

LAPORAN HASIL PRATIKUM
BASIS DATA LANJUT



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1. Function get_employees_by_salary_range

```
CREATE OR REPLACE FUNCTION get_employees_by_salary_range(min_salary DECIMAL, max_salary DECIMAL)
RETURNS TABLE (
    full_name TEXT,
    department TEXT,
    job_position TEXT,
    salary NUMERIC
)
LANGUAGE plpgsql
AS $$
BEGIN
    RETURN QUERY
    SELECT
        id,
        CONCAT(first_name, ' ', last_name) AS full_name,
        department,
        position AS job_position,
        salary
    FROM employees
    WHERE salary BETWEEN min_salary AND max_salary
    ORDER BY salary DESC;
END;
$$;
```

The screenshot shows the pgAdmin 4 interface with the Query tab active. The code above is being run in the query editor. The results pane shows a message: "Query returned successfully in 124 msec." The status bar at the bottom right indicates the date and time: 13/11/2025.

2. Function: get_department_summary()

```
CREATE OR REPLACE FUNCTION get_department_summary()
RETURNS TABLE (
    department TEXT,
    employee_count INT,
    avg_salary NUMERIC,
    total_budget NUMERIC
)
LANGUAGE plpgsql
AS $$
BEGIN
    RETURN QUERY
    SELECT
        e.department,
        COUNT(e.id) AS employee_count,
        AVG(e.salary)::NUMERIC(12,2) AS avg_salary,
        SUM(p.budget)::NUMERIC(12,2) AS total_budget
    FROM employees e
    LEFT JOIN projects p ON p.department = e.department
    GROUP BY e.department
    ORDER BY e.department;
END;
$$;
```

The screenshot shows the pgAdmin 4 interface with the Query tab active. The code above is being run in the query editor. The results pane shows a message: "Query returned successfully in 128 msec." The status bar at the bottom right indicates the date and time: 13/11/2025.

3. Tambahkan method berikut di file employee model

```

114     public function getSalaryStats() {
115         $sql = "SELECT department,
116                     AVG(salary)::numeric(12,2) AS avg_salary,
117                     MAX(salary) AS max_salary,
118                     MIN(salary) AS min_salary
119                 FROM {$this->table_name}
120                 GROUP BY department
121                 ORDER BY department";
122         $stmt = $this->conn->prepare($sql);
123         $stmt->execute();
124         return $stmt;
125     }
126
127     public function getTenureStats() {
128         $sql = "SELECT category, COUNT(*) AS employee_count FROM (
129                     SELECT id, CONCAT(first_name, ' ', last_name) AS full_name, hire_date,
130                     CASE
131                         WHEN DATE_PART('year', AGE(CURRENT_DATE, hire_date)) = 0 THEN 'Junior'
132                         WHEN DATE_PART('year', AGE(CURRENT_DATE, hire_date)) BETWEEN 1 AND 3 THEN 'Middle'
133                         ELSE 'Senior'
134                     END AS category
135                 FROM {$this->table_name}
136             ) t
137             GROUP BY category
138             ORDER BY CASE WHEN category='Junior' THEN 1 WHEN category='Middle' THEN 2 ELSE 3 END";
139         $stmt = $this->conn->prepare($sql);
140         $stmt->execute();
141         return $stmt;
142     }
143
144     public function getEmployeeOverview() {
145         $sql = "SELECT
146                     COUNT(*) AS total_employees,
147                     SUM(salary) AS total_salary_per_month,
148                     AVG(EXTRACT(YEAR FROM AGE(CURRENT_DATE, hire_date)))::numeric(5,2) AS avg_years_service
149                 FROM {$this->table_name}";
150         $stmt = $this->conn->prepare($sql);
151         $stmt->execute();
152         return $stmt->fetch(PDO::FETCH_ASSOC);
153     }
154
155     // Methods to call the Postgres table functions (optional)
156     public function getEmployeesBySalaryRange($min, $max) {
157         $sql = "SELECT * FROM get_employees_by_salary_range(:min_salary, :max_salary)";
158         $stmt = $this->conn->prepare($sql);
159         $stmt->bindValue(':min_salary', $min);
160         $stmt->bindValue(':max_salary', $max);
161         $stmt->execute();
162         return $stmt;
163     }

```

4. views/salary_stats.php

```
1 <?php
2 include 'views/header.php';
3 ?>
4 <h2>Statistik Gaji per Departemen</h2>
5
6 <?php
7 $stats = $employeeModel->getSalaryStats();
8 $rows = $stats->fetchAll(PDO::FETCH_ASSOC);
9 if (count($rows) > 0):
10 ?>
11 <table class="data-table">
12   <thead>
13     <tr><th>Departemen</th><th>Rata-rata Gaji</th><th>Gaji Tertinggi</th><th>Gaji Terendah</th></tr>
14   </thead>
15   <tbody>
16     <?php foreach($rows as $r): ?>
17       <tr>
18         <td><?php echo htmlspecialchars($r['department']); ?></td>
19         <td>Rp <?php echo number_format($r['avg_salary'],0,',','.') ; ?></td>
20         <td>Rp <?php echo number_format($r['max_salary'],0,',','.') ; ?></td>
21         <td>Rp <?php echo number_format($r['min_salary'],0,',','.') ; ?></td>
22       </tr>
23     <?php endforeach; ?>
24   </tbody>
25 </table>
26 <?php else: ?>
27 |   <p>Tidak ada data gaji.</p>
28 <?php endif; ?>
29
30 <?php include 'views/footer.php'; ?>
31
```

5. views/tenure_stats.php

```
1 <?php
2 include 'views/header.php';
3 ?>
4 <h2>Statistik Masa Kerja</h2>
5
6 <?php
7 $stats = $employeeModel->getTenureStats();
8 $rows = $stats->fetchAll(PDO::FETCH_ASSOC);
9 if (count($rows) > 0):
10 ?>
11 <table class="data-table">
12   <thead>
13     <tr><th>Kategori</th><th>Jumlah Karyawan</th></tr>
14   </thead>
15   <tbody>
16     <?php foreach($rows as $r): ?>
17       <tr>
18         <td><?php echo htmlspecialchars($r['category']); ?></td>
19         <td style="text-align:center;"><?php echo $r['employee_count']; ?></td>
20       </tr>
21     <?php endforeach; ?>
22   </tbody>
23 </table>
24 <?php else: ?>
25 |   <p>Tidak ada data masa kerja.</p>
26 <?php endif; ?>
27
28 <?php include 'views/footer.php'; ?>
29
```

6. views/employee_overview.php

```

views > 📄 employee_overview.php > ...
1  <?php
2  include 'views/header.php';
3  ?>
4  <h2>Ringkasan Karyawan</h2>
5
6  <?php
7  $overview = $employeeModel->getEmployeeOverview();
8  ?>
9  <div class="dashboard-cards">
10   <div class="card">
11    <h3>Total Karyawan</h3>
12    <div class="number"><?php echo $overview['total_employees']; ?></div>
13   </div>
14   <div class="card">
15    <h3>Total Gaji / Bulan</h3>
16    <div class="number">Rp <?php echo number_format($overview['total_salary_per_month'],0,',','.') ; ?></div>
17   </div>
18   <div class="card">
19    <h3>Rata-rata Masa Kerja</h3>
20    <div class="number"><?php echo $overview['avg_years_service']; ?> tahun</div>
21   </div>
22 </div>
23
24 <?php include 'views/footer.php'; ?>
25

```

7. employee_overview

Sistem Manajemen Karyawan

Aplikasi CRUD Sederhana dengan PostgreSQL & PHP

Ringkasan Karyawan

Total Karyawan 20	Total Gaji / Bulan Rp 152.200.000	Rata-rata Masa Kerja 3.75 tahun
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8. tenure_stats

The screenshot shows a web browser window for 'Sistem Manajemen Karyawan'. The title bar says 'localhost/employee-management/index.php?action=tenure_stats'. The main content area has a purple header 'Sistem Manajemen Karyawan' and 'Aplikasi CRUD Sederhana dengan PostgreSQL & PHP'. Below it is a navigation bar with links: Dashboard, Data Karyawan, Tambah Karyawan, Statistik, Statistik Gaji, Masa Kerja (highlighted in blue), Ringkasan Karyawan, and Departemen. The main content section is titled 'Statistik Masa Kerja' and contains a table:

Kategori	Jumlah Karyawan
Middle	14
Senior	6

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9. salary_stats

The screenshot shows a web browser window for 'Sistem Manajemen Karyawan'. The title bar says 'localhost/employee-management/index.php?action=salary_stats'. The main content area has a purple header 'Sistem Manajemen Karyawan' and 'Aplikasi CRUD Sederhana dengan PostgreSQL & PHP'. Below it is a navigation bar with links: Dashboard, Data Karyawan, Tambah Karyawan, Statistik, Statistik Gaji, Masa Kerja, Ringkasan Karyawan, and Departemen. The main content section is titled 'Statistik Gaji per Departemen' and contains a table:

Departemen	Rata-rata Gaji	Gaji Tertinggi	Gaji Terendah
Finance	Rp 7.650.000	Rp 8.200.000	Rp 7.200.000
HR	Rp 7.025.000	Rp 9.500.000	Rp 5.900.000
IT	Rp 8.266.667	Rp 9.000.000	Rp 7.800.000
Marketing	Rp 6.533.333	Rp 7.000.000	Rp 5.800.000
Operations	Rp 8.100.000	Rp 11.000.000	Rp 6.000.000

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