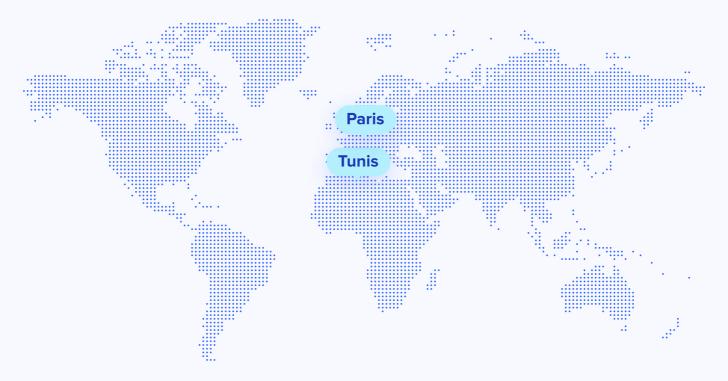# Graduation Internships Book

2023 Edition

Get to know us better

Founded in 2014 by Karim Jouini and Jihed Othmani (Microsoft Alumni) and joined by Marc Clatot (General Manager - American Express Corporate Payments France Benelux) in 2015, Expensya is an automated solution for companies spent from the budget setting to the payment and accounting integration. With more than 160 employees in 4 countries, Expensya is used by more than 6,000 companies worldwide with more than 700,000 users.

One big team

Paris

Tunis

In a few numbers

2 Locations
Paris-Tunis

+6.000
client companies

+100
countries use Expensya

+700000
active users

+160
employees

30.000.000 €
processed per week

Our partners

Our trainees testimonials

> "I had the chance to start my professional integration within a company like Expensya. An incredibly favorable environment to put my knowledge into practice and to find the necessary sensitivity to meet the challenges of my final project. I have seen myself grow in just 6 months, surrounded by warm colleagues who are always there to coach me and help me shape my project....
> Today, I am part of this great family. I advise all those who are looking for a company where to do an internship to join a future French unicorn like Expensya!"

Skander Ben Romdhane
Events & Social Media Manager

> "Doing your end of studies internship with Expensya is a privilege. During the last few months, I found myself evolving exponentially on different aspects of my professional and personal life. A great number of technical skills were passed down to me, whether it's technologies and tools apprehension, or more high level architectural and critical thinking. Mentorship and guidance are very important in Expensya, so I found myself greatly surrounded and never left on my own. Expensya is a great environment for both learning and making ties with highly qualified and humanly great persons."

Karem Sfar Gandoura
Software Engineer

Finance

SUBJECT 1:

Using new data analysis tools such as Power BI to automate and make billing processes more reliable

Department
Finance

Duration
At least 6 months

- Reliability of monthly income calculation
- Power BI dashboard anomaly analysis
- Participation in the evolution of the dashboard (definition of specifications for the technical team)
- Process documentation
- Drafting of the invoicing and collection process
- Drafting of invoicing documentation and calculation methods for the various Expensya modules in the back office
- Drafting of the control process to be carried out from Power BI

As recurring tasks:

- ADV/Collection & daily lettering of bank flows (customer payments)
- Updating the aged trial balance monitoring as the lettering process progresses
- Activating a regular alert in the back office as soon as a customer exceeds a late payment threshold
- Handling simple customer requests such as updating billing addresses and more (depending on mastery-based system)

Information Systems

SUBJECT 1:

Compliance for ISO 27001 Project

Department
Information Systems

Duration
At least 6 months

We are looking for a **Risk Management** intern to participate in the creation, implementation, and oversight of a wide series of strategies and programs designed to limit data security risk across the organization.

Your mission consists in ensuring that security and compliance risks related to information systems and assets are identified and managed according to the ISO 27001 standard.

You will help to conduct a readiness assessment before the ISO 27001 standard's audit.

This readiness assessment also helps streamline the audit and reporting through collecting most of the documentation and evidence required for compliance. During your internship you will participate in:

- Helping to maintain the information security management system up to date in order to identify, quantify, catalog, and minimise information risk across the company.
- Helping the IS&IT team in the preparation of the audit according to the ISO 27001 standard.

If you are interested in information security and risk control frameworks, and have knowledge of technological trends and developments in the area of information security and risk management, please send your application!

Technologies & Environment of work :

ISO 27001   Risk Management   Information Security   Risk Assessment

Cybersecurity

SUBJECT 2:

Contract management

Department	Duration
Information Systems	At least 6 months

We are looking for a legal intern having interest in contract management and particularly in Legal Archiving.

You will work in collaboration with the IS&IT team by supporting a broad variety of legal work including software services, procurement, professional services, intellectual property, privacy policies, data protection and legal research assignments.

Your will also work in collaboration with the legal specialist to review and draft agreements, statements of work, procurement services agreements, prepare documentation, and related activities. You will have the opportunity to work on ambitious projects such as: make our solution compliant with legal archiving guidelines in a given country.

If you are fluent in French and English, passionate about legal and IT topics, and preparing your bachelor or masters of Law degree, you're welcome to apply!

Technologies & Environment of work :

Contract Management   Legal Archiving   Corporate Legal

SUBJECT 3:

Bots/flows development to increase internal teams' productivity

Department
Information Systems

Duration
At least 6 months

To improve the productivity of our teams, we are looking for an intern to free employees from repetitive and tedious tasks by setting up business and operational automations, applications and workflows using RPA / RDA and Low-Code tools.

Technologies & Environment of work :

Power Platform   Robotic Process   Power Automate   Automation   Power BI

SUBJECT 4:

Integration of internal tools via SQL, Talend or other data integration tools

	Department Information Systems		**Duration** At least 6 months

It's possible for a business to get all the data it needs, but this data is usually scattered across different sources. The data from these different sources must often be centralised for analytical or operational needs.

You will participate in:

- Defining the architecture and implementing the data hub, its governance and data models.
- Developing and producing data integrations and dashboards.

Technologies & Environment of work :

DataLake   Datamart   SQL   ETL   Azure   Power BI

SUBJECT 5:

Power BI dashboards for internal needs

Department	Duration
Department Information Systems	**Duration** At least 6 months

The BI team's mission at Expensya is to provide the various teams with the right indicators (KPIs) and dashboards allowing access to quality, up-to-date data and ensuring a quick and efficient decision-making cycle.

Hence, we are looking for a Power BI developer who will be in charge of:

- Designing and ensuring functional and technical analysis for the development of Power BI dashboards.
- Modeling and development of reports and dashboards under Power BI.

Technologies & Environment of work :

Power BI   Dashboard   Business Intelligence   KPI

Research & Development

SUBJECT 1:

Automating mileage configuration integration

Department	**Duration**
R&D	At least 6 months

Each year, the URSSAF (France based Union) update their mileage rates. Therefore, Expensya must integrate the new rates values to ensure that mileage invoices are calculated using the updated rates (for companies that have URSSAF rates activated).

Goal: ensure that the integration of new rates is done from the Expensya application configuration.

Technologies & Environment of work :

C#   .NET   .NEt Core   SQL server   Angular

SUBJECT 2:

Expensya x Microsoft Teams App V2

	Department			**Duration**
	R&D			At least 6 months

Expensya launched its application in the Microsoft Teams store in early 2022.

This first version contains a chat bot that notifies the manager when an expense report is submitted. It also allows you to process the expense report directly from the chat.

The owner of the expense report is also notified when his/her request is processed.

Expensya intends to enrich its application in Microsoft teams with new features. This second version will contain:

- New tab to list all used requests (Manager view).
- The option for employees to submit their request directly from Microsoft Teams.
- New commands in the chatbot.
- User experience improvement.
- Added new events to better track KPIs.

Technologies & Environment of work :

C#   .NET   REST   Swagger   MS teams SDK   Azure function

SUBJECT 3:

Public API V2 : more secured, accessible and industrial APIs

	Department			**Duration**
	R&D			At least 6 months

An open API is a valuable type of technology for developers. It provides standards for how software programs communicate with each other. In short, it simplifies the process of integrating multiple software programs. At Expensya, it has been one of the crucial product offered by the company and enhancing it remains one of our priorities. Our 4 priorities are to:

- Automate API definitions deployment.
- Implement API versioning: The API in its current form is not versioned, which will lead to problems when when it comes to make breaking changes, which will happen given enough time. We therefore need to version our API.
- Integrate Oauth 2 authentication : OAuth2 has become the de facto standard when it comes to managing API authorizations and it makes sense to support it.
- Create a public SDK for Public APIs: In order to make it easier for our clients to use our APIs, we could supply a SDK (.NET to begin with, but other languages could also be supported) so that they don't need to explicitly call our API; the SDK would expose classes and methods wrapping the underlying API calls.

This project involves the following tasks:

- Upgrade to the newest Swagger/Open API package; include additional documentation with XMLDoc, with samples; automate the OpenAPI definitions deployment to Azure API Management.
- Study the possible versioning patterns, including what is offered out of the box by Azure API Management, and choose the most appropriate one; implement the required changes to the code and define the deprecation policies.

- Determine the best way to accommodate the Oauth 2 changes, including checking what Azure API Management offers; implement the OAuth2 workflow and define a migration strategy, taking backward compatibility into account.
- Choose the best solution for implementing APIs SDK; set up a process for maintaining this SDK and auto deploy it.

Technologies & Environment of work :

C#   .NET   REST   Swagger   Azure API Management   Oauth2

SDK   Azure pipiline   OpenAPI

SUBJECT 4:

Contract V3 from static backend to fully automated integration

	Department		**Duration**
	R&D		At least 6 months

For their job, sales and finance teams use many tools to sign new deals with clients, from paper version to HubSpot (CRM) continuing PPM Pro (Project management tool) to arrive to our backend application and finally the billing system (Finance tool). It's quite tiring having to type the same data in every tool! Imagine the error rate and the mistype of data in each phase and theirs impact on the incoming of Expensya, the configuration of the client's contract, the information won't be fully trusted and the especially the time spent between the tools. It's hellish!!

The purpose of this project to develop the next Gen financial system that will be responsible for integrating the different tools and facilitate the life of sales and financial teams. There will be 2 integrations to be developed (first to get the contract from its source, automatically store it in our backend system without the need for the sale to re-type it and finally in each month while trigger billing, automatically send the bill to the billing system without the need for the finance team to do it via Excel).

Technologies & Environment of work :

C# Public API Finance .NET WPF Integration Workflow

SUBJECT 5:

Expensya Assistant- Self Serve and Mid Experience

	Department			**Duration**
	R&D			At least 6 months

Most of our new customers do not take advantage of the full product during the free trial period, they do not invite their colleagues, they do not configure their (projects, custom field, categories ..etc), and they do not enter their first expense.

The idea with the Expensya assistant is to facilitate the configuration of the company account through simple questions or through partner integrations (Office 365 / Gsuite) which allows us to import our customers' data from the platforms they use.

On the other hand, many customers are using external tools like OKTA IAM as their identity provider, our aim is to prepare a fully integration with this tool that will be available for every new customer on his integration menu that can help the user not only to get authenticated but also to import his data directly.

Technologies & Environment of work :

C# .NET WPF Angular Integration Workflow Connector

Public API AAD Azure

SUBJECT 6:

Continuous web performance optimization in a CI/CD environment

Department	**Duration**
R&D	At least 6 months

How SaaS companies are optimizing, maintaining, and monitoring web performance?

- Integrate web performance monitoring tool within Expensya's automated CI/CD pipelines.
- Integrate a tracking tool to collect real users' performance data.
- Create a dashboard to collect and monitor Expensya web performance score based on real users' data.
- Implement automated scripts to prevent web performance regressions.
- Optimize Expensya web app performance.

Technologies & Environment of work :

Devops   Automation   CI/CD   WebPerf   Testing   Typescript

Webpack   NodeJs

SUBJECT 7:

OCR-Free Document Understanding

Department	**Duration**
R&D	At least 6 months

The most traditional answer to the problem of Visual Document Understanding (VDU) relies on analyzing/parsing the OCR output of images. Even though these OCR-based approaches have demonstrated quite good performance. Nevertheless, they present some drawbacks as OCR is computationally expensive, inflexible across languages/document types..., not to mention the fact that an inaccurate OCR result will propagate errors in the subsequent processes.

Thus, researchers are on the verge of designing and delivering new solutions that perform VDU tasks (such as extracting information from documents: like taxable amounts...). As an example, Clova AI Research have published the Donut model which is an end-to-end VDU solution and has made it available for use with the HuggingFace library.

The goal of this PFE project is to deepen the research on the OCR-free VDU approaches and to experiment different strategies, in order to create a model that will improve the extraction of invoice fields such as date, reference, items, VAT... (or some of them) to be able to anticipate the evolution of information extraction (IE) and to be prepared for those changes that will lead to more accurate and faster results.

Technologies & Environment of work :

C#   Python   OCR   ML   VDU

SUBJECT 8:

Implementation of a tool allowing to configure custom exports on web application

Department	**Duration**
R&D	At least 6 months

Set up user-friendly interfaces that allow administrators to create and configure custom invoice exports (accounting, payroll, meal allowance...).

These exports will generate files that will be integrated into the ERP adequate (SAGE, CEGID, Quickbooks, SAP...). This feature will help the administrator to be more autonomous so it will facilitate the integration and the deployment of our customers.

FYI: an export is a set of columns (VAT Value, VAT To Claim Value, Value To Reimburse, Invoice's Value, Invoice's Date, Appoval Date, Invoice's Date ...), a set of lines (VAT line, analytic line ...) and a set of other properties (encoding, extension, name, seperator...).

Technologies & Environment of work :

C#   .NET   .NEt Core   SQL server   Angular   HTML   CSS

SUBJECT 9:

Implement a smart anti-churn system /dashboard

Department
R&D

Duration
At least 6 months

Customer churn is the percentage of customers that stopped using the company's product or service. It is one of the most important metrics for a growing business to evaluate. While it's not the happiest measure, it's a number that can give your company the hard truth about its customer retention. Based on a given health score definition we need to implement an AI system that allows us to detect proactively eventual churners. The system should be able to detect new churn patterns (Low usage, stop using some features...) in order to enrich the health score definition. And since Expensya has different client typology (Self-serve, Xlarge, Premium...) the health score must be weighted according to a precise segmentation.

The trainee's mission is to audit the existing situation, to explore the market tools (Benchmark), to collect and analyse data, to suggest and implement the solution.

Example of criteria used on health score calculation:

- Decrease in the number of active users.
- NPS.
- Score on Intercom/Zendesk.
- Increase in the number of major blocking and non-blocking tickets on Zendesk.
- Increase in resolution time for major blocking and non-blocking tickets on Zendesk.
- CSM pulse (for customers tracked by CSM).
- Contract's end date.

Technologies & Environment of work :

Power BI   AI   SQL   .NET

SUBJECT 10:

Implementation of a smart recommendation/search system for the Expensya Marketplace

	Department		**Duration**
	R&D		At least 6 months

Expensya Marketplace provides to our customer a library of more than 1000 integrations (Payroll, Accounting, Bank, Travel...) to many ERPs and SIs (SAGE, CEGID, Société Générale, BNPP, TravelPerk, AirPlus...).

Finding the integration that fits the customer need (that goes with the ERP used) is not an obvious task, simple filters will never be enough.

Hence the need for a smarter system that helps the user to easily and quickly find the integration that suits perfectly/partially his need.

Technologies & Environment of work :

Machine Learning   IA   C#   .NET   .NEt Core   SQL server

SUBJECT 11:

Implement a notification center

Department	Duration
R&D	**At least 6 months**

Integrate a notification center in Expensya Web and mobile application (Add In-App notifications and centralise them with e-mail notifications in one tool).

FYI: In-App notifications are commonly used to direct users toward points of interest to boost usage, retention, and lifetime value.

We need also to make notifications easily customizable by non-devs, make new notifications easier to implement and make notifications reception manageable by companies and by users.

Technologies & Environment of work :

C#   .NET   .NEt Core   SQL server   Angular   HTML   CSS

Product

SUBJECT 1:

Product Marketing Management – Competition Product analysis and Expensya Product Marketing collaterals

Department
Product

Duration
Al least 6 months

Product marketing managers work at the intersection of product development, marketing, and sales. Their broad responsibility is to develop and implement a marketing strategy roadmap for a specific product.

Working with Product Managers of several squads, immersed in a passionate and skilled product team, you will complete a transversal work on Product Marketing:

- Competition analysis: complete a deep feature analysis on top 3 competitors for our top 5 countries. Construct a summary with battlecard and radar chart for each feature available.
- Integration: identify accounting, banking and payroll integration carried out, and integration needed for top 5 countries with use cases, work with sales team to identify pilot clients.
- Go to market: work with Product Manager on internal demos, and product marketing collaterals with short video to demonstrate new features.

SUBJECT 2:

Data analyst – Analyze Product usage and contribute to new analytics tools implementation

Department
Product

Duration
Al least 6 months

Working with Product Managers of several squads, immersed in a passionate and data driven product team, you will complete a transversal work on Product analysis:

- Improve dashboard and create ad hoc analysis for the product and tech team to better understand our customer usage, highlight user pain points and KPIs to
- improve.
- Define the right objectives and KPIs with Product Managers from differents squads.
- Update existing dashboard and create new one.
- Create ad hoc analysis and share insights with the product team.
- Contribute to the analytics.

Technologies & Environment of work :

- SQL querying.
- Use of a BI tools (PowerBI, Tableau).
- Experience with Analytics tools (Google Analytics, Amplitude, Hotjar) is appreciated.

See all our job vacancies on our dedicated recruitment platform:

Welcome to the Jungle

Expensya