SE Practical 1

Aim: Project Definition and objective if the specified module and perform requirement Engineering Process

Online Election System

Online Election System would have Candidate registration, document verification, auto-generated User ID and pass for candidate and Voters. Admin Login which will be handled by Election Commission .Candidate Login which will be handled By Candidate, Voters will get Unique ID and Password, Using which they can vote for a Candidate only once per Election. The project is beneficial for Election Commission, Voters as the can get to know the candidate background and choose wisely, and even for Candidate. The software system allows the Candidate to login in to their profiles and upload all their details including their previous milestone onto the system. The admin can check each Candidate details and verify the documents, only after verifying Candidate's ID and Password will be generated, and can remove faulty accounts. The software system allows Voters to view a list of Candidates in their area. The admin has overall rights over the system and can moderate and delete any details not pertaining to Election Rules.

Modules:

- Admin Login
- Candidate Document Verification.
- Candidate Login
- Voters Login
- Voters can view Candidate's data
- Admin dashboard has overall functional rights
- Appropriate data processing and handling
- System generated ID and Password for Candidate and Voters.
- Result Calculation module
- Election Creation module
- Voting conduction module

Software Requirements:

- Windows Xp, Windows 7(ultimate, enterprise)
- Sql 2008

Hardware Components:

- Processor – Dual Core
- Hard Disk – 50 GB

Advantages/Features:

- Fast and easy way of conducting Election.
- Voters can view background of each Candidate.
- Candidate can present themselves against voters.
- Admin can verify the documents and details of Candidate.
- System Generated Unique ID and Password gives more Secure Logins.
- Result will be out after 2 Hrs of Election.

Disadvantages:

- Chances of hacking candidate or voters account.
- Every voter does not have pc or net connection, so voters can even go in polling booth and vote online there.

Application:

1. Political Elections

- **National and Local Elections:** Online voting can simplify processes for voters unable to attend polling stations, such as expatriates or those with mobility challenges.
- **Referendums:** Digital platforms can be used for secure public referenda to gauge opinions on specific issues.

2. Organizational Decision-Making

- **Corporate Governance:** Shareholders vote on key corporate matters like board appointments, mergers, or acquisitions during annual general meetings (AGMs).
- **Non-Profits and NGOs:** Members vote on strategic plans, budgets, or leadership in non-profit organizations.

3. Educational Institutions

- **Student Council Elections**: Universities and schools utilize online voting for fair and efficient student body elections.

Scope:

The scope of an online voting system project refers to the boundaries and specific features that the system will encompass, as well as the limitations that will be excluded from the project. Defining the scope is crucial for guiding the development process, setting expectations, and ensuring that the system meets its goals effectively.

Voter Registration & Authentication: Voter registration and verification through secure methods (ID, email, multi-factor authentication). Voter profile management (update information, check registration status).

Voting Process: Voters can securely cast their votes and receive immediate confirmation. Voters can review and change their vote before final submission. The system ensures anonymity and prevents multiple votes from the same individual.

Real-Time Vote Tallying & Result Transparency: Automatic vote counting with results displayed publicly after election closure. Transparent result verification with support for auditing.

Security Features: End-to-end encryption for vote protection. Fraud prevention mechanisms (e.g., IP tracking, bot prevention, and anti-tampering features). Blockchain or digital signatures for vote integrity.

Admin & Observer Roles: Admins manage voter registration, election setup, and result verification. Observers can monitor and verify election transparency without influencing results.

User Accessibility: Mobile and web platform support with multi-language options. Accessibility features for users with disabilities.

Legal & Compliance: The system adheres to data protection laws and election-related regulations (e.g., GDPR).

Exclusions: The system will not support in-person voting. Initial deployment will focus on a single geographic region or election type.

Target Audience: Government elections, corporate elections, and institutional elections.

Functionalities:

Core Functionalities of the Online Voting System:

Voter Registration & Authentication: Voter registration and verification (email, ID, multi-factor authentication). Profile management for updating registration details.

Voting Process: Secure vote casting with confirmation. Review and change vote before final submission. Anonymous voting to maintain privacy.

Real-Time Vote Tallying & Results: Automatic vote counting and result display. Transparent results with auditability. Security Features: End-to-end encryption to protect votes. Anti-fraud measures (e.g., bot prevention, IP tracking). Blockchain or digital signatures for vote integrity.

Admin & Observer Access: Admin controls for managing voters, elections, and results. Observer access for election transparency and monitoring.

User Accessibility: Support for multiple devices and browsers. Accessibility features (screen reader support, multilingual options). Audit & Reporting: Detailed audit logs and post-election reports for transparency.

Limitation:

Here are the limitations of your online voting system in short:

- **Geographical Limitation**: Initially, the system may be limited to specific regions or countries, subject to local laws and regulations.
- **Internet Dependency:** The system requires internet access; voters without reliable internet may be excluded.
- **Security Risks:** Despite strong security measures, no system is immune to sophisticated attacks or vulnerabilities.
- **Legal Compliance**: The system may not meet all legal requirements for every jurisdiction at launch.
- **Technical Barriers:** Users with limited technical knowledge or outdated devices may face difficulties in accessing or using the system.
- **Limited Voting Methods**: Initially, only basic voting types (e.g., single-choice, multiple-choice) will be supported, excluding more complex methods (e.g., proportional representation).
- **Privacy Concerns**: While anonymity is a priority, ensuring complete voter privacy without risking voter coercion or influence can be challenging.
- **System Downtime:** Any server or technical issues could cause temporary disruption during voting or results processing.