

Department of Computer Engineering

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Class: T.E /Computer Sem – V / Software Engineering

Practical No:	1
Title:	Software Requirement Specification
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Roll No:	9761
Team Members:	

Rubrics for Evaluation:

Sr. No	Performance Indicator	Excellent	Good	Below Average	Total Score
1	On time Completion & Submission (01)	01 (On Time)	NA	00 (Not on Time)	
2	Theory Understanding(02)	02(Correct)	NA	01 (Tried)	
3	Content Quality (03)	03(All used)	02 (Partial)	01 (rarely followed)	
4	Post Lab Questions (04)	04(done well)	3 (Partially Correct)	2(submitted)	

Signature of the Teacher:

College Portal

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Abstract: A college portal is an online platform that serves as a centralized hub for students, faculty, and staff to access essential information and resources related to academic, administrative, and social aspects of college life. It typically offers features like course registration, grades, attendance tracking, communication tools, and campus announcements. The portal enhances efficiency, facilitates communication, and streamlines various processes, ultimately providing a convenient and seamless experience for the college community.

I. INTRODUCTION

In the contemporary educational landscape, the integration of technology has revolutionized the way institutions interact with students, faculty, and administrators. College portals have emerged as indispensable tools that bridge the gap between traditional education and the digital age. These portals, also known as learning management systems or student information systems, serve as dynamic virtual environments that connect various stakeholders, streamline administrative processes, enhance communication, and empower students with accessible resources. As a central hub for academic and administrative activities, a well-designed college portal has the potential to significantly transform the educational experience for all parties involved.

II. In the contemporary educational landscape, the integration of technology has revolutionized the way institutions interact with students, faculty, and administrators. College portals have emerged as indispensable tools that bridge the gap between traditional education and the digital age. These portals, also known as learning management systems or student information systems, serve as dynamic virtual environments that connect various stakeholders, streamline administrative processes, enhance communication, and empower students with accessible resources. As a central hub for academic and administrative activities, a well-designed college portal has the potential to significantly transform the educational experience for all parties involved. It highlights the challenges faced by institutions in the ever-evolving educational landscape and underscores the importance of embracing technological innovations to meet these challenges. Furthermore, the introduction sets the stage for a comprehensive exploration of the various features and implications of a college portal, emphasizing its potential to shape the future of education.

various features and functionalities to support students, faculty, and administration. These requirements may consist of:

1. User Authentication: Secure login and registration processes for students, faculty, and staff.
2. Course Management: Ability to view, register, and drop courses, along with access to course materials and grades.
3. Communication: Messaging and notification system for announcements, discussions, and alerts.
4. Exam and Assignment Management: Online submission, grading, and feedback mechanisms.
5. Resource Center: Access to library resources, study materials, and research databases.
6. Timetable Management: Personalized schedules for students and faculty.
7. Student Support: Counselling services, career guidance, and academic advising.
8. Administration Tools: Enrollment management, reporting, and analytics

II. FUNCTIONAL REQUIREMENTS

A college portal's functional requirements typically include

III. NON-FUNCTIONAL REQUIREMENTS

Non-functional requirements for a college portal may include aspects related to performance, security, usability, and scalability. Here are some examples:

1. Performance: The portal should load pages quickly and handle a large number of concurrent users without significant slowdowns.
2. Security: The portal should have robust authentication and authorization mechanisms to ensure that only authorized users can access sensitive information.
3. Usability: The user interface should be intuitive, easy to navigate, and accessible to individuals with disabilities.
4. Scalability: The portal should be able to handle future growth in terms of user base and data without a major impact on performance.
5. Reliability: The portal should be highly available, with minimal downtime or disruptions.
6. Compatibility: The portal should be compatible with different web browsers, devices, and operating systems.
7. Data privacy: Personal and sensitive data should be securely stored and handled, complying with relevant data protection regulations.

IV. EXTERNAL INTERFACE REQUIREMENTS

External interface requirements for a college portal are critical aspects that define how the portal interacts with its users and external systems. These requirements ensure seamless communication and usability for various stakeholders. Here are some key external interface requirements for a college portal:

User Authentication: The portal must offer secure and user-friendly authentication mechanisms, such as username/password or multi-factor authentication, to verify the identity of students, faculty, staff, and other authorized users.

Mobile Responsiveness: The portal should be designed to be mobile-friendly and responsive to different screen sizes and devices, enabling users to access its features on smartphones, tablets, and desktop computers.

Application Programming Interfaces (APIs): The college portal should expose APIs to integrate with external systems, such as student information systems, learning management systems, and payment gateways, to exchange data and functionalities efficiently.

Online Application Forms: The portal should facilitate online application submission for prospective students, allowing them to apply for different programs and securely upload necessary documents.

Course Registration: It should enable students to register for courses online, view course availability, and receive real-time updates on class schedules and changes.

Faculty and Staff Directory: The portal should include a searchable directory of faculty and staff members, providing contact information and office hours.

Financial Aid and Payment Processing: The portal should support online financial aid applications and provide secure payment options for tuition fees, allowing students to view their account statements and make payments electronically.

Student Grades and Transcripts: Students should be able to access their grades, transcripts, and academic records through the portal, ensuring privacy and data security.

Communication Tools: The portal should offer communication features like email, announcements, and discussion forums, allowing effective communication between students, faculty, and staff.

Accessibility Compliance: The portal should adhere to accessibility standards (e.g., Web Content Accessibility Guidelines - WCAG) to ensure equal access and usability for individuals with disabilities.

V. SYSTEM ARCHITECTURE

A college portal's system architecture is designed to efficiently manage various aspects of an educational institution, catering to students, faculty, and administrative staff. The architecture generally consists of multiple layers and components, each serving specific functions:

Front-end: The user interface where students and staff interact with the portal. It includes web and mobile interfaces for accessing different features.

Application Layer: This layer handles the logic and functionalities of the portal. It includes modules for student enrollment, course registration, grade management, and administrative tasks.

Database Layer: Stores and manages all the data related to students, courses, faculty, grades, and administrative records. It uses a database management system to ensure data integrity and security.

Authentication and Security: Implements user authentication mechanisms to safeguard sensitive data. Secure Socket Layer (SSL) encryption and other security protocols are used to protect data transmission.

Integration Layer: Facilitates communication with external systems like the college's learning management system, payment gateways, and email servers.

Cloud Infrastructure: The college portal may be hosted on cloud platforms to ensure scalability, high availability, and cost-effectiveness.

Analytics and Reporting: This component enables generating insights and reports for performance evaluation,

course analytics, and student progress tracking.

A well-designed system architecture ensures seamless user experience, data integrity, and efficient management of college operations

VI. DATA REQUIREMENTS

A college portal serves as a central hub for students, faculty, and staff to access information and services. To meet their needs effectively, certain data requirements are essential. Here's a list of key data requirements for a college portal:

Student Information: Demographic data, contact details, enrollment status, academic history, and course schedules.

Course Catalog: Detailed information about courses offered, including prerequisites, descriptions, and faculty details.

Faculty Information: Profiles of faculty members, their expertise, office hours, and contact information.

Grading and Transcripts: Access to student grades, GPA calculation, and transcripts.

Financial Records: Tuition fees, payment history, scholarships, and financial aid details.

Campus Events: Calendar of academic events, workshops, seminars, and extracurricular activities.

Library Resources: Searchable database of available books, journals, and digital resources.

Online Learning Resources: Access to course materials, assignments, quizzes, and discussion forums.

Campus News and Announcements: Timely updates on campus news, policies, and announcements.

Student Support Services: Information on counseling, career services, health center, and other support facilities.

Security and Privacy: Ensuring data security and privacy compliance, especially for sensitive information.

User Authentication: Robust login and authentication processes to protect user data.

VII. SYSTEM CONSTRAINTS

A college portal is a web-based platform that serves as a central hub for various academic and administrative activities within an educational institution. Its primary purpose is to streamline communication and provide convenient access to essential resources for students, faculty, and staff. A well-designed college portal should exhibit several key characteristics to ensure consistency and effectiveness.

First and foremost, the portal should have a user-friendly interface with intuitive navigation to enhance accessibility. It should be responsive and adaptable to different devices, ensuring seamless usage on desktops, tablets, and smartphones.

The system's consistency lies in maintaining uniformity across its pages, design elements, and functionalities. A standardized layout and color scheme contribute to a cohesive user experience. Additionally, consistent naming conventions and organization of features facilitate ease of use and familiarity for all users.

Functionality is crucial for a college portal. It should provide access to academic information, such as course schedules, grades, and assignments, as well as facilitate communication with instructors and classmates through messaging and discussion forums.

VIII. SYSTEM REQUIREMENTS

The college portal's system requirements are essential for ensuring smooth functionality and accessibility for users. These requirements depend on the portal's complexity, features, and user base. Here's a detailed list of recommended system requirements:

Operating System: Windows 10, macOS 10.14, or newer versions of both.

Web Browser: Latest versions of Google Chrome, Mozilla Firefox, Safari, or Microsoft Edge.

Internet Connection: High-speed broadband for seamless access to online resources and multimedia content.

Processor: At least Intel Core i5 or equivalent AMD processor for optimal performance.

RAM: Minimum 8GB to handle concurrent user sessions and resource-intensive tasks.

Storage: 256GB SSD or higher for quick data access and storage.

Screen Resolution: 1366x768 pixels or higher to ensure a comfortable viewing experience.

JavaScript: Enabled in the web browser for dynamic page interactions.

Security: Updated antivirus software to protect against potential threats.

Mobile Devices: Responsive design for compatibility with smartphones and tablets.

IX. SYSTEM TESTING REQUIREMENTS

Analytics and Reporting: Validate the generation of accurate and relevant reports on student engagement, academic performance, and administrative insights.

Test the usability and functionality of dashboards for administrators.

Security and Privacy: Perform security testing to identify vulnerabilities and ensure data encryption.

Test compliance with data protection regulations and the effectiveness of security measures.

User Experience (UX) Testing: Test the overall user interface, navigation, and user-friendliness of the portal.

Validate consistency of design elements and branding.

Cross-Browser and Cross-Device Compatibility: Test portal functionality on various web browsers and devices to ensure a seamless user experience.

Performance and Load Testing: Test the portal's performance under different loads and user scenarios to identify bottlenecks and optimize response times.

Usability Testing: Conduct usability tests with representative users to gather feedback on the portal's ease of use and overall satisfaction.

Regression Testing: Perform regular regression testing to ensure that new updates or features do not negatively impact existing functionality.

X. PROJECT TIMELINE AND MILESTONES

Data Privacy and Protection: Clear user consent and transparent data usage policies for collecting, storing, and processing user information.

Implementation of robust data encryption and security measures to prevent unauthorized access and data breaches.

Accessibility and Inclusivity: Adherence to accessibility standards (e.g., WCAG) to ensure the portal is usable by individuals with disabilities.

Equal access to educational resources and support for all students, regardless of their abilities or backgrounds.

Academic Integrity: Implementation of plagiarism detection tools to uphold academic honesty and prevent unauthorized copying or sharing of materials.

Clear policies and consequences for academic misconduct within the portal environment.

User Profiling and Personalization: Transparent communication with users about how their data is used for profiling and personalization purposes.

Avoidance of discriminatory practices based on user profiles and ensuring fairness in resource allocation.

User-generated Content and Moderation: Clear guidelines for acceptable behavior and content within discussion forums, chat rooms, and other interactive features.

Implementation of content moderation mechanisms to prevent harassment, hate speech, or inappropriate content.

Consistent and Transparent Communication: Regular communication with users about updates, changes, and improvements to the portal.

Open channels for user feedback and addressing concerns in a timely manner.

Software requirement Specification.

* Post lab Question

- a) Evaluate the importance of a well-defined Software Requirement Specification (SRS) in the Software development lifecycle and its impact on project success.

→ A well-defined Software requirement Specification (SRS) is crucial in the Software development lifecycle as it serves as the foundation for the entire project. It outlines the project's scope, functionalities, constraints, and user expectations, providing a clear roadmap for developers, designers, and stakeholders. A comprehensive SRS helps prevent misunderstandings, reduces ambiguity, and guides the development process, ultimately leading to better communication, efficient resource allocation, and higher chances of project success.

→ c) Requirement elicitation techniques serve to gather user needs effectively. Interviews involve direct communication with stakeholders, allowing in-depth exploration of requirements and clarifications. Surveys collect data from a larger user base, offering broad insights but may lack depth. Use case modeling helps visualize user interactions enabling better understanding of system behavior.