**TASK-3**

**ONLINE SURVEY SYSTEM IN JAVA.**

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**Objective:** The objective of this task is to develop a report generation feature for an Online Survey System implemented in Java. The report generation module will extract and analyze survey data to generate comprehensive reports for administrators or users.

**Requirements:** Data Extraction: Implement functionality to extract survey data from the database. Retrieve responses to each survey question along with associated metadata such as timestamps, user IDs, etc.

**Data Analysis:** Analyze the extracted survey data to derive meaningful insights. Perform statistical analysis to calculate metrics such as response rates, average ratings, frequency distributions, etc.

**Report Generation:** Design and implement a report generation mechanism to present survey insights. Generate reports in various formats such as PDF, HTML, or CSV. Reports should include graphical representations (charts, graphs) for visualizing data.

**Customization Options:** Allow customization of report parameters such as time range, survey filters, etc. Provide options for users to select specific data subsets for analysis. Security: Implement security measures to ensure that only authorized users can access survey data and reports. Apply appropriate authentication and authorization mechanisms.

**User Interface:** Develop a user-friendly interface for interacting with the report generation feature. Integrate the report generation functionality seamlessly into the existing Online Survey System interface.

**Performance Optimization:** Optimize data retrieval and analysis processes for efficiency, especially when dealing with large datasets. Implement caching mechanisms where appropriate to improve performance.

**Documentation:** Provide comprehensive documentation covering the report generation feature, including usage instructions, API documentation, etc. Document the underlying data models, algorithms, and methodologies used for data analysis.

Testing: Conduct thorough testing of the report generation functionality to ensure accuracy and reliability. Perform unit tests, integration tests, and system tests to validate the correctness of the implementation.

**Error Handling:** Implement robust error handling mechanisms to gracefully handle exceptions and errors. Ensure proper logging of errors for troubleshooting and debugging purposes.

**Deliverables:** Report Generation Module: A fully functional module capable of extracting, analyzing, and generating reports based on survey data.