

## Zenvy Payroll Analytics Dashboard Report

### Week 3: Mock Dashboard Development

#### 1. Project Overview

Project Name: Zenvy Payroll SaaS - Analytics Dashboard

Week: Week 3 - Mock Dashboard Development

Role: DS/Analytics Intern

Date: January 31, 2026

#### Objective

Build first mock dashboards for payroll analytics:

- Salary Distribution Chart
- Department-wise Payroll Expenses

#### 2. Tools and Technologies Used

##### 2.1 Development Tools

| Tool             | Version | Purpose              |
|------------------|---------|----------------------|
| Python           | 3.12    | Programming Language |
| VS Code          | Latest  | IDE / Code Editor    |
| Jupyter Notebook | Latest  | Data Exploration     |
| Git              | Latest  | Version Control      |

##### 2.2 Python Libraries

| Library    | Purpose                        |
|------------|--------------------------------|
| Pandas     | Data manipulation and analysis |
| NumPy      | Numerical computing            |
| Matplotlib | Data visualization and charts  |

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|          |                       |
|----------|-----------------------|
| Seaborn  | Statistical graphics  |
| PdfPages | PDF report generation |

## 2.3 Data Tools

| Tool      | Purpose                |
|-----------|------------------------|
| CSV Files | Data storage format    |
| Power BI  | Interactive dashboards |
| MySQL     | Database storage       |
| Excel     | Data validation        |

## 3. Data Source

Dataset Used: [zenvy\\_master\\_for\\_powerbi.csv](#)

| Field          | Description                         | Data Type |
|----------------|-------------------------------------|-----------|
| employee_id    | Unique Employee Identifier          | Integer   |
| employee_name  | Employee Full Name                  | String    |
| department     | Department (IT, HR, Finance, Sales, | String    |
| designation    | Job Role/Title                      | String    |
| base_salary    | Base Monthly Salary                 | Float     |
| gross_salary   | Total Earnings                      | Float     |
| net_salary     | Take-home Pay                       | Float     |
| tax_deduction  | Tax Amount Deducted                 | Float     |
| pf_deduction   | PF Contribution                     | Float     |
| working_days   | Total Working Days                  | Integer   |
| present_days   | Days Present                        | Integer   |
| overtime_hours | OT Hours Worked                     | Integer   |

## Data Summary

- Total Records: 20 employees
- Departments: IT, HR, Finance, Sales, Marketing
- Time Period: 2023-2024

## 4. Visuals Created

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## 4.1 Salary Distribution Visuals

| Visual Name          | Chart Type  | Description                                 |
|----------------------|-------------|---|
| Net Salary Histogram | Histogram   | Distribution of employee salaries worldwide |
| Department Box Plot  | Box Plot    | Salary range comparison across departments  |
| Gross vs Net Bar     | Grouped Bar | Company cost vs employee take-home pay      |
| Salary Bracket Pie   | Pie Chart   | Percentage in each salary bracket           |

## 4.2 Department Expense Visuals

| Visual Name        | Chart Type     | Description                          |
|--------------------|----------------|--------------------------------------|
| Department Payroll | Horizontal Bar | Total payroll spend per department   |
| Expense Breakdown  | Pie Chart      | Net vs Tax vs PF split               |
| Stacked Costs      | Stacked Bar    | Layered expense view by department   |
| Headcount Chart    | Dual-axis      | Employee count with avg salary trend |

## 4.3 KPI Cards

| KPI Visual          | Value Displayed |
|---------------------|-----------------|
| Total Employees     | 20              |
| Total Gross Payroll | Rs.11.56L       |
| Total Net Payroll   | Rs.9.87L        |
| Average Net Salary  | Rs.49.4K        |
| Highest Salary      | Rs.82.5K        |
| Lowest Salary       | Rs.27.5K        |

## 5. Dashboard Pages

### Page 1: Cover Page

- Project branding with Zenvy theme
- Title: ZENVY PAYROLL Analytics Dashboard
- Subtitle: Week 3 Mock Dashboard Development
- Generation date and author info

### Page 2: Salary Distribution Analysis

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| Chart                       | Type        | Insight                             |
|-----------------------------|-------------|-------------------------------------|
| Net Salary Distribution     | Histogram   | Shows salary spread with mean Rs.49 |
| Salary Range by Department  | Box Plot    | IT has highest salary range         |
| Gross vs Net Salary         | Grouped Bar | Department-wise cost comparison     |
| Salary Bracket Distribution | Pie Chart   | 35% earn Rs.35K-50K                 |

## Page 3: Department-wise Payroll Expenses

| Chart                       | Type           | Insight                          |
|-----------------------------|----------------|----------------------------------|
| Total Payroll by Department | Horizontal Bar | IT has highest payroll Rs.4.05L  |
| Expense Breakdown           | Pie Chart      | Net 85.4%, Tax 9.1%, PF 5.5%     |
| Stacked Expense             | Stacked Bar    | Net + Tax + PF per department    |
| Headcount and Avg Salary    | Dual-axis      | IT has 5 employees, Rs.63.9K avg |

## Page 4: Executive Summary KPIs

| KPI                   | Value     |
|-----------------------|-----------|
| Total Employees       | 20        |
| Total Gross Payroll   | Rs.11.56L |
| Total Net Payroll     | Rs.9.87L  |
| Total Tax Deduction   | Rs.1.05L  |
| Total PF Contribution | Rs.52.6K  |
| Average Net Salary    | Rs.49.4K  |
| Highest Salary        | Rs.82.5K  |
| Lowest Salary         | Rs.27.5K  |

## 6. Key Findings

### 6.1 Salary Distribution Insights

- Average Net Salary: Rs.49,400 per month
- Salary Range: Rs.27,500 to Rs.82,500
- Most Common Bracket: Rs.35K-50K (35% of employees)

### 6.2 Department Analysis

| Department | Employees | Total Gross | Avg Net Salary |
|------------|-----------|-------------|----------------|
| IT         | 5         | Rs.4.05L    | Rs.63.9K       |

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|           |   |          |          |
|-----------|---|----------|----------|
| Finance   | 4 | Rs.2.85L | Rs.51.2K |
| HR        | 4 | Rs.1.73L | Rs.36.9K |
| Marketing | 3 | Rs.1.45L | Rs.41.4K |
| Sales     | 4 | Rs.1.33L | Rs.35.7K |

## 6.3 Cost Breakdown

- Net Salary: 85.4% of total payroll
- Tax Deductions: 9.1% of total payroll
- PF Contributions: 5.5% of total payroll

## 7. Files Delivered

| File Name                     | Description                 | Size  |
|-------------------------------|-----------------------------|-------|
| generate_dashboard_pdf.py     | Python script for dashboard | 19 KB |
| convert_to_pdf.py             | Markdown to PDF converter   | 9 KB  |
| Zenvy_Analytics_Dashboard.pdf | 4-page dashboard PDF        | 60 KB |
| Week3_Dashboard_Report.md     | This report markdown        | 7 KB  |
| zenvy_master_for_powerbi.csv  | Master data file            | 3 KB  |

## 8. How to Regenerate Dashboard

```
cd D:\project intership\zenvy payroll saas week 3
```

```
python generate_dashboard_pdf.py
```

```
Output: Zenvy_Analytics_Dashboard.pdf
```

## 9. Skills Applied

- Data Analysis: Pandas for data manipulation
- Data Visualization: Matplotlib charts and graphs
- Python Programming: Script development
- Report Design: Multi-page PDF reports

- Statistical Analysis: Distribution and averages
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## 10. Conclusion

Week 3 deliverables completed successfully:

1. Salary Distribution Dashboard - Employee salary patterns
2. Department-wise Payroll Analysis - Cost breakdown
3. KPI Summary Report - Key metrics for review

The mock dashboards provide insights into:

- Salary distribution patterns
  - Department-wise payroll expenses
  - Cost structure (Net vs Tax vs PF)
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Project: Zenvy Payroll SaaS

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