>4. Activate the account. |
| Exceptions | If the email user entered is invalid, already has an account or if the account type is seller and email is not a valid undergraduate email then the user has to try again.<br><br>If a user enters a wrong OTP, the user can try again or cancel. |
| Post-conditions | User is redirected to his/her account |

| Use-Case Name | Generate reports |
| --- | --- |
| Use-Case ID | 04 |
| Summary | |
| Actors | Admin, moderator |
| Pre-conditions | User must be currently logged into the system |
| Course of Events | 1. Ask to select the report name<br>2. Select relevant categories a<br>3. Generate the report<br>4. Get the generated report<br>5. End the session and logout |
| Exceptions | If cancel the logout in verification redirect to the current page |
| Post-conditions | User redirected to the homepage |

| Use-Case Name | Set up a profile |
| --- | --- |
| Use-Case ID | 05 |
| Summary | Users create a profile by entering his/her personal details. |
| Actors | Seller, Buyer |
| Pre-conditions | User must be logged in to the system.<br>User must already have an account. |
| Course of Events | 1. The system detects the university name of the user by email.<br>2. The user enters all the relevant personal details<br>3. Create the profile |
| Exceptions | If the entered bank account details are wrong, then the user has to try again. |
| Post-conditions | User is redirected to his/her profile. |

| | |
|---|---|
| **Use-Case Name** | Manipulate a skill advertisement |
| **Use-Case ID** | 06 |
| **Summary** | The user creates/removes/updates a skill advertisement. |
| **Actors** | Seller |
| **Pre-conditions** | The seller must be logged in to the system.<br>The seller must have an account and a profile. |
| **Course of Events** | Create<br>    1. The user selects the category<br>    2. Select the advertisement type (group/individual)<br>    3. Check over limit<br>    4. Get advertisement details<br><br>Remove<br>    1. User select the particular advertisement<br>    2. Confirm deletion<br>    3. Notify buyers and (group members if its group advertisement)<br><br>Update<br>    1. User select the particular advertisement<br>    2. Republish the [articular advertisement |
| **Exceptions** | When updating if it is a group ad, send a notification to other members.<br><br>When adding members to a group advertisement, if someone rejects the request, users have to try again or try someone else.<br><br>When creating if it's the user's first advertisement then add it to the beginner panel and also to the main panel.<br><br>When trying to create an advertisement if the advertisement limit is exceeded already show an error message. |
| **Post-conditions** | User is redirected back to his/her profile. |

| Use-Case Name | Respond to a group ad request |
|---|---|
| Use-Case ID | 07 |
| Summary | The user either accepts or rejects a group advertisement request. |
| Actors | seller |
| Pre-conditions | User must be logged in to the system<br>User must have a profile and an account. |
| Course of Events | 1. User (user A) receives a group advertisement request from another user (user B).<br>2. User responds to the request.<br>3. User B gets a notification(notifying whether user A accepted or rejected.)<br>4. If the user accepted the request, then add that advertisement to his/her advertisement list and also add the user to that particular advertisement. |
| Exceptions | If user A is already exceeded the group advertisement limit, then notify the user B. |
| Post-conditions | User is redirected to his/her profile. |

| Use-Case Name | Respond to a job request |
|---|---|
| Use-Case ID | 08 |
| Summary | The user either accepts or rejects a job request. |
| Actors | seller |
| Pre-conditions | User must be logged in to the system<br>User must have a profile and an account.<br>User must have posted an advertisement. |
| Course of Events | 1. The user gets a job request from the buyer.<br>2. The user responds to the request.<br>3. The buyer gets a notification according to the user's response. |
| Exceptions | If a user receives more than one request when he/she accepts one all the other requests get cancelled.<br><br>If the user didn't respond to a request in one week, the request gets cancelled and the system notifies the buyer. |
| Post-conditions | User is redirected to his/her profile. |

| Use-Case Name | Manage the earnings |
|---|---|
| Use-Case ID | 09 |
| Summary | User views his current EXL Exchange account balance |
| Actors | Seller |
| Pre-conditions | User must be logged in to the system<br>User must have a profile and an account. |
| Course of Events | 1. User select the earnings<br>2. User views the current account balance |
| Exceptions | |
| Post-conditions | User is redirected to his/her profile. |

| Use-Case Name | Make a complaint |
|---|---|
| Use-Case ID | 10 |
| Summary | User makes a complaint. |
| Actors | Seller, Buyer |
| Pre-conditions | User must be logged in to the system<br>User must have a profile and an account. |
| Course of Events | 1. The user selects the option to make a complaint.<br>2. The user enters the complaint.<br>3. The user submits the complaint.<br>4. The particular complaint is sent to the admin/moderator for a review.<br>5. Admin/moderator checks the validity of the complaint.<br>6. Admin/moderator takes the necessary actions. |
| Exceptions | If it is an invalid complaint, then the complaint is ignored. |
| Post-conditions | User is redirected to his/her profile. |

| Use-Case Name | Request help |
|---|---|
| Use-Case ID | 11 |
| Summary | User asks for help from the admin/moderators |
| Actors | Seller, buyer, visitor |
| Pre-conditions | |
| Course of Events | 1. The user selects the help option<br>2. The user enters the issue and submit.<br>3. The particular help request is sent to the admin/moderator<br>4. The admin/moderator sends a help message. |
| Exceptions | |
| Post-conditions | User is redirected to the home page |

| Use-Case Name | Search seller advertisements |
|---|---|
| Use-Case ID | 12 |
| Summary | The user searches through advertisements. |
| Actors | buyer, visitor |
| Pre-conditions | |
| Course of Events | 1. The user selects a category<br>2. The user enters a keyword and filters results if he/she wants. |
| Exceptions | |
| Post-conditions | User is redirected to the home page. |

| Use-Case Name | View seller advertisements |
|---|---|
| Use-Case ID | 13 |
| Summary | The user views the details of an advertisement. |
| Actors | Buyer, visitor |
| Pre-conditions | The user must have to search for the advertisement. |
| Course of Events | 1. The user selects the advertisement<br>2. The user views all the details of the advertisement<br>3. The user views the profile of the seller. |
| Exceptions | |
| Post-conditions | User is redirected to the home page. |

| Use-Case Name | Give feedback |
|---|---|
| Use-Case ID | 14 |
| Summary | Buyers and Sellers can give a rate and review for their work and behaviour. |
| Actors | Buyer, Seller |
| Pre-conditions | Both parties need to do at least one job |
| Course of Events | 1. Buyer or Seller go to their advertisement<br>2. Set rate/review(comment) for other party |
| Exceptions | |
| Post-conditions | User is redirected to the Advertisement. |

| | |
|---|---|
| **Use-Case Name** | Make a payment |
| **Use-Case ID** | 15 |
| **Summary** | Buyer do a payment for seller's job |
| **Actors** | Buyer, Seller,Moderator |
| **Pre-conditions** | Seller approved the buyer's job request. |
| **Course of Events** | Bank Transaction method<br>    1. Buyer goes to the payment method selection and select bank transaction option<br>    2. Buyer will enter relevant information along with the image copy of the slip<br>    3. The moderator will validate it manually and approve it.<br>    4. The buyer will receive a notification "payment successful"<br><br>Debit/Credit card method<br>    Buyer goes to the payment method selection and select credit/debit card transaction option<br>    Buyer will enter relevant information including card information<br>    Relevant Amount of money transferred to the EXL business account.<br>    The buyer will receive a notification "payment successful"<br><br>Payment getaway method<br>    1. Buyer goes to the payment method selection and selects payment gateway transaction option<br>    2. . Buyer will enter relevant information including payment gateway accounts information<br>    3. Relevant Amount of money transferred to the EXL business account.<br>    The buyer will receive a notification "payment successful" |
| **Exceptions** | Transaction rejected by the bank or account details/ bank-slip not valid.<br>Notify buyer that "Account details or payment-slip is not valid" |
| **Post-conditions** | User is redirected to the Chat page. |

| Use-Case Name | Remove a moderator |
|---|---|
| Use-Case ID | 16 |
| Summary | The Admin can remove a moderator |
| Actors | Admin |
| Pre-conditions | A moderator may resign or no longer want to do the job |
| Course of Events | 1. Admin will select the correct moderator account<br>2. Remove that moderator from the system |
| Exceptions | |
| Post-conditions | Removed moderator won't be a moderator of the system anymore |

| Use-Case Name | Handle an inquiry |
|---|---|
| Use-Case ID | 17 |
| Summary | After Buyer or seller file an inquiry, moderators, and admin will follow an inquiry and will take necessary actions |
| Actors | Admin, Moderator |
| Pre-conditions | A complete and reasonable complaint should be there |
| Course of Events | 1. Admin or a moderator will get a inquiry to handle<br>2. The admin/moderator will investigate the inquiry<br>3. Will take necessary action (ban user account / block user accounts for a time period / special penalties) |
| Exceptions | |
| Post-conditions | The inquiry will be marked as done.<br>If the accused party is proven guilty , then that user may face the penalties. |

| Use-Case Name | Handle payments |
|---|---|
| Use-Case ID | 18 |
| Summary | |
| Actors | Admin, Moderator |
| Pre-conditions | Seller approved the buyer's job request |
| Course of Events | 1. Check the payment option of the buyer has selected<br>2. If it is a bank transaction check the bank slip and validate<br>3. Waiting for the user to approve the finished work.<br>4. After the user approves the work that the seller did, Retransfer a relevant amount of money to the seller's account. |
| Exceptions | |
| Post-conditions | The transaction will be closed.<br>Seller will get the relevant payment<br>The EXL Exchange will receive the agreeds percentage from the transaction |

| Use-Case Name | Contact a seller |
|---|---|
| Use-Case ID | 19 |
| Summary | |
| Actors | Buyer |
| Pre-conditions | Buyer have seen the advertisement and came came to a conclusion to check out more from seller |
| Course of Events | 1. Check on the seller profile<br>2. Send a message via chat platform |
| Exceptions | |
| Post-conditions | The seller will see the message send by the buyer |

| | |
|---|---|
| **Use-Case Name** | Assign a job to seller |
| **Use-Case ID** | 20 |
| **Summary** | The buyer will contact the seller and will assign a job/jobs |
| **Actors** | Buyer |
| **Pre-conditions** | Buyer have seen the advertisement |
| **Course of Events** | 1. View the job advertisement<br>2. Send job request<br>3. When the job request accepted payment will be taken by the moderators<br>4. Else the job request will expire within a week |
| **Exceptions** | |
| **Post-conditions** | A job will be assigned to a seller |

## 8.1.3 Activity Diagrams

**1.Create Account Activity Diagram**
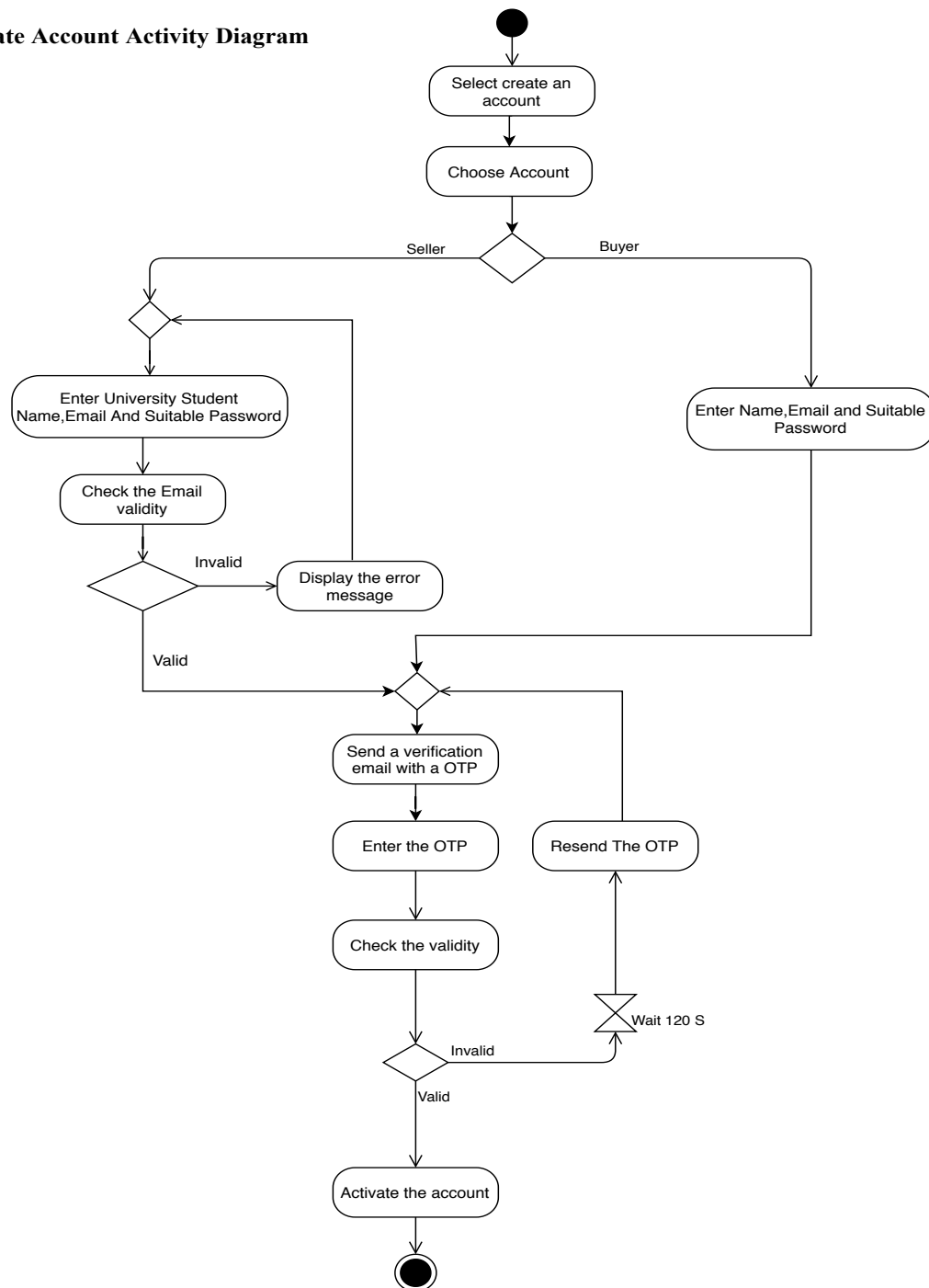
## 2. Login Activity Diagram
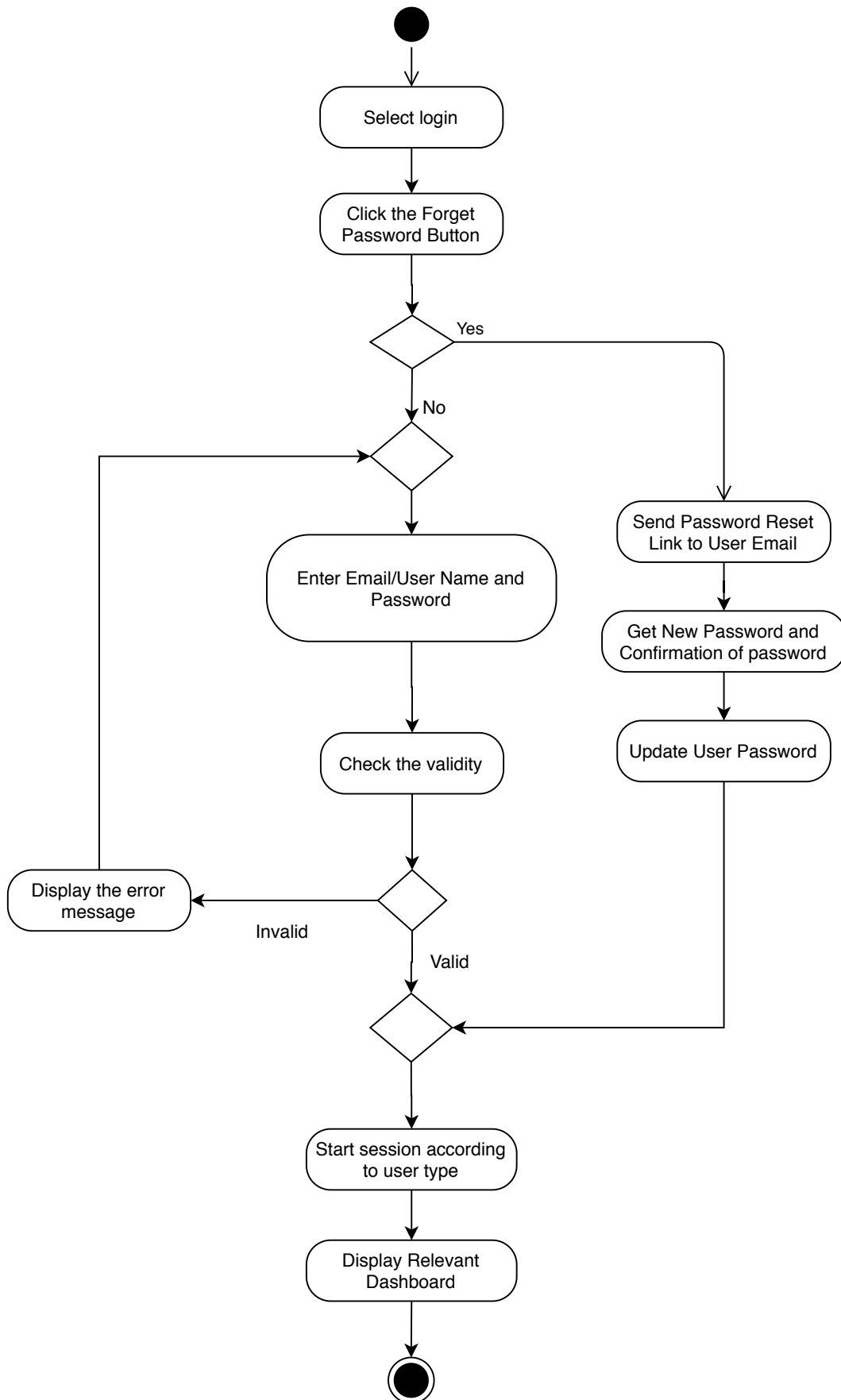
# 3. Setup The Profile Activity Diagram

```
                          ●
                          │
                          ▼
              ┌─────────────────────┐
              │  Check the Account  │
              │        Type         │
              └─────────────────────┘
                          │
                          ▼
                        ◇──────────── Buyer ────────────────────┐
                        │                                        │
                      Seller                                     │
                        │                                        │
                        ▼                                        │
              ┌─────────────────────┐                            │
              │ Detect the university name │                     │
              │      by email       │                            │
              └─────────────────────┘                            │
                        │                                        │
                        ▼                                        ▼
              ┌─────────────────────┐          ┌─────────────────────┐
              │ User enters the degree and │    │ Enter the Name And Other │
              │       period        │          │   Personal Details   │
              └─────────────────────┘          └─────────────────────┘
                        │                                        │
                        ▼                                        │
              ┌─────────────────────┐                            │
              │ Enter the Name And Other │                       │
              │   Personal Details  │◄───────────────────────┐   │
              └─────────────────────┘                        │   │
                        │                                    │   │
                        ▼                                    │   │
              ┌─────────────────────┐                        │   │
              │   User enters bank  │                        │   │
              │   account details   │                        │   │
              └─────────────────────┘                        │   │
                        │                                    │   │
                        ▼                                    │   │
              ┌─────────────────────┐                        │   │
              │  Check the validity │                        │   │
              └─────────────────────┘                        │   │
                        │                                    │   │
                        ▼                                    │   │
                      ◇──── Invalid ────► ┌──────────────┐   │   │
                      │                   │ Display the error │  │
                    Valid                 │    message   │───┘   │
                      │                   └──────────────┘       │
                      ▼                                          │
              ┌─────────────────────┐                           │
              │   Enter The Skills  │                           │
              └─────────────────────┘                           │
                      │                                          │
                      ▼                                          │
                    ◇◄──────────────────────────────────────────┘
                      │
                      ▼
              ┌─────────────────────┐
              │      Display        │
              │ "Profile Created Successfully" │
              └─────────────────────┘
                      │
                      ▼
                     ◉
```
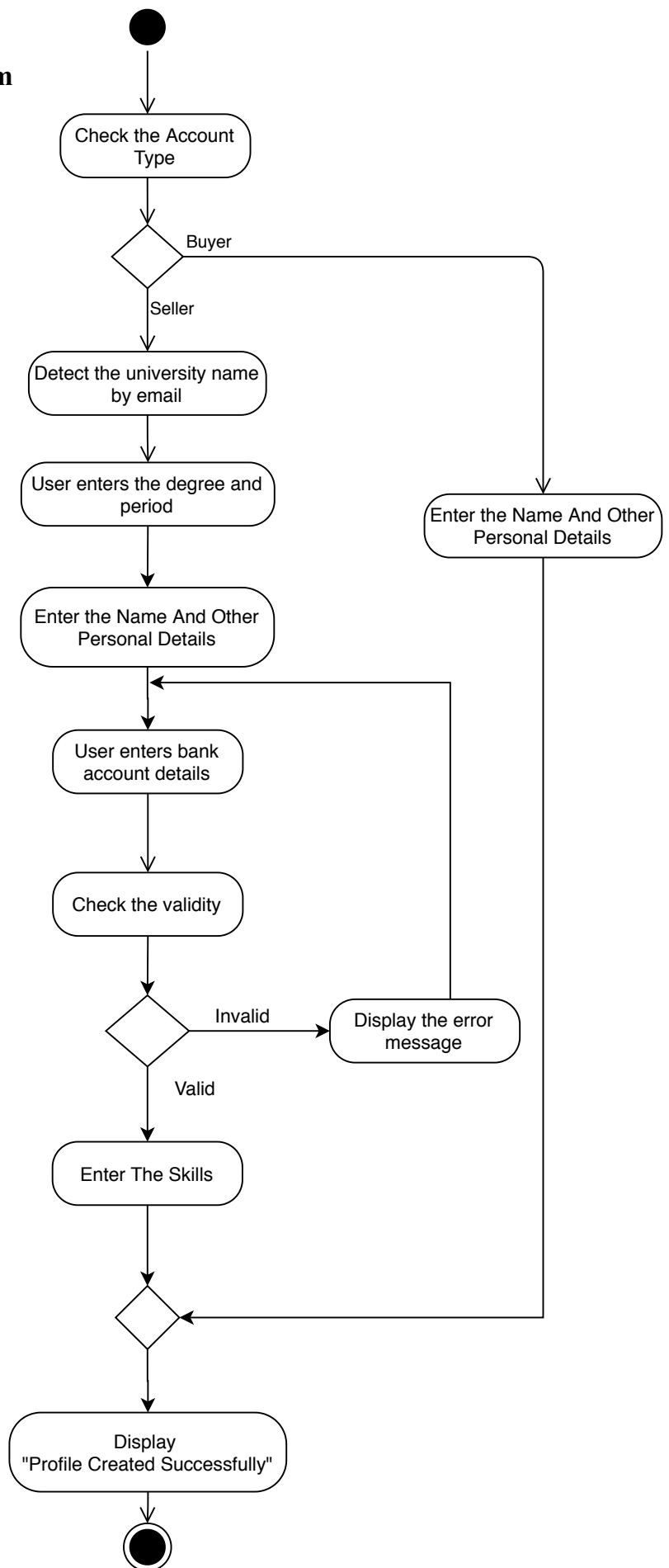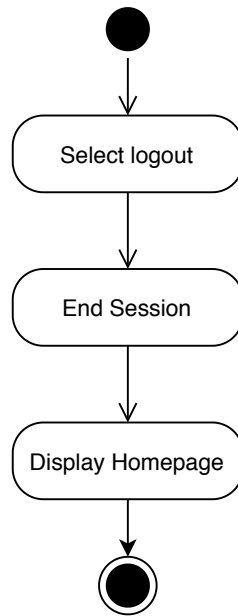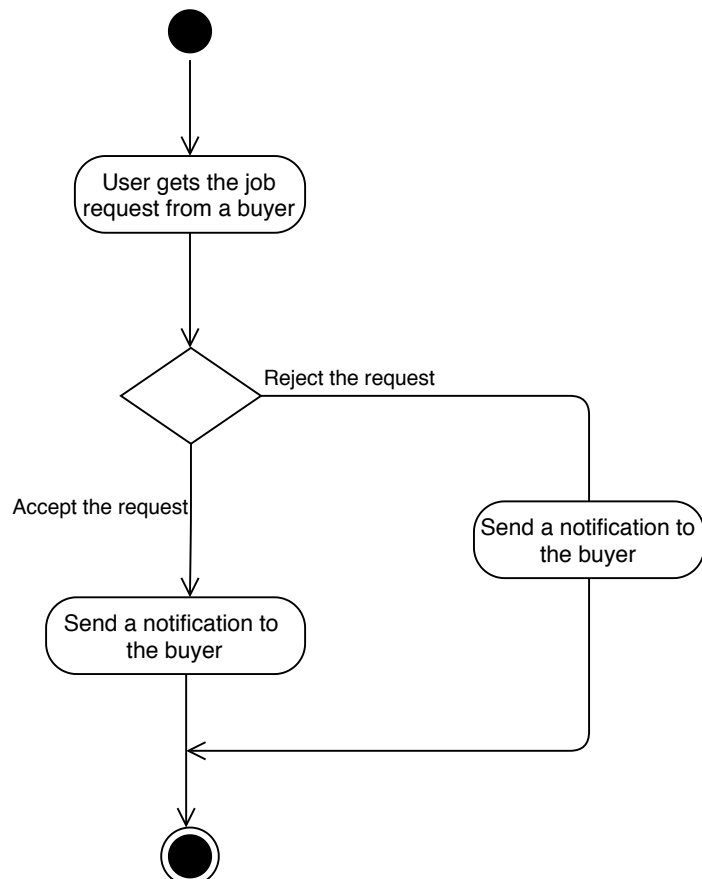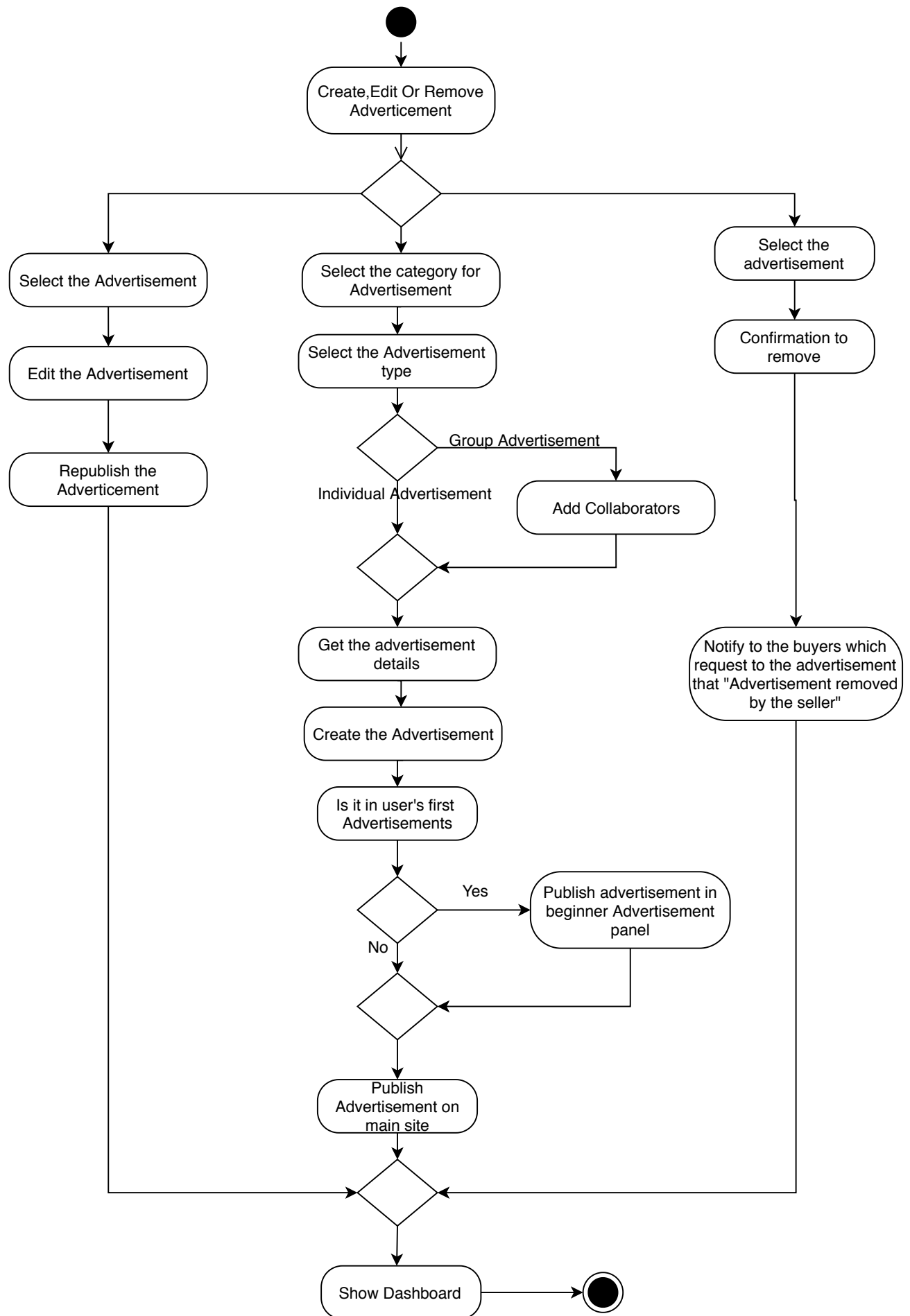
## 4. Log Out Activity Diagram

Select logout

End Session

Display Homepage

## 5. Respond to a Buyer Job Request Activity Diagram

User gets the job request from a buyer

Reject the request

Accept the request

Send a notification to the buyer

Send a notification to the buyer

# 6. Manipulate Skill Advertisements Activity Diagram

Create,Edit Or Remove Adverticement

Select the Advertisement

Edit the Advertisement

Republish the Adverticement

Select the category for Advertisement

Select the Advertisement type

Group Advertisement

Individual Advertisement

Add Collaborators

Get the advertisement details

Create the Advertisement

Is it in user's first Advertisements

Yes

No

Publish advertisement in beginner Advertisement panel

Publish Advertisement on main site

Select the advertisement

Confirmation to remove

Notify to the buyers which request to the advertisement that "Advertisement removed by the seller"

Show Dashboard

# 7. Respond To Group Request Activity Diagrams
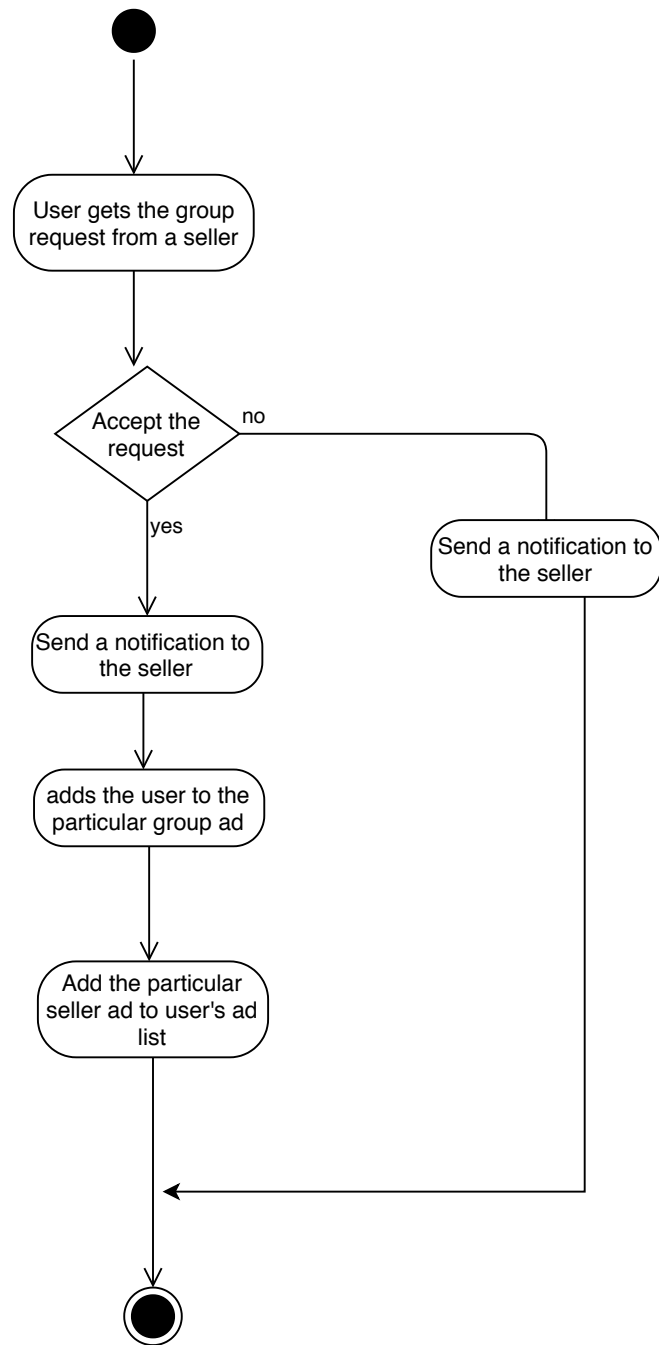
## 8. Ask For Help Activity Diagram

| User | Moderator |
|---|---|
| ● | |
| user selects help | |
| user enter an issue | |
| | Moderator sends a help message to the user |
| | ◉ |
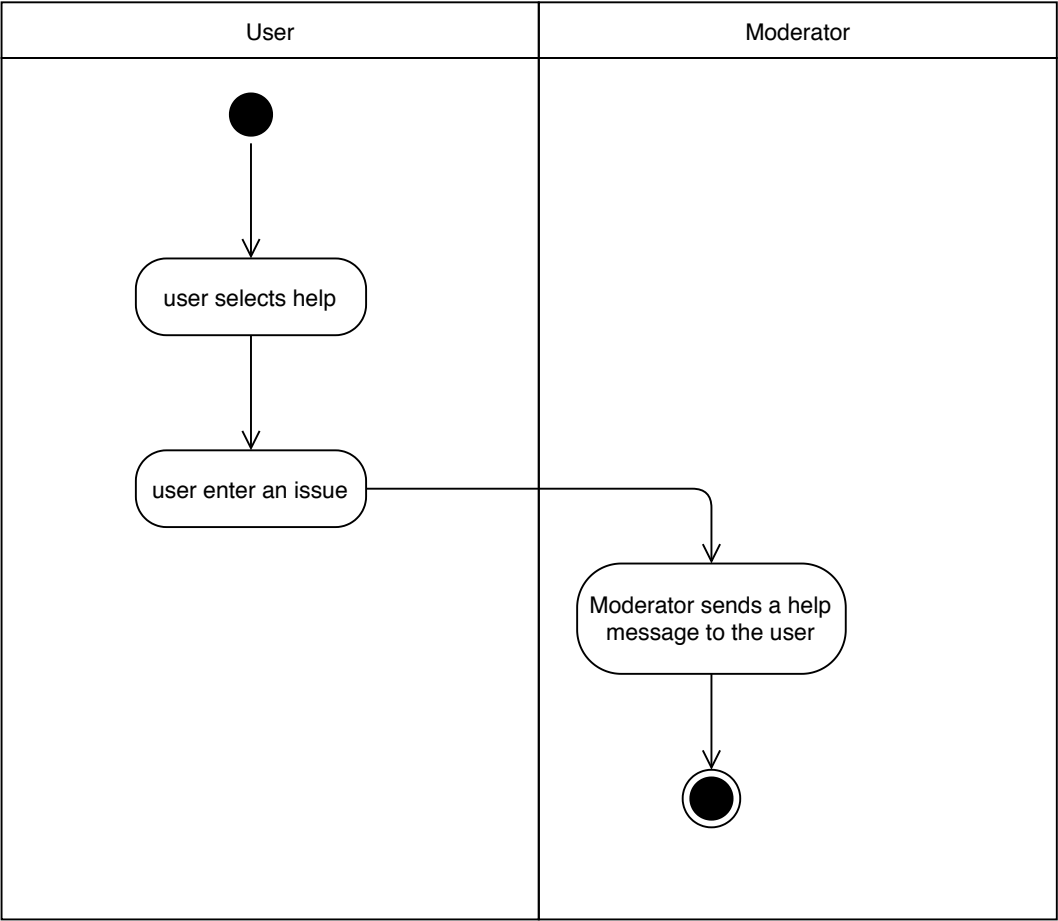
## 9. Manage Payments Activity Diagram

●

user selects earnings

user view the current account balance

◉
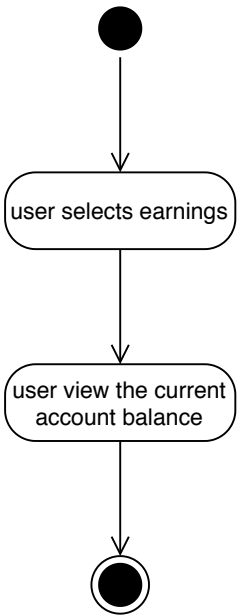
# 10. Make A Job Payment Activity Diagram
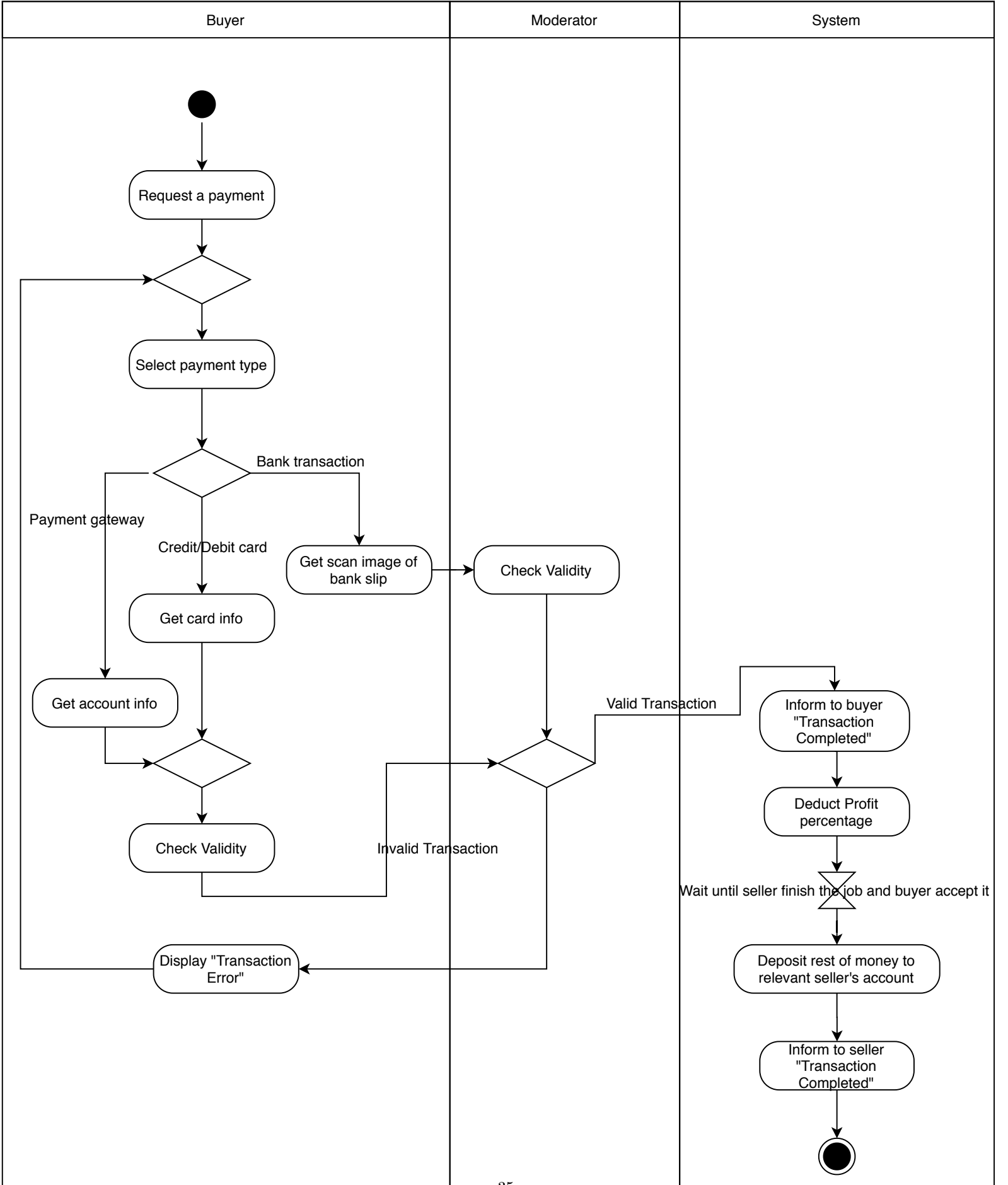
# 11. Make a Job Request Activity Diagram

choose the category

choose the sub category

choose the advertisement

apply for advertisement

approve

dissapprove

1 week

automatically remove the request
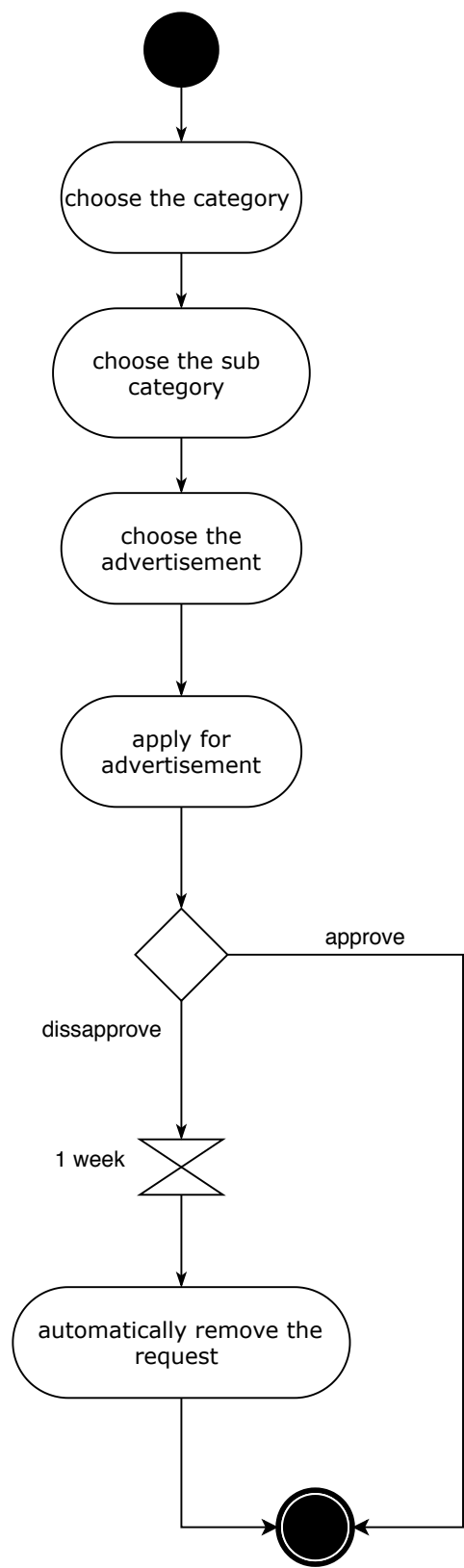
## 12. Do A Complaint Activity Diagram
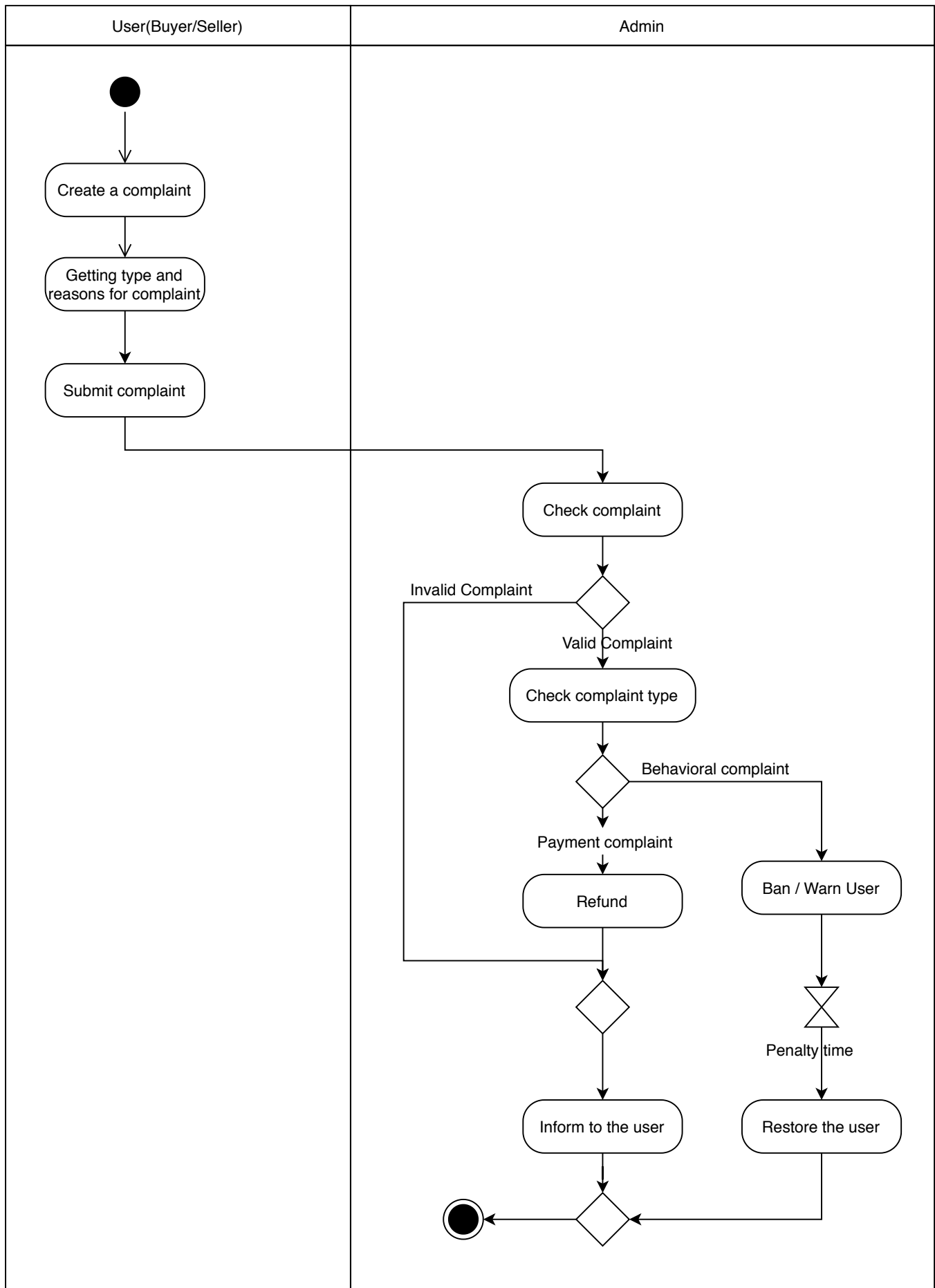
## 13. Search Seller Advertisements Activity Diagram

## 14. Add Moderator Activity Diagram

```
        ◯
        │
        ▼
┌─────────────────┐
│ Enter Moderator │
│     details     │
└─────────────────┘
        │
        ▼
┌─────────────────┐
│  Add moderator  │
└─────────────────┘
        │
        ▼
        ●
```
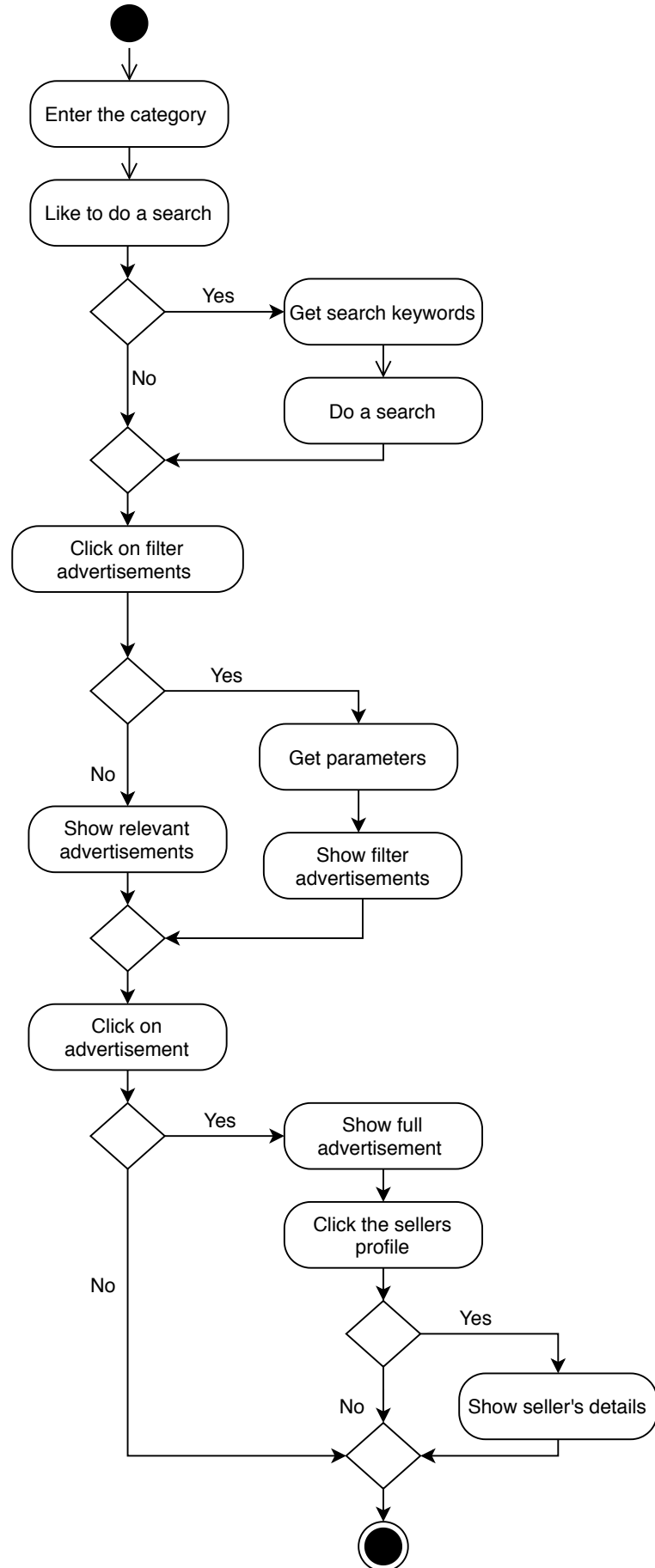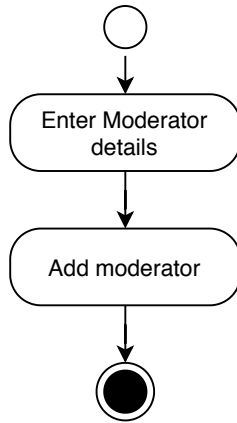
## 15. Remove Moderator Activity Diagram

```
        ◯
        │
        ▼
┌─────────────────┐
│ Select moderator│
└─────────────────┘
        │
        ▼
┌─────────────────┐
│ Remove moderator│
└─────────────────┘
        │
        ▼
        ●
```
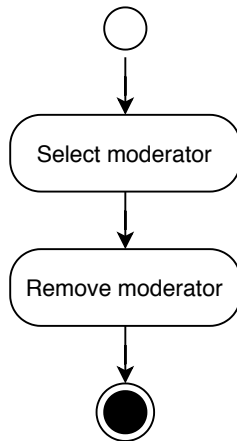
## 8.2 Quality attributes

### 8.2.1 Security

Since security plays a big role on a website, we are planning to secure it as much as possible. These are some of the techniques that we are going to use, to improve our security.

- Hash user authentication details.
- Use end-end encryption in the communication components.
- The website has an SSL certificate.
- The website has DDoS mitigation.

### 8.2.2 Usability

Since the user base contains students from many subject streams, simple and easy to use user Interfaces give them a better understanding of the system and make the system easy to use. The system uses various colour schemes for each type of error and shows the reason and solution with it.
Usually, users of freelancing sites gain many problems. The system has a help service and a complaint management system to manage complaints and resolve user's problems that make the system more usable for users.
The system has navigation bars, meaningful icons and tool-tips that enhance the user-friendliness of the system.

### 8.2.3 Reliability

We are planning to ensure the reliability of the proposed system by accomplishing the following things.
We are expecting to include our contact details such as emails, hot-lines and social media links that make customers feel this application is reliable and trustworthy.
When it comes to payments handling, we use a middle account between the buyer and the seller which gets the payment from the buyer and transfers money to the seller at the end of the job. This middle account concept helps to reduce the risk of the direct payments and add also it gives the refunding capability to the system. It increases the reliability of the system for both buyers and sellers.
Communication systems of the system are E2E encrypted therefore information won't get exposed to third parties.
The buyer and seller rating feature also helps us to achieve reliability in the system. Every user of the system can see these ratings of every other user. Just hiring someone without knowing their background information is not a trustworthy thing to do.

### 8.2.4 Portability

The web platform is responsive for mobile, tablet, and pc, therefore anyone with an internet connection can easily access the web platform.

### 8.2.5 Maintainability

We are planning to achieve the maintainability of the web application through enhancing the source code readability. Because in the future, maybe the programmers who wrote a particular piece of code, will not be available for maintenance of the system. Enhancing the readability will make it easier to maintain the system for anyone. Using the best coding practices such as commenting, using meaningful identifier/function names and using consistent indentations are our targets. And also we are planning to develop components of the system independent from each other as much as possible. So whenever someone wants to modify the system it would be much easier because it will not affect the entire architecture.

# 9.  Technologies to be used

- Front end development of the web application - HTML5, CSS3, and JavaScript.

- Back end development of the web application - PHP and Mysql.

- CASE tools for the system development process - draw.io ,Visual Paradigm ,git, github,gitLab

Since we are not allowed to use any frameworks, we have to stick to the basic technologies. It is the main reason for choosing these technologies. And these are the best basic technologies available for us to develop a web application.

# 10. Project timeline

**Project Milestones**
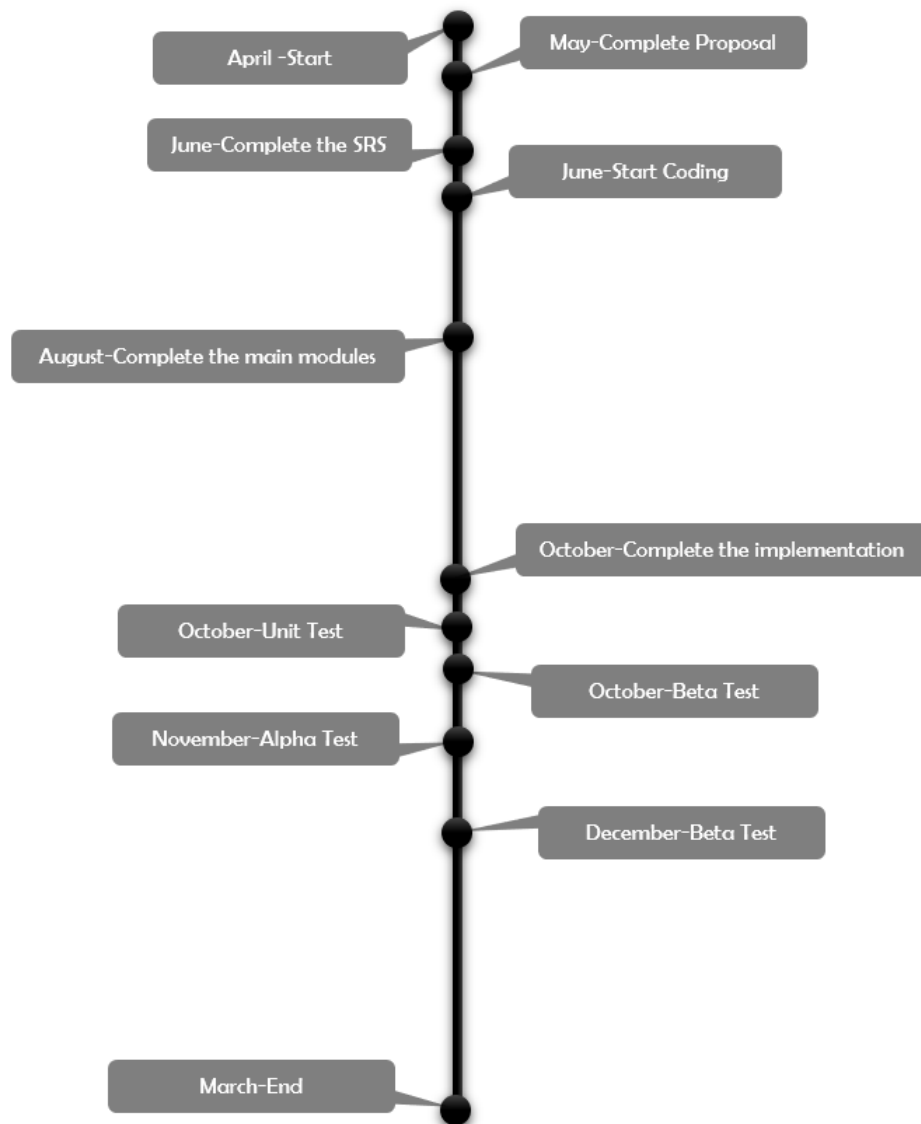


**Refer the full project timeline in figure 5.2**

# 11.  Declaration

We as members of the project titled EXL Exchange, Certify that we will carry out this project according to the guidelines provided by the coordinators and supervisors of the course as well as we will not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university. To the best of our knowledge and brief, the project work will not contain any material previously published or written by another person or ourselves except where due reference is made in the text of appropriate places.

# Appendix: Resources

**A survey conducted on 150 Sri Lankan university undergraduates**
Survey on undergraduates. (2020, May). Retrieved from Google Forum

## In the following section, we have attached some of the results from the survey.

Figure 11.1: 98% of the participants were university undergraduates. Because they are our targeted audience



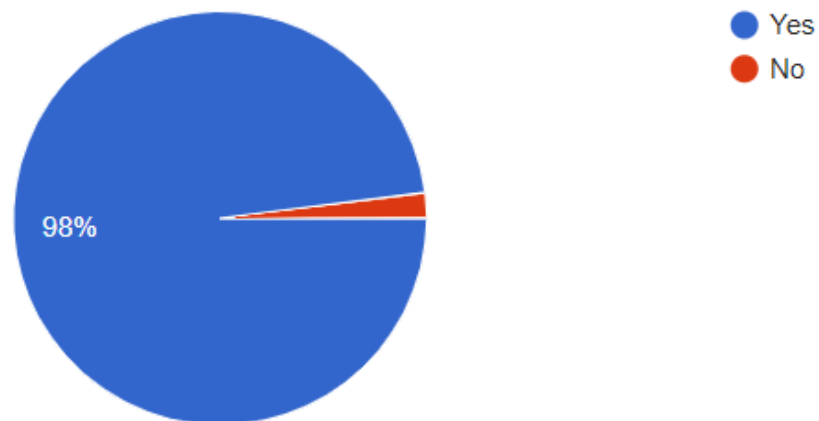Are you a university student?

150 responses

Figure 11.2: Students from universities all over the country participated to the survey

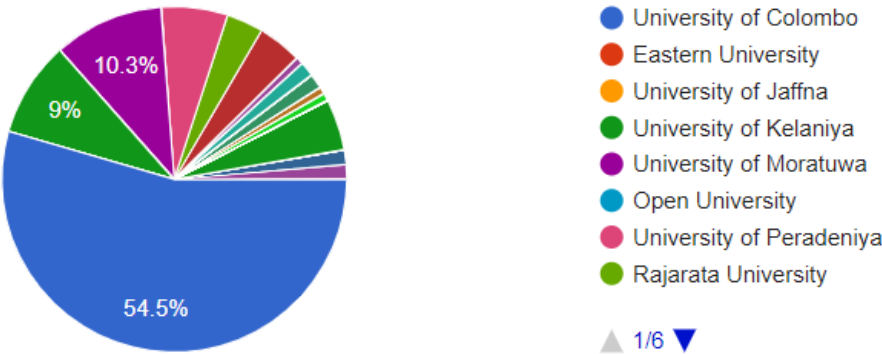If Yes,What is the university ?

145 responses



- University of Colombo
- Eastern University
- University of Jaffna
- University of Kelaniya
- University of Moratuwa
- Open University
- University of Peradeniya
- Rajarata University

△ 1/6 ▼

Figure 11.3: Students with different types of skills are willing to use our application

What is title of the degree course ?

143 responses

Bsc engineering

Bachelor of Medicine and Bachelor of Surgery

computer science

Bachelor of Science in IT (Hons.)

Figure 11.4: More than 80% of students have an undergraduate email

If you are a university student do you have student email ? (eg-2020cs123@stu.ucsc.cmb.ac.lk)
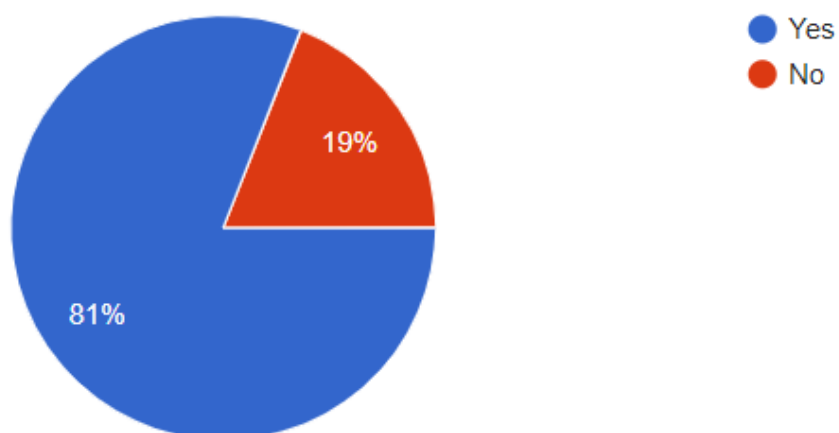
147 responses



- Yes
- No

81%

19%

Figure 11.5: This is a proof that we can offer so many different types of skills using the application

What are the skills that you like to do in freelancing ?

150 responses

Penetration Testing, Graphic Designing, Digital Marketing, Content Creation

Digital marketing

Graphic design,programming

Software Developing, Mobile Application development,

Data entry, video editing , some simple programming

Data Analysis

Programming
Website Development
Teaching programming techniques

Proofreading,

Figure 11.6: We took their suggestions to improve our application

What are the suggestions you made to improve the existence of freelancing websites?

54 responses

No

If you can suggest some works for a free lancer with his skills and experiences it's better

We must build awareness among the students about these freelancing stuff.

It's good to have platform that showcase the this we made like github or sourceforge to clients.

Figure 11.7: Some of the flaws in other alternatives

What are the flaws in these websites you have noticed while using them?

37 responses

These sites only have massages system to contact the client,

Internet Traffic, Speed limitation, promoting adds, using unprofessional profiles, false detailed profiles

Commission, Account getting banned with no considerable reason

Figure 11.8: Comments of the participants

Any Other Suggestion and Comment ?

24 responses

The site shd be visually appealing with a good UI/UX

It would be nice if there's such a facility. For arranging to teach the students, like arranging individual classes and connecting the perfect teacher from a uni undergraduate.

If you can get the local and goble peoject it is good

None

If a website for University students is made the scope of jobs published might be reduced