WEB BASED SYSTEM FOR COMPUTING SERVICE CENTER

Of

University of Colombo School of Computing

System's Requirements Analysis and Design

Webrax

Group Number: 14
Course Code: SCS 2102 / IS 2002

SCS 2102 / IS 2002
Group 14

Group Members:

NAME	INDEX NUMBER	REGIATRATION NUMBER
1. I.S Weerakkody	2014/CS/152	14001527
2. C.N Ariyasiri	2014/CS/006	14000067
3. G.S.I.M Perera	2014/CS/111	14001111
4. T.M.R.S Thennakoon	2014/IS/081	14020815
5. Humairah Dahlan	2014/IS/027	14020272

Project Supervisor : Mr. L.P. Jayasinghe BSc (Col) (Instructor Gr. I)

Project Mentors : Ms B D L Perera / Ms P L C Silva

Client of the Project : CSC Division

(University of Colombo School of Computing).

Content

1. Introduction
- 1.1 Domain Description 4
- 1.2 Current System and its Limitations 4
- 1.3 Objectives and Goals 5
- 1.4 Scope of the Project 6
- 1.5 Assumptions, Constraints and Limitations 7

2. Feasibility Study 8

3. Requirements
- 3.1 Stakeholders 11
- 3.2 Use-cases and Use-case Diagrams 12
- 3.3 Functional Requirements 19
- 3.4 Non-Functional Requirements 20

4. Proposed System's Architecture 21

5. System's Design
- 5.1 Class Diagrams 22
- 5.2 Activity Diagram 23
- 5.3 Sequence Diagrams 29
- 5.4 ER Diagram 35

6. User Interface Flow Diagram 36

Introduction

1.1 Domain Description

Our main target is to develop the web based system of the CSC division of University of Colombo School of Computing. Which currently progress manually. This project is based on the requirements emphasized by the CSC division and the ideas conveyed by the Team Webrax, Supervisor and Mentors. The website is mainly designed to increase the efficiency of the division. By this project the manual system is going to be automated and a user friendly website is going to be developed from this project.

CSC Division handles the external short term courses which are conducted at UCSC, it also handles the software projects which are given to UCSC.

1.2 Current System and it's Limitations

The current system progress manually, in the current system the students have to register by visiting the division physically, the payments are made manually, the reports should be prepared manually, the attendance, income and expense details should be entered manually, the advertisements are made through newspaper, the students get only printed notes, there are no virtual study guides provided, there are no convenient communication media between students-lecturers, admin-coordinators or any other users.

1.3 Objectives and Goals

Goal:

The goal of this project is to implement an efficient web based system to the CSC division.

Objectives:

- ❑ To provide user friendly environment for the users.
- ❑ To provide secure and efficient online environment.
- ❑ To provide online study materials for the students.
- ❑ To maintain user details.
- ❑ To generate reports.
- ❑ Keep other necessary details.

1.4 Scope of the Project

The scope of this project is to deliver the web based system, a user manual and a system manual,

The constraints in this system are there are no VLE access given to the students, the students could register for a particular course only if the course is available, the users cannot login the system using usernames which created by them(the username is provided to the users).

The work loads are given according to the users,

1. Student- has the load of registering, requesting for registration or courses, making online payments, Downloading study materials and submitting assignments.
2. CSC staff- has to input data of report details, attendance, expenses, income and student marks. He also has the work load of generating reports.
3. Course coordinator- has the work load of uploading learning materials, sending emails and notifications, publish news and messages and to check the attendance.
4. CSC coordinator- manage lecturer profiles, receive reports, allocate lecturers, CRUD inserted data.
5. Admin Panel- create profiles (allocate usernames), create users, Database access, privileges handling, change settings, activity log.

1.5 Assumptions, Constraints and Limitations

Assumptions:

The system doesn't have any special methods to divide privileges according to data entry operator. So we have a common method in which can access to entire data entry module, we assume that the job role will be done according to rules and regulations.

A student could use a username only for one course if he/she register for another course he will be getting another username and profile. The system doesn't find out the students personally, so we assume a student could enroll for only one course through a login

Constraints and Limitations

- The username is static and the user couldn't change the username (user identification).
- The students couldn't register for the courses if the courses are not available but can send request for the courses.
- No VLE access, learning materials can be downloaded.
- Student login through a different interface and lectures through another interface (Security), other users login in through a different view.
- The username is static and only the password can be changed (the system identifies the user type according to the username).

Feasibility Study

Economical Feasibility

The system provides many economic benefits as it enhanced and increases the number of students who are registering for the courses as it is online based the student around Sri-Lanka could register for the courses so it could increase the economical profits It could minimize the costs for the students as the manual process requires paper documents, printouts

Also the lecturers could upload the notes so that it decreases the costs which comes from printing the study materials.

The cost of business employee time is reduced. The time taken for registering is premium, time taken for printing the study materials, manually it takes a very long time to prepare reports by using this system it is also overcome.

To manage this system we only need less hardware resources (only a computer), and less software and technologies.

Legal Feasibility

The system has no conflicts with legal requirements,

The data processing system complies with the local data protection regulations of Sir-Lanka.

It is legal to have system with on-line payments and registration as our system is highly secured.

It can be registered as a website legally.

UCSC follows all other exterior governmental regulations which mean in turn our system is also going to be compatible.

Technology we are using can be downloaded without any legal issues as most they are freely available for download (no copy right restrictions).

The developers work bi weekly based and the project is designed considering the worker rules and no violations made to them.

Operational Feasibility

The main issue with the existing system is entering data manually it is solved using databases,

The current system has a problem by manual registration it is solved in the proposed system by using

online registration. There is no existing system to cover these client requirements so the problem is worth solving.

System is supposed to interact with Main users currently working in a manual system.

Student

CSC Staff

Admin

Course Coordinator

CSC Coordinator

The proposed system will cover all functional and non-functional requirements (defined in the analyze process) efficiently

Schedule Feasibility

The system can be handed to the client at the given time as the project is scheduled well, this system can be developed within one year, it can be completed in a given time period using methods like supervisor meetings, bi weekly reports. The project timetable is reasonable as we have allocated the time periods according to the development life cycle. The technical expertise has the ability to work and implement the system within the deadline. Also we work on deadlines (mandatory deadline) so it's highly capable to finish within the given time period. There are technical expertise so it's feasible to hand the project on time

Technical Feasibility

We have technical resources and technical expertise

Technical resources

(E.g. HTML 5, CSS, Bootstrap framework, JavaScript, JQuery AJAX, MySQL)

Technical expertise (Team members, Supervisor, mentors)

The system is practical as it can be implemented by the expertise using the technologies which are relevant to the system development.

The technologies we are using is easy to get as most of the can be downloaded.

Requirements

3.1 Stakeholders

A project stakeholder is any individual or an organization that is actively involved in a project, or whose interest might be affected (positively or negatively) as a result of project execution or completion.

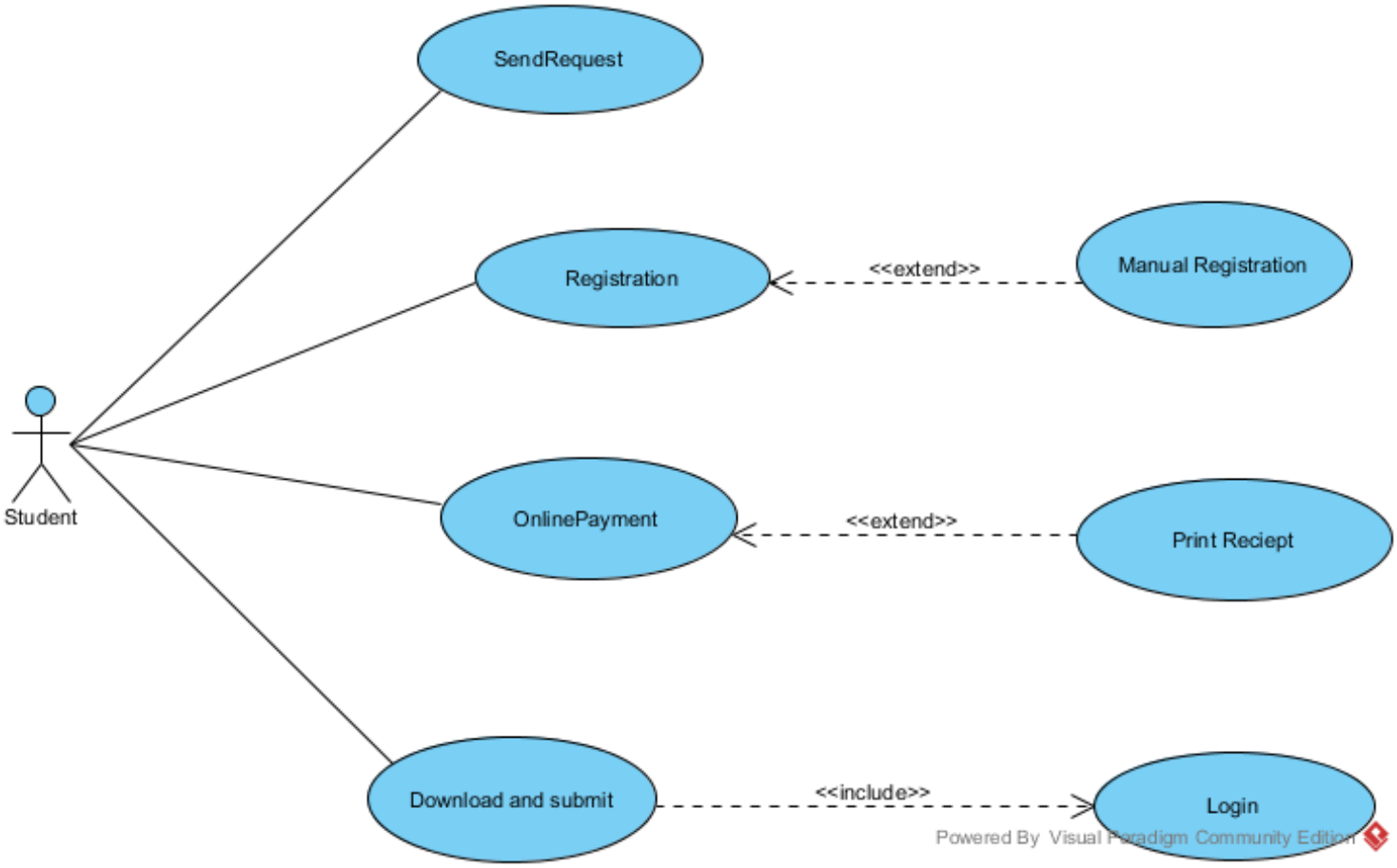
Stakeholder	Internal	External
System Administrator	✓	
Development Team	✓	
Client		✓
System Owner	✓	
Project Manager	✓	
End Users	✓	

3.2 Use-cases and Use-case Diagrams

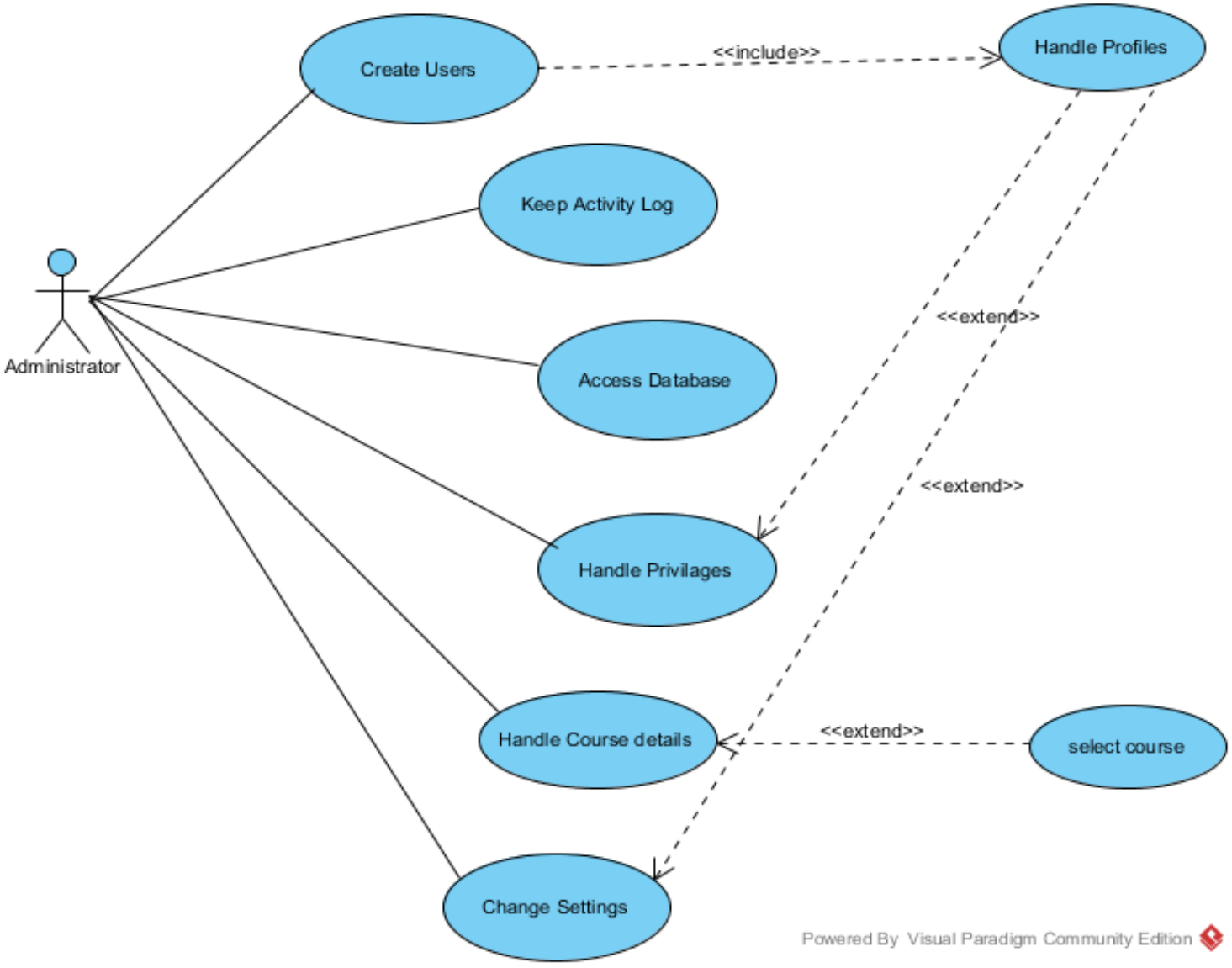
Actors	Use Cases
Student	Send Request
	Registration
	Online Payment
	Download & Submit
Administrator	Create Users
	Keep Activity Log
	Access Database
	Handle Privileges
	Handle Course Details
	Change Settings
CSC Staff	Input Attendance
	Input Payments
	Input Income
	Input Exam & Assignment Marks
	Generate Reports
	Edit/Update Details
Course Coordinator	Upload Learning Materials
	Send Emails & Notifications
	Check Attendance
	Publish News & Messages
CSC Coordinator	Receive Reports
	CRUD Data
	Send Email & Notifications
	Create & Handle Profiles
	Handle Course Details
Director	Get Reports
	Send Emails

Use-case Diagrams

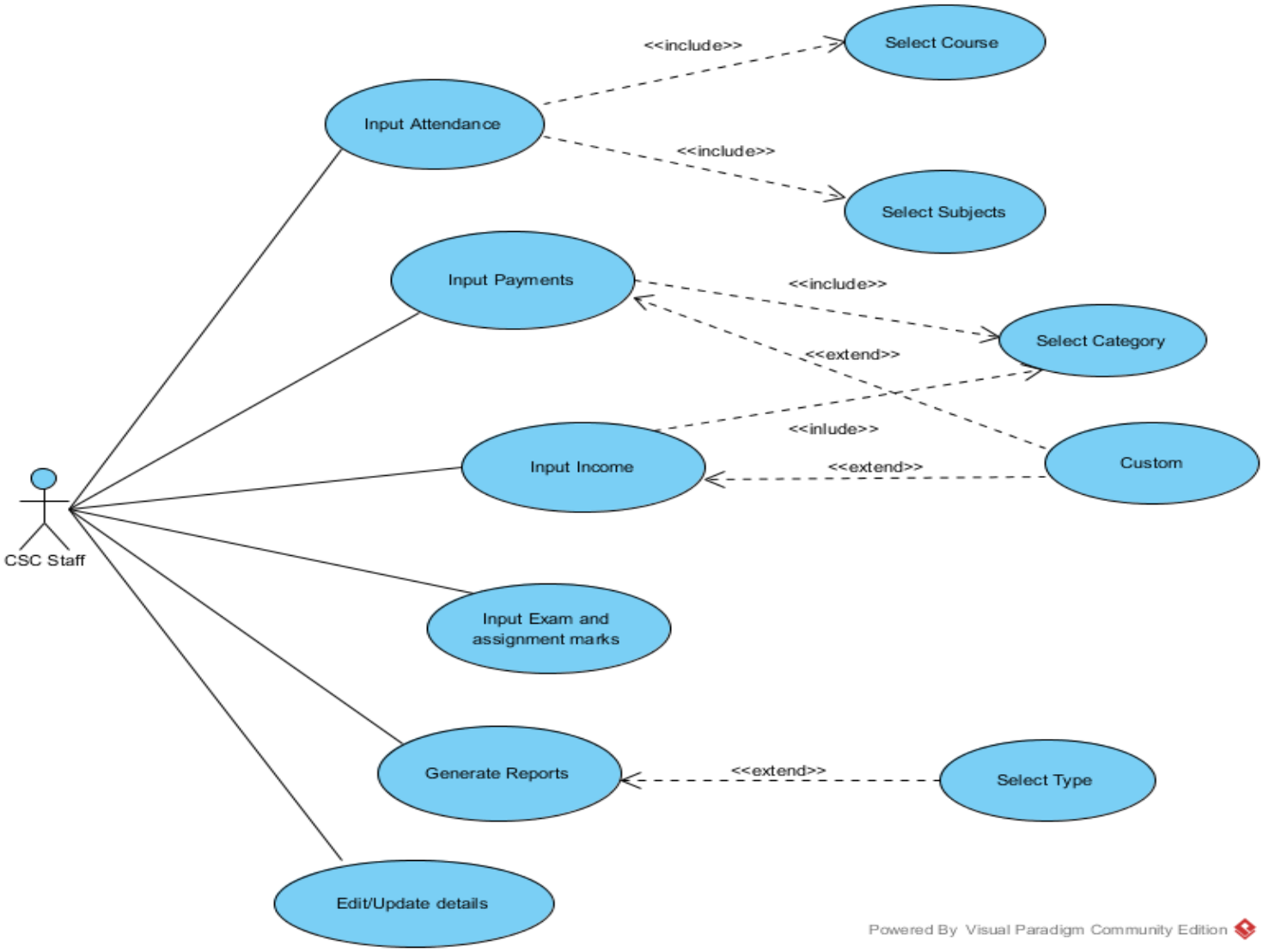
1. Student



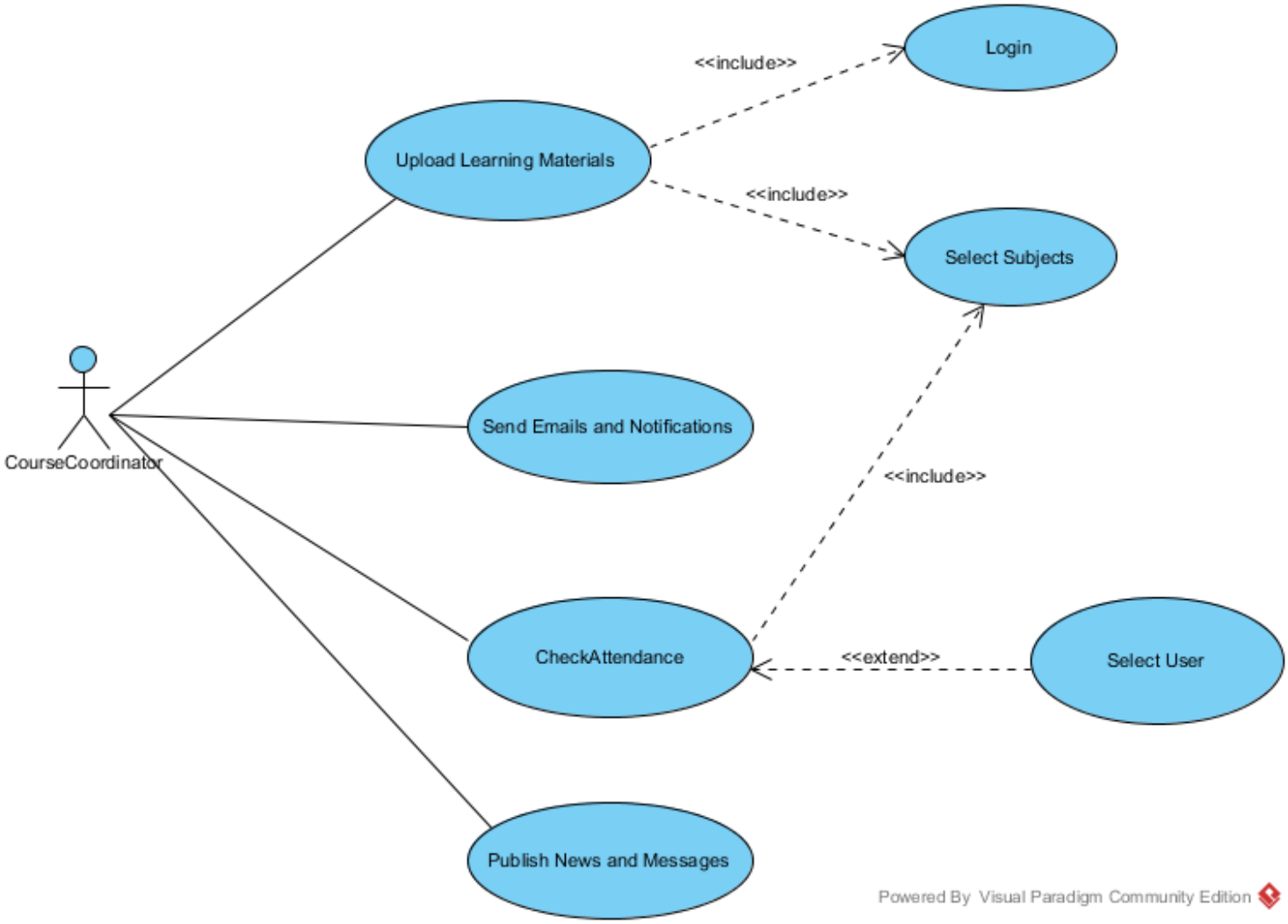
2. Administrator



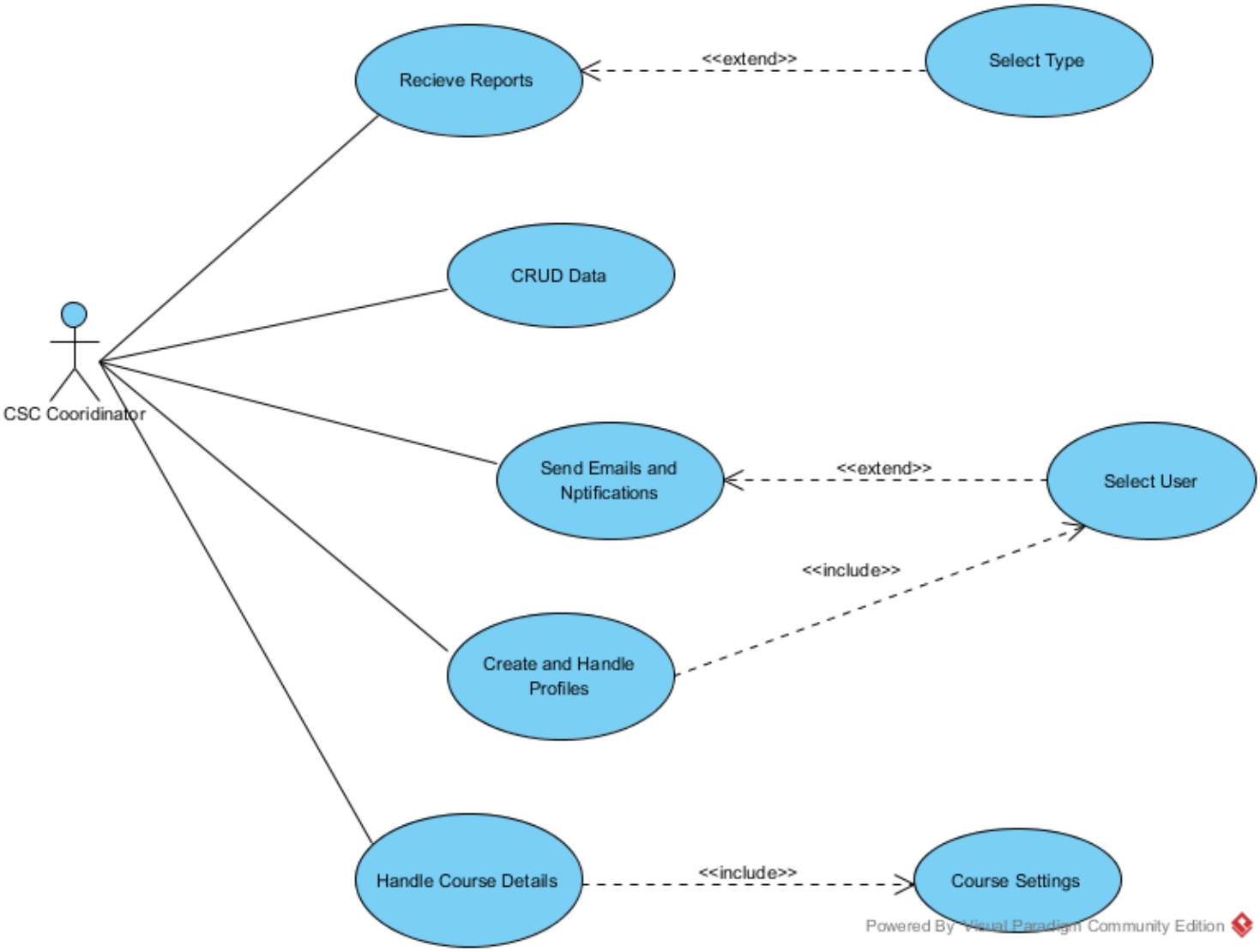
3. CSC Staff


Select Course
<<include>>
Input Attendance
<<include>>
Select Subjects
Input Payments
<<include>>
Select Category
<<extend>>
<<inlude>>
Input Income
<<extend>>
Custom
CSC Staff
Input Exam and assignment marks
Generate Reports
<<extend>>
Select Type
Edit/Update details
Powered By Visual Paradigm Community Edition

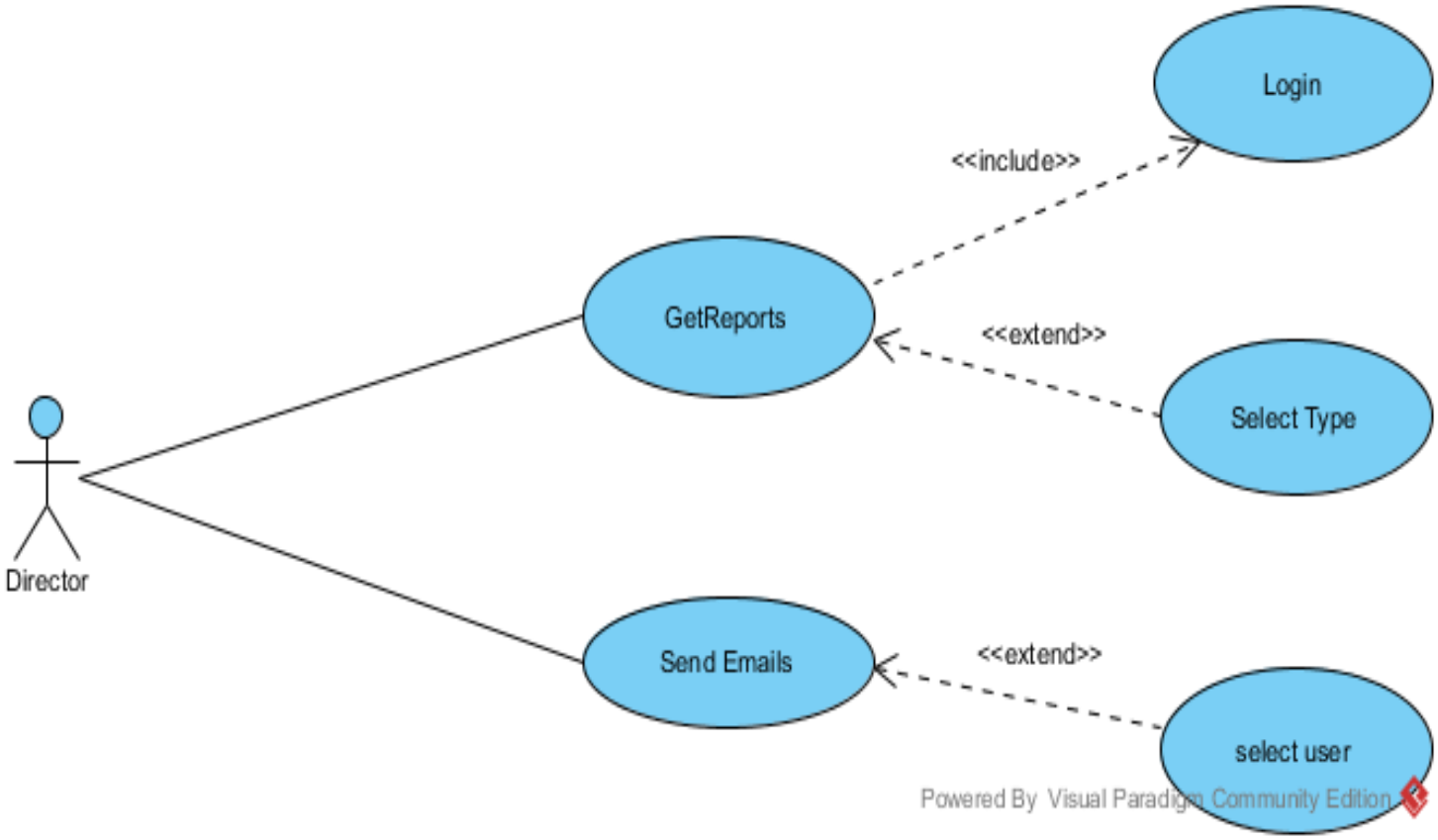
4. Course coordinator



5. CSC Coordinator



6. Director


Login
<<include>>
GetReports
<<extend>>
Select Type
Director
Send Emails
<<extend>>
select user
Powered By Visual Paradigm Community Edition

3.3 Functional Requirements

- The system should be able to register students for courses if the courses are available.
- If the courses are not available but if the students want a pre-request the student will be able to send a request using a request form.
- The student should be able to pay online using their credit or debit card, if the students are willing to pay using cash they should be able to download the slips which are currently used in the manual payment method.
- The users should have a private profile and would be able to login by using username (email address as username) and password
- The course coordinator and lecturers should be able to upload learning materials and the student should be able to download them.
- The staffs should be able to input data (Report details, attendance, Expense, income, student marks) and should be able to generate reports.
- The Course Coordinator should be able to check the student attendance
- All the users should be able to send emails, receive emails and get notifications.
- CSC Coordinator should be able to receive reports.
- CSC Coordinator should be able to CRUD inserted data.
- CSC coordinator should be able to manage the lecture allocations and all course settings.
- The administrator should be able to create any type of user profiles, he should be able to create new users, create courses and subjects and manage them, the administrator should be able to access the database, should be able to see the activity log and change settings.
- The director should be able to view all the data.

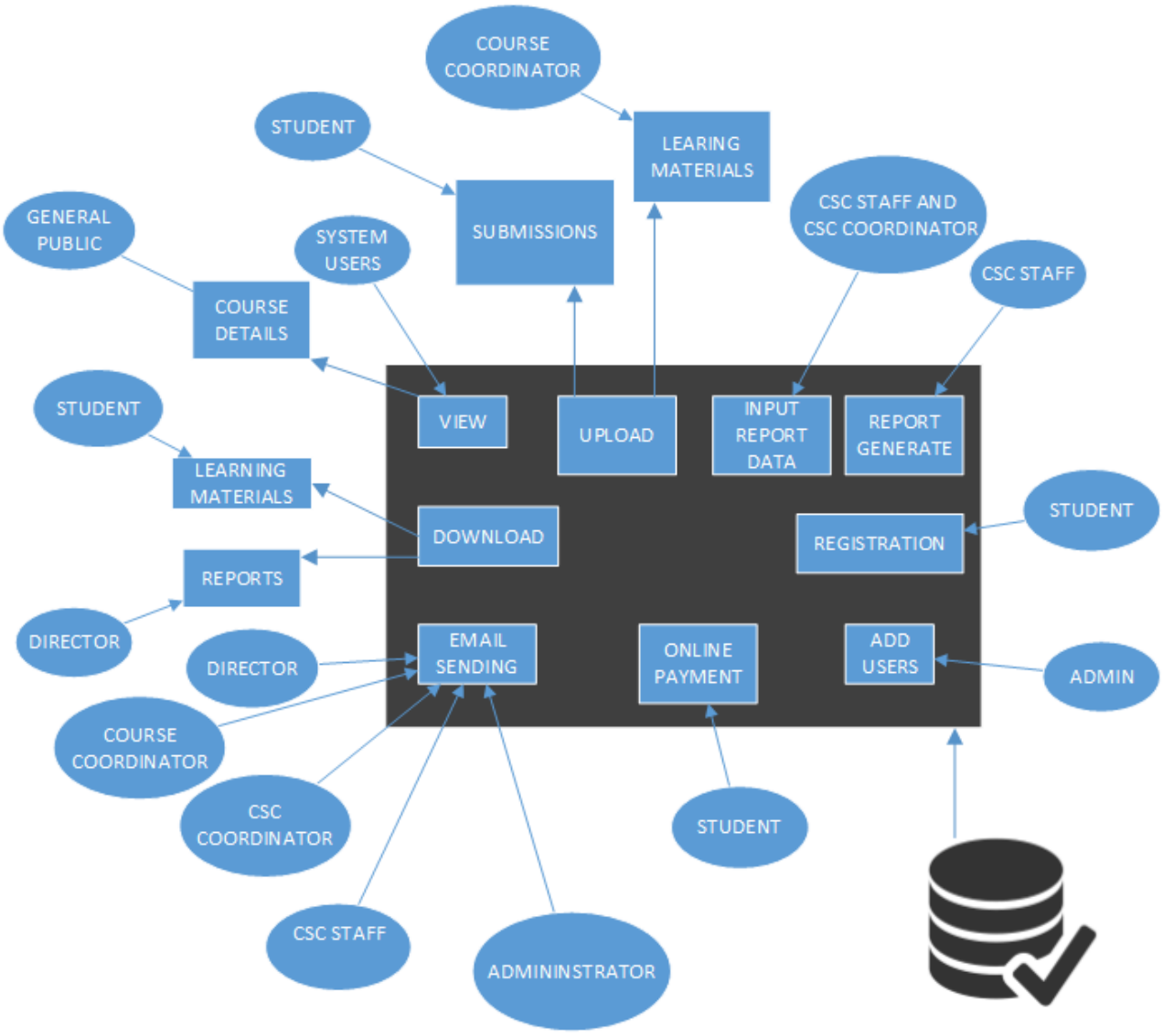
3.4 Non-functional requirements

- Performance

  - Requirements about resources required
  -response time
  -transaction rates

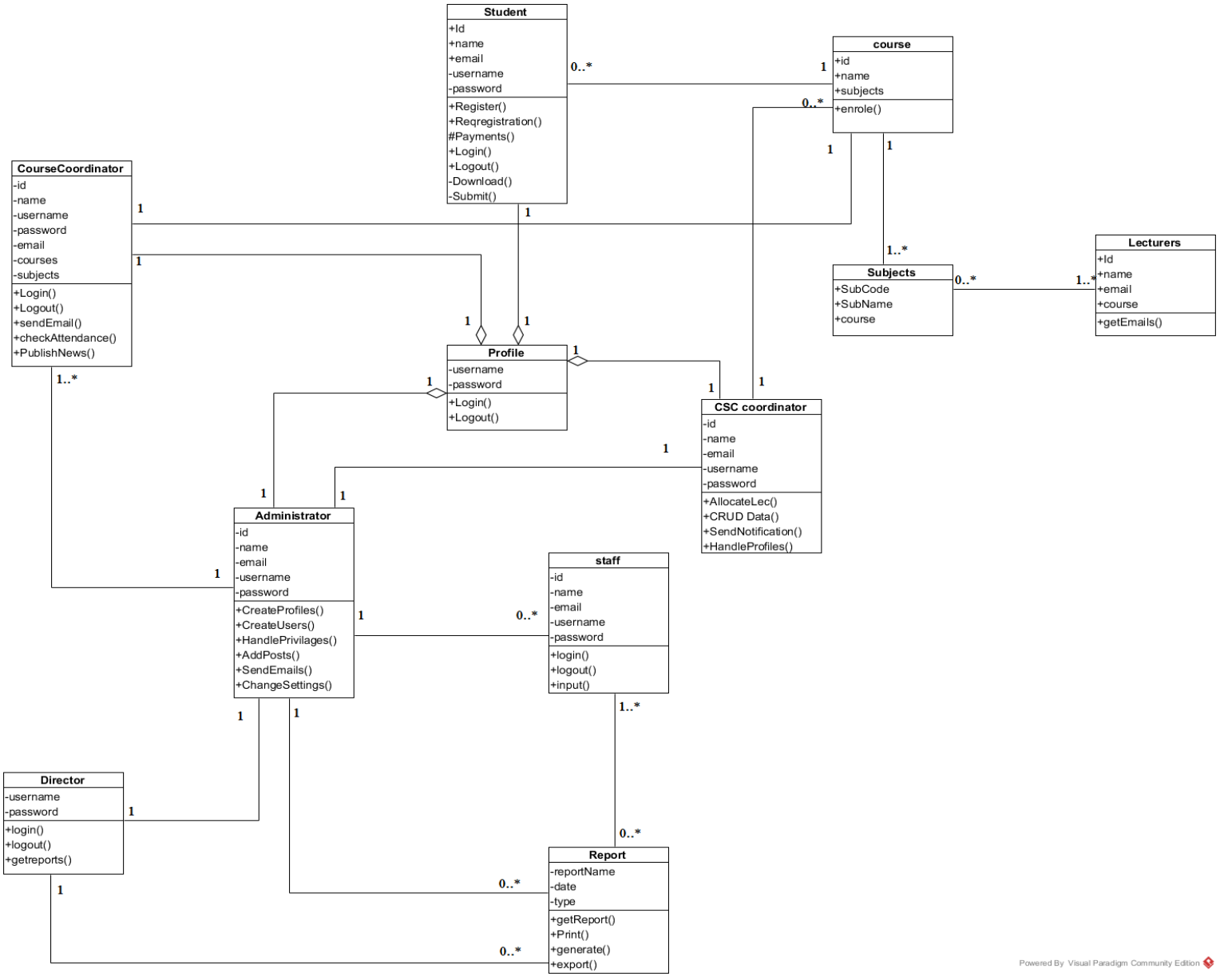
- Modifiability
  -system will be updated everyday
- Portability
- Reliability
- Security and privacy
  -Student login and lecturer login.
  -Secure payment method.
  -Personal profile.
  -Data Backups
- Usability
  -users can handle their profile
  -simple and attractive user interfaces
- Maintainability-the system should be able to maintain according to future modifications and requirements
- Readability- the developers should be able to read and understand the codes
- Legal
  system is compatible with the rule and regulations of company and the governmental regulations.

Proposed System Architecture



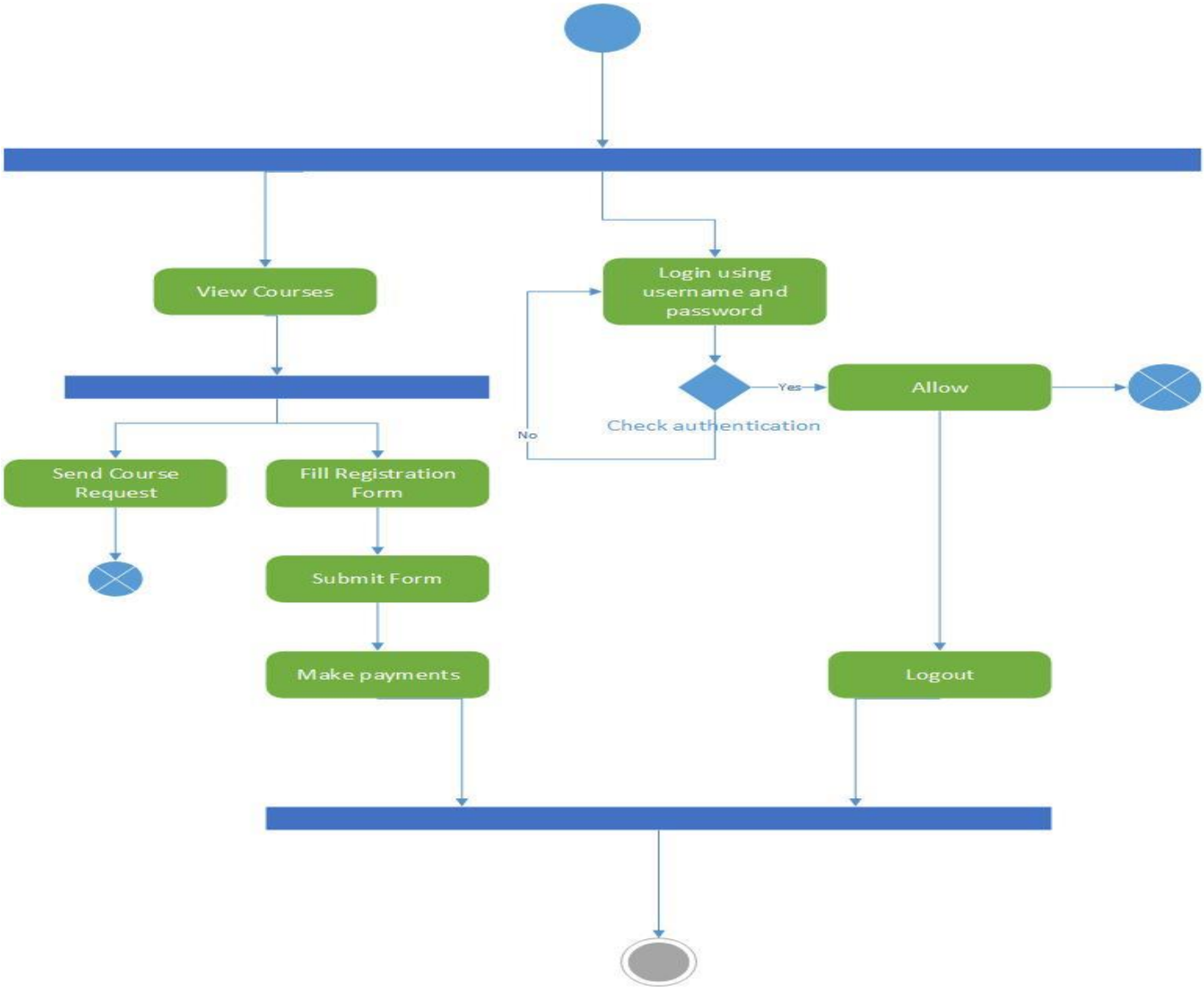
System's Design

5.1 Class Diagram

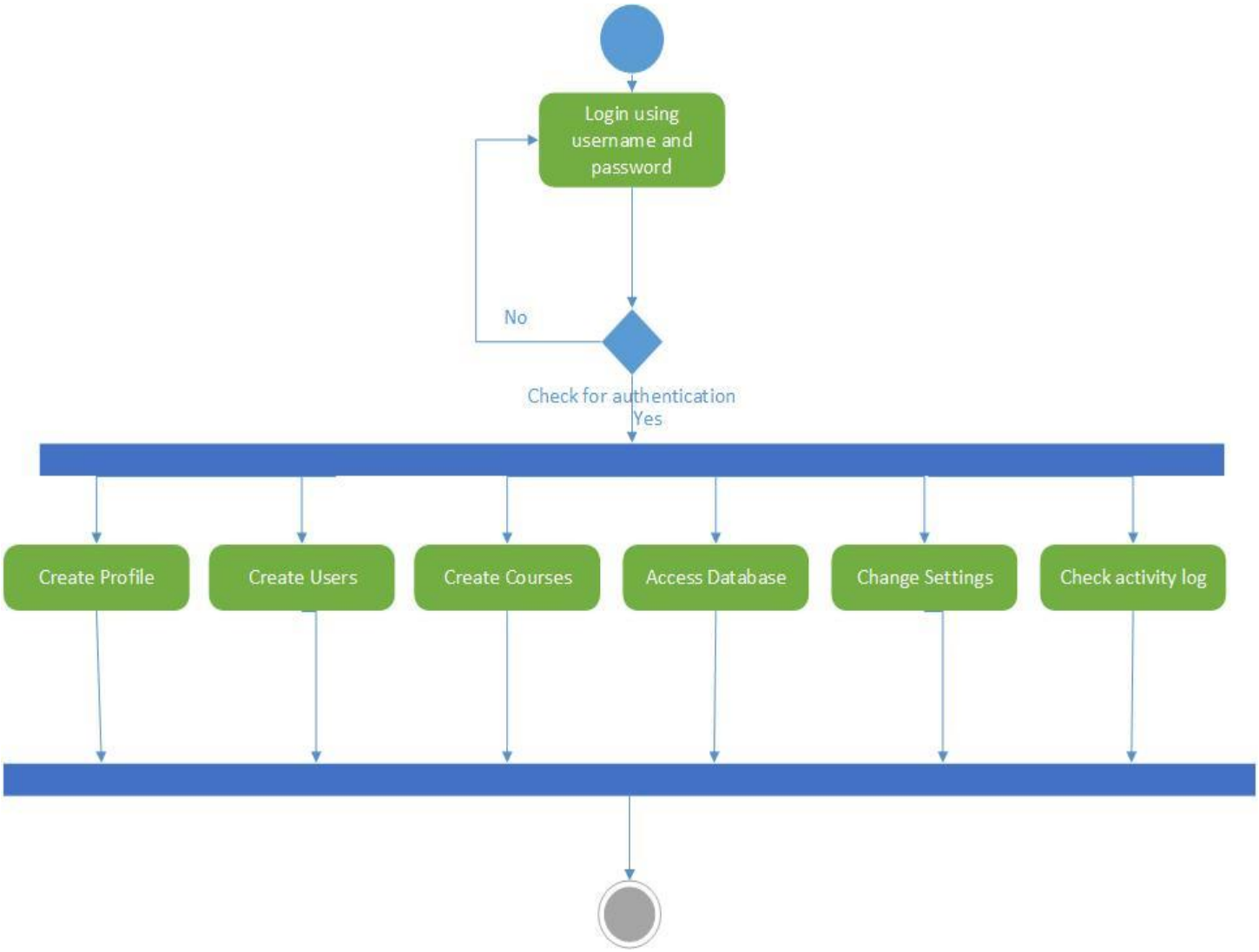


1.2 Activity Diagrams

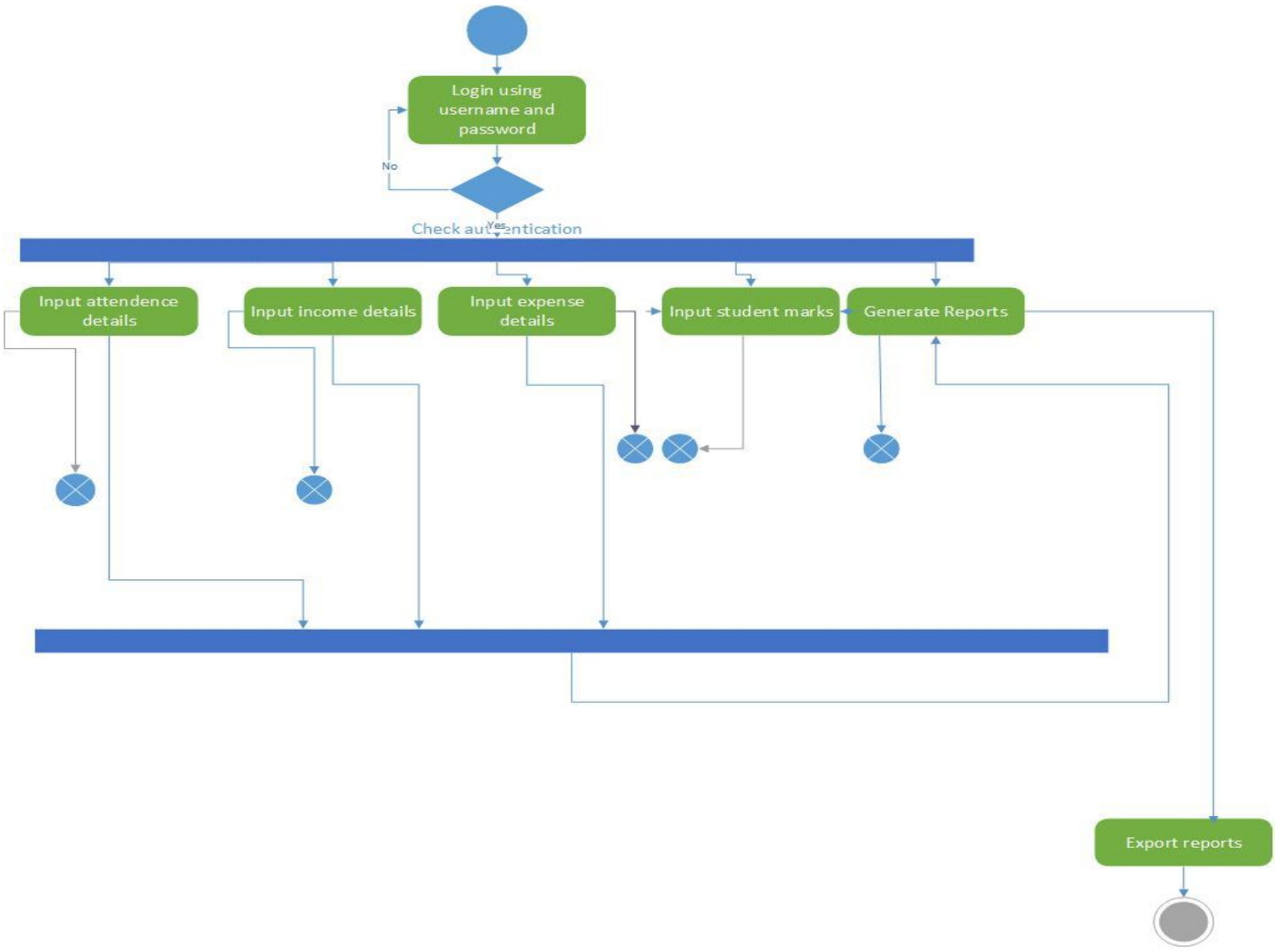
1. Student



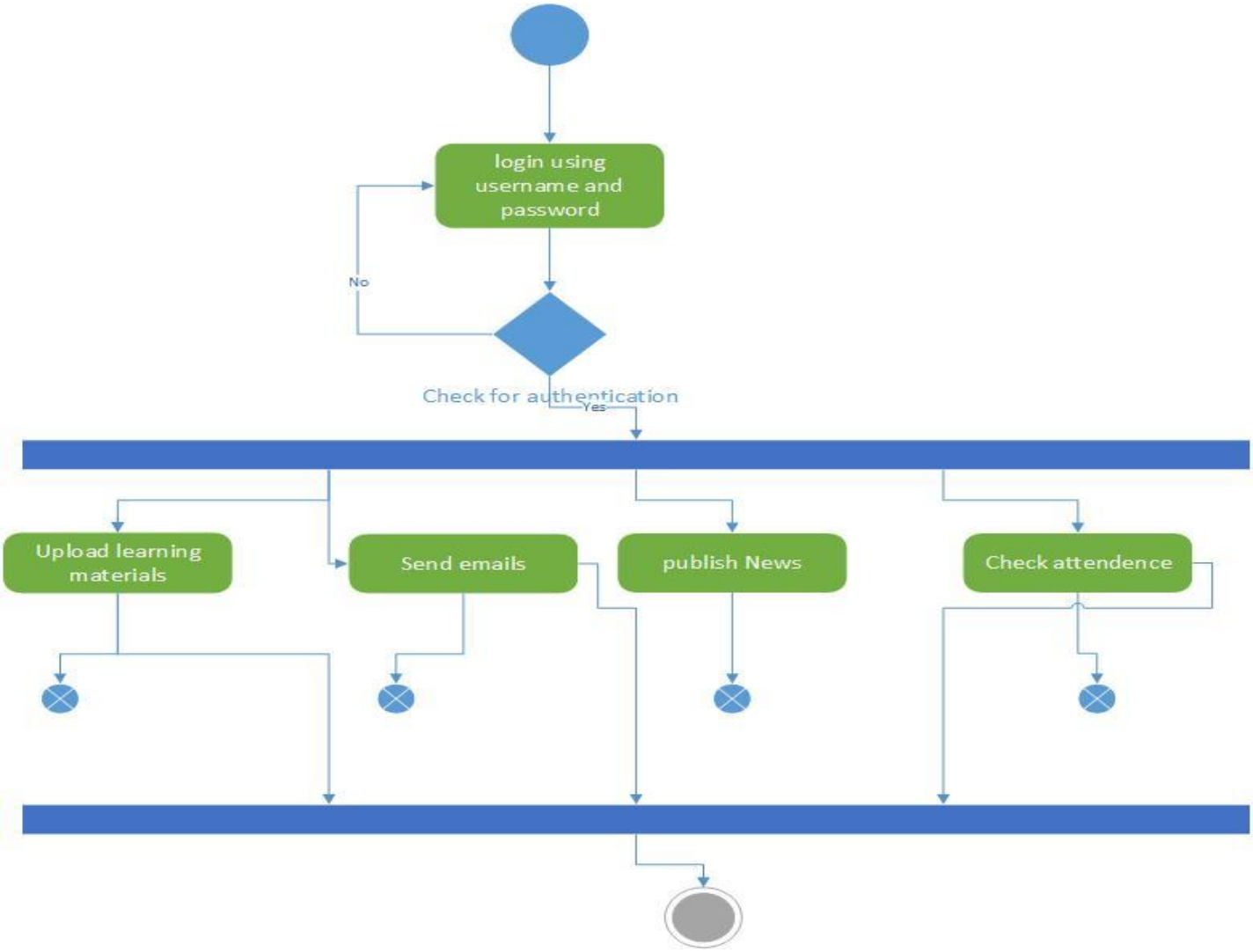
2. Administrator



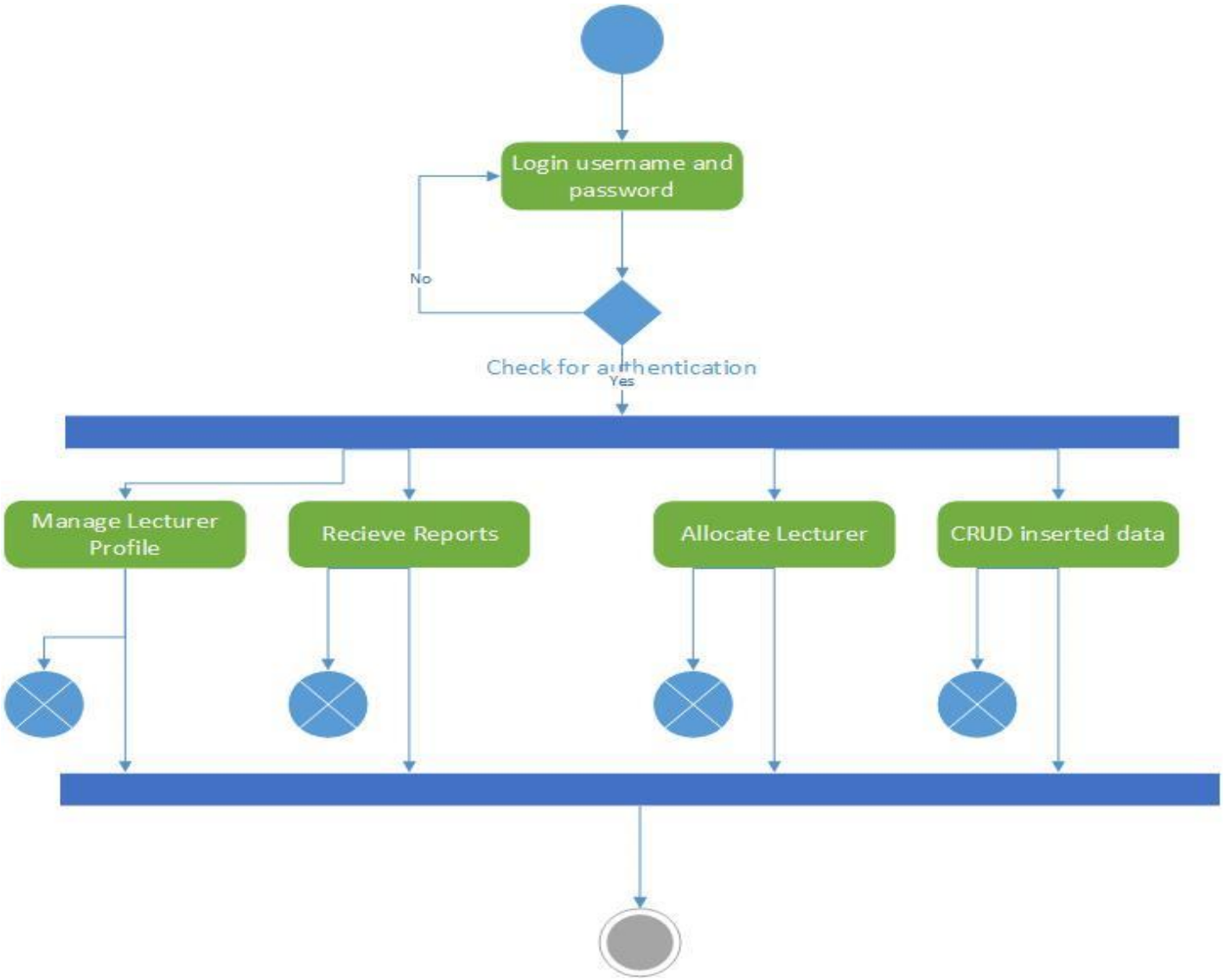
3. CSC Staff


Login using username and password
No
Yes
Input attendence details
Input income details
Input expense details
Input student marks
Generate Reports
Export reports

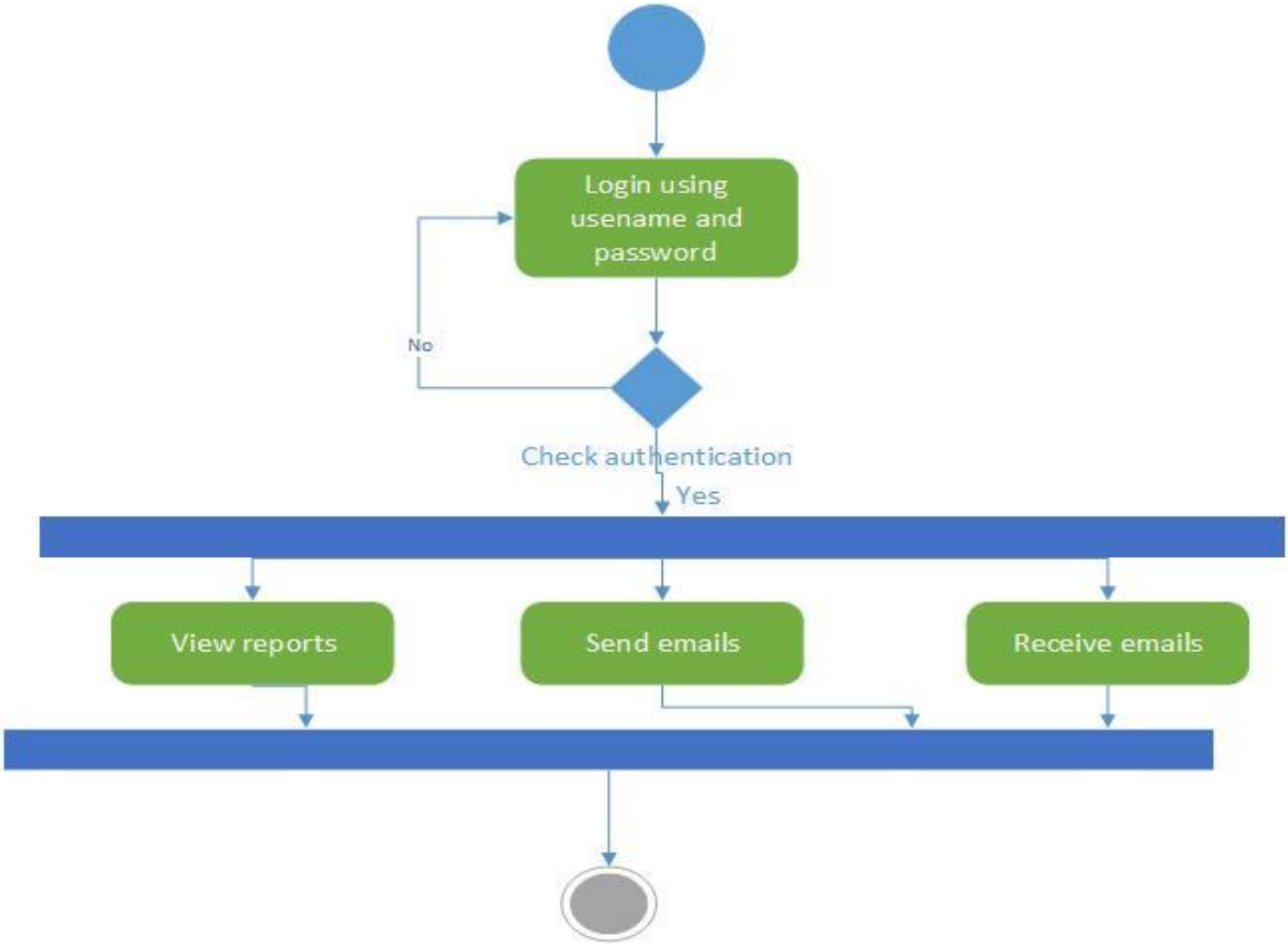
4. Course Coordinator



5. CSC Coordinator

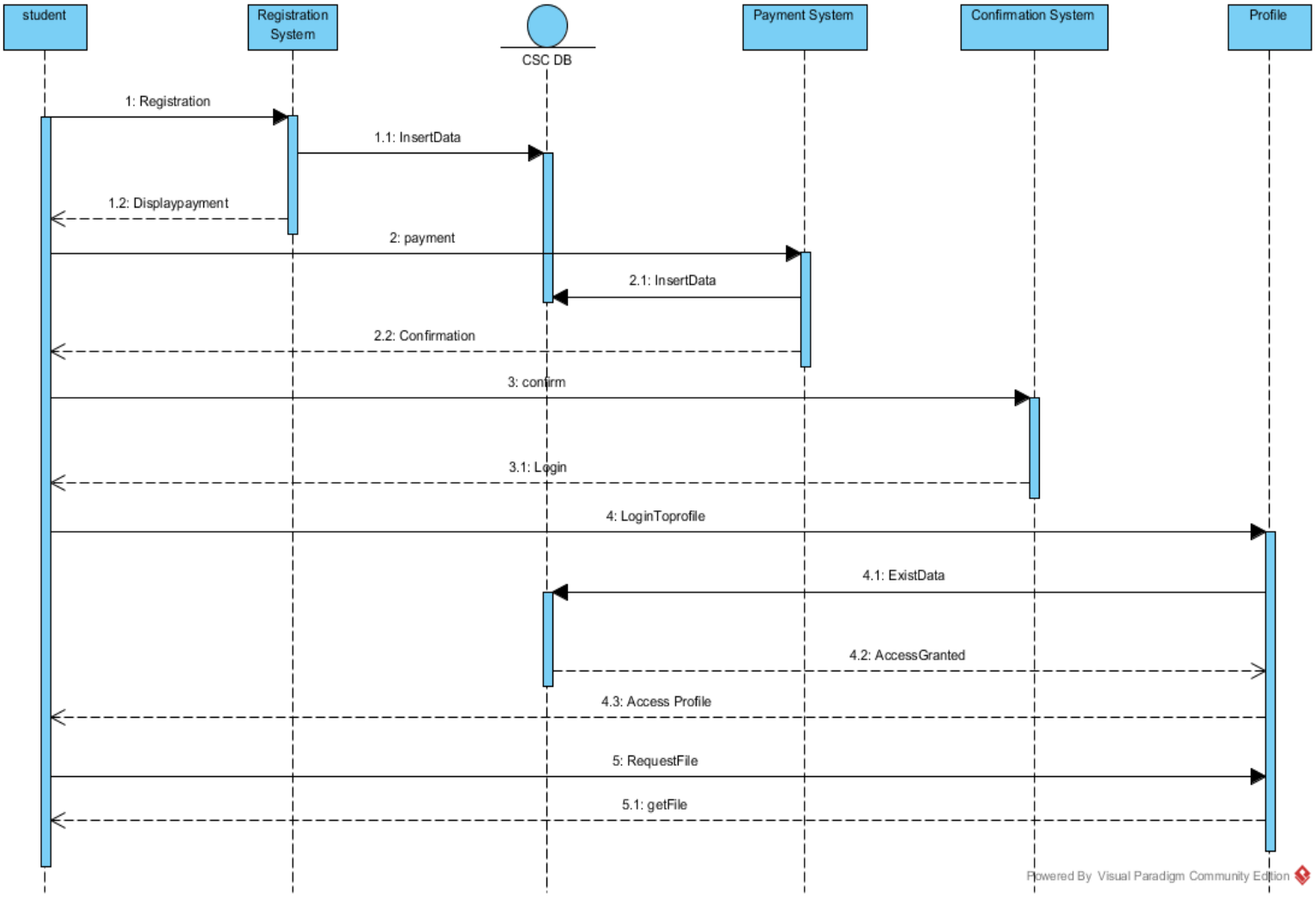


6. Director

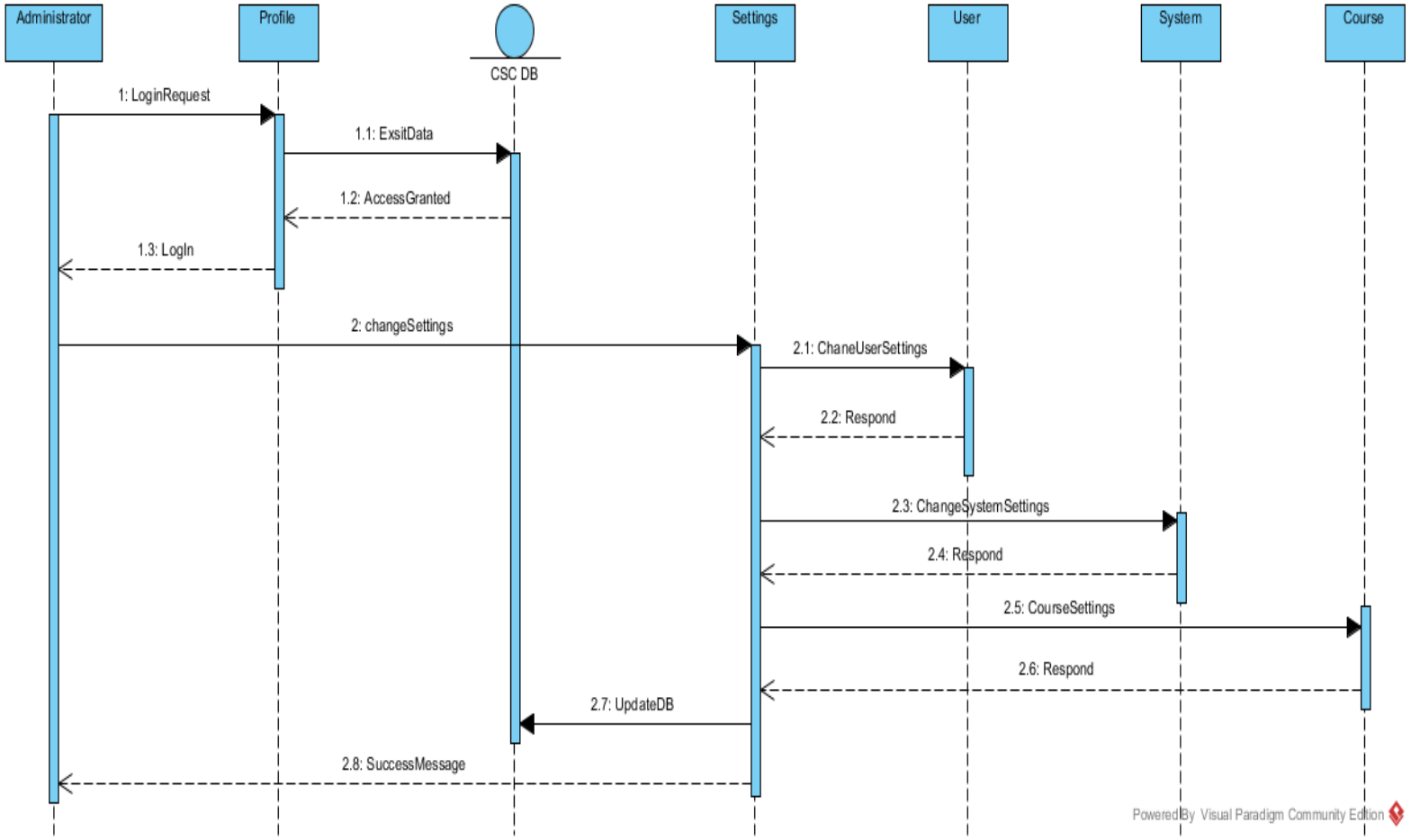

Login using usename and password
No
Check authentication
Yes
View reports
Send emails
Receive emails

5.3 Sequence Diagrams

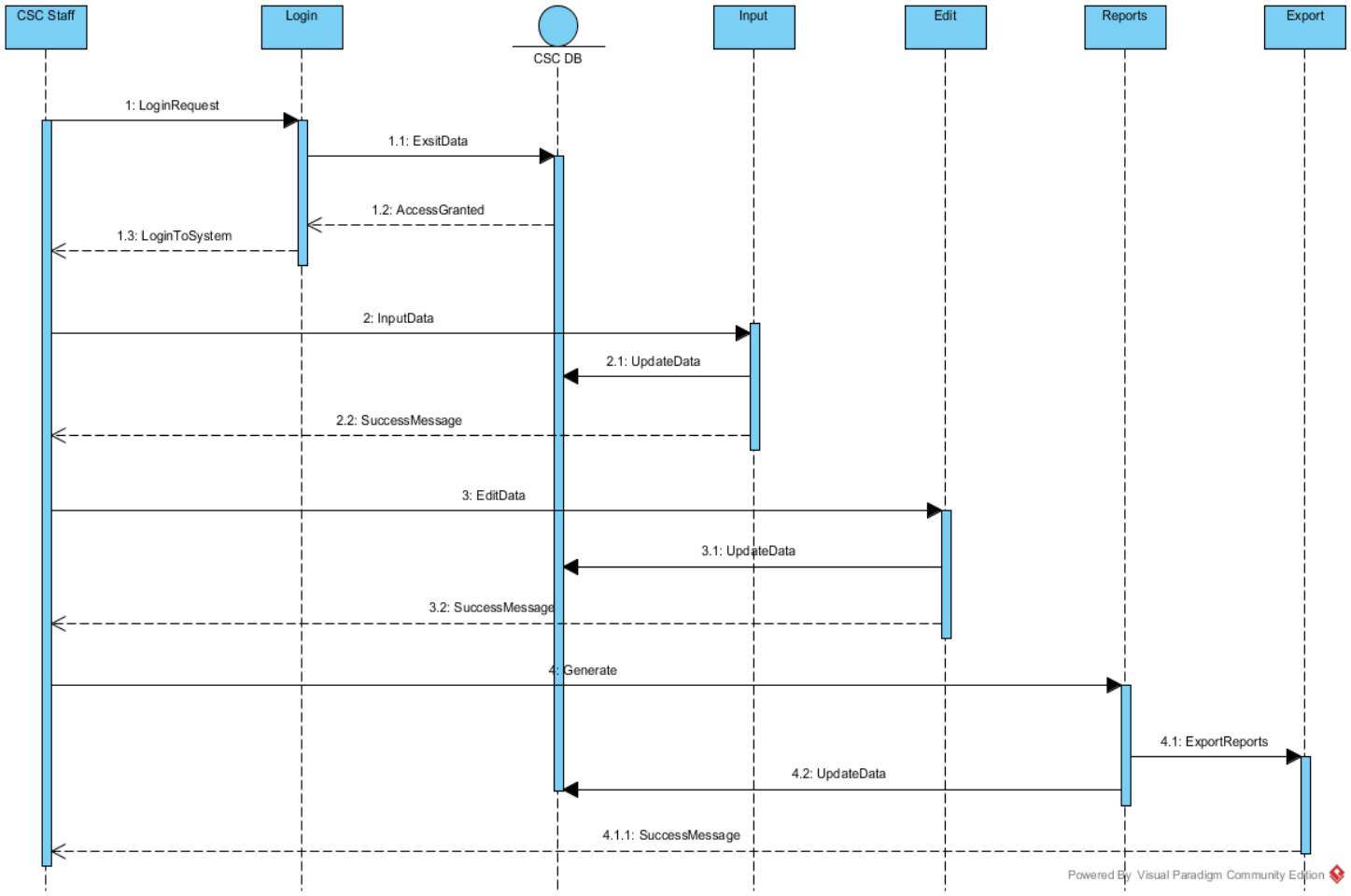
1. Student



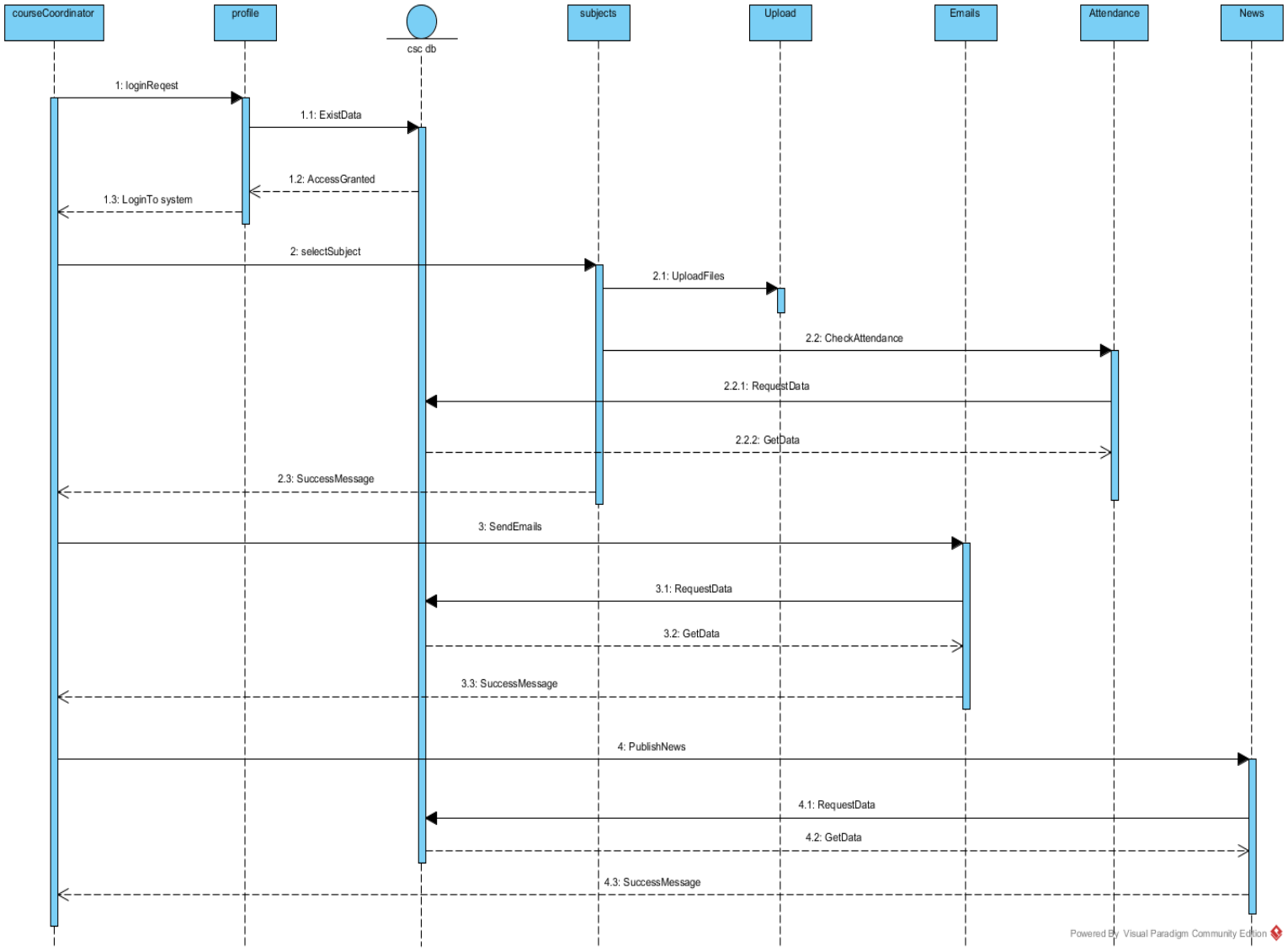
2. Administrator



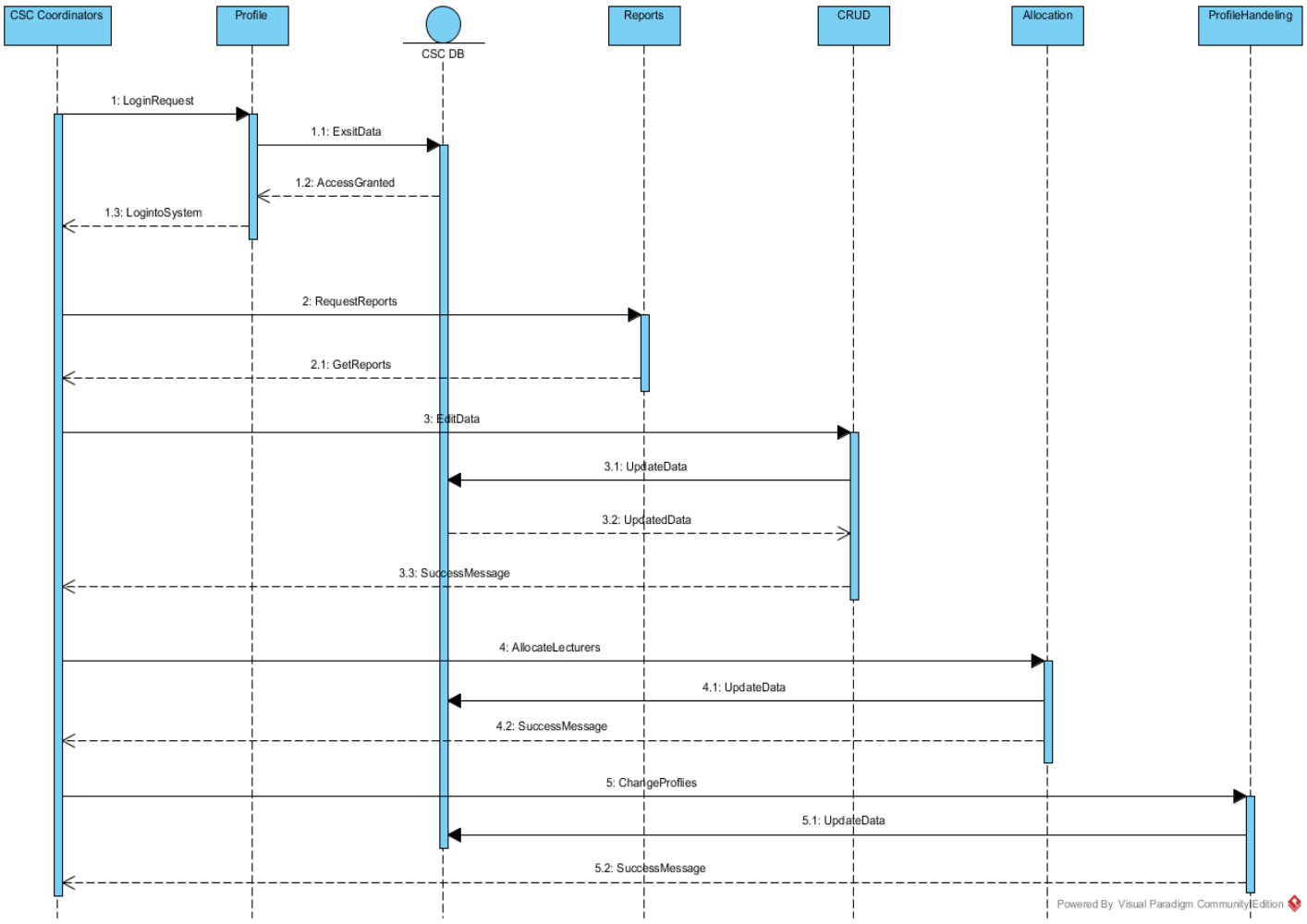
3. CSC Staff


CSC Staff
Login
CSC DB
Input
Edit
Reports
Export
1: LoginRequest
1.1: ExsitData
1.2: AccessGranted
1.3: LoginToSystem
2: InputData
2.1: UpdateData
2.2: SuccessMessage
3: EditData
3.1: UpdateData
3.2: SuccessMessage
4: Generate
4.1: ExportReports
4.2: UpdateData
4.1.1: SuccessMessage
Powered By Visual Paradigm Community Edition

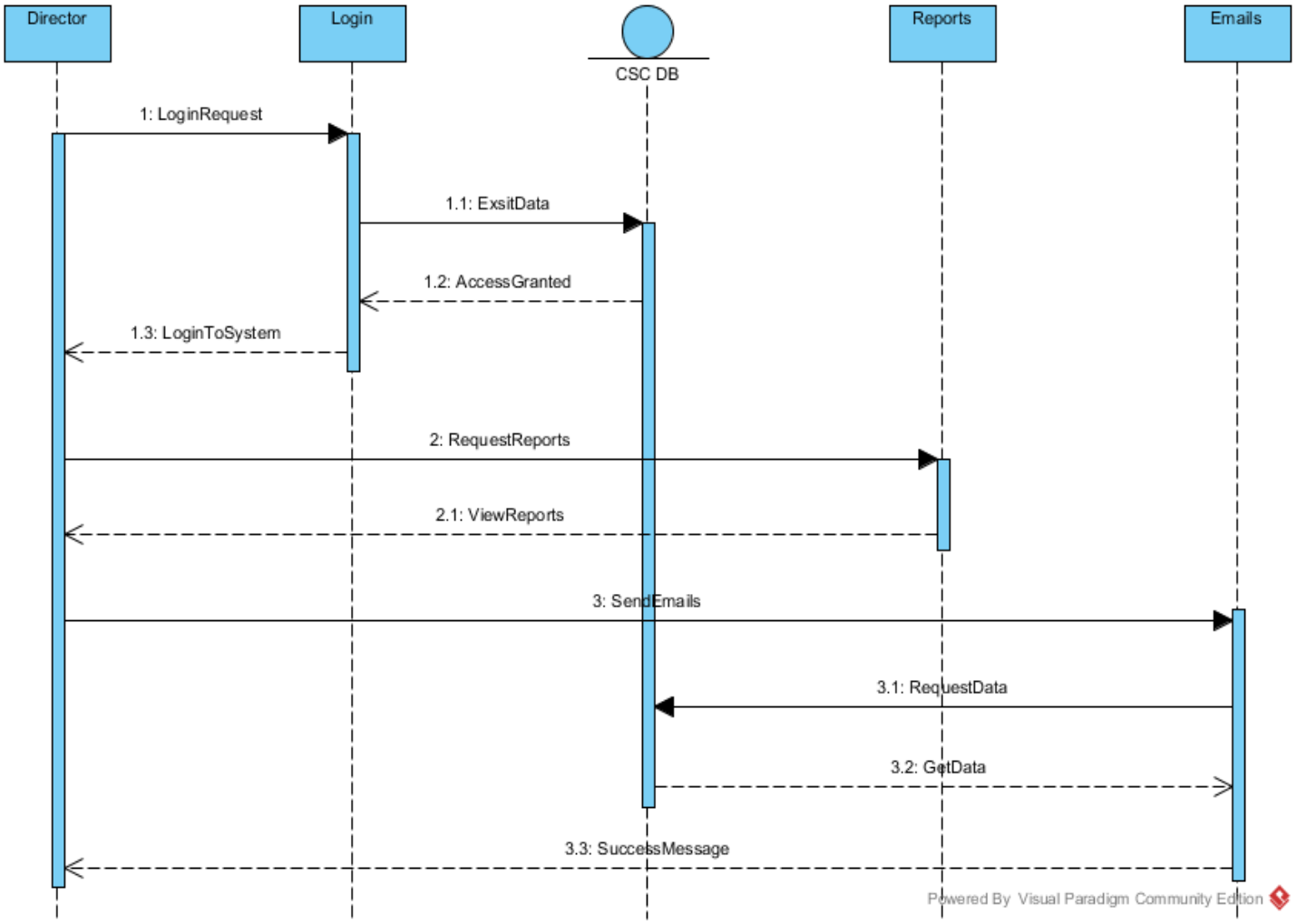
4. Course Coordinator



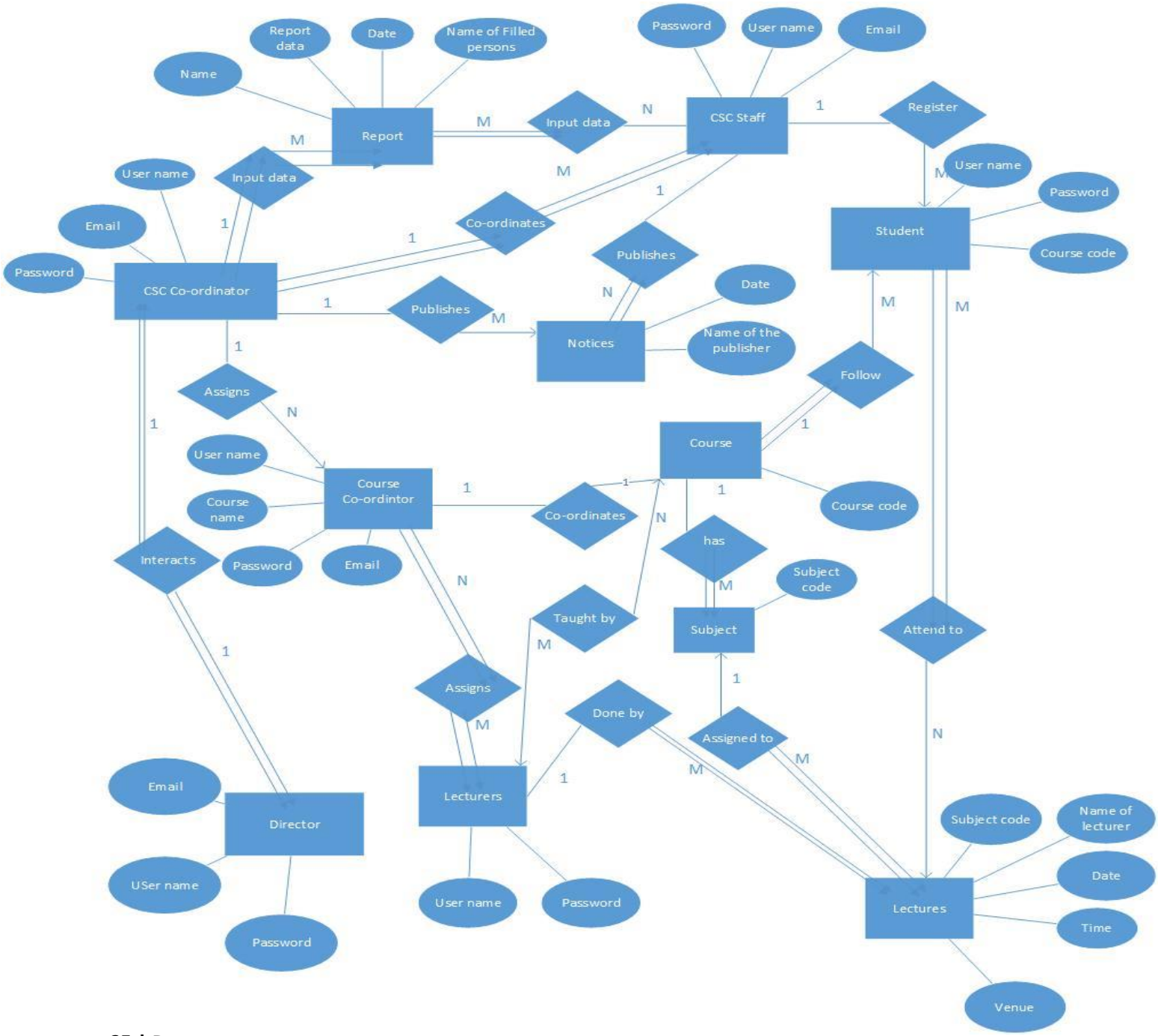
5. CSC Coordinator



6. Director

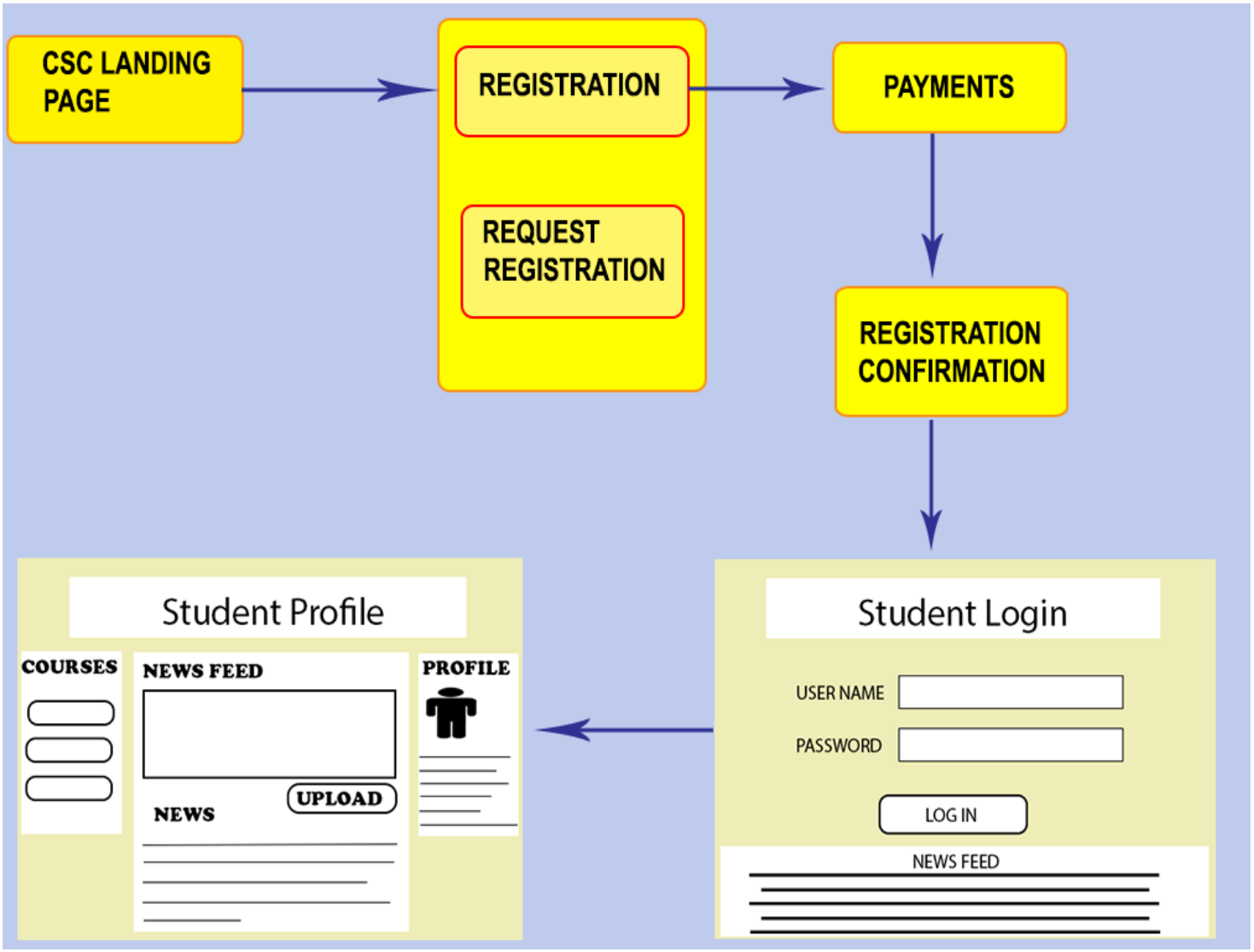

Director
Login
CSC DB
Reports
Emails
1: LoginRequest
1.1: ExsitData
1.2: AccessGranted
1.3: LoginToSystem
2: RequestReports
2.1: ViewReports
3: SendEmails
3.1: RequestData
3.2: GetData
3.3: SuccessMessage
Powered By Visual Paradigm Community Edition

5.4 **Entity Relationship Diagram**

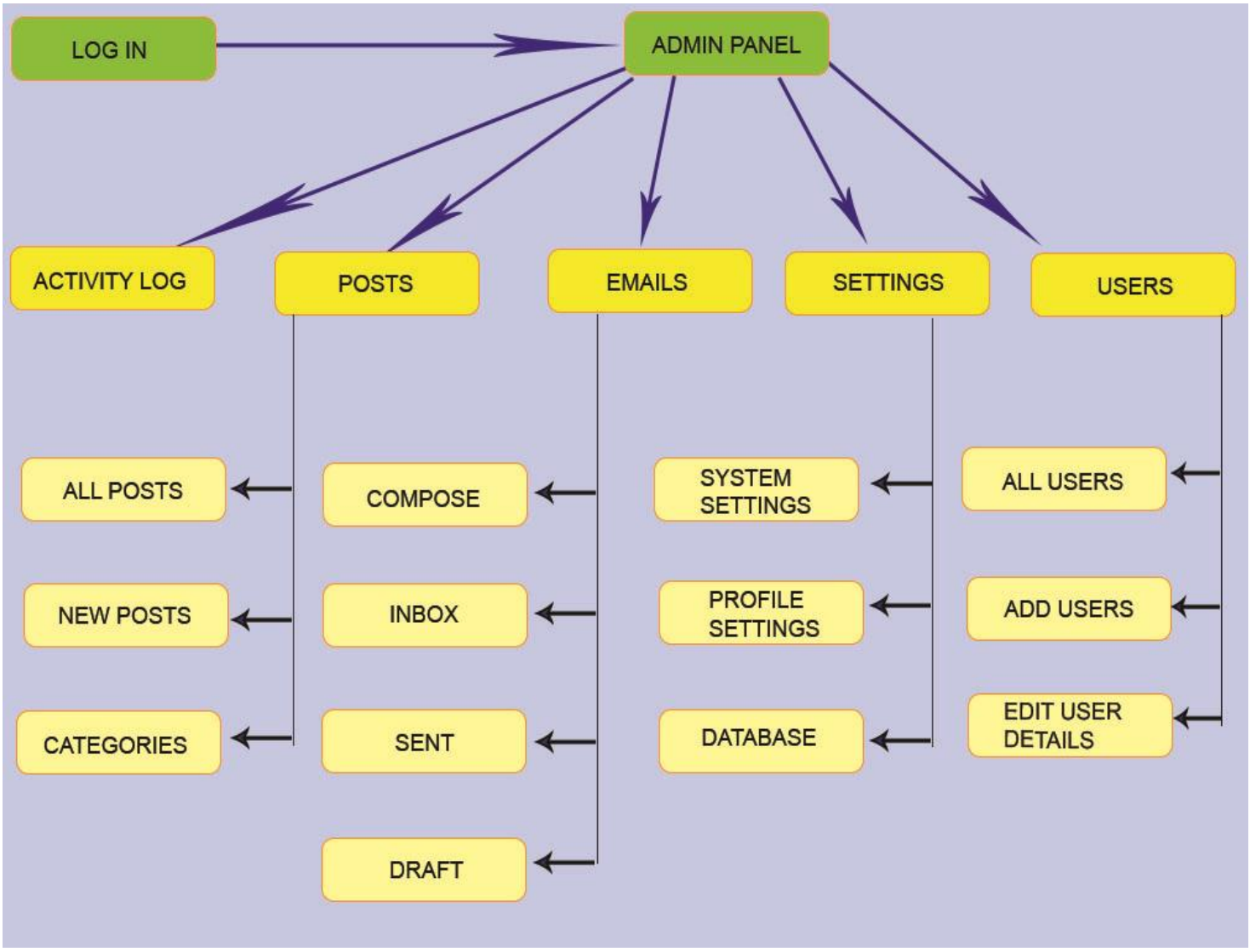


User interface Flow Diagram

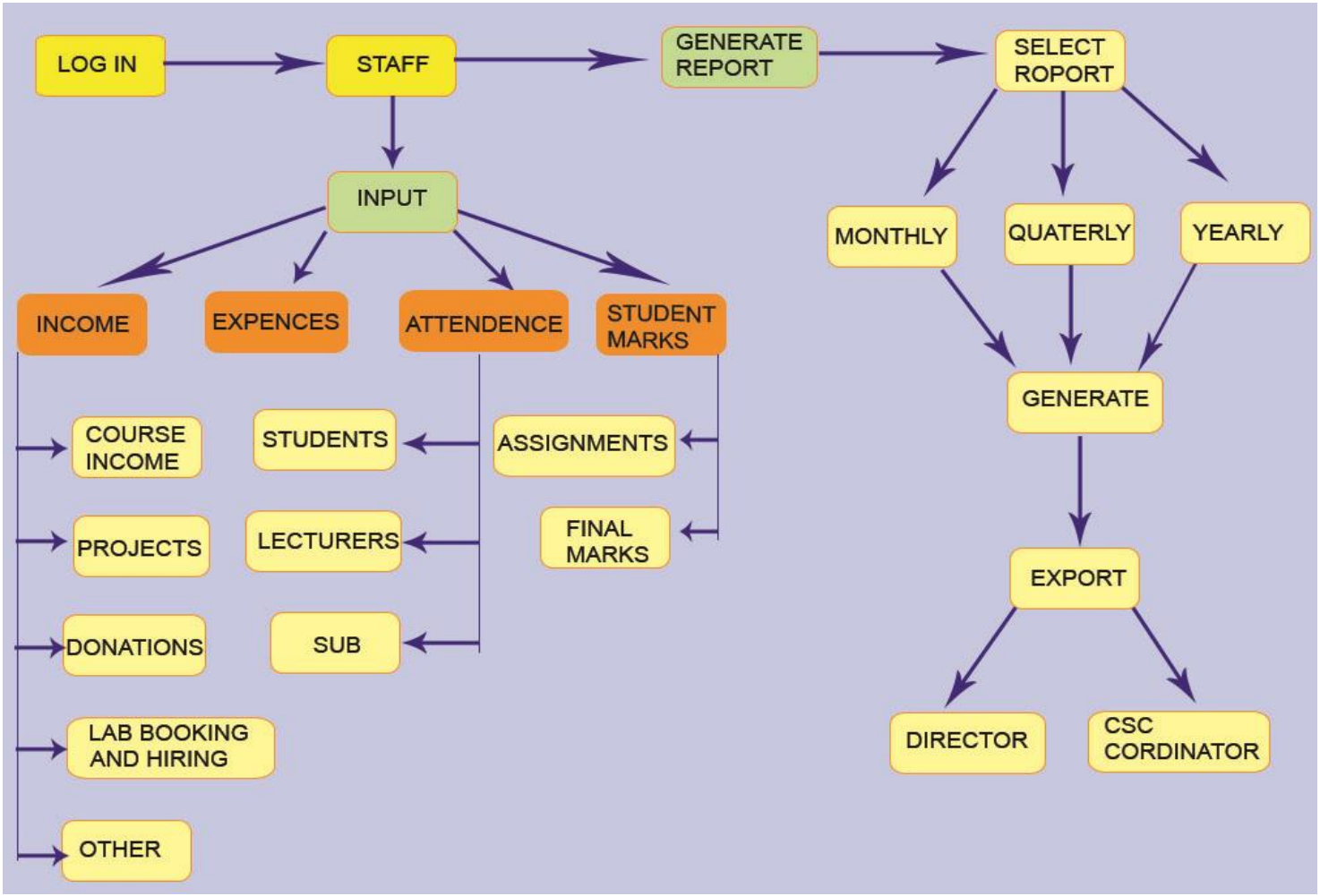
1. *Student*



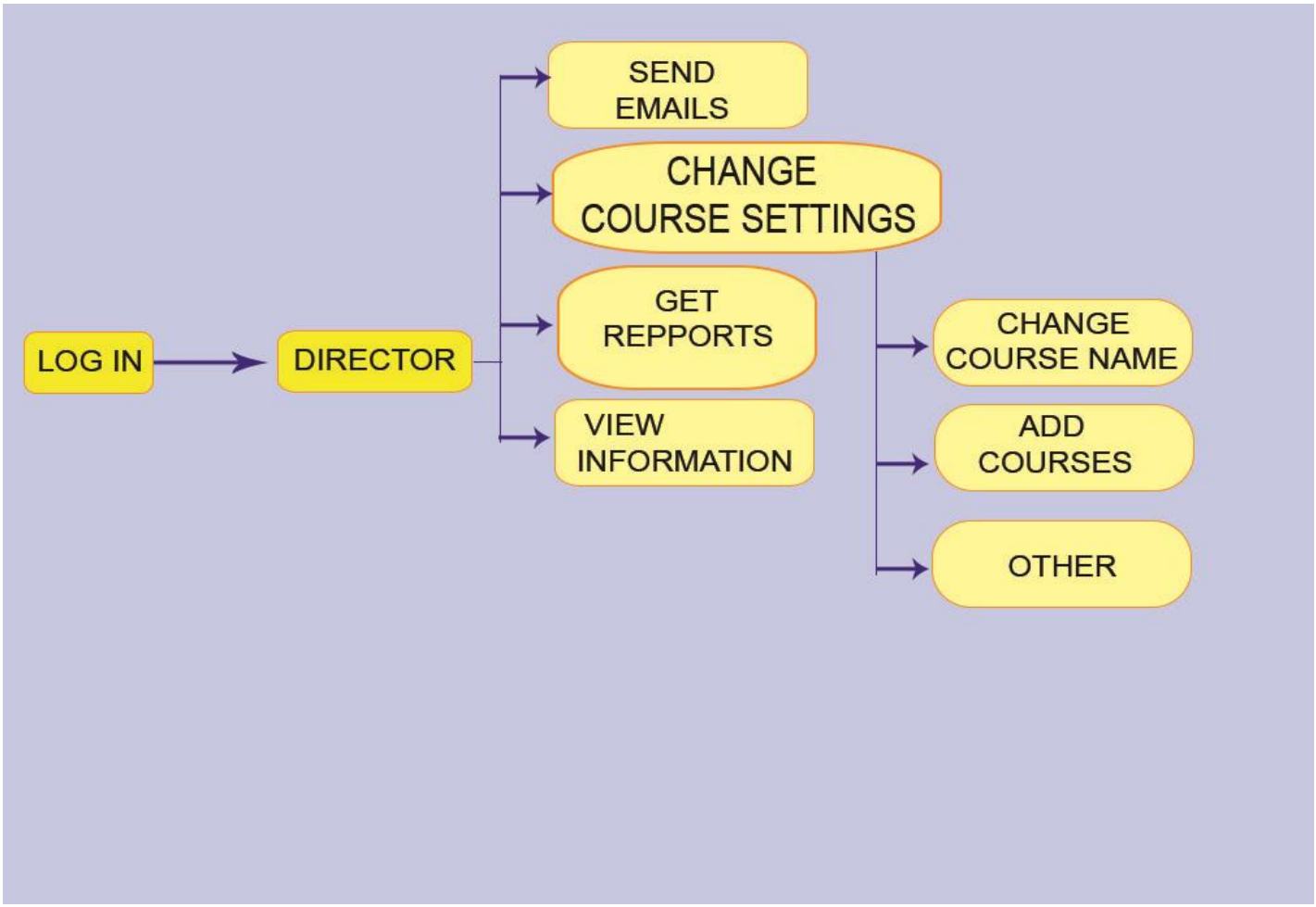
2. Administration Staff



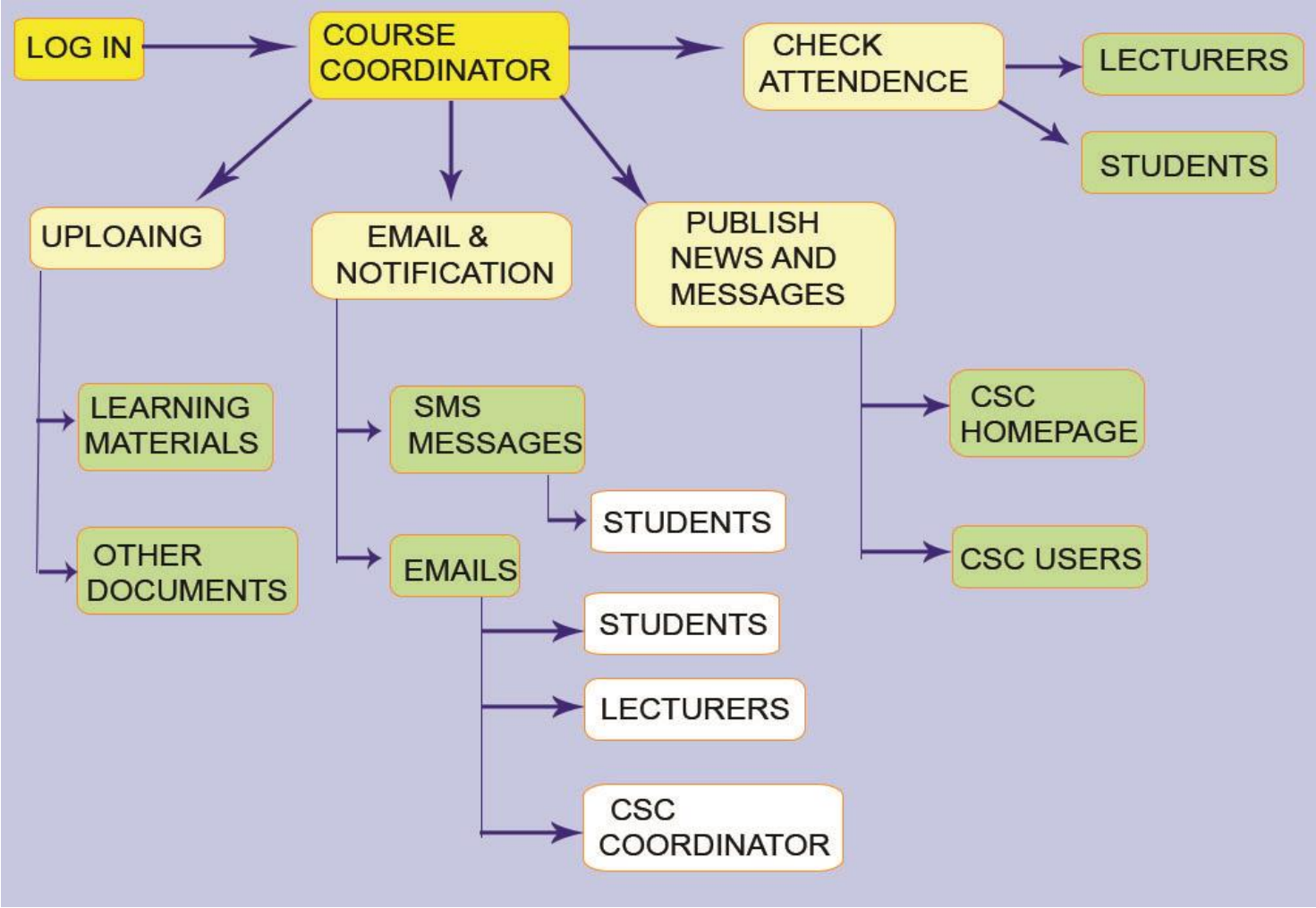
3. CSC Staff


LOG IN
STAFF
GENERATE REPORT
SELECT ROPORT
INPUT
MONTHLY
QUATERLY
YEARLY
INCOME
EXPENCES
ATTENDENCE
STUDENT MARKS
GENERATE
COURSE INCOME
STUDENTS
ASSIGNMENTS
PROJECTS
LECTURERS
FINAL MARKS
EXPORT
DONATIONS
SUB
LAB BOOKING AND HIRING
DIRECTOR
CSC CORDINATOR
OTHER

4. Director


LOG IN
DIRECTOR
SEND EMAILS
CHANGE COURSE SETTINGS
GET REPPORTS
VIEW INFORMATION
CHANGE COURSE NAME
ADD COURSES
OTHER

5. Course Coordinator



6. CSC Coordinator