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|  | Department of CSE / IT/AIDS  **Academic Year: 2023-24** |

Department of Computer Engineering

AY 2023-24

SECOND YEAR PBL SYNOPSIS

1. **Group Id:**  A-14
2. **PBL Title: ”Mini Voting System”**
3. **Name of Guide**: Prof. Madhavi Patil
4. **Work Carried Out:** Identified needs, designed secure architecture and UI, developed responsive front-end, back-end, and database. Ensured reliability and security through testing, deployed with server configuration and CI/CD, and implemented monitoring and updates. Features include secure login, encrypted votes, real-time tallying, result visualization, and various voting mechanisms.
5. **Abstract:** This project presents a mini-voting system designed for simple, secure, and efficient elections or surveys. Leveraging modern web technologies, it ensures accessibility, usability, and scalability. Key features include user authentication, secure voting processes, real-time vote tallying, and result visualization. Security measures like encryption and secure login protocols protect voter privacy and election integrity. The system supports single-choice, multiple-choice, and ranked-choice voting. Implementation includes a responsive front-end, robust back-end, and secure database management. Suitable for educational institutions, small organizations, and community groups, it is easily deployable in various environments.
6. **Goals and Objectives:**

Goal: Create a mini-voting system for elections/surveys with modern web tech, ensuring simplicity, security, and real-time tallying while protecting voter privacy and election integrity.

**Objectives:**

The objectives for a mini voting system include ensuring accuracy in recording votes, securing the system against tampering, making it accessible to all, maintaining transparency, ensuring efficiency, prioritizing user-friendliness, enabling scalability, protecting voter privacy, enabling auditability, and ensuring compliance with legal and ethical standards.

**Key Results:**

1. Accurate Vote Count
2. Turnout Rate
3. Election Outcome
4. Security Validation
5. Accessibility Metrics
6. User Satisfaction
7. Compliance Verification
8. Efficiency Metrics
9. Privacy Compliance
10. Audit Trail

**Measuring Success:**

Success for a mini voting system is gauged by accuracy, participation, security, accessibility, transparency, efficiency, user satisfaction, compliance, privacy, and auditability. These factors collectively ensure the integrity, inclusivity, and trustworthiness of the voting process.

1. **Methodology/ System Architecture / Block Diagram:**

**Methodology:**

The methodology for a mini voting system includes requirement analysis, design planning, development, testing, deployment, training, monitoring, maintenance, and evaluation. This process ensures a systematic and effective implementation of the voting system.

**System Architecture:**

The system architecture for a mini voting system consists of a frontend interface for voter interaction, a backend server for logic and communication, a secure database for storing voter data, a security layer for integrity, an audit trail for transparency, potential integration with an Election Management System (EMS), and external services for additional functionality like authentication and notifications.

**Block Diagram:**

The block diagram illustrates the main components of a mini voting system, including the frontend interface for user interaction, the backend server for logic and communication, the database for storing data, the security layer for ensuring system integrity, the audit trail for tracking voting activities, and potential integration with external services for additional functionality.

**8. Testing:**

## Testing for a mini voting system covers unit, integration, security, usability, performance, stress, end-to-end, and regression testing. These ensure functionality, security, and usability, guaranteeing a reliable voting experience.

1. **References**:

## This paper proposes a novel electronic voting scheme using one-server private information retrieval (PIR) with secure coprocessor (SC). It enhances voter privacy and voting procedure security while reducing costs. By eliminating the need for multiple trusted centers, it simplifies processing and increases efficiency. The scheme offers high security, low cost, and good efficiency, making it suitable for small-scale elections. Published in ITRE 2005, the paper presents a practical solution for wider adoption of electronic voting in everyday scenarios.

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