

INTERNATIONAL BURCH UNIVERSITY
Faculty of Engineering and Natural Sciences
Department of Information Technology



CEN 257: System Analysis and Design
Project
HR System

Sarajevo, 7th of January, 2022

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1. Project Proposal

Project Title: Human Resources System Design	
Start Date: 01.11.2021.	End Date: 15.01.2022.
Project Manager: Amira Abdo, Dema Shahbandar	
Project Sponsor: “Jones and MacGill” law firm	
Purpose and business need: “Jones and MacGill” is an emerging law firm looking to expand their business and, consequentially, their employee count. Therefore, they require the establishment of a web-based human resources system which is to be used primarily by HR staff, but can also be accessed by employees in other branches to interact with the HR unit without directly contacting with the people responsible. It is also used to store and easily access employee data, statistics and reports, history of handled tasks and projects involved inside the firm.	
Customers/Users: Primary users: HR employees, managers, task supervisors, business process overseers and analysts. This includes mostly college-educated adults, ages ranging from early 30s to late 50s. Secondary users: Other “Jones and MacGill” employees, including college-educated lawyers, accountants, receptionists, analysts, IT experts, as well as interns still in study who belong to a somewhat younger demographic group.	
Goals and objectives: Establishing one such system is crucial for an expanding business, as the company predicts to see a significant increase in the employee count. As such, the company and its HR branch cannot expect to easily manage employee data and interactions without implementing a web-based system. Therefore, the design and implementation of this system is not just a beneficial project for the company, but it is also a necessary one. In addition to this, it will also provide employees with an easier, more automated way to communicate with HR and file all their workplace feedback, which is expected to majorly assist HR in collecting data regarding employee satisfaction and overall workplace conditions, resulting in any potential issues being solved more efficiently and therefore improving the quality of work environment itself.	

Business requirements: The most imperative feature of the system is the database itself, which is to contain data about all employees, their personal information, workplace statistics, work hours, evaluation and payment information. The database will be accessed and managed via a web application which needs to implement a simple and coherent user interface. Furthermore, each employee needs to have their own account which they use to access the system. Respectfully, the accounts of employees in HR will have a higher access privilege, whereas other employees will be able to access their own data, as well as have a way to contact HR, file a workplace complaint, submit weekly satisfaction feedback, etc. In addition to this, authorized accounting branch employees will have access to features allowing them to manage salary payments for all employees. Incidentally, all the data provided by and accessed through the system is sensitive, and system security should be prioritized.

Constraints and special issues: The rapid expansion of the “Jones and MacGill” company itself dictates the project team to design and implement the system as soon as possible, even if all the side-features of the system aren’t supported initially.

Risks and obstacles to success: Seeing as the project encompasses the development of a type of system necessary for most companies and business, one could consider the project to be ‘routine’, and, as such, it should not encounter any obstacles or hindrances.

Technical Leads:

Amira Abdo, Dema Shahbandar

2. Requirements

1. Functional requirements:

1. Feature name: Manage employee information

Role(s): HR employee

Feature description/steps: A feature which allows the HR employee to see, insert, update and delete an employee’s personal information, including their name, address, social media links, position in the company, and also, since it’s a law firm HR system, a list of all the cases the employee worked on in the past.

Dependencies/constraints:

2. Feature name: Performance management

Role(s): HR employee

Feature description/steps: It is basically a performance assessment feature which provides information on the employee's productivity and efficiency, behavioral and competency statistics. The data for this feature can be entered by an HR employee, but it can also be yielded by some third party software used to evaluate employee performance.

Dependencies/constraints:

3. Feature name: Benefits management

Role(s): HR employee, other employee

Feature description/steps: A feature used to manage employee benefits, including health and life insurance, retirement plans, travel compensation, paid time off. Additionally, this permits employees to enroll in benefits through the system without having to go through the lengthy face-to-face process with the HR.

Dependencies/constraints: All benefit management action needs to be in accordance to the country's laws regarding it.

4. Feature name: Financial management

Role(s): accounting employee, HR employee

Feature description/steps: This is an essential HR functionality which ensures all employees are properly compensated, without error. It allows the HR employee to deal with the company's payroll, an employee's salary history, rewards, commissions, bonus programs, etc. The feature also provides the company's financial planning option, provided by a third party software.

Dependencies/constraints: The financial management feature is dependent on the accounting feature, as some aspects of the financial management feature (for example bonuses & rewards) cannot be used without proper budgeting possibilities.

5. Feature name: Attendance management

Role(s): HR employee, other employee

Feature description/steps: A feature which allows the HR employee to manage work time schedules across different departments and projects to fulfill all staffing needs. It also provides a way for a regular employee to clock in and out. Furthermore, it allows an HR employee to send out an announcement to alert other users of any changes in the schedules. The main benefit of this feature is time reporting & tracking, ensuring a smooth and easy way for payroll management.

Dependencies/constraints:

6. Feature name: Accounting

Role(s): accounting employee, HR employee

Feature description/steps: This feature promotes financial planning and invoice management. Aside from dealing with the automation of employee payouts and other billings, it simplifies accurate budgeting and what-if scenario analysis for human resource-based expenditures.

Dependencies/constraints: Employees' billing information is not stored within the system.

7. Feature name: Feedback and support

Role(s): all users who have access to the system

Feature description/steps: This feature allows the user to provide feedback regarding workplace environment and staff relations. It is realized through forms, regular (scheduled) questionnaires and tickets. Tickets allow the employee to file a complaint or schedule a live meeting with the HR.

Dependencies/constraints: A user cannot open a ticket more than once every 24h.

8. Feature name: Recruitment and hiring

Role(s): HR employee

Feature description/steps: This is a feature aiming to completely streamline the hiring process for HR departments. It allows the firm to post a job opening to multiple websites and social media channels, as well as deal with applicants- collecting their resumes and interview transcripts, managing the interview schedules and background checking.

Dependencies/constraints:

9. Feature name: Employee training

Role(s): HR employee, other employee

Feature description/steps: This feature enables the HR employees to see the gaps between other employees' skillsets and provides a guide in managing their training requirements. If a regular employee is involved with a training process of another employee or requires training themselves, the system displays this information. It also monitors the cost and the time required for employee training. The HR employee can also see the workload efficiency statistics before and after the training

Dependencies/constraints:

10. Feature name: Login

Role(s): all users

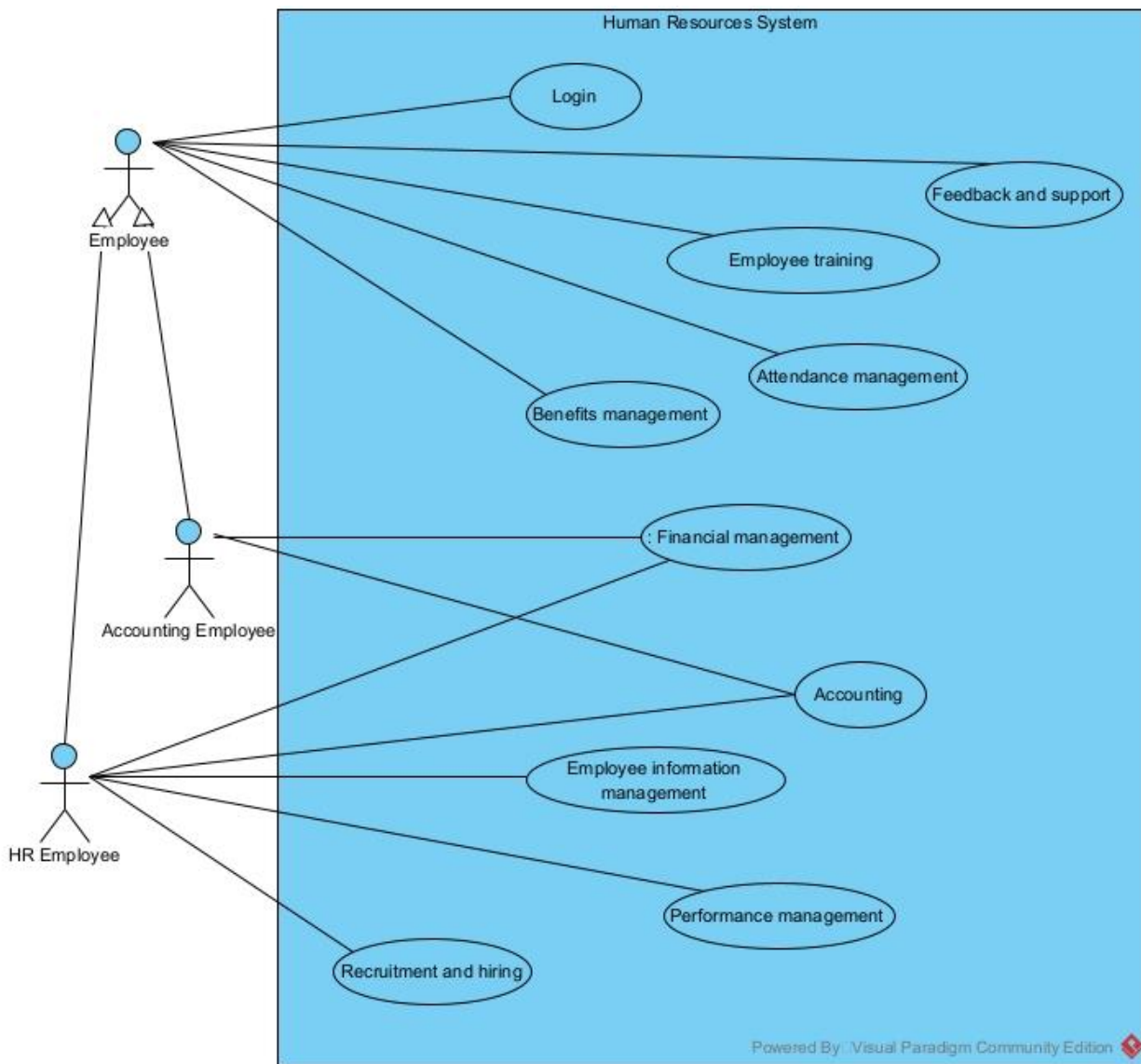
Feature description/steps: The user uses their assigned company mail address and password to log into the system. Depending on their role, they have access to the system's features designed for that particular role.

Dependencies/constraints: The user cannot use an e-mail address other than their assigned company address to log in.

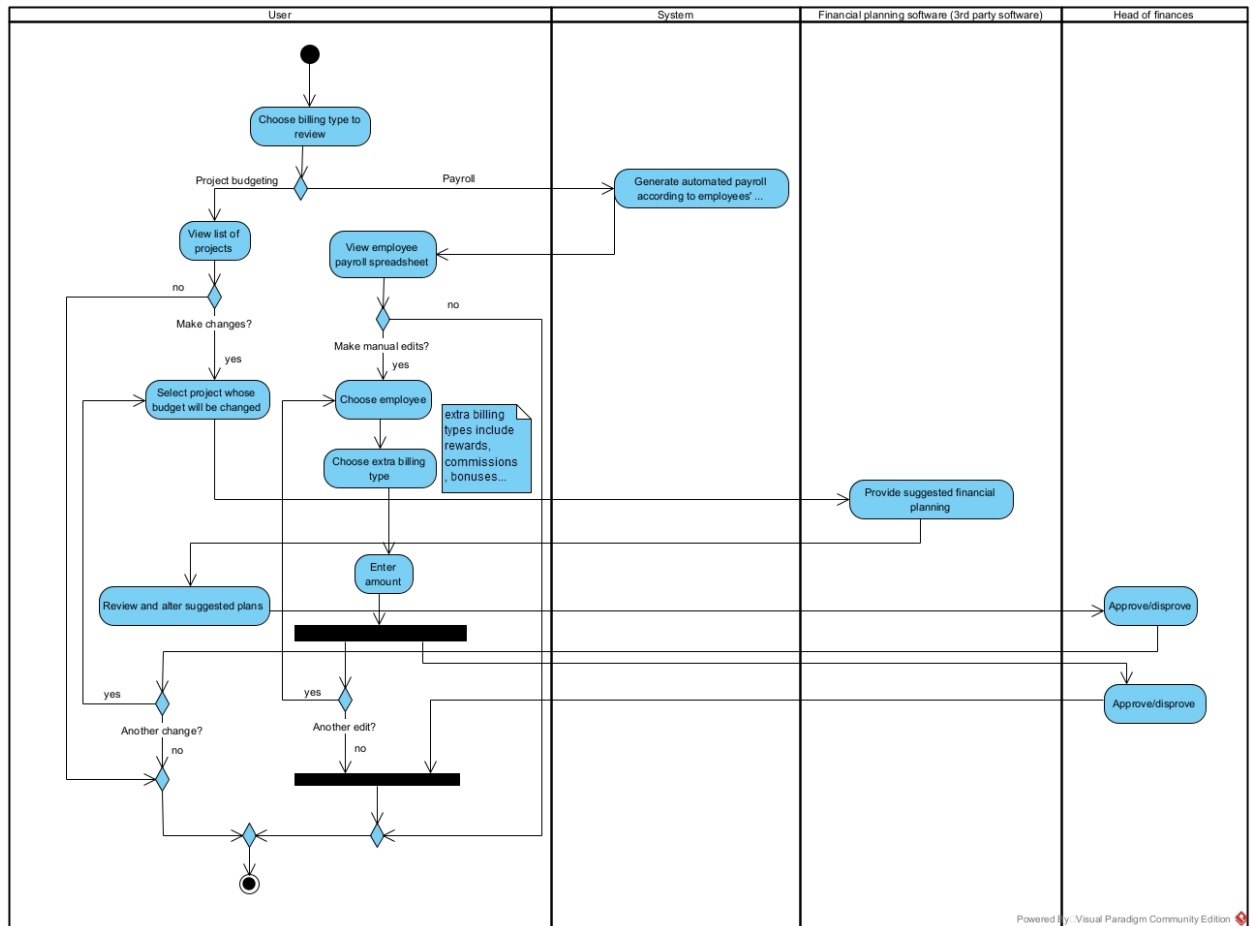
2. Nonfunctional requirements

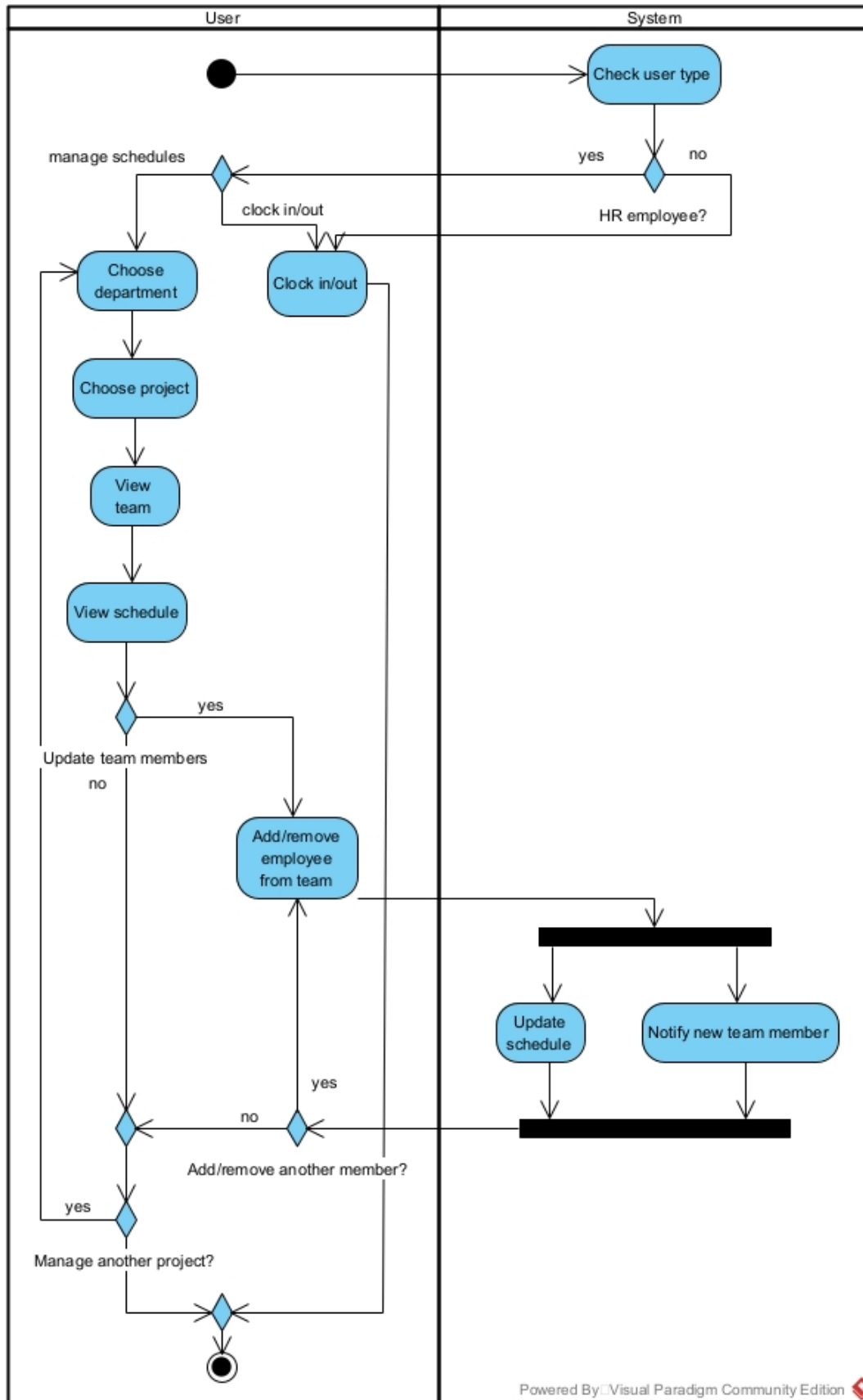
1. The system cannot be accessed outside of the company's work hours.
2. After three failed login attempts, the user's account is blocked, which can later be resolved with the people in charge with maintenance.
3. No part of the system should take longer than 3 seconds to load after the request has been made.
4. The system should be able to handle at least half of the company's total employee count at once. This results in the system needing to be scaled as the company expands.
5. All system data will be encrypted and stored in multiple databases.

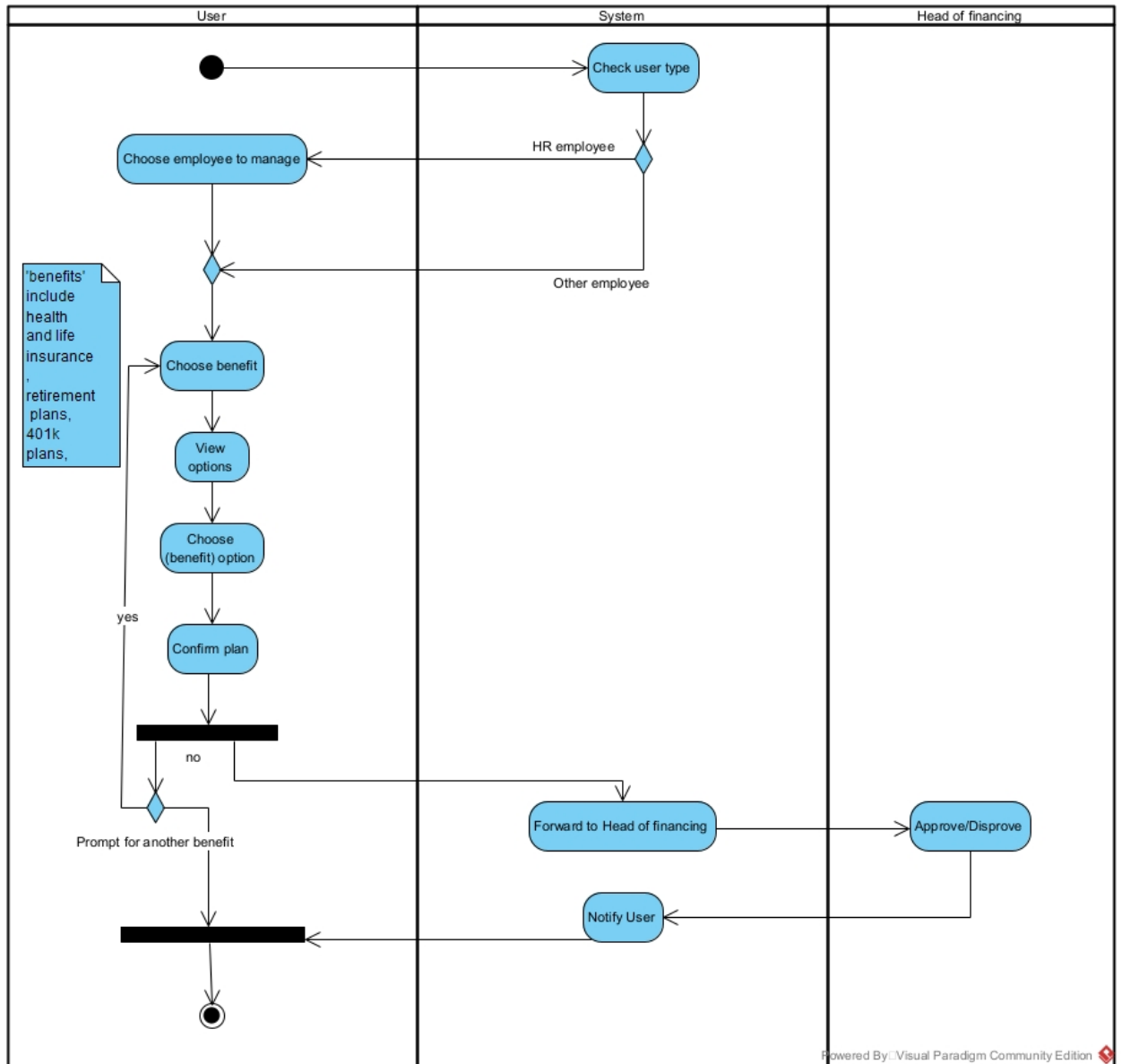
3. Use Case Diagram

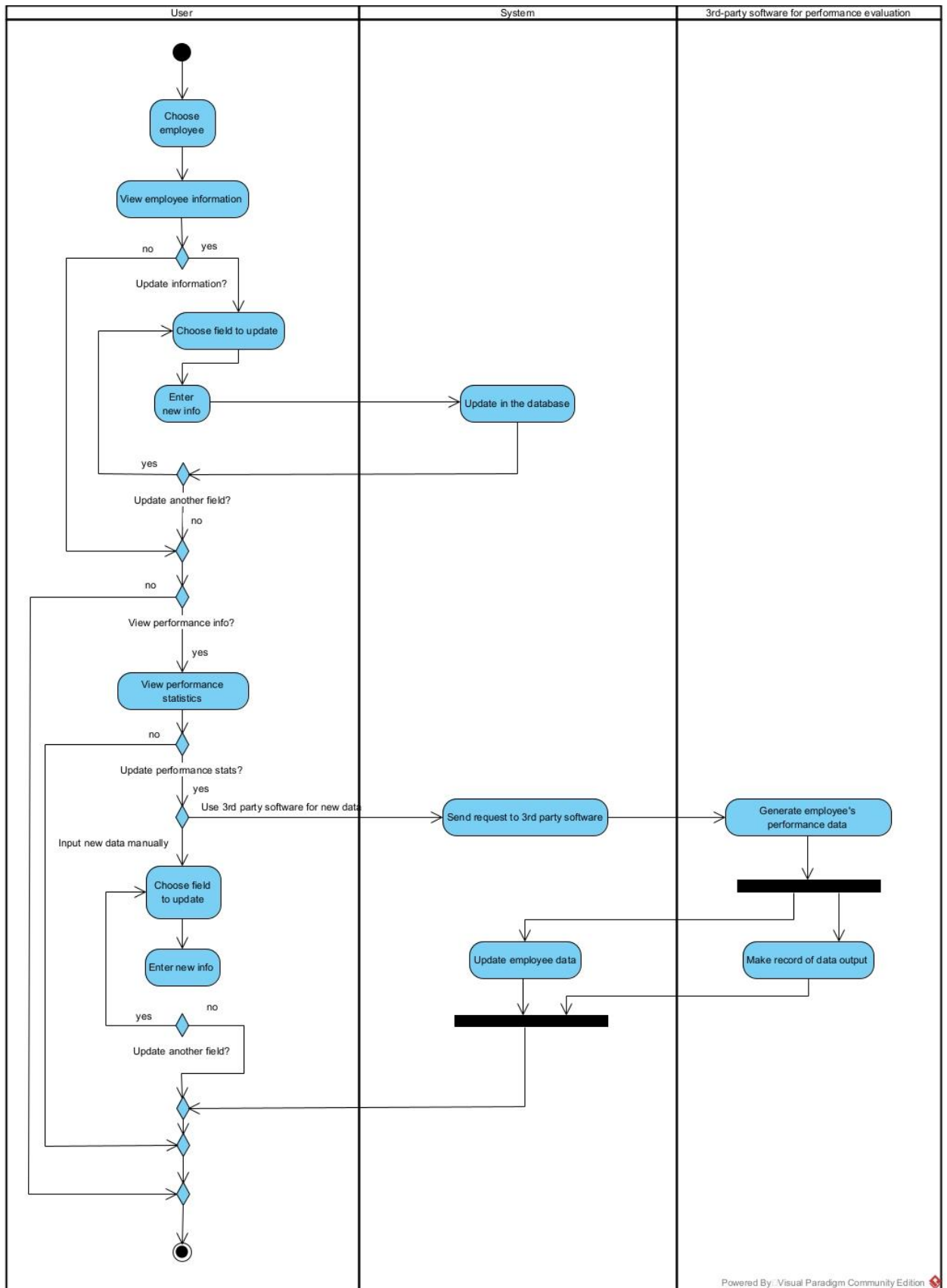


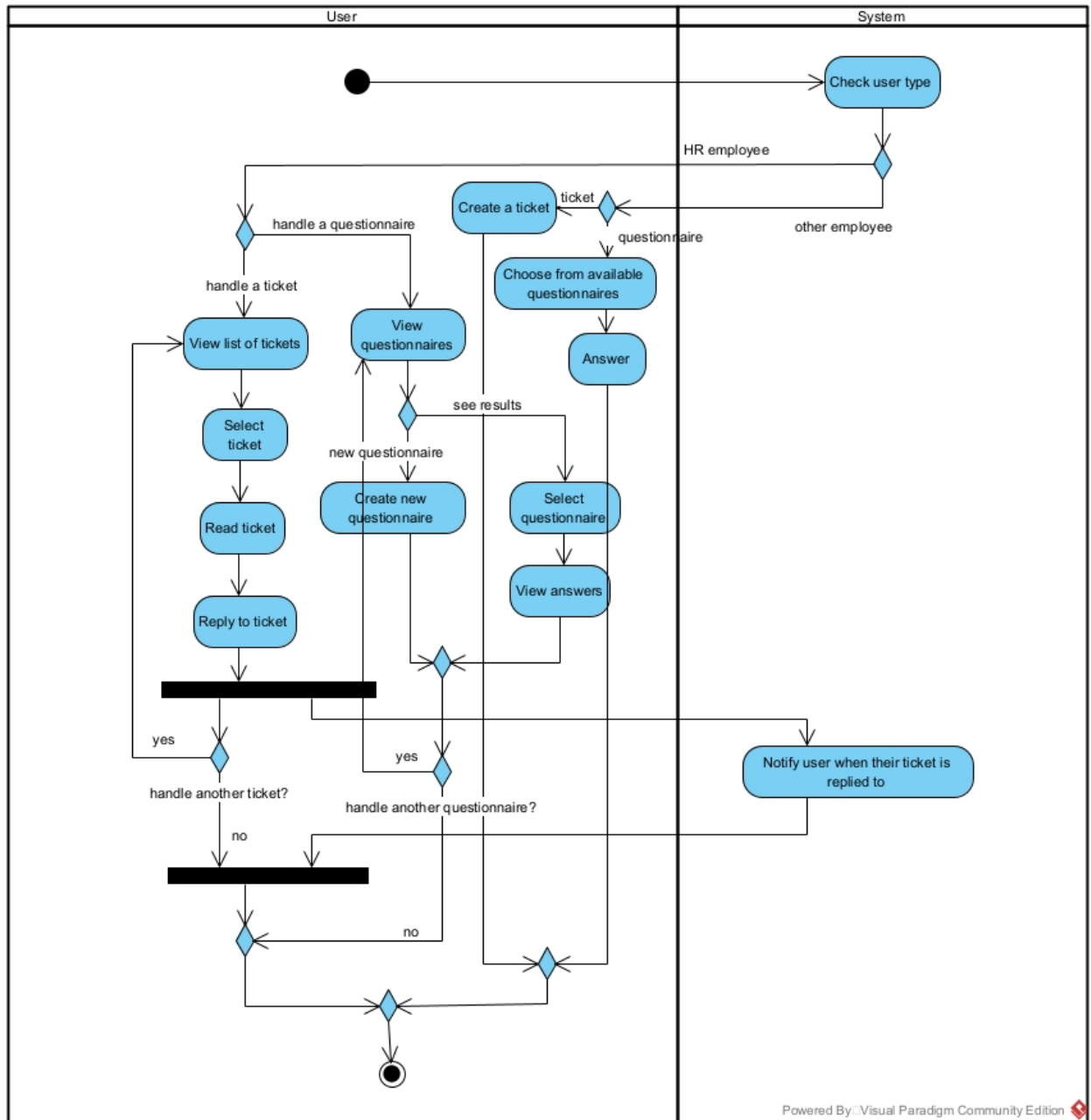
4. Activity Diagrams

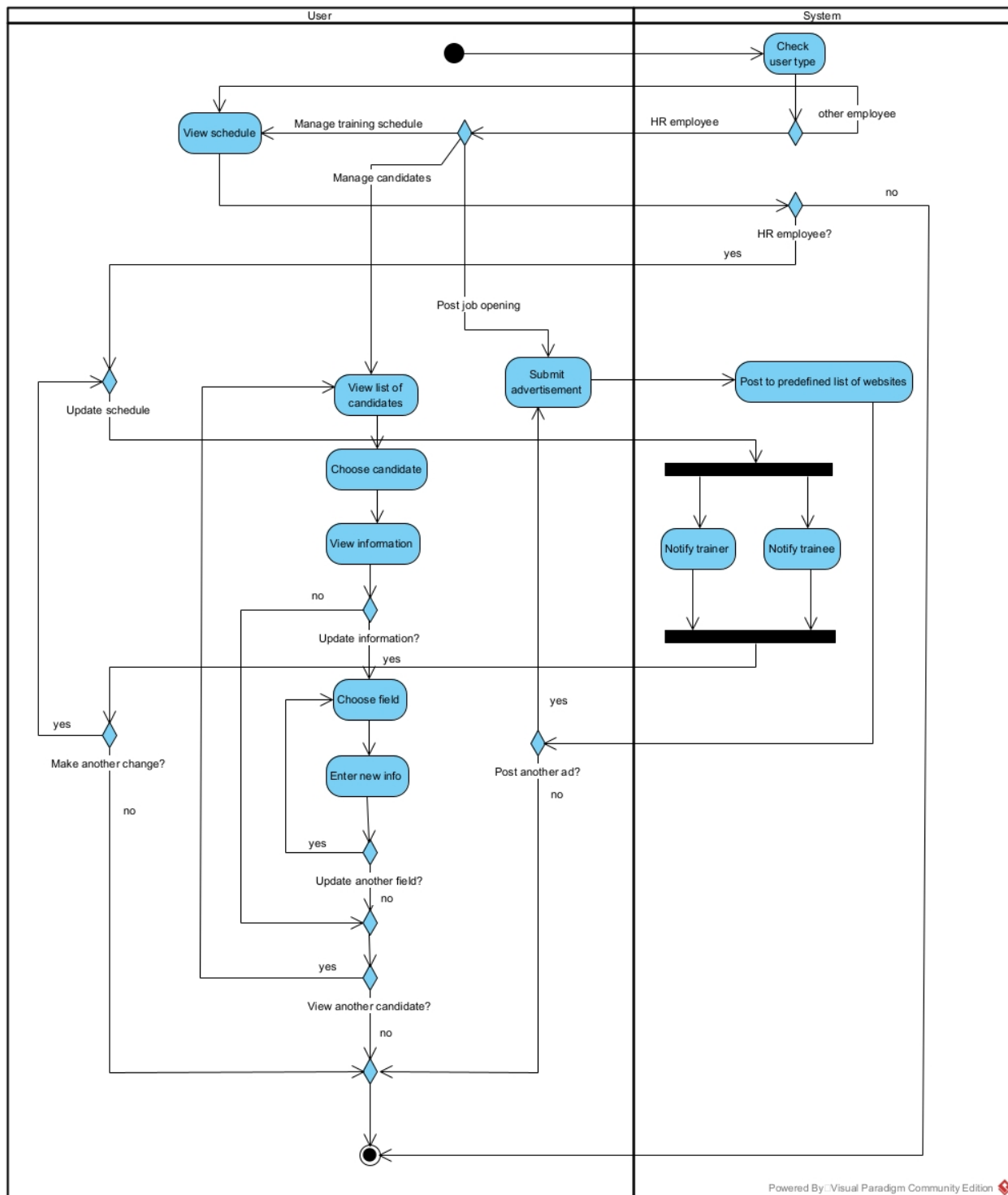


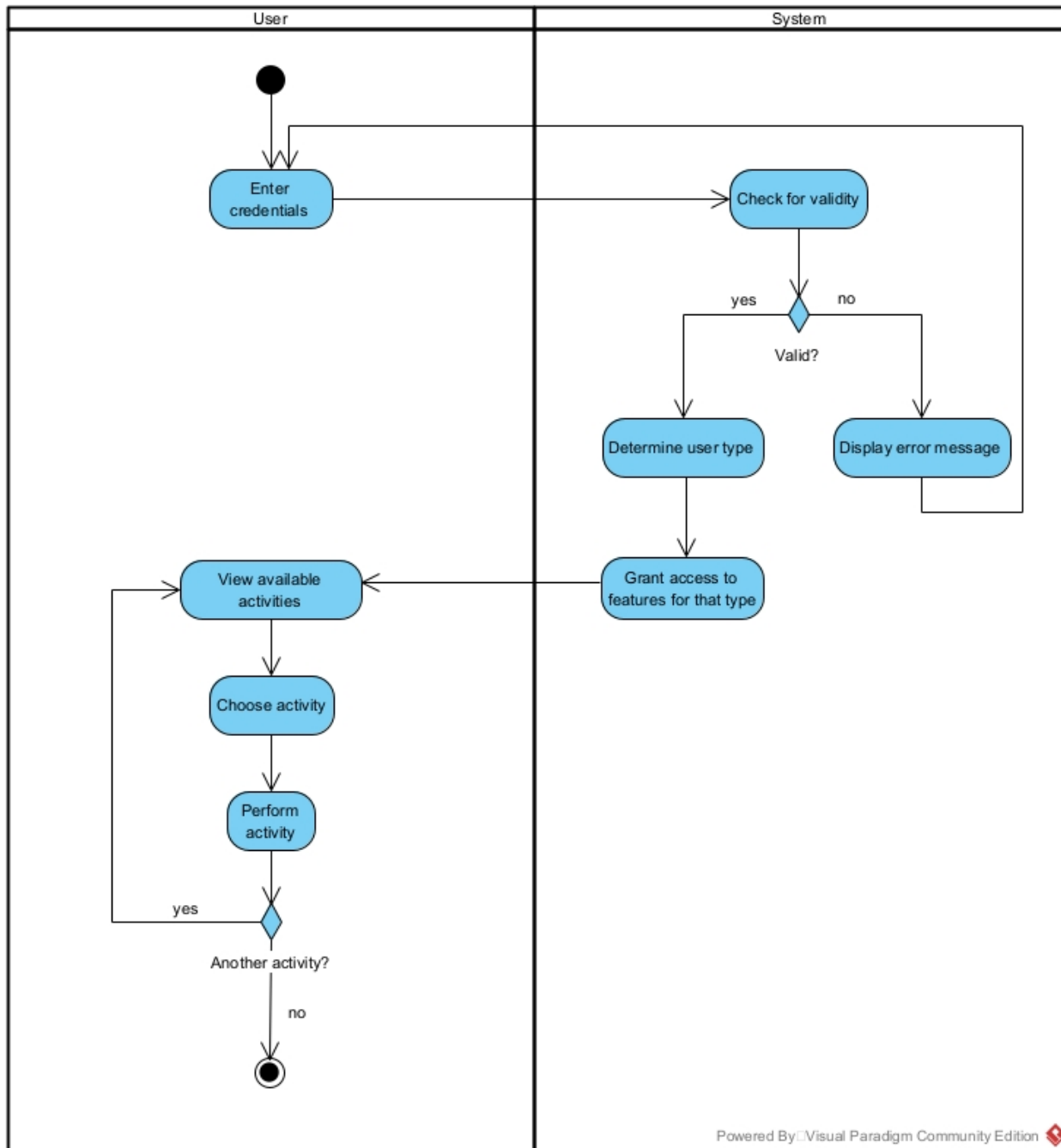




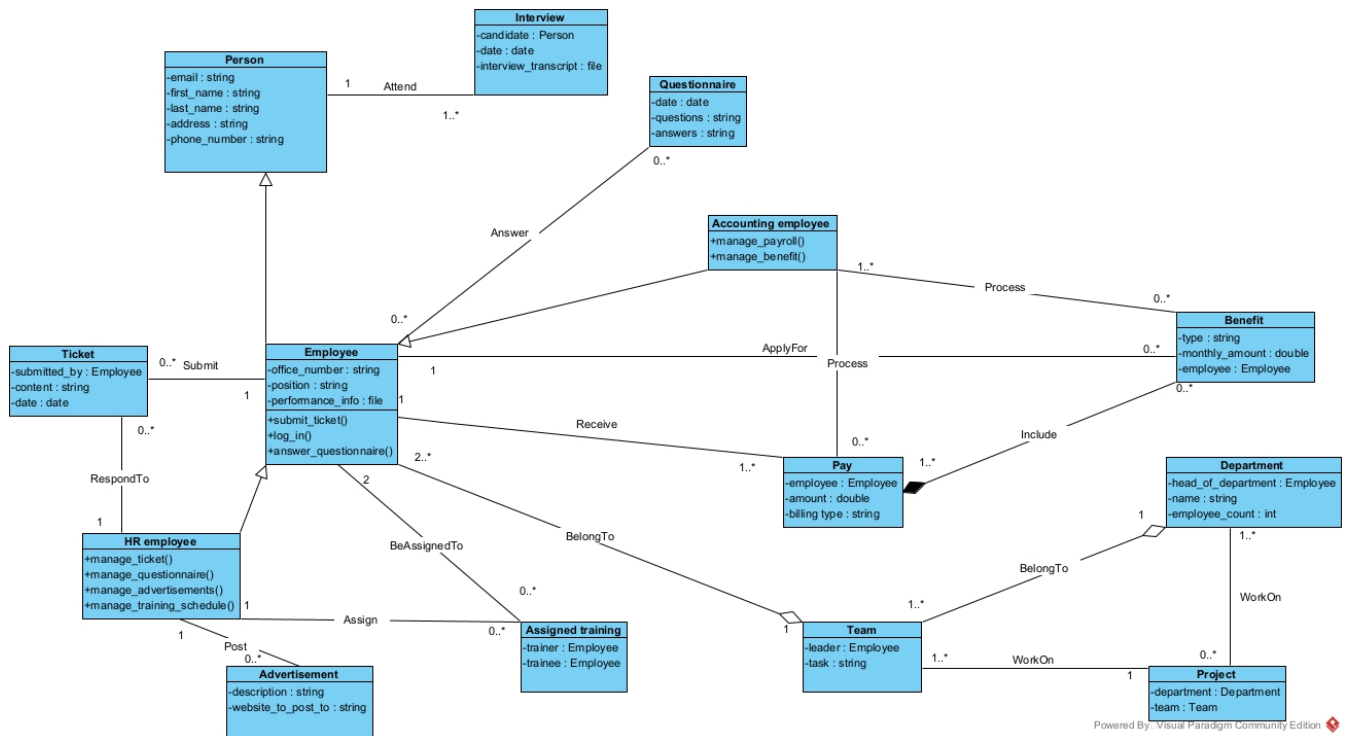




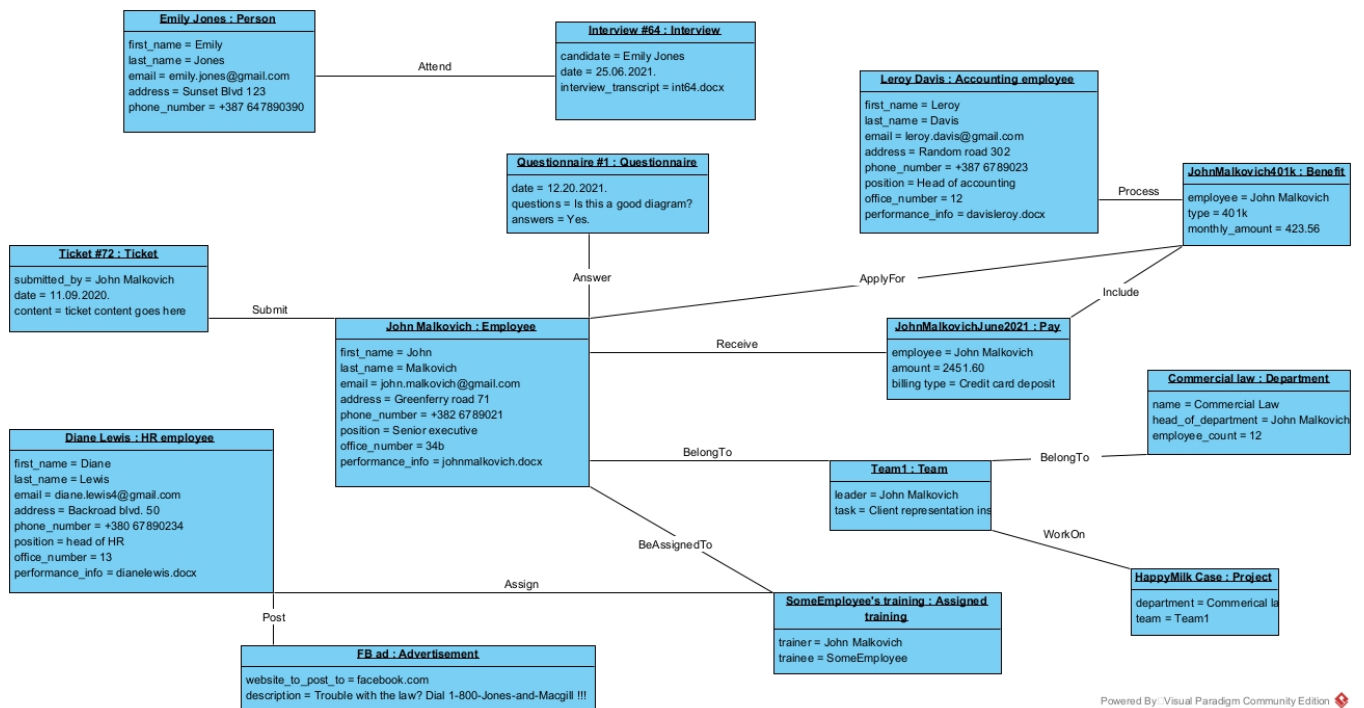




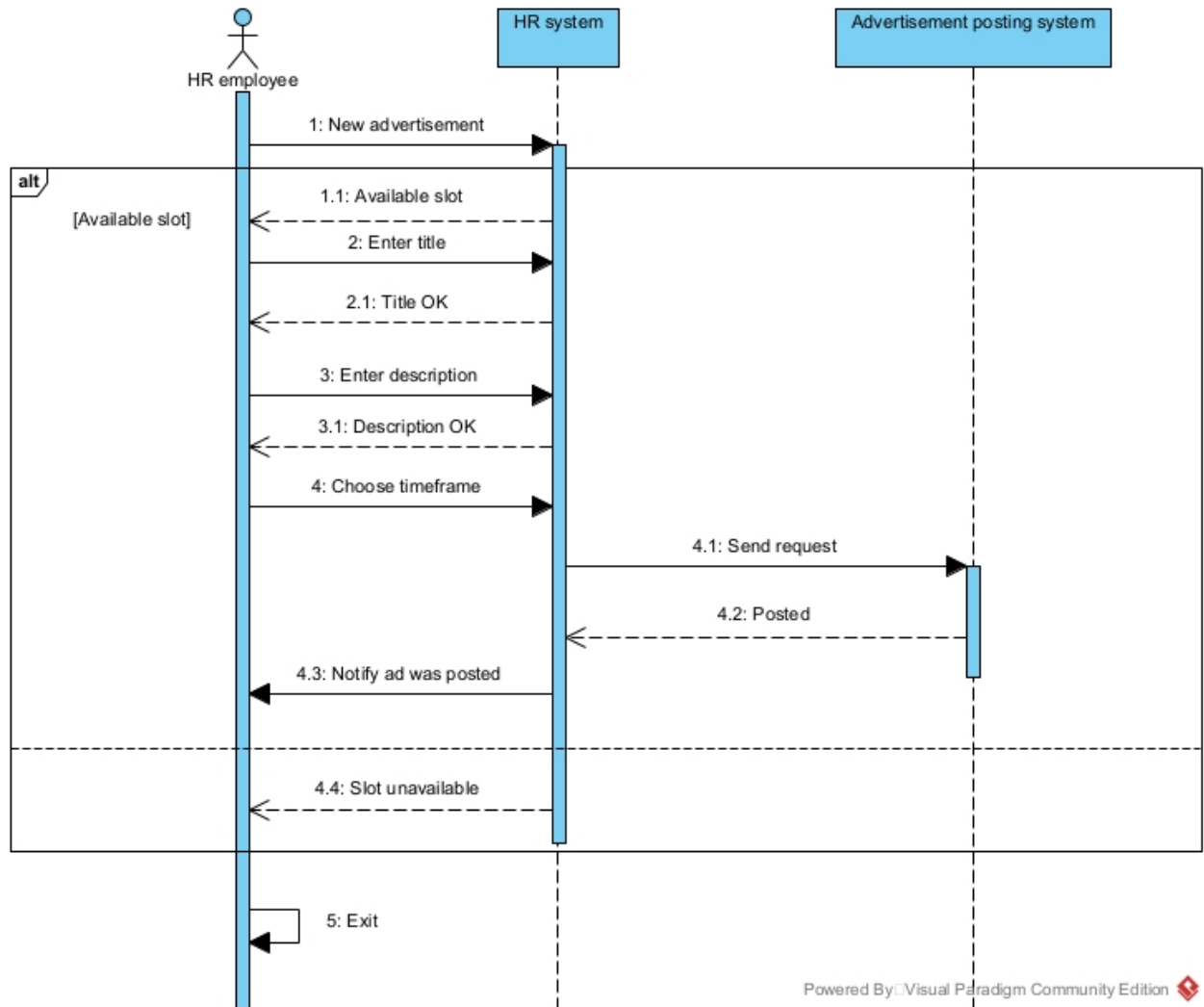
5. Class Diagram



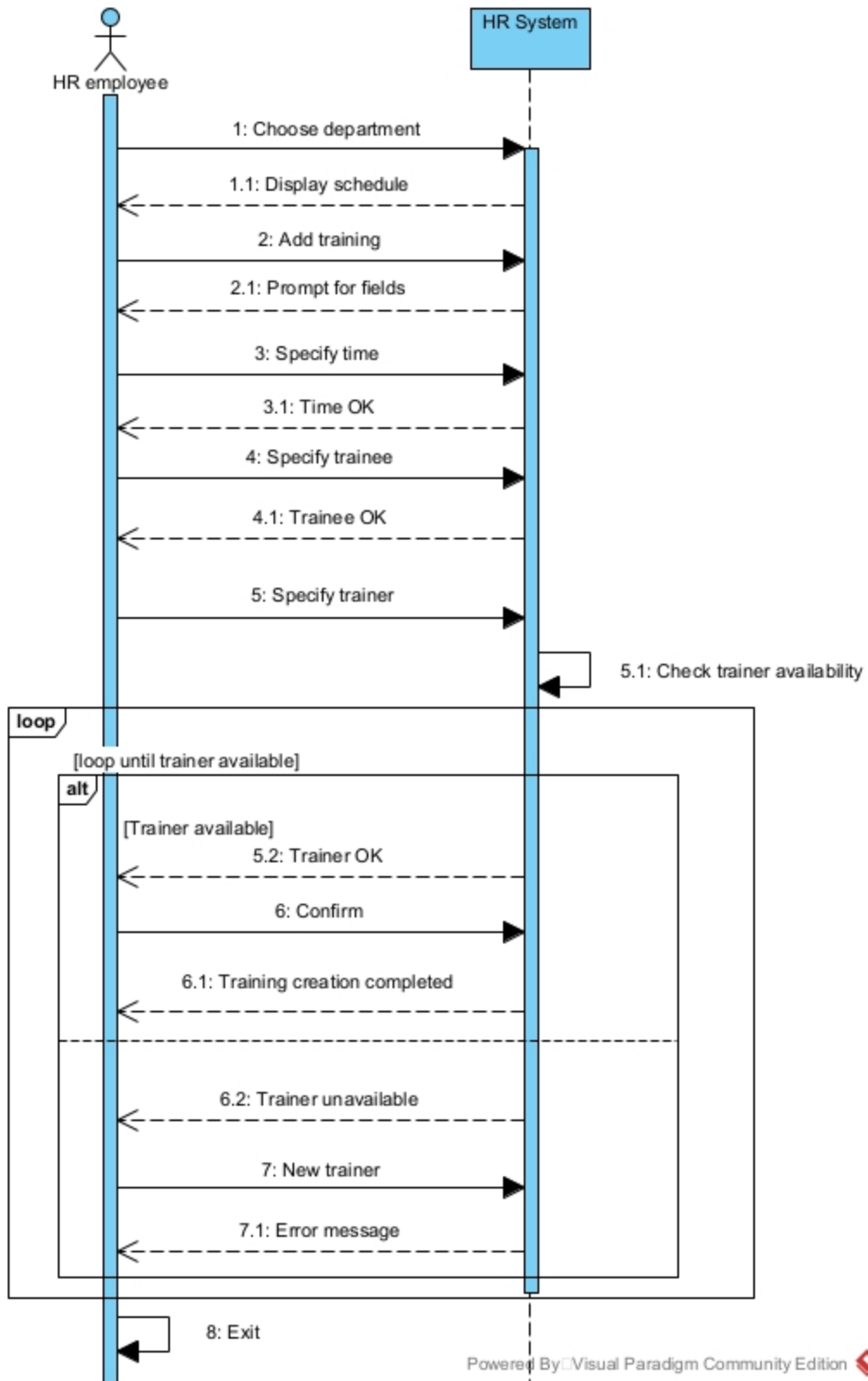
6. Object Diagram

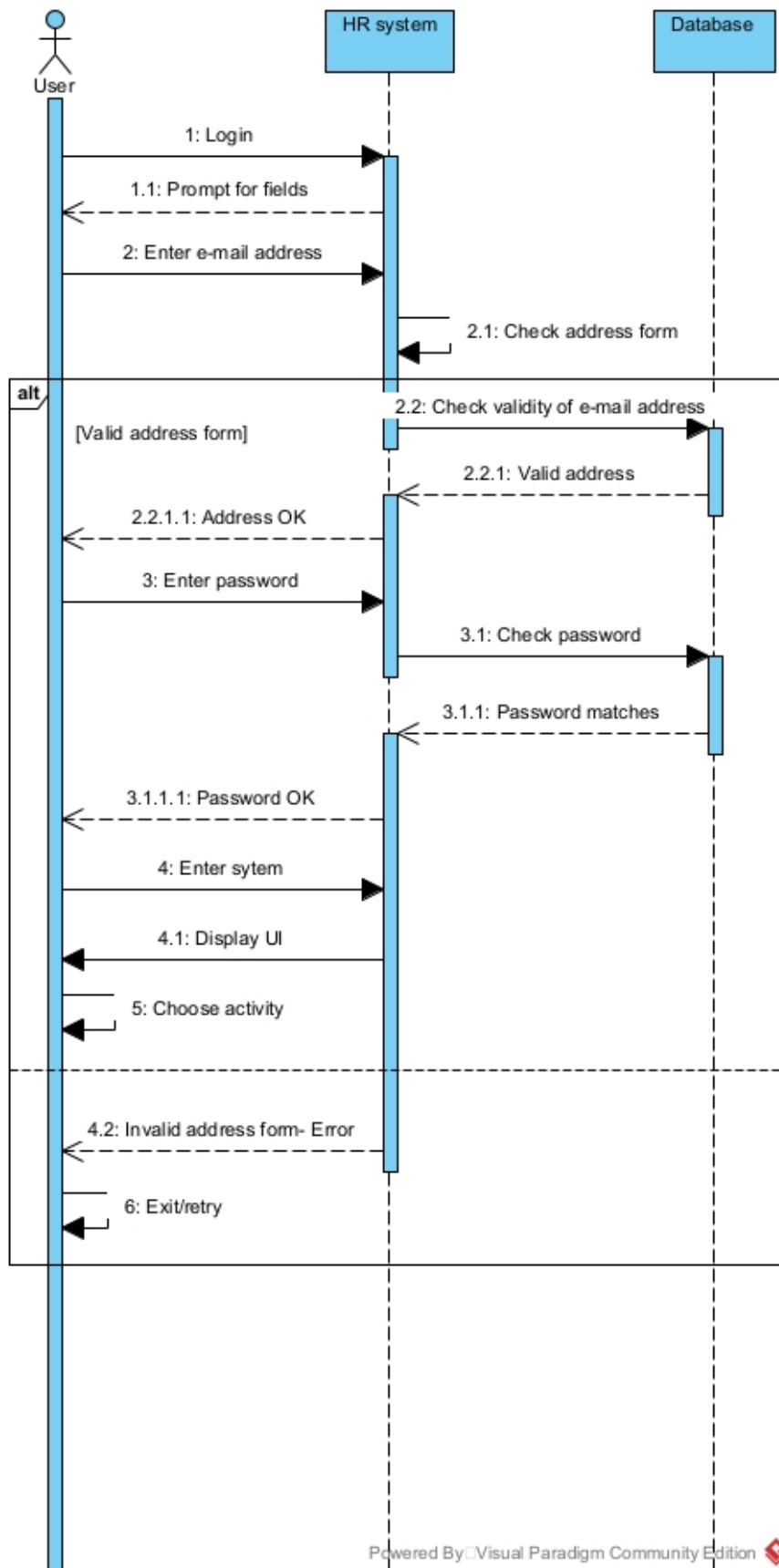


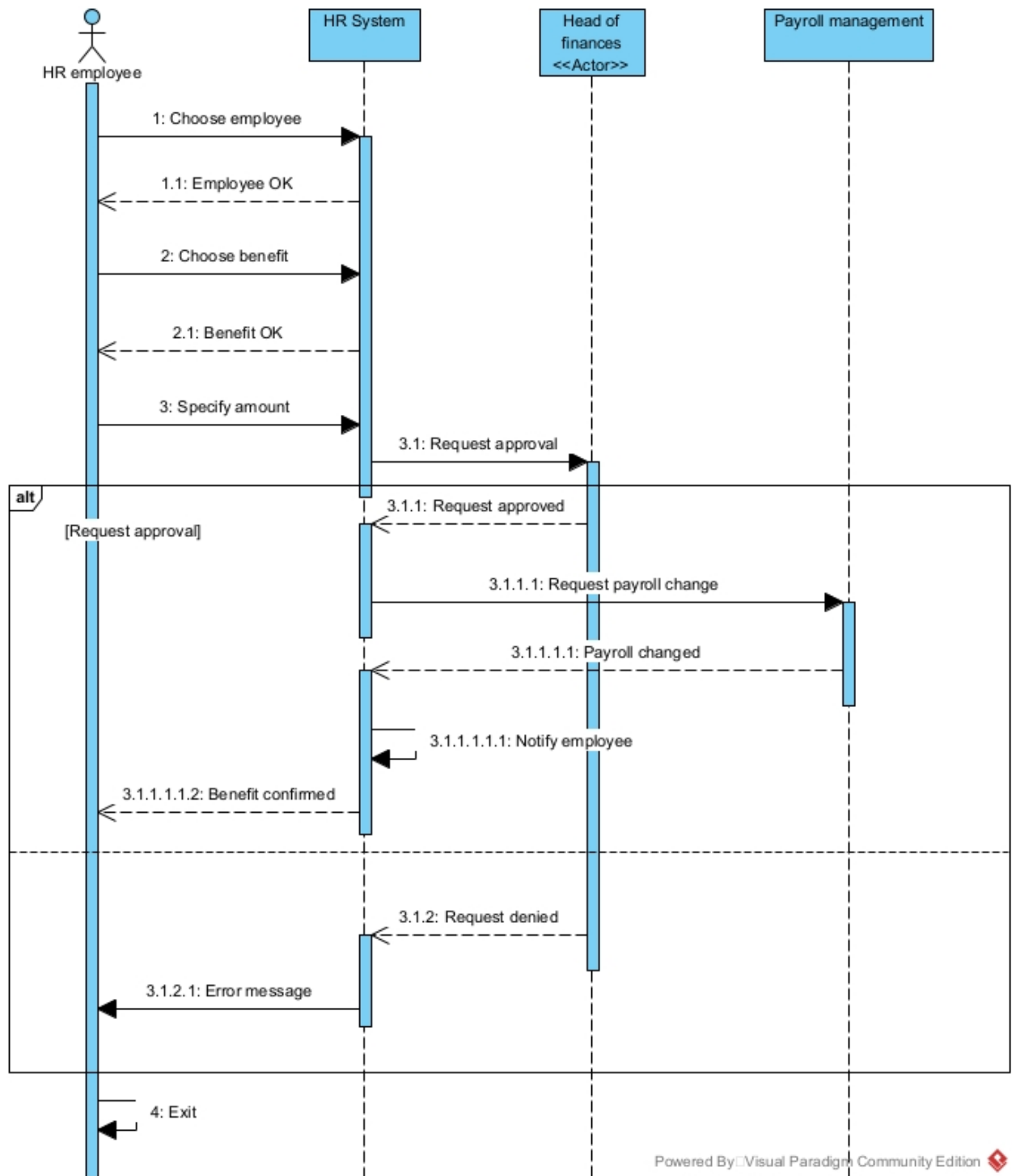
7. Sequence Diagrams

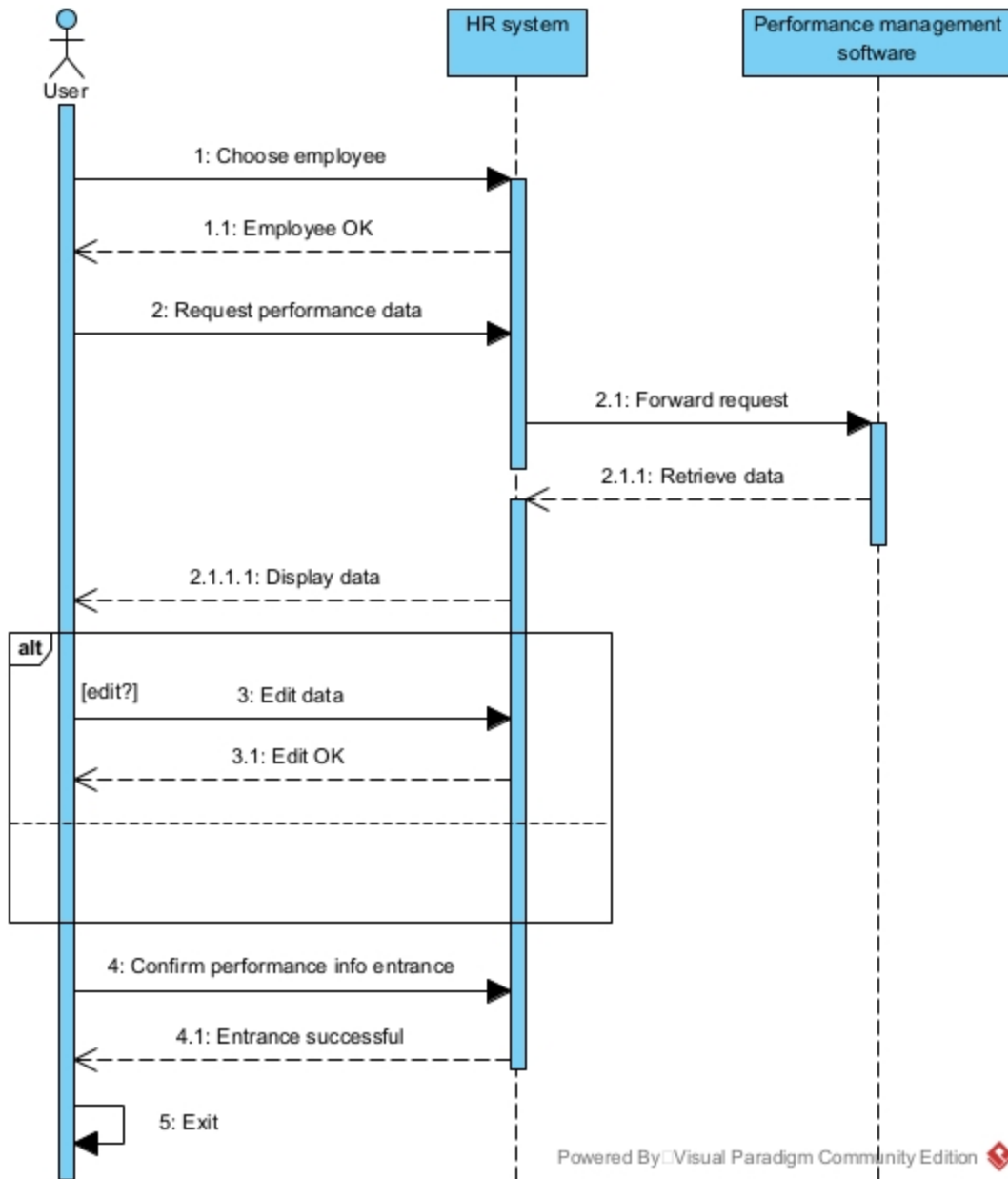


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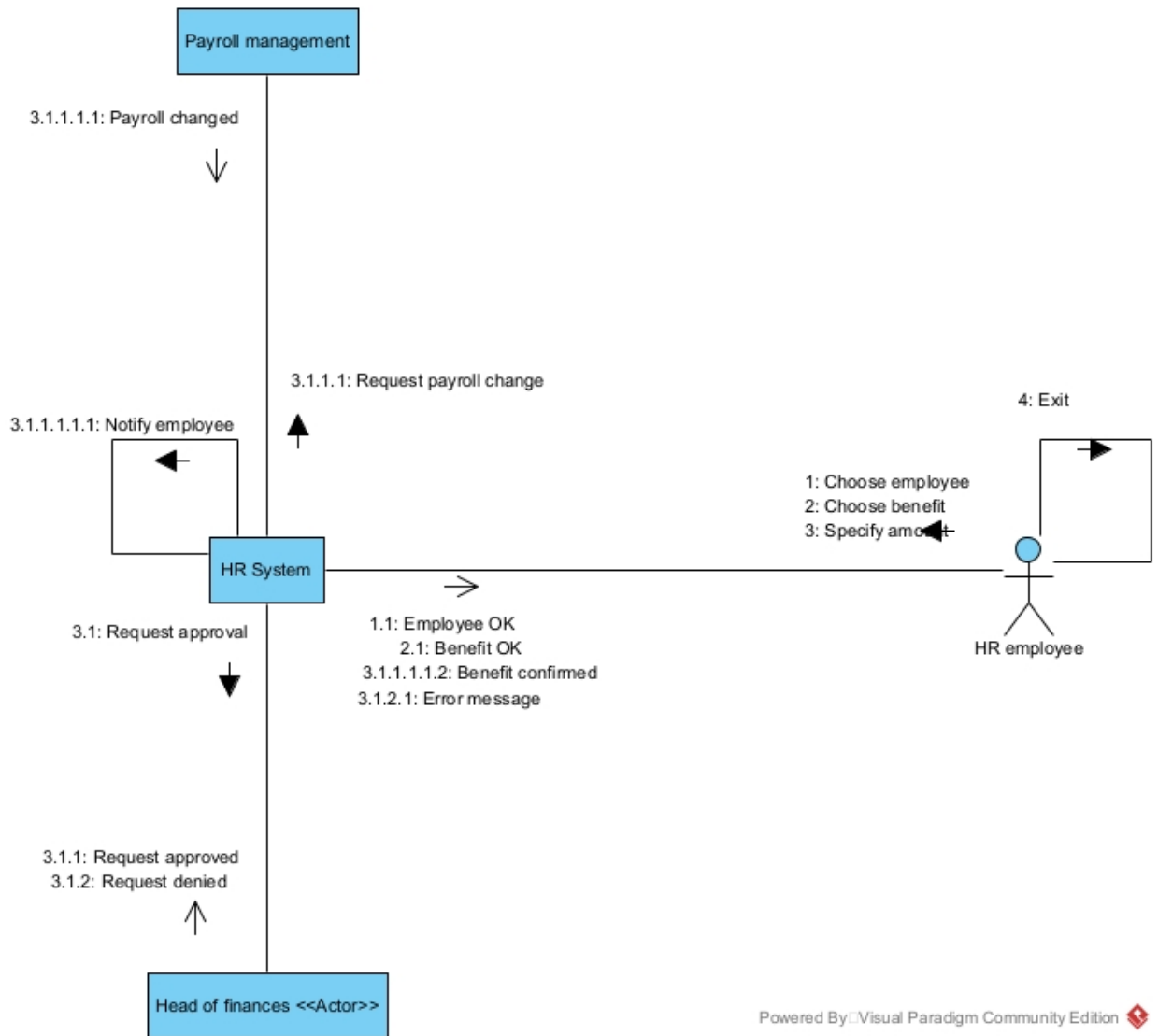


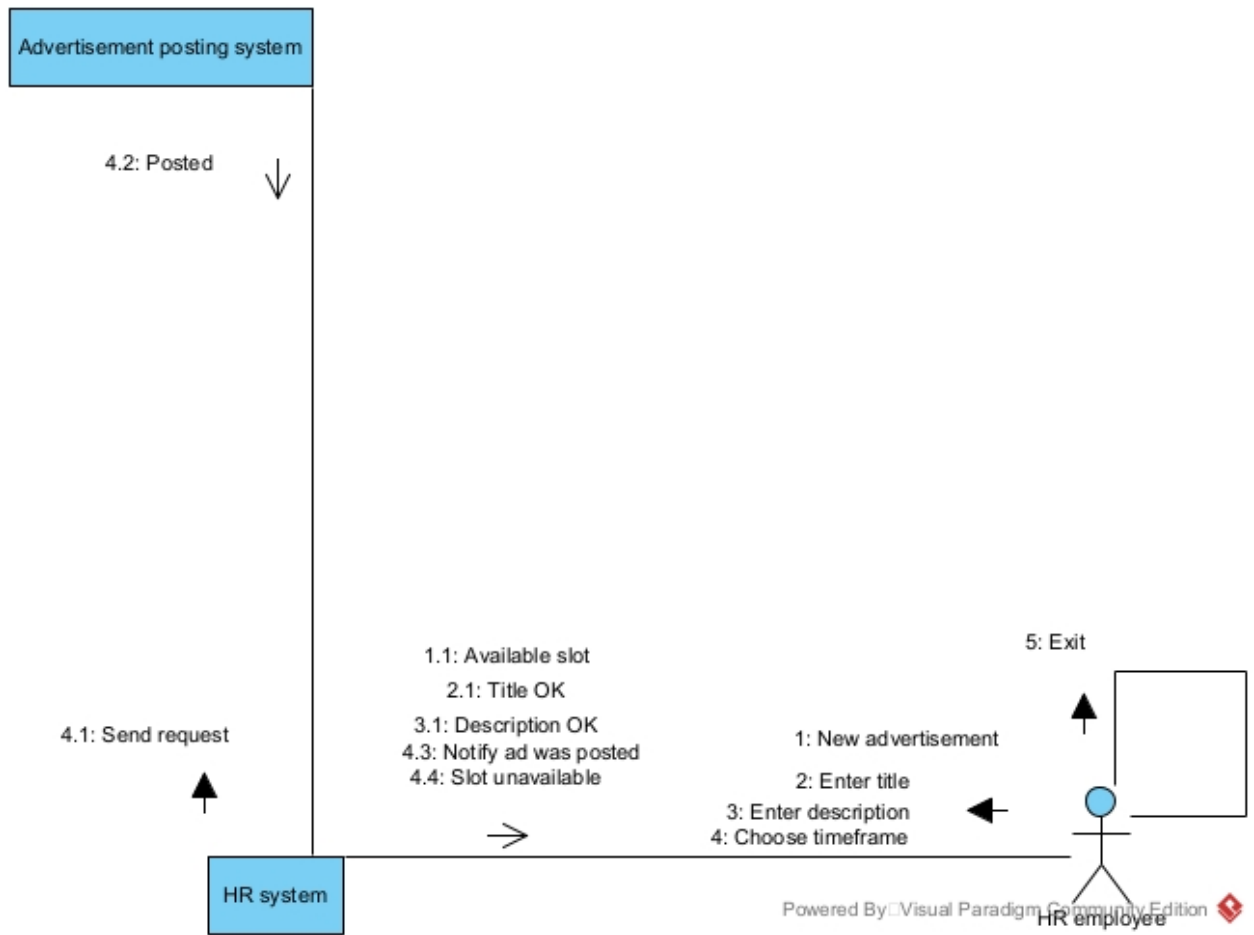


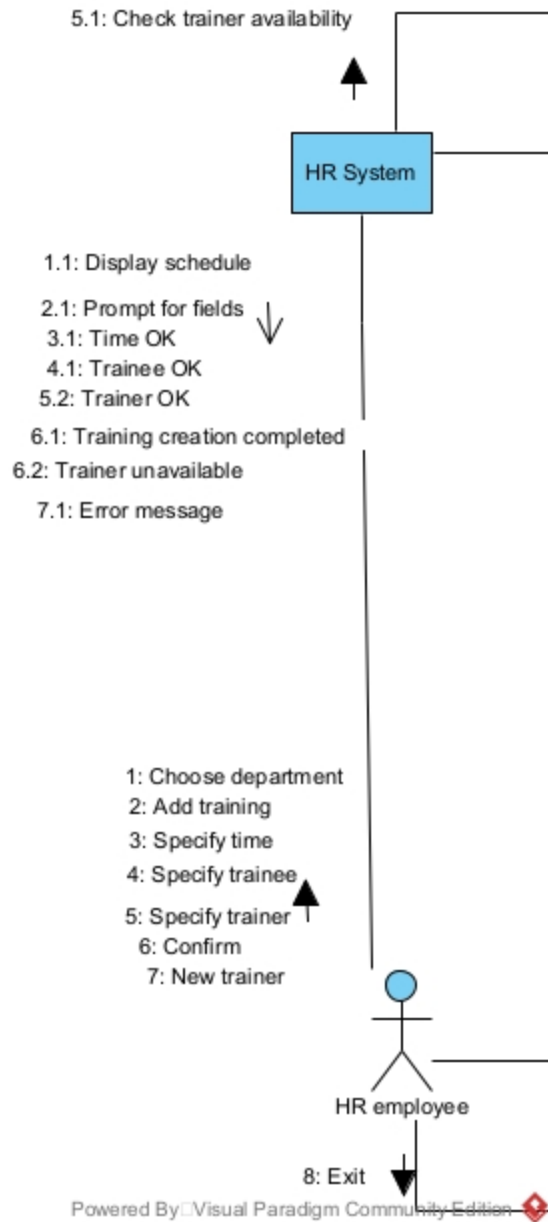


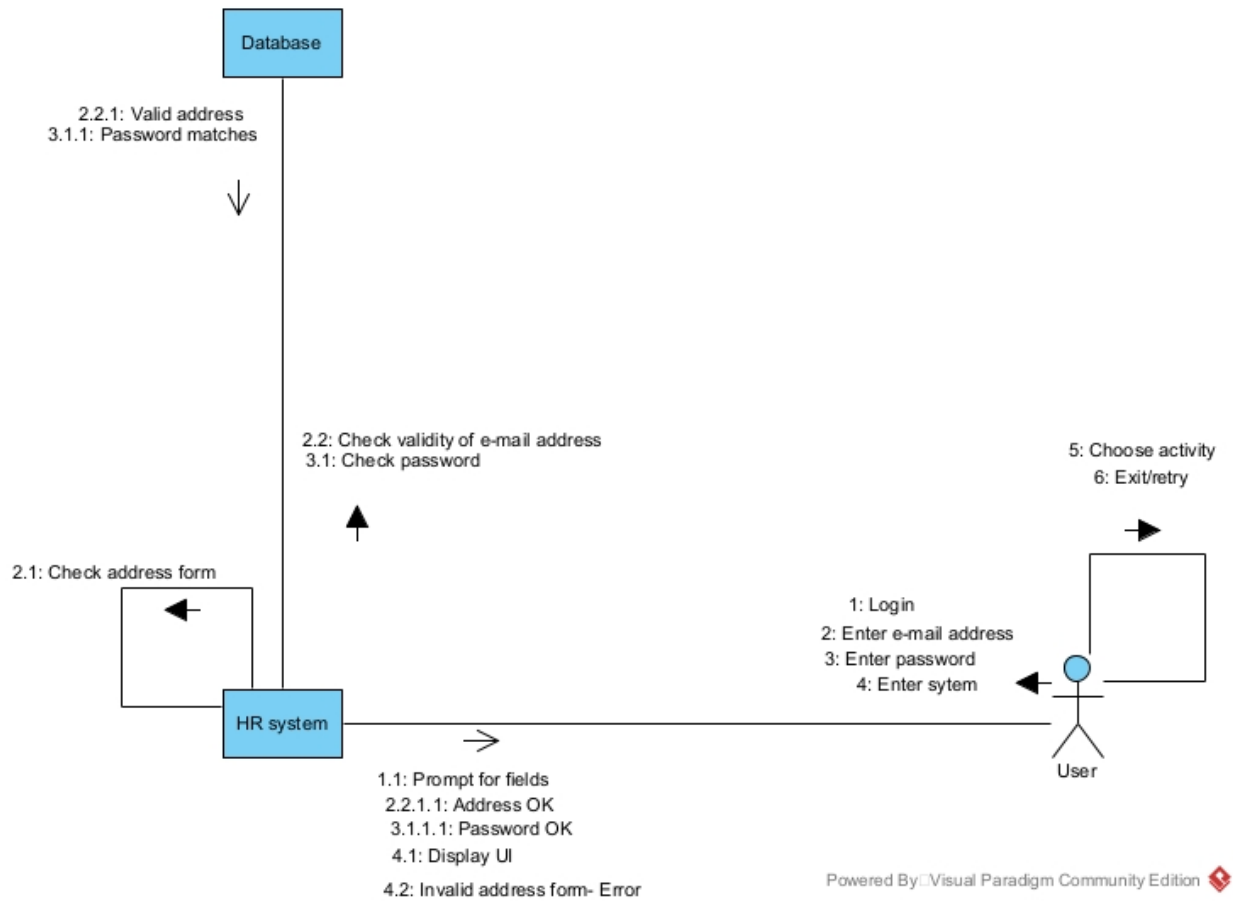


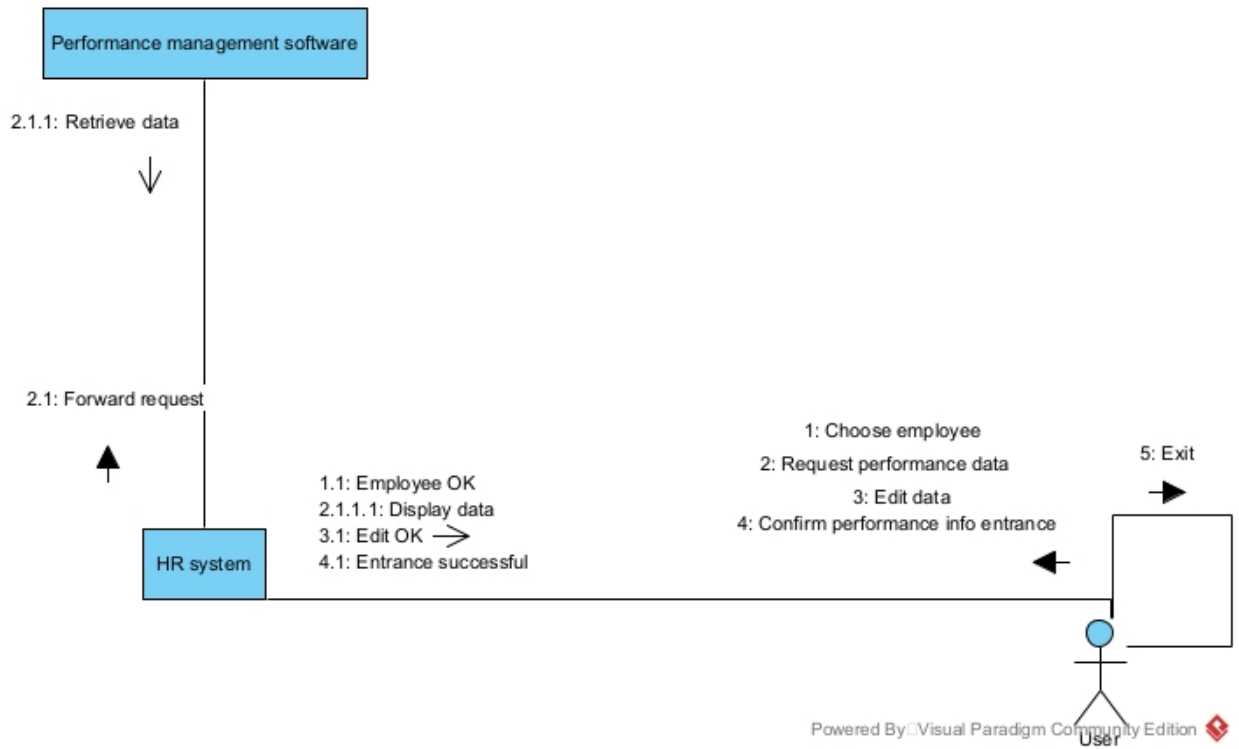
8. Communication Diagrams











9. Behavioral State Machine Diagrams

