Software Requirements Specification for JudgeMeNot

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1. Introduction

JudgeMeNot Tabulation System is a new, online, program that aims at computerizing and automating the judging and scoring procedure of any event or competition. It completely automates the process of collection of the scores, complicated calculations and displaying the results in real time. The fundamental mission of the system is to maintain fairness, accuracy, and efficiency in scoring events and that the scores will make sense to every party. This Software Requirements Specification (SRS) document specifies the intended purpose of the product, the full functionality, and the system behavior in a concise way to direct the development team, in this case, by means of the Agile (Scrum) approach.

1.1 Purpose

The aim of the JudgeMeNot system is to provide an efficient, transparent, and formatted tabulation system of competition in which a number of judges are involved and will be evaluated using various scoring system criteria. The system is specifically aimed at the removal of manual data entry errors, the reduction of the time spent on the processing of the results significantly, and the consideration of the integrity of event scoring by means of automation and real-time data transfer. It gives the Administrators the means to easily build and manage events, the Judges the means to add and update scores without any hustle, and the Audience to see the results in a simple and thorough manner when they are made public. Through secure and instant data controls, JudgeMeNot ensures that data is managed with a high level of security, is synchronized at all times, and to the intended users only, hence, building trust and ensuring convenience to all parties in the judging process.

1.2 Scope

JudgeMeNot is a full end-to-end scoring and tabulation system of events, mainly used with internal school or organizational competitions.

The main functional capabilities of the system are the following:

- **Event Setting up and Administration:** Event structure administration, scoring segments setting, and contestants registration administration .
- **Judge Workflow:** Providing Judges with secure entry to participate in an event, enter, revise, and complete scores in real-time.
- **Quiz Bee Logic:** Supports multi-round academic competitions (Easy, Average, Difficult) with point-based scoring, automated checking (Correct/Wrong), and algorithmic tie-breaking (Clincher rounds).

- **Tabulation Engine:** This computer program calculates final scores with weighting and ranking poems correctly.
- **Result Presentation:** Live public facing scoreboard available to Audience.
- **Monitoring and Audit:** An Admin dashboard to follow the activity of the judges and assure the integrity of scoring.

1.3 Definitions, Acronyms, and Abbreviations

- **SRS:** Software Requirements Specification.
- **UI:** User Interface: The visual interface the users will be working on.
- **Admin:** A user with special permissions (usually the Project Lead or Event Organizer) who is in charge of complete system and event management.
- **Judge:** A contestant judge who evaluates the participants and presents their results on a certain event.
- **Tabulator:** A designated user responsible for marking answers (Correct/Wrong) for a specific assigned contestant or team during a Quiz Bee event.
- **Audience:** This is a non-logged-in user that is viewing the public scoreboard on the read-only display.
- **Tabulation:** It is a computer-based method of gathering, computing, and summarizing scores to establish rankings.
- **Admin-viewer**: A user with special permission to view the real-time result of a pageant or competition.

1.4 References

[1] Software Engineering Institute (SEI). (2024). Writing Good Software Requirements. Retrieved from https://www.sei.cmu.edu/

1.5 Overview

This paper gives a background and overview of the JudgeMeNot initiative. The remainder of the SRS is devoted to giving the required technical and operative detail. It will first describe the general system description, user roles and the operating environment. It also ends by the specifications in detail of the functional and non-functional requirements which are the fundamental rules in the construction of the product based on our formal user stories and risk analysis.

2. Overall Description

JudgeMeNot is an online tabulation platform that aims at making the scoring of an event fair, transparent, and organized. It enables administrators to establish event segments and contestants, judges to score participants on the fly and audiences to see the results instantly. The system is oriented toward the accuracy, usability, and fairness, minimizing the number of mistakes in a manual and making sure that all the scores typed in are meaningful.

2.1 Product Perspective

JudgeMeNot supports two distinct scoring engines within a single platform: a Criteria-Based Engine for Pageants (weighted averages, multi-judge scoring) and a Points-Based Engine for Quiz Bees (binary correct/wrong inputs, cumulative scoring, and automated clinchers). It does not use manual tabulation but instead gives the structured automated platform on which the administrators can handle the events, the judges and tabulators can score the contestants, and the audiences can view the results transparently. The real-time technologies utilized in the system includes WebSockets to update the score in real-time and update the database. It also uses role based access control whereby administrators, admin-viewers, judges, tabulators, and audience can only gain access to features that are of their interests. This arrangement offers an easy and safe means of controlling the scoring of events as well as enhancing fairness and reliability.

2.2 Product Functions

JudgeMeNot offers the following key features making the management of events and scoring easier:

- **Event Management and Creation:** The admin will be able to create events, add entries, and establish various parts of judging such as talent, questions and answers and clothing.
- **Judge Account Set up:** The judge accounts can be added by the admin and can be attached to any event as the need arises.
- **Event Access Control:** Judges will be assigned by the admin to an event or to multiple events.
- **Score Input and Validation:** Score can be given and edited by the judges, and the system validates them automatically to ensure that they are in a valid range.
- **Live Score Calculation:** The application displays the scores in real-time to all users connected to the system so that the tabulation is fast and equitable.
- **Public Viewing Page:** Once these results become public by the admin, the audience can view them on a read-only page.
- **Monitoring of activities:** The admin will be able to monitor the activity of the judges in scoring to ensure that everything is done and that it is uniform.
- **Quiz Bee Round Configuration:** The Admin can configure specific academic rounds with distinct point values and question limits.
- **Tabulator Workflow:** A specialized interface for Tabulators to input objective results (Correct/Wrong) for assigned schools.

- **Automated Clincher Engine:** The system automatically detects mathematical ties at critical rank boundaries and generates "Sudden Death" or Clincher rounds without manual calculation.

- **Mission Control:** A centralized command center for Admins to start/stop rounds globally, monitor tabulator progress, and execute advancement logic.

2.3 User Characteristics

The following describe the typical users and the characteristics required to effectively use JudgeMeNot:

- **Administrator:** Manages events, users, and the system settings. Needs basic computer skills and some experience in organizing events.
- **Judge**: Inputs and updates scores for contestants. Should be careful, fair, and comfortable using digital tools.for pageants and other competition related
- **Audience (Viewer)**: Can view the published results once made available. Only needs basic knowledge of browsing and navigation.
- **Tabulator:** Calculates, checks and compiles the results of the quiz bees or such like academic or competition based events. Should be a thoroughbred, precise and digital data entry specialist.
- **Admin-viewer:** Can access live scoring boards on pageants and other events but is not able to edit or adjust any data. Read-only access.

2.4 Constraints

- All the aspects and segments of the events should be well prepared before commencement of scoring.
- The results should not be made public prematurely and it can be done by the admin only.
- The scores should be validated using the system to have accurate and fair results.
- Since the system runs on a local server, all client devices (judges, admin-viewers, audience screens) must be connected to the same local network to receive synchronized scoring updates.
- The local host (e.g., laptop/server) becomes the single point of failure. Any shutdown, restart, or interruption will affect access to the system.
- All event details, user accounts, and scoring rules must be set up before the competition begins. Last-minute changes may cause scoring conflicts or require database adjustments.
- Access control must be strictly enforced since the system is reachable within the local network.
- To prevent data conflicts, a Tabulator or Judge account should not be logged into multiple devices simultaneously during an active round

- For Quiz Bees, a specific Tabulator account must be strictly mapped to a specific Contestant/School before the event starts to ensure accurate score attribution.

2.5 Assumptions and Dependencies

- Each user will have a device capable of running the system reliably and connecting to the local network.
- Admins and judges are expected to input and manage data carefully and follow proper procedures during scoring.
- Event setup (details, participants, rules, and scoring criteria) must be completed before scoring begins to ensure results are accurate.
- Scores entered by judges are assumed to be honest and fair; the system provides validation but cannot prevent intentional errors.
- All client devices (judges, viewers, audience screens) remain connected to the local network during the event for real-time updates.
- The system depends on the local host (laptop or server); any interruption can temporarily halt access for all users.
- Proper access control is assumed, preventing unauthorized users from viewing or changing scores within the network.
- The system's database is assumed to be backed up or recoverable in case of hardware failure or accidental shutdown.
- Future improvements, such as cloud integration, analytics, or reporting features, may be added to enhance functionality and insights.

3. Specific Requirements

This section contains the detailed requirements necessary to build the system.

3.1 Functional Requirements

CORE SYSTEM & AUTHENTICATION

FR-001: Role-Based Access Control (RBAC)

- The system shall support four distinct user roles with strict permission boundaries:
- Admin: Full access to configuration, user management, and mission control.
- Judge: Access to Pageant scoring interfaces for assigned events only.
- Tabulator: Access to Quiz Bee binary scoring (Correct/Wrong) interfaces.
- Admin-Viewer (Auditor): Read-only access to dashboards, logs, and configurations for transparency verification.
- The system shall redirect users to their specific dashboard upon login and block unauthorized URL access.

FR-002: Secure Authentication

- The system shall verify credentials against a database of hashed passwords (using BCrypt).
- The system shall log every successful login and logout event in the audit trail.
- The system shall implement a "Device Lock" for Android users, forcing them into the Public Leaderboard view to prevent administrative access on small screens.

MODULE A: PAGEANT SCORING ENGINE

FR-003: Dynamic Criteria Configuration

- The Admin shall be able to define segments (e.g., "Gown", "Interview") and attach weighted criteria (e.g., "Poise - 40%", "Intelligence - 60%").
- The system shall validate that criteria weights sum up to exactly 100% before activating a segment.

FR-004: Multi-Judge Scoring Interface

- Judges shall be provided with a digital scorecard containing slider or numeric inputs.
- The system shall enforce max_score limits (e.g., preventing a score of 105/100).
- Judges must click "Lock & Save" to commit scores, which makes the input read-only to prevent accidental edits.

FR-005: Automated Weighted Tabulation

- The system shall automatically calculate the weighted average of all judges' scores in real-time.
- The system shall generate separate rankings for Male and Female categories.

MODULE B: QUIZ BEE SCORING ENGINE

FR-006: Round-Based Configuration

- The Admin shall be able to configure academic rounds (Easy, Average, Difficult) with distinct point values per question and specific question limits.
- The system shall support two calculation modes: "Cumulative" (continuous score) and "Back-to-Zero" (reset for Finals).

FR-007: Tabulator Interface (Binary Input)

- The system shall provide a streamlined interface for Tabulators to mark answers as either "Correct" or "Wrong".
- The system shall automatically calculate the team's score based on the active round's point multiplier.

FR-008: Automated Clincher Generation (Tie-Breaking)

- The system shall automatically detect mathematical deadlocks (ties) at the qualifying cutoff rank (e.g., a tie for the 5th and final slot).
- Upon detection, the system shall prevent the "Advance" action and prompt the creation of a Clincher Round.
- The system shall automatically assign only the tied participants to this new round.

MODULE C: MISSION CONTROL & MONITORING

FR-009: Real-Time Mission Control

- The Admin shall have a centralized dashboard to Activate/Deactivate rounds globally.
- The system shall display a "Live Status" progress bar indicating how many participants have been scored by judges/tabulators.
- The system shall prevent the evaluation of results if any judge/tabulator has pending/incomplete scores.

FR-010: Security Audit Trail

- The system shall record every critical action (Login, Score Submission, Event Creation, User Deletion) with a timestamp and Actor ID.
- The system shall provide a searchable, color-coded Audit Log Viewer for the Admin and Auditor.

FR-011: Reports & Exports

- The system shall generate PDF reports containing official rankings, breakdown of scores per judge, and signature lines.
- The system shall allow the export of raw data tables to Excel (.xlsx).
- The system shall generate printable "Manual Score Sheets" with blank grids for backup/paper-based judging.

3.2 Non-Functional Requirements

NFR-001: Data Integrity & Persistence

- All scores must be stored in a relational database (MySQL) to ensure data survives application restarts or crashes.
- Database transactions must use commit/rollback logic to ensure scores are never partially saved during network interruptions.

NFR-002: Real-Time Latency

- Judge and Tabulator screens must synchronize with the active round configuration within 3 seconds of an Admin action (via polling mechanism).

NFR-003: Responsive Adaptive UI

- The Leaderboard must automatically adapt its layout based on the screen width:
- Desktop: Full-width detailed tables.
- Mobile: Horizontally scrollable tables with scaled-down fonts and badges.

NFR-004: Security (Confidentiality)

- A Judge must not be able to view the scores input by other judges.
- The Public Leaderboard must only display results for segments explicitly marked as "Revealed" by the Admin.

NFR-005: Platform Constraints (Kiosk Mode)

- If the system detects an Android User Agent, it must restrict navigation strictly to the Leaderboard route to prevent unauthorized administrative access via mobile devices.

NFR-006: Auditability

- The system must maintain an immutable log of score changes. If a score is updated, the audit trail must reflect who updated it and when.