

Web-Based MSBTE Result Manager and Academic Performance Reporting System

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Abstract: *The Maharashtra State Board of Technical Education (MSBTE) publishes semester examination results exclusively through an individual-lookup portal at mahresult.nic.in, providing no mechanism for bulk retrieval or class-level analytics. This forces faculty to manually check results one student at a time and compile performance data by hand — a process that takes several hours per class and is prone to transcription errors. This paper presents a web-based system that automates bulk result extraction and academic performance reporting for MSBTE diploma institutions. Users upload an Excel file of seat numbers, complete a one-time CAPTCHA verification in the browser, and the system automatically fetches all results via HTTP-based extraction from the MSBTE portal. An analytics engine computes class-level and subject-wise performance metrics, and a multi-sheet Excel report is generated using the SheetJS library. The frontend is built with Next.js and React.js, the backend with Node.js and Express.js, and session state is managed with MongoDB Atlas. The system is deployed on Vercel and Render, requiring zero local installation. Testing with real MSBTE data demonstrated 100% extraction accuracy and a reduction in result compilation time of over 95% compared to manual methods. User acceptance testing with non-technical faculty confirmed full operational usability without technical assistance*

Keywords: MSBTE, result automation, web scraping, academic analytics, Next.js, Node.js, SheetJS, educational data mining

