
Software Requirements Specification

for

One Stop Degree Issuance System

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Revision History

Name	Date	Reason For Changes	Version

1. Introduction

1.1 Purpose

The Software Requirements Specification (SRS) document specifies the requirements for the One Stop Degree Issuance System, a web-based platform developed to streamline the process of issuing academic degrees at FAST Islamabad campus. This system aims to reduce the time and effort required for degree issuance, bonafide letters, and financial processes. The scope of this SRS is confined to the degree issuance module of the One Stop Services Centre system.

1.2 Document Conventions

This SRS has been written using the following conventions:

1. *Italicized text*: indicates terms that are defined in the References or Glossary section.
2. **Bold text** signifies the names of interfaces or emphasized terms.
3. `Monospaced text` highlights system messages or inputs.
4. Priority levels are not explicitly assigned to each requirement; however, they inherit the priority from their associated higher-level user story.

1.3 Intended Audience and Reading Suggestions

The intended audience for this SRS includes:

1. Developers, who will implement and maintain the system.
2. Project Managers, who will plan and oversee the project development.
3. Quality Assurance Testers, who will test the system.
4. Documentation Writers, who will prepare user guides and help materials.
5. University Administrative Staff and Decision Makers, who will use the system to process degree issuances.

1.4 Product Scope

The One Stop Degree Issuance System is designed to facilitate the efficient processing of degree issuance, reducing wait times for students and workload on administrative staff. The system's goal

is to integrate with the university's existing database to provide a seamless, end-to-end digital solution that supports online request submissions, status tracking, and digital generation and delivery of degrees.

1.5 References

1. FAST Islamabad Campus Guidelines for Academic Processes and IT.
2. University Data Protection and Privacy Policies.
3. Web Content Accessibility Guidelines (WCAG) 2.1.
4. User Interface Style Guide provided by the university's IT department.
5. Existing University Database Documentation.

2. Overall Description

2.1 Product Perspective

The One Stop Degree Issuance System is a new, self-contained product that streamlines the degree issuance process for FAST Islamabad campus. It is not a replacement for an existing system but rather an enhancement to the existing manual and semi-automated processes. As a component of the larger One Stop Services Centre, it specifically addresses the degree issuance module and interacts with the university database for academic and financial records. It interfaces with:

- Student Information Systems for academic records.
- Financial Systems for clearance and fee payments.
- Notification Systems for communicating with students and staff.

2.2 Product Functions

The product includes the following functions:

- Submission and management of degree issuance forms.
- Token generation for unique identification of student requests and complaints.
- Administrative dashboard for overseeing and managing degree issuance activities.

- Batch processing for handling multiple requests efficiently.
- Notification and alert system for communicating status and objections.
- Reporting and analytics for monitoring system efficiency and identifying improvement areas.

2.3 User Classes and Characteristics

The user classes include:

- Students: Submit requests and track the progress of their degree issuance.
- One Stop Admins: Process requests, manage student complaints, and oversee degree issuance.
- FYP Department: Review and provide decisions on degree issuance.
- Finance Department: Verify financial clearances and manage fee-related information.
- Campus Director: Monitor operations.

2.4 Operating Environment

The software will operate in a web-based environment, accessible through standard web browsers. The back-end will run on an ASP.NET framework with a C# programming language and a SQL database. It must be compatible with the university's existing IT infrastructure.

2.5 Design and Implementation Constraints

- Adherence to university's IT policies and data privacy regulations.
- Compatibility with existing database schemas and interfaces.
- Use of ASP.NET, C#, and SQL as specified technologies.
- Responsive design to operate across various devices.

2.6 User Documentation

User documentation will include:

- User manuals for each user class.
- Documentation will be delivered in PDF format.

2.7 Assumptions and Dependencies

Assumptions include:

- Stable integration capabilities with the existing university database.
- Continual access to the university's financial and student information systems.

Dependencies include:

- The SQL database for storing and retrieving data.
- ASP.NET framework and development tools availability.
- Web hosting services for deployment.

3. External Interface Requirements

3.1 User Interfaces

The user interface for the One Stop Degree Issuance System will conform to the following logical characteristics:

- Adherence to the university's GUI standards and style guides, ensuring consistency across the product family.
- A responsive design layout suitable for various devices, including desktops, tablets, and smartphones.
- Standard navigation elements, including a menu bar, back/home buttons, and a logout option on every screen.
- Error messages will be displayed in a consistent and clear manner, with user guidance for resolution.
- Screens for the submission of degree issuance forms, request tracking, admin dashboard, complaint management, and reporting.

3.2 Hardware Interfaces

As a web-based application, the primary hardware interface will be through standard input/output devices including:

- Keyboard and mouse for data entry and navigation.
- Display monitors of varying resolutions, requiring a responsive interface design.

- Network interface cards or adapters for connecting to the university network and internet.

3.3 Software Interfaces

The software product will interface with the following:

- **Databases:** SQL Server (specific version as per the university standard) for storing user data, request details, and system logs.
- **Operating System:** The software will be compatible with major operating systems that support ASP.NET, primarily Windows Server editions.
- **Integrated Development Environment:** Visual Studio for ASP.NET and C# development.
- **Libraries:** .NET Framework libraries for backend development.

3.4 Communications Interfaces

Communication functions will include:

- A web browser interface accessible via standard protocols such as HTTP/HTTPS.
- Network communications will conform to the university's TCP/IP-based network infrastructure.
- Electronic forms within the application for data submission and requests.

4. System Features

Following are the system features for Degree Issuance System.

4.1 Degree Issuance Management

4.1.1 Description and Priority

This feature provides a communication channel between the system and the users (students, admin, and other departments). It includes the distribution of alerts regarding request statuses and objections. This feature is of **High priority** for ensuring the transparency and efficiency of the degree issuance process.

4.1.2 Stimulus/Response Sequences

- System updates the status of a request (Stimulus).
- Students check the status update (Response).
- Admin marks a request as needing additional information (Stimulus).
- Students receive an objection alert and are prompted to respond (Response).

4.1.3 Functional Requirements

- The system must generate a digital degree certificate and send it to the student once the admin selects the student for degree issuance.
- The system must update the student's status and allow the admin to close the request when a degree is generated.

4.2 Reporting and Analytics

4.1.1 Description and Priority

This feature offers a reporting mechanism for admins to monitor and analyze the degree issuance process. The priority is Medium as it supports decision-making and system improvement but is not directly involved in the core processing of requests.

4.1.2 Stimulus/Response Sequences

- Admin requests a report on degree issuance activities (Stimulus).
- System generates and presents the report (Response).

4.1.3 Functional Requirements

- The system must allow admins to receive and view objections to degree issuance from FYP or Finance Department.
- The system must send an alert to the student regarding any objections once the admin informs them.

4.3 Complaint Submission

4.1.1 Description and Priority

This feature enables students to submit complaints regarding inaccuracies or issues with their academic records or degree issuance process. The feature is of **High priority** as it directly impacts student satisfaction and the integrity of the degree issuance process.

4.1.2 Stimulus/Response Sequences

- Students login and navigate to the complaint submission form (Stimulus).
- Student submits a complaint regarding a spelling mistake or error in academic records (Stimulus).
- System acknowledges the complaint with a confirmation message (Response).
- Admin reviews the complaint and initiates corrective action (Stimulus).
- Students receive notification of the action taken or resolution status (Response).

4.1.3 Functional Requirements

- System shall provide an online form for students to submit complaints.
- System shall issue a confirmation with a tracking token to the student upon complaint submission.
- System shall notify admins of new complaints in real-time.
- System shall allow admins to update the status of a complaint, including requesting additional information or clarifications from the student.
- System shall enable students to track the status of their complaints through the activity tracking feature.
- System shall log all complaint submissions and resolutions for auditing and quality assurance purposes.
- In case of invalid input or error during submission, the system shall display a user-friendly error message and prompt the student to correct the input.
- System shall send notifications to students about the progress or resolution of their complaints, including any actions they need to take.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

Priority = High

5.1.1 The system must load the admin dashboard within 2 seconds under standard operating conditions.

5.1.2 The system must generate and display unique tokens for student requests and complaints instantly upon submission.

5.2 Security Requirements

Priority = Low

5.2.1 The system must enforce strong password policies for admin accounts to prevent unauthorized access.

5.2.2 The system must use secure protocols (like HTTPS) for all transactions involving sensitive data.

5.3 Software Quality Attributes

5.3.1 Usability

Priority = High

- The system must provide an intuitive interface for the admin dashboard, allowing admins to easily navigate through various degree issuance activities.
- The system must offer a user-friendly way for admins to filter and manage student requests and complaints.

5.3.2 Reliability

Priority = High

- The system must have an uptime of 99.9%, ensuring consistent availability for admins to perform their tasks.
- The system must ensure that the degree and transcript generation process is error-free.

5.3.3 Scalability

Priority = Low

- The system must be able to handle the addition of up to 10,000 new student records without degradation of performance.
- The system must support concurrent use by at least 100 admins without performance loss.

5.3.4 Maintainability

Priority = Low

- The system code must adhere to industry-standard coding practices to ensure maintainability.
- The system must be designed to facilitate easy updates and integration with other university systems.

5.4 Business Rules

1. Role-Based Access Control:

- Only authenticated users can access the system. Authentication is required for all roles including students, One Stop Admins, FYP Department staff, and Finance Department staff.
- Students can submit requests and complaints but cannot access administrative functionalities.
- One Stop Admins can manage and process requests and complaints but cannot approve degree issuance; this is reserved for the FYP Department.
- The FYP Department has the authority to approve or reject degree issuance requests but cannot process financial transactions.
- The Finance Department can access and update financial records and status, but cannot alter academic records or approve degree issuance.

2. Complaint Handling:

- Complaints submitted must be related to degree issuance processes or academic record errors.
- All complaints must be addressed within a predefined time frame, e.g., 5 business days.

3. Degree Issuance:

- A degree can only be issued to a student who has met all academic and financial requirements.
- No degree will be issued unless cleared by both the FYP and Finance Departments.

4. Notification System:

- Students must be notified of significant status changes to their requests or complaints, such as receipt of request, pending actions required, approval, or denial.
- Automatic notifications must be sent for degree issuance approvals, rejections, and when additional information is required.

5. Data Integrity and Privacy:

- Student records, including grades and personal information, must be kept confidential and secure in accordance with data protection regulations.
- Access to student records must be logged and monitored for unauthorized access attempts.

6. Financial Transactions:

- Any outstanding fees must be cleared before a degree issuance request is processed.
- Financial transactions and clearance status updates must be reflected in real-time in the student's profile.

7. Reporting:

- Reports generated by the system must reflect real-time data and must be available only to authorized admin personnel.

8. Academic Record Updates:

- Academic records can only be modified by authorized admin personnel, and any changes must be logged with a timestamp and the admin's identification.

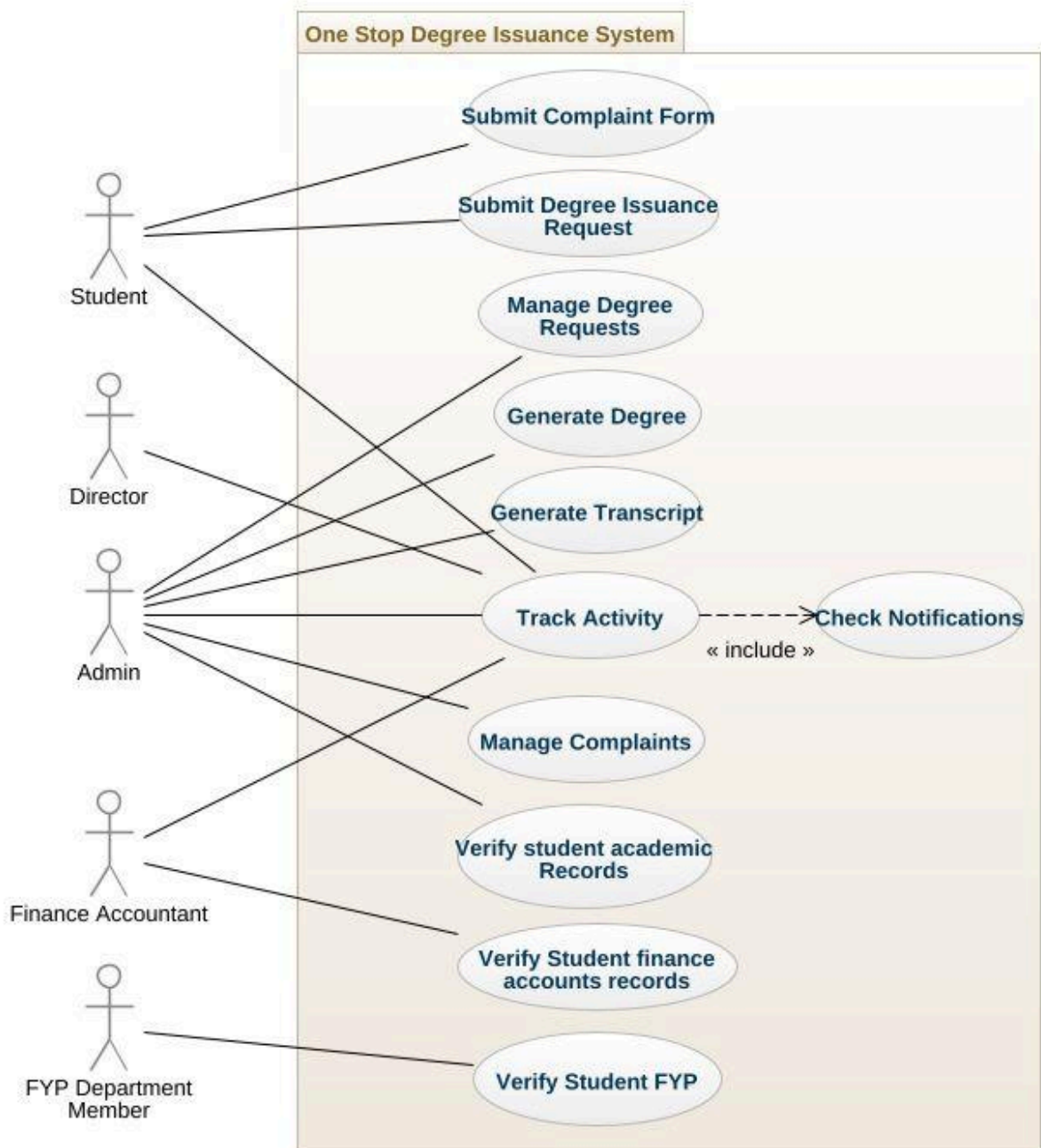
9. System Availability:

- The system must be available for access 24/7, except during scheduled maintenance times, which should be communicated in advance to all users.

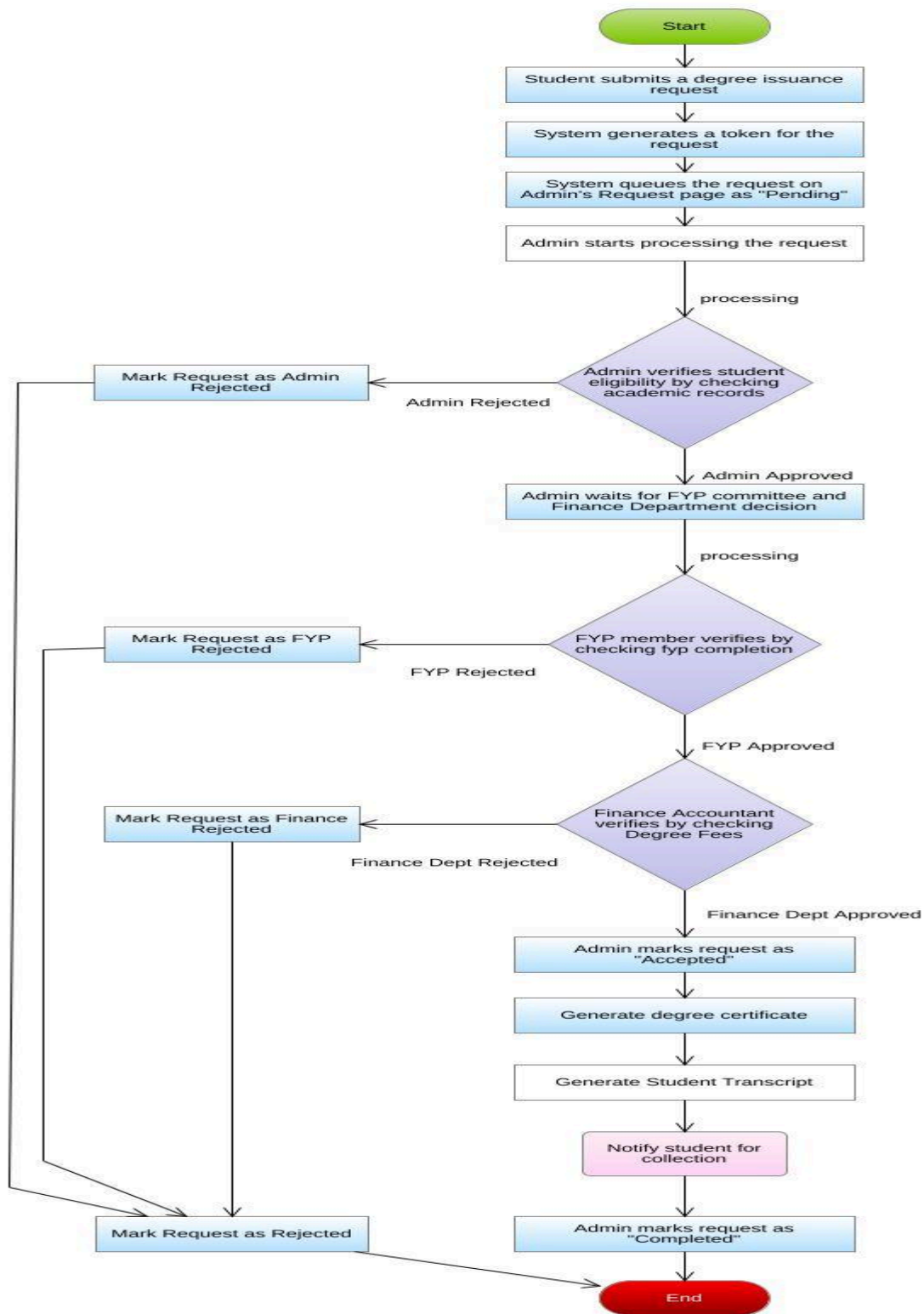
6. Diagrams

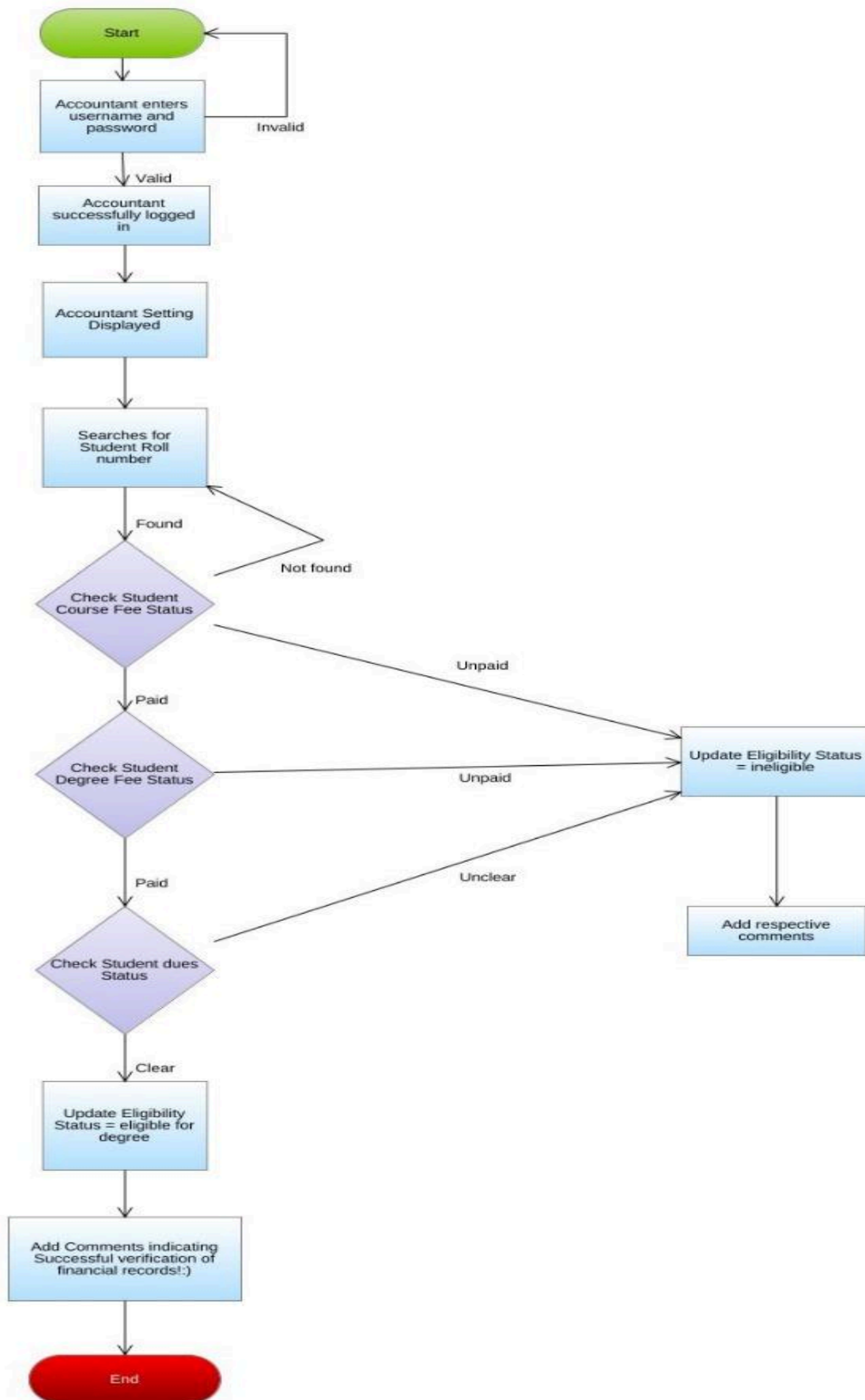
The following diagrams illustrate the functional requirements:

6.1 Use Case Diagram



6.2 Activity Diagrams





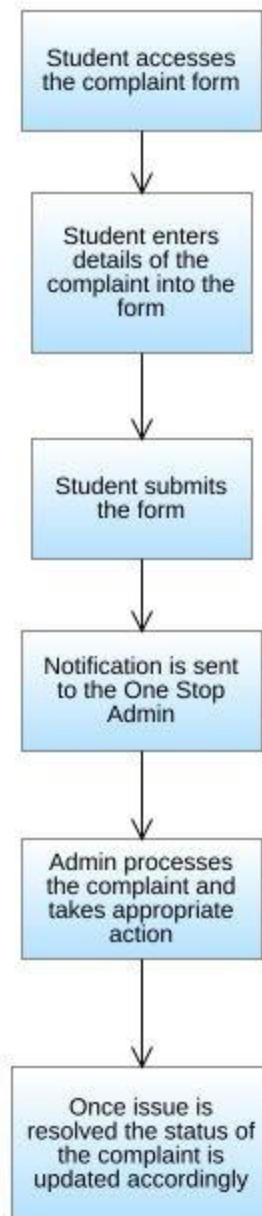
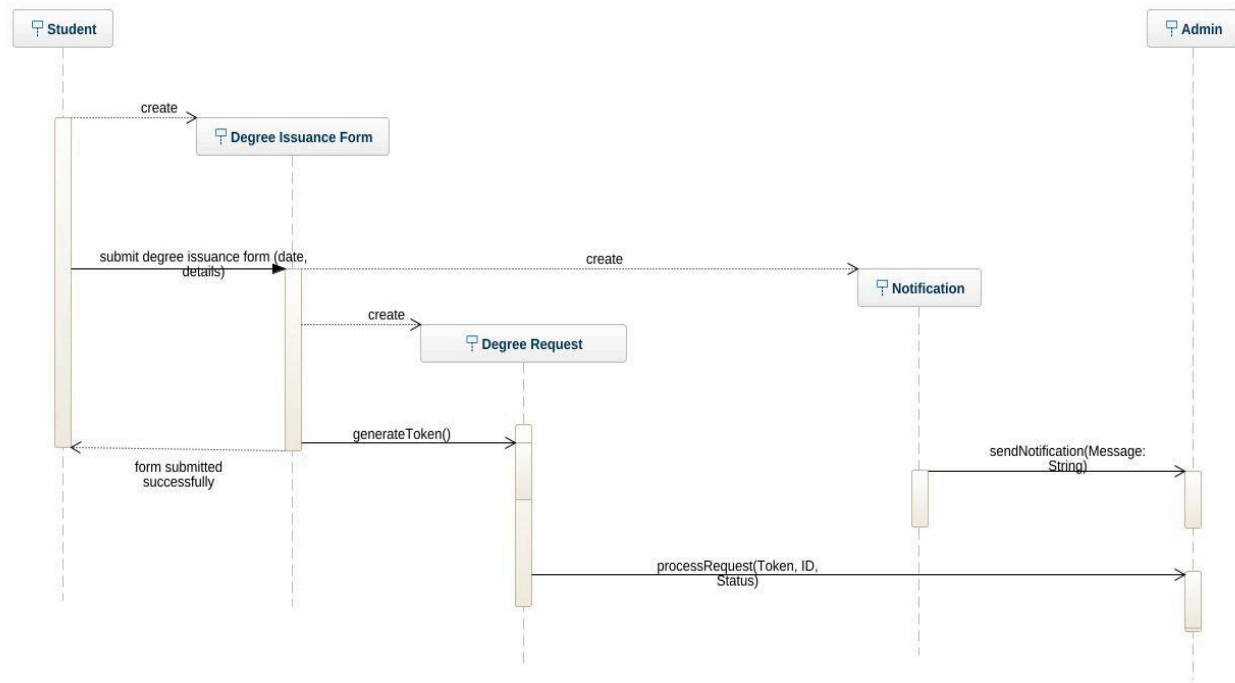
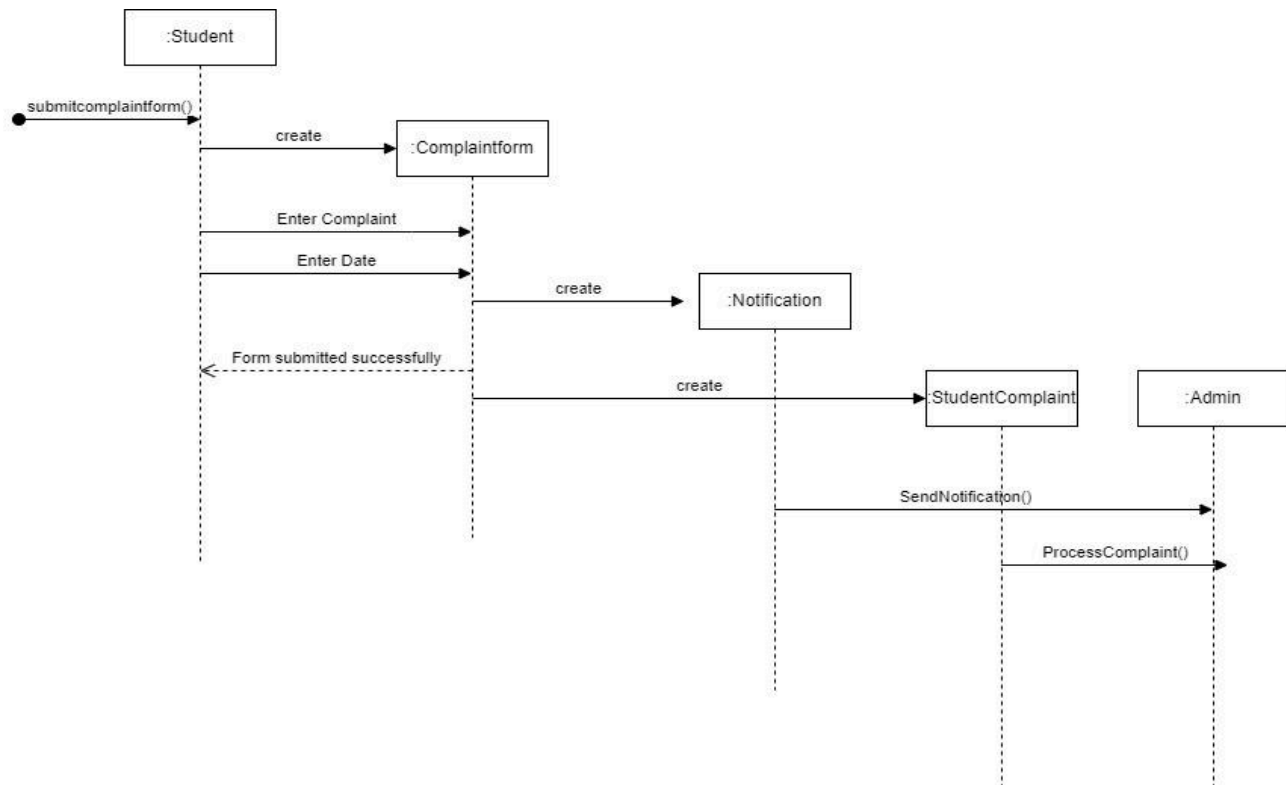
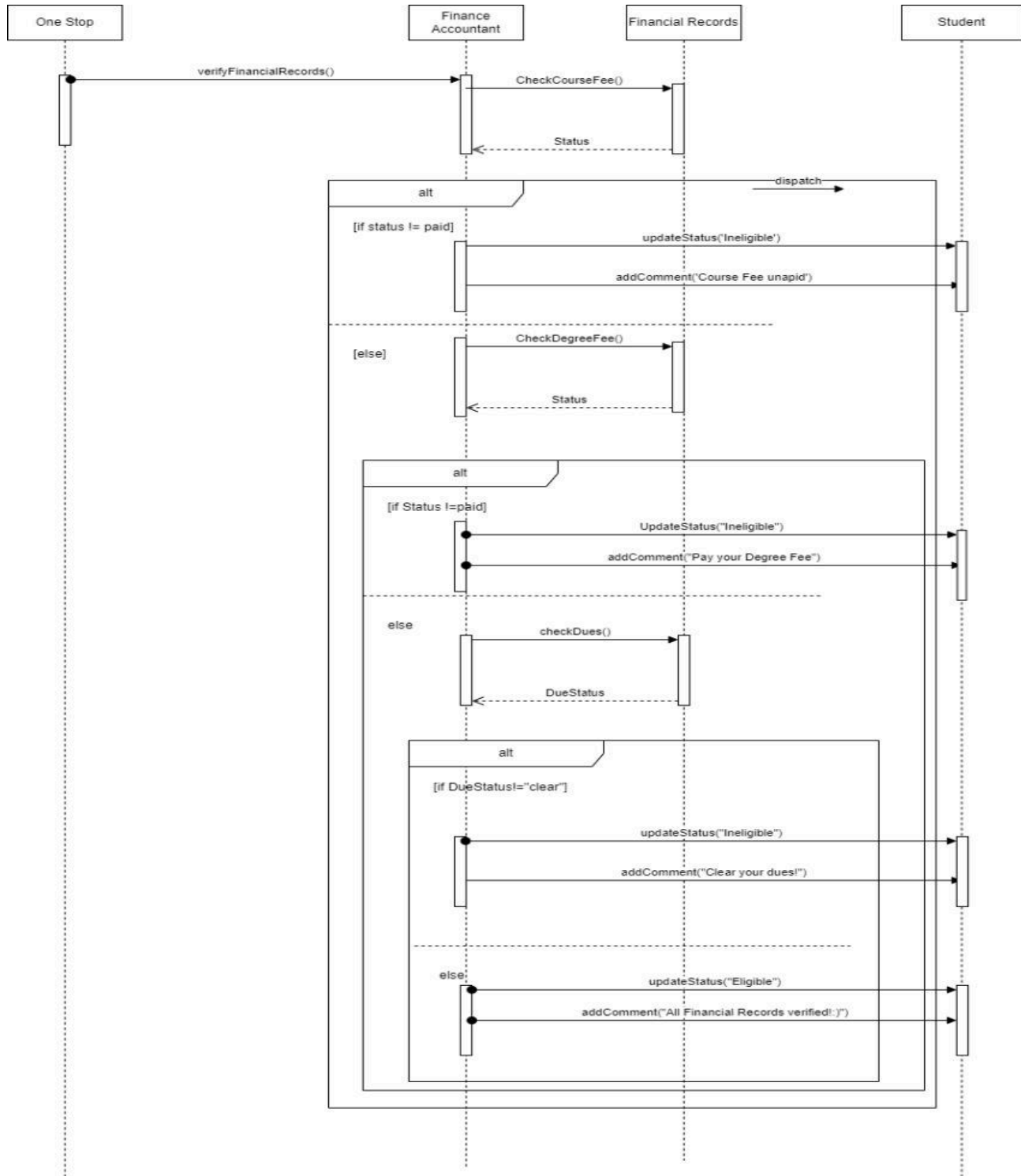


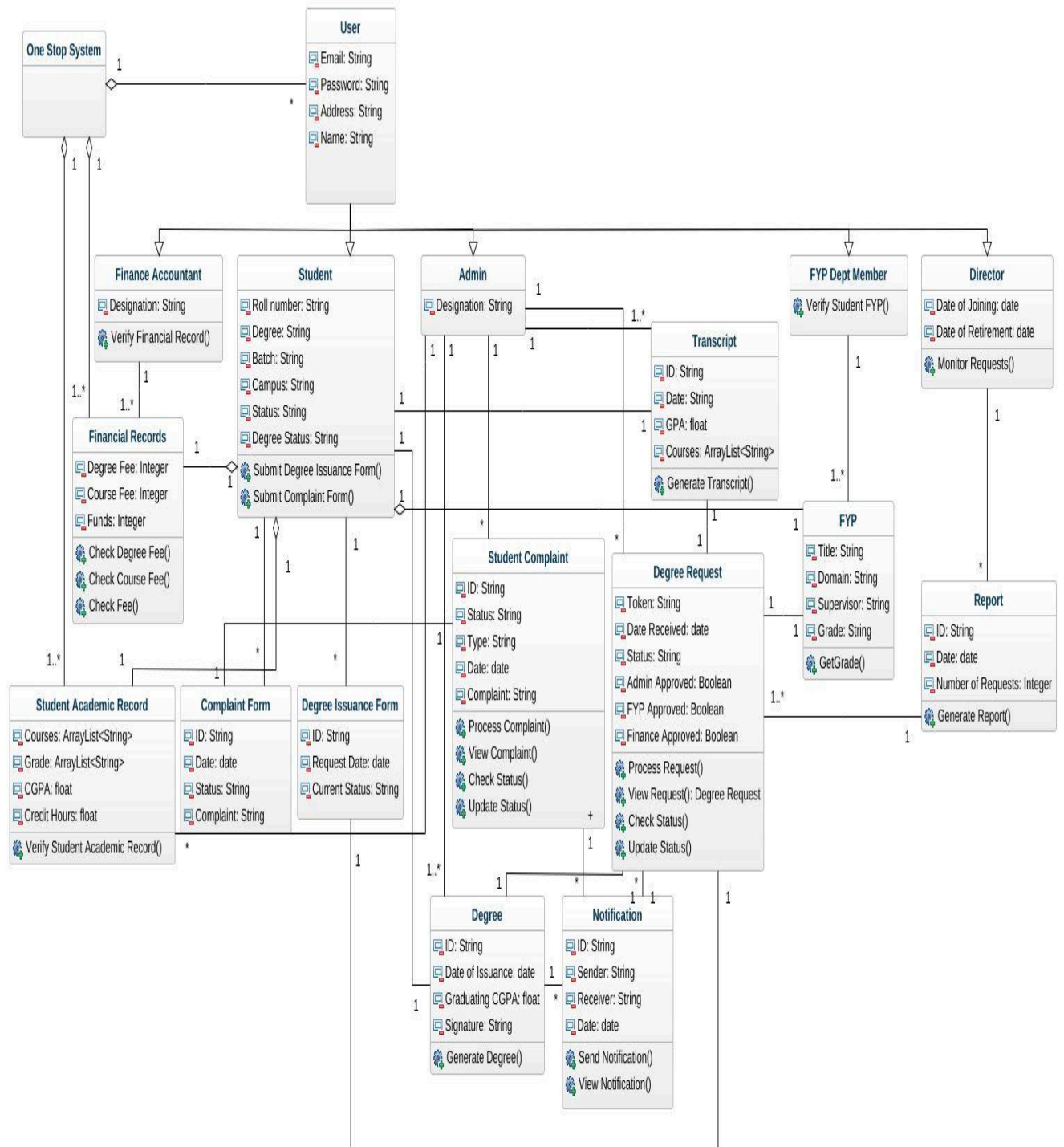
Diagram -3

6.3 Sequence Diagram





6.4 Class Diagram



Appendix A: Glossary

- *One Stop Services Centre: A centralized platform provided by FAST Islamabad campus to facilitate various student-related services, including degree issuance.*
- *Degree Issuance System: The module within the One Stop Services Centre specifically designed for managing the degree issuance process.*
- *SRS: Software Requirements Specification, which outlines the requirements and specifications for the software to be developed.*
- *FYP: Final Year Project, which may refer to the project itself or the department responsible for overseeing final year projects at the university.*
- *Admin: Administrator, a user role within the system responsible for managing requests and processing degree issuance.*
- *SQL: Structured Query Language, a programming language used for managing and manipulating databases.*
- *ASP.NET: An open-source, server-side web application framework designed for web development to produce dynamic web pages, developed by Microsoft.*
- *C# A programming language developed by Microsoft, used for a wide range of enterprise applications that run on the .NET Framework.*
- *GUI: Graphical User Interface, the visual part of the software that allows users to interact with electronic devices through graphical icons and visual indicators.*
- *SMTP: Simple Mail Transfer Protocol, an internet standard for email transmission across IP networks.*
- *HTTPS: Hypertext Transfer Protocol Secure, an extension of HTTP for secure communication over a computer network.*
- *JSON: JavaScript Object Notation, a lightweight data-interchange format that is easy for humans to read and write.*
- *XML: eXtensible Markup Language, a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable.*
- *TBD: To Be Determined, an abbreviation used to indicate aspects that require further information or decisions.*

Appendix B: Analysis Models

The following are the analysis models:

- Activity Diagram
- Class Diagrams
- Sequence Diagrams
- Use Case Diagram

Appendix C: To Be Determined List

1. TBD-1: Final decision on the hosting environment for the Degree Issuance System.
2. TBD-2: Approval of the data retention policy for compliance with data protection regulations.
3. TBD-3: Specific details of the notification system's integration with third-party email services.
4. TBD-4: Detailed specifications of the report formats and the data to be included in them.
5. TBD-5: Clarification of the university's policies on data sharing and student privacy in relation to system access.
6. TBD-6: Definition and scope of the administrative functionalities to be provided to FYP and Finance Department staff.
7. TBD-7: Selection of encryption standards and protocols for secure data transfer within the system.
8. TBD-8: Establishment of the maintenance window and system availability expectations.
9. TBD-9: Complete list of all keyboard shortcuts to be supported by the system.
10. TBD-10: Final user interface design standards and responsive design requirements.