FYP SRS Document

Final Year Project

Software Requirement Specification

For

Questify FYP Portal

BSCS

By

S#	Name	Registration #/Roll #/Section	Mobile #	E-Mail
1.	ATEEQ UR REHMAN	Fa-2021/BSCS/197-E	+92 312 5053926	ateeq786316@gmail.com
2.	MUHAMMAD TALHA	Fa-2021/BSCS/167-E	+92 313 7839889	talhamughal2599@gmail.com

Supervised by:

Ms. Rabia Khan   _____ (Signature)

Department of Computer Science
Lahore Garrison University
Lahore

Table of Contents

1. Introduction

The Questify FYP Portal is a unique and collative system that show the working of FYPs for both students and teachers at Lahore Garrison University. FYP is a important task in student's degree, thus effective and smooth management system play important role in it. Questify is solution to which is one solution for all problems which student and faculty faces during project proposal submissions, supervisor allocation, progress tracking and document sharing. The portal fill-up the communication gap between students and supervisor by notifications, shared calendars, and online meeting. The interface is friendly so student can track their working and get feedback from teacher, while supervisor can manage multiple projects of student with ease. Questify aims to let the user feel best experience of FYP portal, saving money, time and resources by being transparent, scalable, and according to LGU's needs.

1.1 Purpose

This Software Requirement Specification (SRS) document related to the "Questify FYP Portal" software product, version 1.0. Questify FYP Portal is new, web-based system which is designed for management of Final Year Projects (FYPs) at Lahore Garrison University. The purpose of this system is to make FYPs project management flow faster and digitized, and for the better facilitation, communication and collaboration between students and faculty, making process more trackable to make sure timely completion of all projects.

The scope of this Software Requirement Specification (SRS) covers the entire Questify FYP Portal, providing a clean and clear overview of the important requirement and functionalities needed for its development, deployment, and maintenance. This document focusses on complete system architecture and its features, which have user authentication, proposal submissions, supervisor allocation, work tracking, document management, feedback, suggestions, notifications and tools for communication. The SRS aims to make the development process meet the needs of LGU, overall creating a big, scalable and user-friendly system that make the FYPs and management process easy for both students and faculty. Software Requirement Specification (SRS) document present both functional and non-functional requirements for the proposed project so that different stakeholders can get complete insight of the project at a quick glance.

1.2 Document Conventions

Document convention for the Questify FYP portal Software requirement Specification (SRS) have been made to things clear and consistent in document. The primary font used is Times New Roman, size 12, which made the text readable and make it look professional. Heading are Bold to identify each section clearly, main headings follow heading 1 styles with font size 16 while subheadings follow heading 2 style in Times New Roman font, size 13. Each heading and subheading have its own priority level. Spacing are most important point for the formatting so spacing for Heading 1 before is 6pt and after is 12pt and for subheadings before 6pt and after 12pt, for the paragraphing with line spacing of 1.5. This hierarchy structured help in understanding the importance of each requirement to overall project. By these methods, the SRS help everyone to understand each and everything clearly. It also works as a guide path during development of the project.

1.3 Intended Audience and Reading Suggestions

Developer: The main focus are functional and non-functional requirements, including architecture, database design and coding rules.

Users: The users are students, advisor faculty, administrative staff, who will use FYP portal. Users will know that how the portal meet their needs, how it works, how to access and what functionality are present which can help to enhance their work. Start with user requirement and Designs.

Documentation Writers: Task to create user manual and help by getting information from SRS about features, workflows, and usage scenarios. Focus on sections that give clear info of functionalities and user interactions.

Project Managers: Get to know scope, objectives, deliverable, and timelines. The main interest in sections related to management, resource allocation, risk and budget.

Tester: Understand the expected functionalities of the Questify FYP Portal. Main focus on section like test cases, acceptance criteria, and performance.

Stakeholders: Focus on project's outcomes, goals, benefits of implementing the portal.

1.4 Product Scope

The Questify is designed to make a big change in the management of Final Year Projects (FYPs) at Lahore Garrison University. This system is to smooth out the all FYPs process, it helps students and

faculty work together and deals with common problems. By bringing a common platform for proposal submissions, supervisor allocation, progress tracking, and document sharing, Questify also help in communication between students and supervisors. The initial goal is making a user-friendly platform that is transparent and organized. It allows students to track their working and get feedback from their advisors, and work on them timely. For Teachers, management of multiple FYPs is simplified, to make sure that, they give clear guidance and support them with ease. In addition to boost project management, Questify aims to save time, resources, and money of students and teachers. That will be done by integrating features such as notifications, shared calendars, and online meetings, that features with fill out the communication gap, and making FYP experience good and effective. At end, Questify FYP portal full fill the goals of Lahore Garrison University by improving the working experience, and developing students for their future careers' effective project management.

2. Overall Description

2.1 Product Perspective

Questify FYP portal is unrestricted and customized web system that developed to serve the Final Year project management of Lahore Garrison University's requirement. It is designed for Computer science department but can be extended to others, it serves as common platform for students, teachers, admin department, and external examiner. The system has a user-friendly interface for submission, supervisor allocation, work tracking, document checking, communication and grading. It collaborates with university's Student portal system, to verify student's enrollment, categorizing supervisor by their expertise, email notifications, and work tracking. It is a secure online system which accessible from any browser. This removes the need of external software installation. System makes sure the consistency of data access and make the connection between students, faculty and administrator easy.

2.1.1 Dependencies on Third-Party Software

- **Node.js**: For server-side development to handle requests.
- **React.js**: For creating a dynamic and responsive user interface.
- **MongoDB**: For database management and secure storage of user data and project-related information.
- **WebSocket Services**: To enable real-time communication features such as notifications.
- **Email Service APIs** (e.g., SendGrid or Node mailer): For sending automated email notifications to users.
- **Cloud Storage Platforms** (e.g., AWS S3, Google Drive): For secure document management and file-sharing capabilities.
- **OAuth 2.0**: For secure user authentication through integration with the university's Single Sign-On (SSO) system.

2.1.2 Limitations of the Proposed System

- **Initial Scope Limitation**: Designed for the Computer Science department, requiring additional development for other departments.
- **Internet Dependency**: The system requires a stable internet connection for access and operation.
- **Limited Offline Features**: Offline access is not supported, and all operations depend on real-time connections.
- **Technical Proficiency**: Supervisors and administrators may require initial training.
- **Resource-Intensive**: The system relies on robust university infrastructure, including reliable networks, cloud storage, and security protocols.
- **Dependency on Third-Party Services**: Any downtime or issues with third-party APIs or software (e.g., email services, cloud storage) may affects system performance.

2.2 Product Functions

The Portal make the difficult process of management of FYP's projects easier by giving user-friendly and advanced features. The system full-fill the needs of students, supervisor and examiner making sure it serves as a collaborative and working management system. Key feature include:

Supervisor Allocation: supervisor will be assigned with project, that fit better with their expertise and availability, this will balance the load of projects.

Submit and Track Progress: Students are allowed to submit their work and check their work through the portal, and get review on it.

Review, Approve, and Grade: Supervisors and internal faculty can check submissions, approve them, assign grades, and create reports. Which will help in final grading.

Tracking and Notifications: The system tracks project progress and deadlines using timelines and sends notifications to users.

Document Management: Provides storage and file-sharing for the project related documents.

Communication Tools: Announcements, and meeting scheduling features to allow collaboration and communication between student and supervisor.

Grading System: Track submissions, feedback from internal and external examiners, and automatically generates grades.

2.3 User Classes and Characteristics

Questify have multiple roles of users. That's why our system is designed with flexible and have access levels for users.

2.3.1 Primary Users

The users who will interact with FYP portal frequently and have major roles in FYP Portal system.

- **Students**: The primary users who work along with the portal to submit proposals, update work, and manage documents. They require little skills to use the system.
- **Supervisors**: Faculty who guide students, grade their work, and track project progress. Supervisors are expected to have the subject's expertise to judge the projects more accurately.

- **Administrator**: Technical person who will maintain functionality if portal, marking issues, checking users' feedbacks and making changing in codes only when needed.

2.3.2 Secondary Users

Those users who will interact less with portal.

- **Administrator**: Responsible for the managements of users, generating reports of the work, make sure the smooth process.
- **Department Head**: Keep an eye on overall work, approves serious decisions, and view reports of FYP project overall.
- **External Examiner**: Grading and review project and giving feedbacks to students, they will only interact with system at time of evaluation.

2.4 Operating Environment

The Questify FYP portal works in a secure, systematic and accessible environment, which is made for both server and client needs. On server side, system need good hardware with at least 8GB RAM, multi core processors, and 500GB storage with RAID for duplication, running on Linux OS with Node.js for the backend and MongoDB for database. The frontend is built with React, which will make the system responsive and fast have better user experience. Client can access the portal from any up-to-date device with a stable internet connection, by using browser Chrome, Firefox, Edge or Safari. The system uses secure HTTPS communication, real-time features via Web Sockets, and handles 500 users at same time, average response time 3 seconds. It blends with the university's authentication system, email protocol, and common document template. Testing is done by using Postman, and security is ensured through SSL/TLS encryption, firewalls, role-based access control, and regular backup. The FYP portal make sure a good and user-friendly experience for all the users.

2.5 Design and Implementation Constraints

The portal is designed with unique control to meet technical, security, administrative, and performance level. It uses React.js with JavaScript for the frontend, Node.js with Express for the backend, and MongoDB for the database, handle via Git in the university's private repository and implemented on on-premise servers. Security have the top importance, with role-based access, encrypted data, and audit on weekly bases to match data with university's data protection policies and HEC rules. The system is user-friendly. It meets the highest availability level, making it easy for everyone to use, in

other cases as their abilities. You can access and use Questify on any device, it can be your laptop, tablet, or smartphone because system is responsive accessible in all devices. Files uploads are limited to 50MB, with a 1GB limit per project daily backups, keeping data for 5 years. Development follow Agile method, with 2 weeks sprint, code reviews, 80% test coverage, and complete documentation, all within 6-month timeline and limited resources. Integrating with university's SSO and email system is must. The portal can handle up to 500 users. Maintenance is arranged around the calendar, after updates the system will be available from 8AM to 10PM.

2.6 User Documentation

The Questify FYP portal provides user friendly documentation for smooth experience for all users. It has detailed manual for students, supervisors, and administrator, covering all functions like proposal submission, work tracking, document management, grading, and communication. An online help system offers assistance, FAQs, and video tutorials. Guide will help the students, teachers, admins, and external examiners. Users can watch video tutorials for common task like submitting proposal, updating progress, and managing document. Training material, consist of slides, templates, PDFs and MP4s. The documentation follows regular updates, version, and user feedback changings to make sure the accurate and helpful information.

2.7 Assumptions and Dependencies

The Questify FYP Portal relies on several assumptions and dependencies to function effectively. Technically, it assumes compatibility with OAuth 2.0(specifications for API authentication from university's systems.) for the university's authentication system, stable network bandwidth for concurrent users, and browser support for progressive web applications. Operationally, it expects timely updates to the academic calendar, faculty and student readiness, and a maximum project group size of four. Resource assumptions include IT support availability, sufficient storage for five years of data, a stable development team, and adequate training resources. Key dependencies include integration with the university's SSO system, email servers, cloud storage, and academic calendar. The system also relies on third-party software such as Node.js, React.js, and WebSocket services, supported by robust university infrastructure like reliable networks, backup systems, and security certifications. Content and process dependencies involve department-provided rubrics, templates, policies, supervisor data, and adherence to academic schedules. Risks are mitigated through regular

stakeholder validation, dependency monitoring, alternative solutions, and thorough documentation of changes.

3. External Interface Requirements

3.1 User Interfaces

The Questify FYP Portal's user interface follows modern, user-friendly design principles, starting with Material Design guidelines and incorporating the university's brand colors. It features a responsive layout adaptable to mobile, tablet, and desktop screens, ensuring accessibility for all users. The interface includes a persistent top navigation bar with a university logo, profile menu, notifications, and help icons, along with a left sidebar for navigation, breadcrumb trails for context, and a footer with useful links.

Role specific dashboards provide good experiences:

- students can access project statuses, timelines, and quick actions;
- supervisors see project overviews, meeting schedules, and evaluations;
- administrators monitor system status, manage users, and configure settings.

Key components include a multi-step project submission form with drag-and-drop uploads, Gantt charts for progress tracking, and rubric-based evaluation tools. Error handling is intuitive, with color-coded messages, real-time validation, and clear recovery instructions.

Accessibility is a priority, meeting WCAG 2.1 AA standards with features like keyboard navigation, screen reader support, high-contrast colors, and ARIA labels. Responsiveness make sure content across devices, with mobile friendly designs. Performance is optimized for fast load times, skeleton screens, lazy image loading, and caching for smooth and fast user interactions. Overall, the interface is designed for efficiency, inclusivity, and a seamless user experience.

3.2 Hardware Interfaces

It is necessary to have a central server for data storage so that the FYP portal can perform functions of archiving data without hindrances. For editing servers with an architecture of Intel Core i5 processor (or an alternative with similar specifications), a storage space of 500GB (either HDD or SSD), a minimum of 8GB RAM, and stable internet connectivity are recommended. Other types of user devices meet the following requirements - mobile smartphones, tablets, desktops, and laptops. These

devices are expected to have a minimum RAM of 2GB for optimal system performance and faster response.

3.3 Software Interfaces

The back-end of the FYP portal will be developed with Node.js and Express.js to handle the server-side features and API calls. The front-end will be developed with React.js, with an interactive and user-friendly design. MongoDB will be used for data management and storage. It provides a scalable and adaptive database alternative. The API of Zoom will be integrated into the system to allow for meeting planning and execution through the site. For the convenience of every customer, the FYP site will be compatible with various operating systems, such as Windows, macOS, Linux, Android, and iOS. To ensure a seamless experience for viewers on all platforms, the site will also be customized for widely used web browsers, including Chrome, Firefox, and Safari.

3.4 Communications Gap

The FYP portal has many features who are meant to make efficient or constant interaction with students, supervisors, along with administrators. For instance, an inbuilt converse feature enables students and instructors to get responses promptly, and thus avoid any kind of delay in conversations and revisions; shared calendars enable all the users to schedule and manage their meetings, and thus it ensures that deadlines along with crucial milestones are evident: the portal also provides file-sharing features securely, enabling students to upload and share project-related files with their instructors; administrators are able to trace all conversation and take suitable action if there is any overlooked issue; and all the communications, both through the application and through emails, automatically notify the users for any new updates, scheduled conferences, and looming due dates, thus maintaining consistent engagement or interaction.

4. System Features

4.1 Submission of proposal

4.1.1. Description and priority

Description: Students may be able to submit their proposals of project through the FYP portal for the approval of their instructors. Since it marks the beginning of the project lifecycle. This process ensures that each proposal is analyzed step by step and published on the site.

4.1.2. Stimulus/Response Sequences

Stimulus: The students will upload their project proposal with all details.

Response: The system will check validation of file and notify the supervisor (using email API). Then the supervisor reviews the proposal and give feedback or approve.

4.1.3 Functional requirements

- **REQ-1** Student must provide all the details about their project.
- **REQ-2**: System reviews the details and validate that it is in correct format or not.
- **REQ-3**: When the student submits their proposal then supervisors will be notified.
- **REQ-4**: Supervisors are responsible to review and respond to students within a specified period.
- **REQ-5**: The response about the proposal will send to the students (accepted/rejected).

4.2 Assignment to the Supervisor

4.2.1. Description and priority

Description: The student may choose a supervisor from the website portal. This feature does not bring about disagreements and ensures effective allotment of a supervisor.

Priority: This feature is most important because it is start and main point of our entire project journey. It makes sure we carefully consider proposals, which is a main first step for any successful FYP project.

4.2.2. Stimulus/Response Sequences

Stimulus: The student will select supervisor from available list.

Response: The selected supervisor get notification of the request, reviews it, accepts or rejects it. The system updates both the student and supervisor with the status of the request.

4.2.3 Functional Requirements

- **REQ-1:** Available supervisors list will be shown with students**.**
- **REQ-2:** From the available supervisor list student can select the supervisor**.**
- **REQ-3:** The supervisors receive the notification from students who have sent them a request.
- **REQ-4:** Then supervisor will accept or reject the requests of the students.

- **REQ-5:** The status will be shared with the students through notification.
- **REQ-6:** Administrator can check and ensure that supervisors are performing their duties properly.

4.3 Progress Monitoring

4.3.1. Description and priority

Description: A development tracking tool can help both supervisors and students monitor the progress of ongoing projects. Students can track their progress by including relevant information, this feature ensures that accountability and openness provide projects with a maintained course and that problems are resolved as quickly as possible.

Priority: This feature is important for both team members and supervisors. It helps us create a system where everyone have balanced work load.

4.3.2. Stimulus/Response Sequences

Stimulus: Students updates and complete work and milestones and pending tasks.

Response: Supervisors checks progress, provide feedback, and suggest corrections if needed. Progress and feedback are displayed on a dashboard for students by the supervisors.

4.3.3 Functional requirements

- **REQ-1:** Students can track their progress and view their pending tasks.
- **REQ-2:** Supervisor review the progress and also provide the feedback about the project.
- **REQ-3:** Progress and their feedback will be sent to the supervisors and students through the notification.
- **REQ-4:** Dashboard display overall progress of the project.
- **REQ-5:** Administrator can monitor all the work and can give the feedback if required

4.4 Administration Management

4.4.1. Description and priority

Description: Administrators will be needed for the general working of the FYP portal. They would be responsible for the generation and maintenance of supervisors and students' accounts. This enables easy monitoring and decisions, ensuring a smooth-running portal.

Priority: This feature, can remove stress and avoid last-minute rushes. It helps us to manage our deadlines, making our work more managed and professional.

4.4.2. Stimulus/Response Sequences

Stimulus: An admin accesses the portal to manage users, monitor submissions, or resolve conflicts.
Response: The system provides tools for account management, feedback, add or remove students or supervisor, notifications, and analytics.

4.4.3 Functional requirement

- **REQ-1:** Administrator can view all the proposals and ensure that there is no miss management.
- **REQ-2:** Administrator manages the notification like status of proposal accept or reject, deadlines.
- **REQ-3:** If there is any problem between student and teacher portals then administrator will resolve the issue.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The FYP portal would be able to handle 200 users at the same time without creating any problem. Average response time even during peak hours in page loading is maintained at below three seconds to maintain optimum performance so that the interface appears responsive as well as lag- free.

5.2 Safety Conditions

Safety is an integral part of the FYP portal. Data loss because of system crashes will be avoided through planned systematic data backup. The system will also tolerate abrupt system crashes gracefully so that the users' data is saved and recoverable.

5.3 Security Requirements

Security in the FYP portal is critical in safeguarding sensitive students and project information. The platform uses role-based visit control, or RBAC, to ensure that only users with permission can access specific features and data. Administrators are granted the highest range of access, allowing them to control user profiles and system policies. All sensitive details is secured during transit and storage

spaces. It protects it from accidental access. Users register through secure access credentials, which are saved properly within the service.

5.4 Characteristics of Good Software

It is easy to use for administrators, supervisors, and students through a user-friendly interface. Scalability is another characteristic, which would ensure that it can handle more features or the growth of its user base. The code was written with sustainability in mind; it has plenty of documentation on how to update and enhance later.

5.5 Business Rules

There are different business rules governing the FYP portal. It may be allowed for a supervisor to handle multiple five programs in a way that sufficient attention is given to each of the five programs. During these intervals, proposals by the students need to be presented. The sessions between the supervisors and the students need to be scheduled at least 24 hours in advance to ensure that the proper preparation could be done. The needs of students should be met by supervisors within 3 working days (Monday to Friday), ensuring that they have enough time for analysis and progression. Managers can implement these needs and settle disputes that arise during the lifecycle of the progress.