**Report of Phase I: Planning**

By [Asha Mishra](mailto:amish140@asu.edu), [Taljinder Singh](mailto:tsingh80@asu.edu),[Jacob Kuriakose](mailto:jkuriak3@asu.edu), [Hitha Mahesh Gowda](mailto:hgowda4@asu.edu)

## **Section 1: Dataset Description**

**Dataset Name & Source**

* **HR Analytics Dataset** (Kaggle: anshika2301/hr-analytics-dataset)
* **Link:**<https://www.kaggle.com/datasets/anshika2301/hr-analytics-dataset>

**Size & Scope**

* **Rows:** 1,480 employee records
* **Columns:** 38 features capturing demographics, role, compensation, engagement, career metrics, and outcomes

**Overview**The dataset is a comprehensive overview of people’s dimensions in a company, which influences their satisfied stay in the company or why they leave from there for their career advancements. It includes various information such as their satisfaction level, pay details, perks received (stock option), overtime, work-life balance, involvement in the job, etc., which determines their like/dislike attributes for the company.

**Attribute Inventory**

| **Attribute** | **Level** | **Description** |
| --- | --- | --- |
| EmpID | Nominal | Unique employee identifier |
| Age | Ratio | Employee age in years |
| AgeGroup | Ordinal | Bucketed age groups (e.g. “18–25”, “26–35”, …) |
| Attrition | Nominal | Whether employee left (“Yes”/“No”) |
| BusinessTravel | Nominal | Travel frequency (“Travel\_Rarely”, “Travel\_Frequently”, “Non‑Travel”) |
| DailyRate | Ratio | Daily pay rate |
| Department | Nominal | Department name (e.g. “Sales”, “Research & Development”, “Human Resources”) |
| DistanceFromHome | Ratio | Miles between home and workplace |
| Education | Ordinal | 1 = Below College → 5 = Doctor |
| EducationField | Nominal | Area of study (e.g. “Life Sciences”, “Medical”, “Marketing”, “Technical Degree”) |
| EmployeeCount | Ratio | Always 1 (placeholder) |
| EmployeeNumber | Nominal | Internal employee number |
| EnvironmentSatisfaction | Ordinal (1 – 4) | Satisfaction with work environment |
| Gender | Nominal | “Male” / “Female” |
| HourlyRate | Ratio | Hourly pay rate |
| JobInvolvement | Ordinal (1 – 4) | Degree of involvement at work |
| JobLevel | Ordinal (1 – 5) | Hierarchical job level |
| JobRole | Nominal | Job title (e.g. “Sales Executive”, “Research Scientist”, etc.) |
| JobSatisfaction | Ordinal (1 – 4) | Satisfaction with current job |
| MaritalStatus | Nominal | “Single”, “Married”, “Divorced” |
| MonthlyIncome | Ratio | Monthly salary |
| SalarySlab | Ordinal | Categorical bucket for employee salary based on their MonthlyIncome |
| MonthlyRate | Ratio | Monthly rate (placeholder) |
| NumCompaniesWorked | Ratio | Prior employers count |
| Over18 | Nominal | Always “Y” (placeholder) |
| OverTime | Nominal | Works overtime (“Yes”/“No”) |
| PercentSalaryHike | Ratio | % increase since last review |
| PerformanceRating | Ordinal (1 – 4) | Performance review score |
| RelationshipSatisfaction | Ordinal (1 – 4) | Satisfaction with peer relationships |
| SalarySlab | Ordinal | MonthlyIncome bucket (“Upto 5k”, “5k–10k”, “10k–15k”, “15k+”) |
| StandardHours | Ratio | Always 80 hours |
| StockOptionLevel | Ordinal (0 – 3) | Equity package level |
| TotalWorkingYears | Ratio | Total professional experience |
| TrainingTimesLastYear | Ratio | Trainings attended in last year |
| WorkLifeBalance | Ordinal (1 – 4) | Work–life balance rating |
| YearsAtCompany | Ratio | Years with current employer |
| YearsInCurrentRole | Ratio | Years in current role |
| YearsSinceLastPromotion | Ratio | Years since last promotion |
| YearsWithCurrManager | Ratio | Years working under current manager |

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## **Section 2: Prospective Dashboard Users**

| **User Group** | **Use Cases** |
| --- | --- |
| **HR Business Partners / HR Managers** | • Track overall and department‑level attrition • Monitor satisfaction and engagement scores • Assess pay‑hike and training impacts on retention |
| **Department Heads / Line Managers** | • Drill into team performance, overtime, work–life balance • Identify spikes in turnover or low involvement • Benchmark against other teams |
| **Talent Acquisition & Workforce Planning** | • Forecast hiring needs from promotion/tenure trends• Spot high‑turnover roles or fields • Measure training ROI via performance and retention |
| **Senior Leadership / Executives** | • Review headcount and labor‑cost drivers at the enterprise level • Align workforce metrics with strategic goals (diversity, cost control) • Benchmark against industry |

## **Section 3: User Requirements & Potential Questions**

Below are **16** core questions representing the users’ requirements. Each will translate into one (or more) dashboard visualizations:

1. What is our overall attrition rate, and how does it differ by Department and JobRole?
2. How do attrition rates vary across AgeGroup and Gender?
3. Is there a relationship between MonthlyIncome (or PercentSalaryHike) and Attrition?
4. How does DistanceFromHome correlate with OverTime and Attrition?
5. Which EducationFields and Education levels have the highest turnover or lowest PerformanceRating?
6. How do the satisfaction scores (Environment, Job, Relationship, Work–Life) compare by Department and how do they predict Attrition?
7. Does TrainingTimesLastYear drive higher PerformanceRating?
8. How does YearsSinceLastPromotion impact both Attrition risk and PerformanceRating?
9. What patterns emerge between PercentSalaryHike and subsequent PerformanceRating?
10. Which JobLevels and JobRoles show the strongest PerformanceRating and lowest Attrition?
11. How does WorkLifeBalance differ between employees who do and don’t work OverTime and what’s the effect on Attrition?
12. What’s the distribution of StockOptionLevel, and do richer equity packages boost retention?
13. How do NumCompaniesWorked and TotalWorkingYears relate to PerformanceRating and Attrition?
14. Is lower JobInvolvement associated with higher Attrition?
15. How do BusinessTravel categories affect WorkLifeBalance and Attrition?
16. Are there gender‑based differences in pay rates (HourlyRate, DailyRate, MonthlyIncome) that correlate with Attrition?

## **Section 4: References**

* **HR Analytics Dataset  
   Kaggle:** <https://www.kaggle.com/datasets/anshika2301/hr-analytics-dataset>
* **Team 15 Mural Board**<https://app.mural.co/t/iftdv533projectgroup159816/m/iftdv533projectgroup159816/1744753409465/d76d1cd50c961e0798b26fc4e201db71a6c6fd82?sender=ud227781d8e0305cad97f1467>