

Personal report - Requirement 2: Data Generation

Thông tin cá nhân

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- Nhóm 11.

Thông tin nhóm 11

- Thông tin thành viên:
 - Giang Đức Nhật - 22120252
 - Phan Thanh Tiến - 22120368
 - Nguyễn Bùi Vương Tiến - 22120370
 - Lý Trọng Tín - 222120371
- Bảng phân công nhóm:

Tính năng	Thành viên phụ trách
Recruitment	Phan Thanh Tiến
Performance Review	Phan Thanh Tiến
HR Administration	Giang Đức Nhật
Employee Management (PIM)	Giang Đức Nhật
Leave Management	Lý Trọng Tín
Time and Attendance	Lý Trọng Tín
Reporting and Analytics	Nguyễn Bùi Vương Tiến
Employee Self-Service (ESS)	Nguyễn Bùi Vương Tiến

Requirement 2: Data Generation

1.1. Cách chạy

Trong project này, sử dụng Faker.js để generate data giả lập cho các bảng trong hệ thống.

Để chạy các script generate data, chạy các lệnh dưới đây:

```
npm install
# node <filename>, for example:
export MYSQL_HOST=localhost
export MYSQL_PORT=3310
export MYSQL_USER=root
export MYSQL_PASSWORD=secret
```

```
export MYSQL_DATABASE=orangehrm
node <tên script>
```

- Chú ý:
 - Chạy theo thứ tự: `recruitment.js` (tạo job titles, vacancies, candidates) → `generate-employees.js` (nếu cần thêm nhân viên) → `kpi-perf-review.js`.
 - Nếu database có dữ liệu cũ, các script đều thiết kế để không gây lỗi và kiểm tra dữ liệu trước khi insert thực tế.

1.2. Cách hoạt động của các Script

1.2.1. Tổng quan

- Để đảm bảo tính chính xác trong các dữ liệu quan hệ, các script được thiết kế để sinh dữ liệu một cách có thứ tự, và đảm bảo có tính liên kết với các bảng khác.
- Ví dụ: Khi bảng A có foreign key đến bảng B:
 - Đầu tiên, script sinh dữ liệu ở bảng A.
 - Tiếp theo, đi theo khóa ngoại, script sẽ chọn dữ liệu đúng từ bảng A cho khóa ngoại này trước. Sau đó mới sinh các dữ liệu còn lại cho bảng B.
- Với cách làm như vậy, các dữ liệu sinh ra sẽ có tính liên kết đúng đắn, tránh lỗi ràng buộc khóa ngoại.

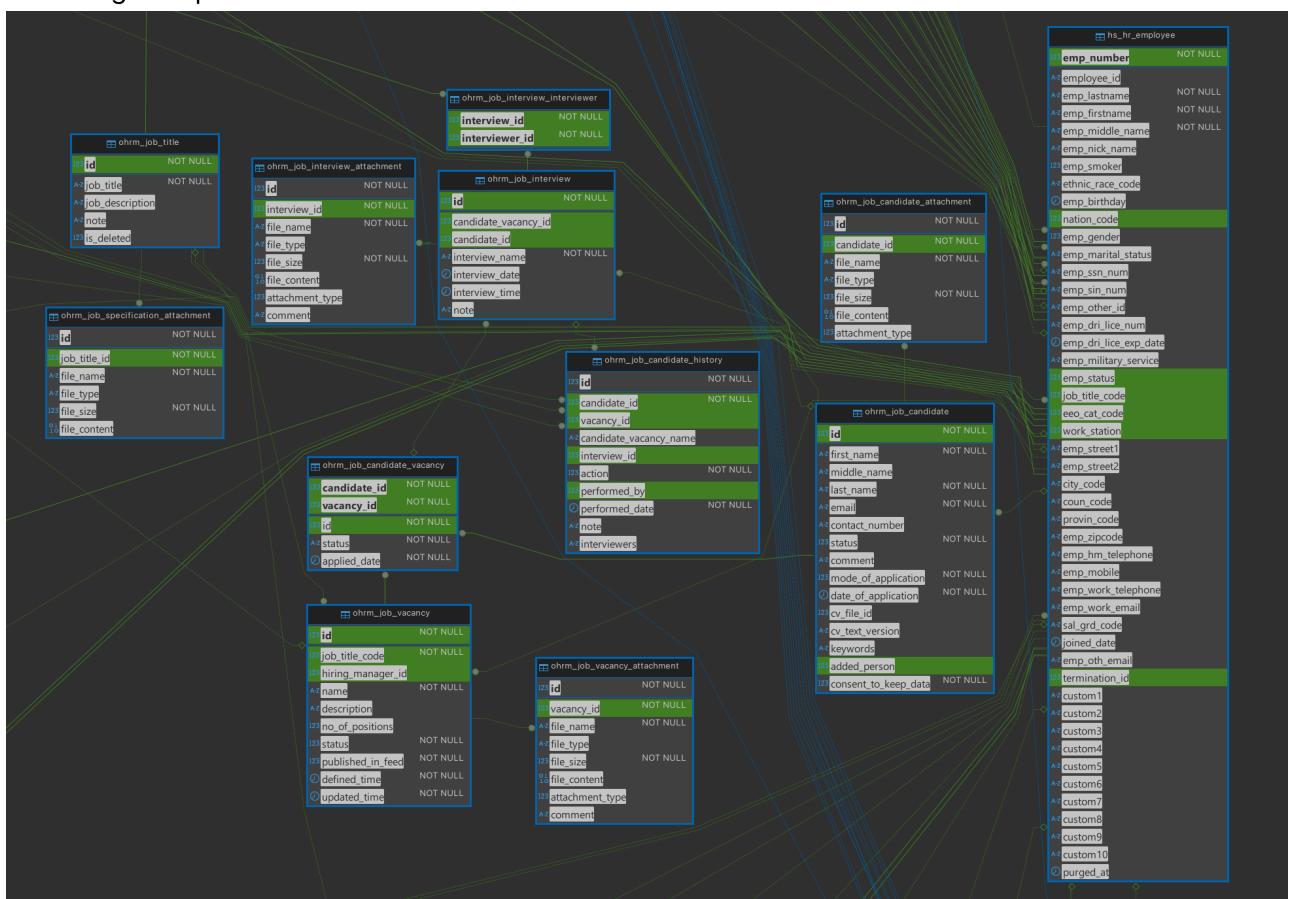
1.2.2. generate-employees.js

- Mục đích: Sinh employee mẫu để phục vụ cho các script khác (ví dụ: performance review).
- Các bảng liên quan:
 - `hs_hr_employee` (emp_number, emp_firstname, emp_lastname, emp_middle_name, employee_id, job_title_code)
- Flow:
 1. Kết nối DB.
 2. Lấy danh sách job titles có trong DB. Nếu không có tiến hành insert.
 3. Tạo 15 nhân viên mới (có `employee_id` dạng `EMP00001`, `EMP00002`, ...), gán `job_title_code` ngẫu nhiên từ danh sách job titles.

1.2.3. recruitment.js

- Mục đích: Tạo dữ liệu demo cho module recruitment (job titles, vacancies, candidates, interviews, candidate history).
- Cấu hình thêm:
 - Số lượng vacancies sẽ sinh ra: `GEN_VACANCIES`
 - Số lượng candidate sẽ sinh ra: `GEN_CANDIDATES`

- Các bảng liên quan:



- ohrm_job_title (id, job_title, job_description, is_deleted)
- ohrm_job_vacancy (id, job_title_code, hiring_manager_id, name, description, no_of_positions, status, published_in_feed, defined_time, updated_time)
- ohrm_job_candidate (id, first_name, middle_name, last_name, email, contact_number, status, comment, mode_of_application, date_of_application, keywords, added_person)
- ohrm_job_candidate_vacancy (candidate_id, vacancy_id, status, applied_date)
- ohrm_job_interview (candidate_id, interview_name, interview_date, interview_time)
- ohrm_job_candidate_history (candidate_id, action, performed_date, note)

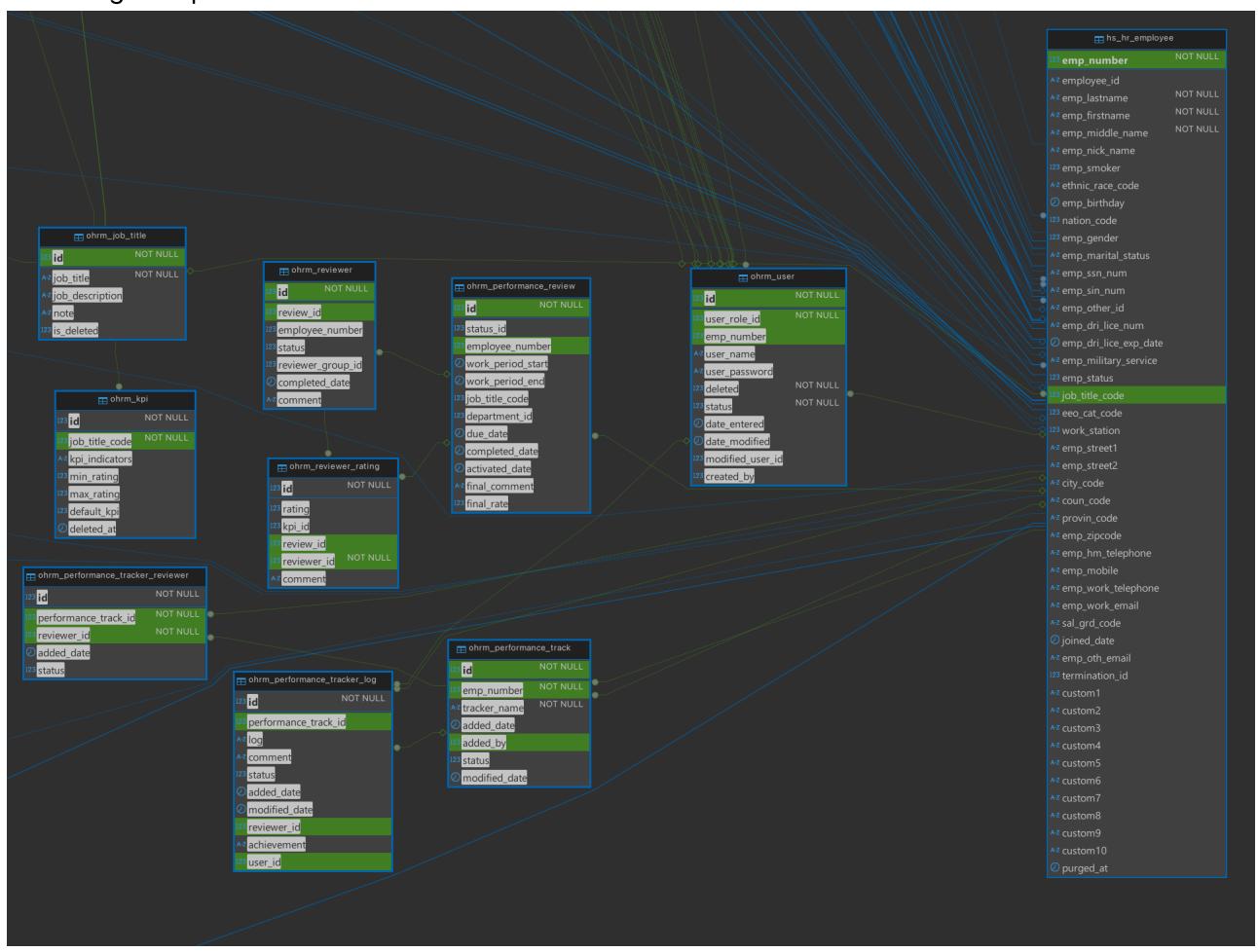
- Flow:

- Kết nối DB.
- Check bảng ohrm_job_titles đã có dữ liệu chưa, nếu chưa insert thêm.
- Tạo vacancies dựa trên job title (mỗi vacancy có job_title_code, hiring_manager_id, defined_time, updated_time). Trong đó, job_title_code lấy từ bảng ohrm_job_title, hiring_manager_id lấy từ bảng hs_hr_employee theo dữ liệu đã insert trước đó, lấy ngẫu nhiên.
- Tạo candidates (thông tin cá nhân, status, keywords) và lưu added_person=1.
- Gán một số candidate vào ohrm_job_candidate_vacancy và lưu trạng thái dạng chuỗi trong bảng liên kết.
- Tạo interviews và candidate history cho mỗi candidate.

1.2.4. kpi-perf-review.js

- Mục đích: Sinh dữ liệu performance review (KPIs, performance trackers, tracker logs, reviews) cho module Performance.

- Các bảng liên quan:



- ohrm_kpi (id, job_title_code, kpi_indicators, min_rating, max_rating, default_kpi)
- ohrm_performance_track (id, emp_number, tracker_name, added_date, added_by, status, modified_date)
- ohrm_performance_tracker_reviewer (performance_track_id, reviewer_id, added_date, status)
- ohrm_performance_tracker_log (performance_track_id, log, comment, status, added_date, user_id, reviewer_id, achievement)
- ohrm_performance_review (status_id, employee_number, work_period_start, work_period_end, job_title_code, due_date, activated_date)
- ohrm_reviewer (review_id, employee_number, status, reviewer_group_id)

- Flow:

- Kết nối DB.
- Kiểm tra các dữ liệu quan hệ cần thiết, đảm bảo có đủ job titles, đủ nhân viên, reviewer group, users cho employees và reporting relationships. Nếu thiếu, script tự chèn các bản ghi thiết yếu.
- Sinh KPIs cho mỗi job title (3–6 KPIs/job title) và ghi vào ohrm_kpi.
- Sinh performance trackers (mỗi tracker gán cho 1 emp_number) và reviewer tương ứng.
- Sinh tracker logs (feedback) liên quan đến từng tracker; sử dụng user_id hợp lệ (script tạo user accounts cho employees nếu cần).
- Sinh performance reviews và mapping reviewer (ohrm_reviewer).

1.3. Kết quả chạy

- Sau khi chạy script sinh performance review:

```
⌚ ⚡ ~/media/D/D/Documents/Testing/testing-project 🐍 tien.pt +3 17 ?6 ) node kpi-perf-review.js
(node:224951) [MODULE_TYPELESS_PACKAGE_JSON] Warning: Module type of file:///media/Data/OneDrive-HCMUS/Documents/Testing/testing-project/kpi-perf-review.js is not specified and it doesn't parse as CommonJS.
Reparses as ES module because module syntax was detected. This incurs a performance overhead.
To eliminate this warning, add "type": "module" to /media/Data/OneDrive-HCMUS/Documents/Testing/testing-project/package.json.
(Use `node --trace-warnings...` to show where the warning was created)
Connected to database.
Fetching existing employees and job titles...
Supervisor reviewer group id: 1
Created users for employees: 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17
Found 17 employees and 22 job titles.

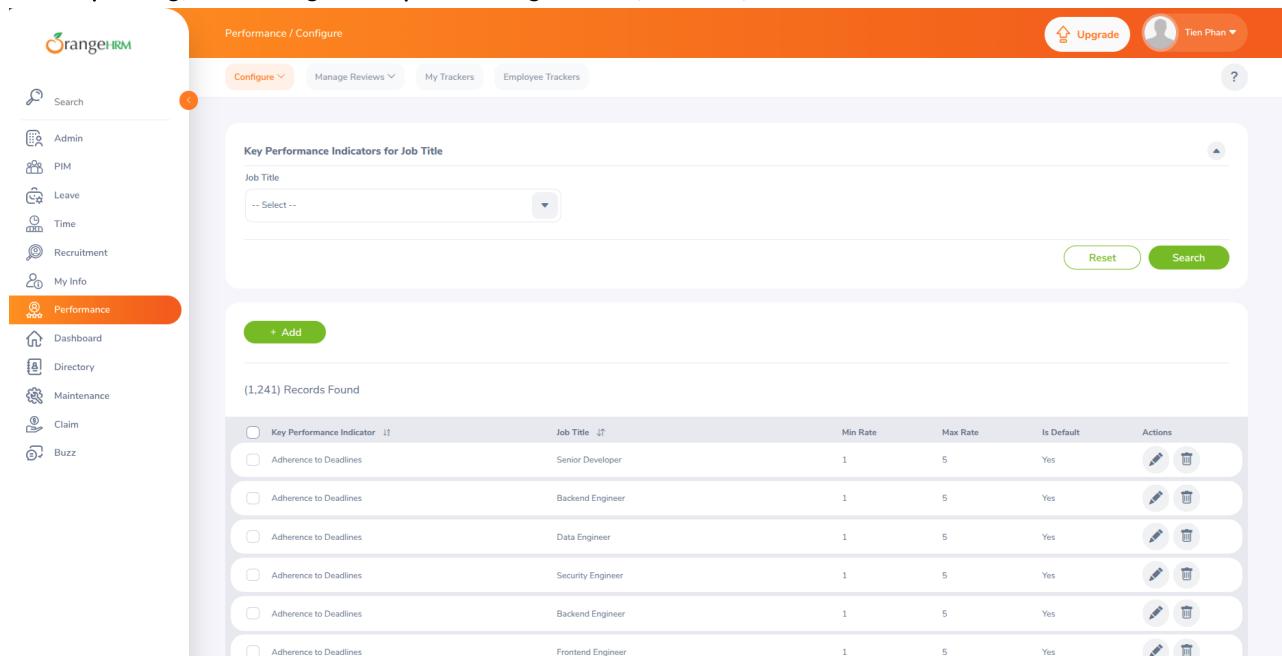
Generating KPIs for Job Titles...
Generated 99 KPIs.

Generating performance trackers...
Created 12 performance trackers.

Generating tracker logs (feedback)...
Created 37 tracker logs.

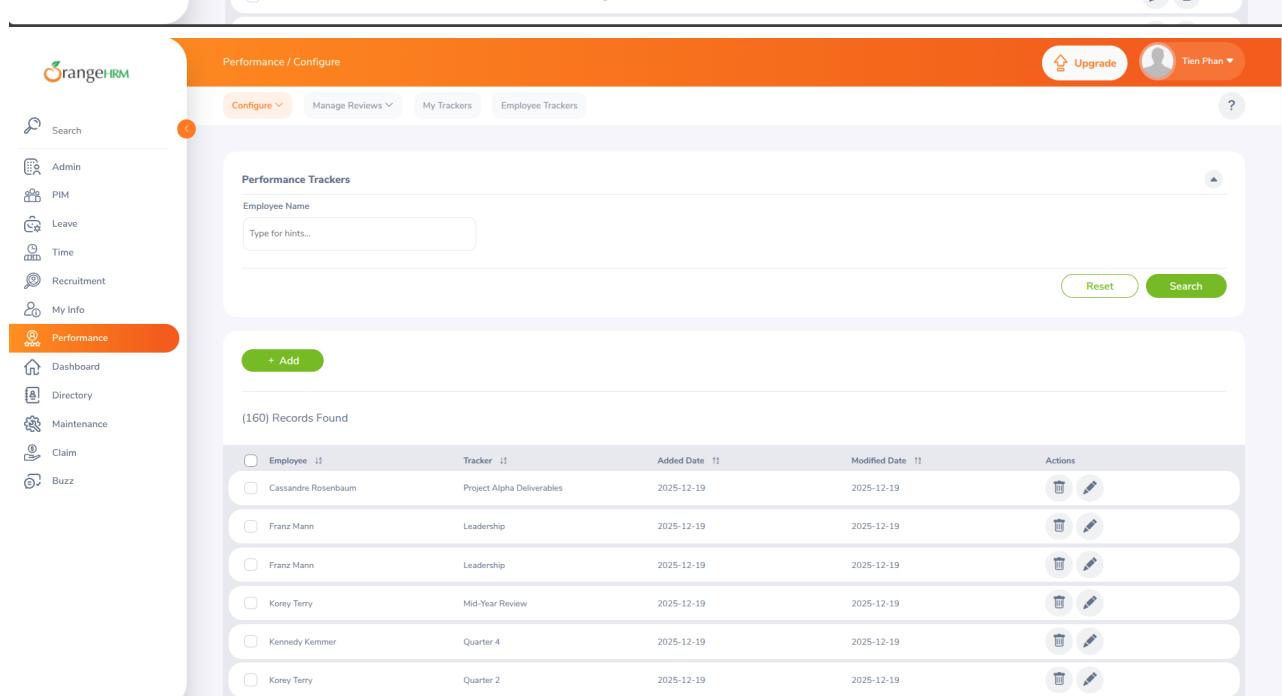
Generating performance reviews...
Created 8 performance reviews.
Performance data generation completed successfully.
Disconnected from database
```

- Trên hệ thống, các thông tin được sinh ra gồm: KPI, Tracker, Review



The screenshot shows the 'Key Performance Indicators for Job Title' section of the OrangeHRM Performance module. It lists 1,241 records found for Adherence to Deadlines across different job titles: Senior Developer, Backend Engineer, Data Engineer, Security Engineer, and Frontend Engineer. Each record includes columns for Job Title, Min Rate, Max Rate, Is Default, and Actions (Edit, Delete).

Action	Job Title	Min Rate	Max Rate	Is Default	Actions	
	Senior Developer	1	5	Yes		
	Backend Engineer	1	5	Yes		
	Data Engineer	1	5	Yes		
	Security Engineer	1	5	Yes		
	Backend Engineer	1	5	Yes		
	Frontend Engineer	1	5	Yes		



The screenshot shows the 'Performance Trackers' section of the OrangeHRM Performance module. It lists 160 records found for employees Cassandre Rosenbaum, Franz Mann, Korey Terry, and Kennedy Kemmer. Each record includes columns for Employee Name, Tracker, Added Date, Modified Date, and Actions (Edit, Delete).

Action	Employee	Tracker	Added Date	Modified Date	Actions	
	Cassandre Rosenbaum	Project Alpha Deliverables	2025-12-19	2025-12-19		
	Franz Mann	Leadership	2025-12-19	2025-12-19		
	Franz Mann	Leadership	2025-12-19	2025-12-19		
	Korey Terry	Mid-Year Review	2025-12-19	2025-12-19		
	Kennedy Kemmer	Quarter 4	2025-12-19	2025-12-19		
	Korey Terry	Quarter 2	2025-12-19	2025-12-19		

- Sau khi chạy script sinh recruitment:

```
⌚ ~/media/D/D/Documents/Testing/testing-project 🐀 P tien.pt +3 !? ?6 ) node tienpt\ report/recruitment.js
(node:231902) [MODULE_TYPELESS_PACKAGE_JSON] Warning: Module type of file:///media/Data/OneDrive-HCMUS/Documents/Testing/testing-project/tienpt%20report/recruitment.js is not specified and it doesn't parse as CommonJS.
Reparson as ES module because module syntax was detected. This incurs a performance overhead.
To eliminate this warning, add "type": "module" to /media/Data/OneDrive-HCMUS/Documents/Testing/testing-project/package.json.
(Use 'node --trace-warnings ...' to show where the warning was created)
Connected to database successfully
Generating vacancies...
Created 10 vacancies
Generating candidates...
Created 50 candidates
Generating interviews...
Created 70 interviews
Generating candidate history...
Created 160 history entries
Data generation completed successfully.
- Vacancies: 10
- Candidates: 50
Disconnected from database
```

- Recruitment candidates xuất hiện trên hệ thống:

Vacancy	Candidate	Hiring Manager	Date of Application	Status	Actions
Senior UI/UX Engineer - Core	Steve Ryan Leuschke	Tien Phan	2025-07-21	Rejected	
Senior UI/UX Engineer - Core	Dusty Elliott Satterfield	Tien Phan	2025-08-29	Application Initiated	
Senior Security Engineer - Platform	Euna Armstrong	Tien Phan	2024-12-28	Shortlisted	
Senior Security Engineer - Platform	Talia Ryan Bednar	Tien Phan	2025-08-04	Rejected	
Senior Security Engineer - Platform	Vanessa Christiansen	Tien Phan	2024-12-19	Interview Scheduled	
Senior Security Engineer - Platform	Morris Cameron Cronin	Tien Phan	2024-12-23	Interview Failed	
Senior Security Engineer - Platform	Maud Hagenes	Tien Phan	2025-09-23	Hired	
Senior Security Engineer - Platform	Annalise Angel Hirthe	Tien Phan	2025-09-22	Shortlisted	
Senior Security Engineer - Platform	Mariah Reese Mayert	Tien Phan	2025-05-12	Shortlisted	
Senior Product Manager - Security	Bert Anderson Auer	Tien Phan	2025-10-12	Shortlisted	

- Recruitment vacancies xuất hiện trên hệ thống:

Vacancy	Job Title	Hiring Manager	Status	Actions
Junior Backend Engineer - Data	Customer Success Engineer	Tien Phan	Active	
Junior Mobile Engineer - Core	Customer Success Engineer	Tien Phan	Active	
Junior Technical Program Manager - Growth	Technical Program Manager	Tien Phan	Active	
Lead Backend Engineer - Platform	Technical Program Manager	Tien Phan	Active	
Lead Backend Engineer - Platform	Customer Success Engineer	Tien Phan	Active	
Lead Customer Success Engineer - Data	Technical Program Manager	Tien Phan	Active	
Lead Engineering Manager - Data	Technical Program Manager	Tien Phan	Active	
Lead Product Manager - Data	Technical Program Manager	Tien Phan	Active	

- Một candidate có đầy đủ chi tiết được sinh ra:

The screenshot shows the OrangeHRM software interface, specifically the Recruitment module. On the left, there's a vertical sidebar with various menu items like Admin, PIM, Leave, Time, and Recruitment (which is highlighted with an orange bar). The main content area has a header "Recruitment" with tabs for "Candidates" and "Vacancies". Below that, it displays a candidate profile for "Cathrine Renner" with the title "Junior Mobile Engineer - Core" and "Status: Interview Passed". There are buttons for "Reject", "Schedule Interview", and "Offer Job". The "Candidate Profile" section contains fields for Full Name (Cathrine Renner), Job Vacancy (Junior Mobile Engineer - Core), Email (catherine_renner@gmail.com), and Contact Number ((526) 841-1900 x81575). A resume upload section shows "No file selected". At the top right, there are links for "Upgrade", a user profile for "Tien Phan", and a help icon.