**Aim:** To perform an in-depth analytical study of the organization's HR data in order to gain data-driven insights into factors affecting employee retention, satisfaction, productivity, and performance across departments, roles, age groups, and gender.

**Objectives:**

* Calculate employee attrition rates overall and for different segments like department, age, gender, job role, and education.
* Identify categories with the highest attrition rates and diagnose potential reasons through correlation analysis.
* Evaluate satisfaction levels across job roles and departments to determine problematic areas.
* Analyze productivity and performance metrics broken down by gender, age and experience level.
* Develop sharper demographic profiles of high performers to enhance recruiting and hiring.
* Formulate data-backed recommendations on retention initiatives, engagement strategies, compensation structure, recruitment programs and work culture improvements.
* Set the groundwork for an HR analytics framework that delivers continuous insights through ongoing data capture and analysis.

**Methodology:**

* Analyzed employee count, attrition count and attrition rate overall and by department to understand turnover trends.
* Examined employee age distribution and attrition rates by age group to identify high risk segments.
* Studied attrition by gender across age groups to detect any gender discrepancies.
* Evaluated job satisfaction ratings by role to pinpoint jobs needing improvement.
* Compared education levels of those who left to determine fields with high attrition.

**Analysis:**

* The overall attrition rate is 16.12%, with the highest attrition in the R&D department at 56.12% compared to 38.82% in Sales and 5.06% in HR. This indicates a need to probe deeper into challenges in R&D.
* Employees aged 25-34 have the highest attrition at 52.63% versus 47.37% for the under 25 age group. Retention efforts should focus on younger employees who may have higher expectations or lack engagement.
* Females have significantly higher attrition than males in the 25-44 age groups - 61.61% vs 38.39% for 25-34 years and 72% vs 27.45% for 35-44 years. This points to potential gender discrimination or lack of work-life balance.
* Sales executives and Research scientists reported the lowest average job satisfaction of 2.0 and 2.2 respectively on a 5-point scale. Manufacturing Directors had the highest satisfaction at 3.8.
* Employees with Life Sciences education had the most resignations at 89, followed by 63 in Medical fields. Technical degrees saw lower attrition.

**Recommendations:**

* Conduct root cause analysis into high R&D attrition through exit interviews and employee surveys. Implement retention strategies such as career development, role restructuring and work-life balance policies.
* Create leadership and advancement opportunities for younger employees. Leverage technology like AI chatbots to provide mentorship and training.
* Analyze gender ratios at all levels and implement diversity and inclusion initiatives. Offer work-life balance policies like flexi-hours and remote work.
* For Sales and R&D, analyze compensation, work environment and culture. Implement training, incentives and technologies to make roles more stimulating.
* Partner with Life Sciences colleges to attract and hire suitable talent. Offer scholarships, internships and long-term career paths to retain them.