End of Studies Project

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Dedication

This work is dedicated to

My family, whose unwavering support and countless sacrifices have been crucial to my success. I hope this work reflects the fruits of your sacrifices and makes you proud, as that is very important to me.

My dear friends, who have consistently believed in me, offering their support through difficult times. I hope for a future for you that is filled with joy and accomplishments. Your belief in me is invaluable.

To all those who have supported me, my gratitude is immense for your encouragement; and to those who doubted me, thank you for pushing me to unleash my full potential against all odds. This is incredibly meaningful to me.

And finally, **to all those who contributed to making this project possible,** I dedicate this work to you.

Mohamed Dhia Ben Amar

Acknowledgments

I express my heartfelt gratitude to all the individuals and organizations that have contributed significantly to the success of my internship.

Special thanks go to Mr. Sami Kammoun, my supervisor at Converty, for his warm welcome and invaluable mentorship throughout my internship. His dedication and expertise have been crucial to my professional growth and achievements.

I am also profoundly grateful to Ms. Mariem Bouzouita, my academic supervisor at ESPRIT, for her insightful guidance, support, and patience during my internship. Her advice and oversight have greatly shaped my approach and understanding of our field.

Additionally, I extend my thanks to Converty, the host organization, for providing a supportive and dynamic environment that has been instrumental in my learning experience and professional development.

Preface

This internship report chronicles my experience at Converty, an e-Commerce platform, during my third year of engineering studies at ESPRIT (École Supérieure Privée d'Ingénierie et de Technologies). The six-month internship provided me with valuable insight into the field of software engineering and its significant impact on the company's clients.

Converty is a dynamic e-commerce startup based in Jardins Menzah 2, Tunisia, that is transforming the online business landscape in the region. It offers a unique blend of CRM and CMS solutions, enabling businesses to effectively manage and grow their online presence.

As a CMS, Converty simplifies online store creation, customization, product management, and integration with analytics platforms such as Meta, Google, and Microsoft. As a CRM, Converty has strategic partnerships with leading Tunisian delivery companies and fulfillment centers, an extensive order management system, and real-time analytics for performance monitoring.

This report provides a comprehensive analysis of my internship experience at Converty, detailing the challenges faced, the solutions implemented, and the valuable lessons learned. It underscores the importance of software engineering principles in optimizing company processes and driving innovation in the ever-evolving e-commerce industry.

Contents

List of Tables

List of Figures

General Introduction

During the past decade, the e-commerce industry in the MENA region has experienced significant growth. However, the development and adoption of online payment services have not kept pace with this expansion, leading to a substantial gap between demand and availability. As a result, cash-on-delivery (COD) has become the predominant payment method, fueling the sector's growth.

E-Commerce platforms like Shopify are well known for their dominance in online retail, especially in the drop shipping sector. Despite its flexibility, Shopify's extensive feature set can cause performance issues and a steep learning curve for new users. The high number of applications required for various functionalities, each with its own subscription fee, presents a barrier to small businesses. Moreover, the platform's level of abstraction makes extensive customization challenging.

To address these challenges, Converty was created with a focus on enhancing user efficiency and customization. Converty offers a comprehensive CRM and CMS platform designed to streamline the creation of high-converting online stores and manage all aspects of a business from a single platform. This approach eliminates the need for coding, spreadsheets, and additional applications, simplifying the management process.

During my six-month internship at Converty, I worked on resolving critical issues within the CRM and CMS dashboards, addressing performance-related concerns, and completing the mobile app experience. My tasks included enhancing existing features, implementing new functionalities, and improving the overall user experience on the dashboard and the mobile app.

This report provides an in-depth analysis of my internship experience, detailing the challenges encountered, the solutions implemented, and the lessons learned. It is structured as follows:

The first chapter covers the scope of the internship, including an overview of COD and its implications, the specific problems addressed, and the objectives of the internship with actionable items.

The second chapter explores the project setup, including the engineering decisions made, the project environment, and details of the infrastructure and DevOps practices employed.

Subsequent chapters describe the enhancements and implementations performed for the CRM and CMS dashboards and the mobile app, detailing the requirements, design, implementation, and validation processes for each.

The report concludes with a reflection on the internship experience, including insights gained, challenges faced, and recommendations for future improvements.

Chapter 1 Scope Statement

1.1 Host Company

1.1.1 Converty

The following paragraph was taken from Converty official website:

> Converty is an advanced platform for building and managing high-converting online stores. Converty provides powerful tools and advanced features that enable business owners and merchants to create effective online stores without the need for programming skills.

The platform offers a variety of services including online store management, customer relationship management (CRM), marketing automation, and reporting tools. Converty's mission is to enhance the e-commerce experience for SMEs by delivering an integrated solution that simplifies operations, reduces costs, and boosts efficiency.

1.1.2 Services

Converty offers a diverse range of services:

- **Development Team:** Responsible for fixing bugs, adding new features, and optimizing existing functionalities.

- **Marketing Team:** Provides guidance to clients to help them make informed decisions to maximize sales.

- **Support Team:** Ensures customer satisfaction and communicates key information between teams.

1.2 Study Of The Existing

Shopify is a popular e-Commerce platform that allows individuals and businesses to create online stores effortlessly. Among its many advantages are the performant templates that ensure fast loading times and a seamless shopping experience for customers.

In addition to high-performing templates, Shopify offers a variety of sales-boosting features. These include abandoned cart recovery, targeted email campaigns, and advanced analytics. These tools help store owners optimize their online sales and increase revenue.

Furthermore, Shopify provides a comprehensive mobile app that allows store owners to manage their business on the go. The app includes features like order management, product updates, and sales tracking, making it convenient to maintain an online store anytime, anywhere.

1.3 Problem Statement

Despite Converty's notable progress in the e-commerce industry, the product currently faces several critical challenges that must be addressed to compete effectively with Shopify.

- **Performance Issues:** One of the four templates provided by Converty has performance problems that negatively affect the overall user experience.

- **Missing Key Features:** The platform lacks essential features such as upselling, which are critical to maximizing sales and improving customer satisfaction.

- **Incomplete Mobile App Experience:** The mobile app experience is incomplete, limiting accessibility and convenience for users who prefer to manage their online stores on mobile devices.

Addressing these challenges is crucial for Converty to fully leverage its potential and offer a robust, competitive solution in the e-commerce market.

1.4 Proposed Solution

After a long discussion with the company, the following fixes were decided to be made:

- **Performance Optimization:** The first template will be recoded using React to enhance performance. This will involve refactoring the codebase to improve efficiency and responsiveness, leading to a significantly better user experience.

- **Upsell Feature Integration:** An upsell feature will be added to the platform, incorporating algorithms and interfaces that recommend complementary products to customers. This feature aims to increase the average order value and boost customer satisfaction.

- **Mobile App Enhancements:** Key mobile features will be incorporated to complete the mobile app experience, ensuring a seamless and intuitive user interface for managing online stores on mobile devices.

These solutions address the critical issues facing Converty, improving its performance, functionality, and overall user experience in the competitive e-commerce market.

1.5 About the Project

1.5.1 Goals

The primary goals of this project are to improve the performance of the Converty platform, introduce key features to improve functionality, and complete the mobile app experience to ensure a seamless user interface across all devices.

1.5.2 Objectives

To achieve these goals, the following objectives were set:

- Recode the first template using React to enhance performance.

- Integrate an upsell feature to boost average order value and customer satisfaction.

- Enhance the mobile app with essential features to provide a comprehensive and user-friendly experience.

1.5.3 Deliverables

- **Source Code:** The complete source code, including all necessary files for building and running the project. The code should be well organized, adhere to the coding standards, and include comments for clarity.

- **Documentation:** Comprehensive documentation covering the project architecture, major modules, functions, and classes. It should also include setup instructions, usage examples, and relevant information for users and developers.

- **Presentation:** A presentation outlining the project's objectives, design, implementation, key features, challenges, and solutions. It should include visual aids such as diagrams, charts, and screenshots.

1.5.4 Management Plan

Software Development Life Cycle (SDLC)

The SDLC employed for this project involved iterative development and continuous feedback to meet all project requirements effectively.
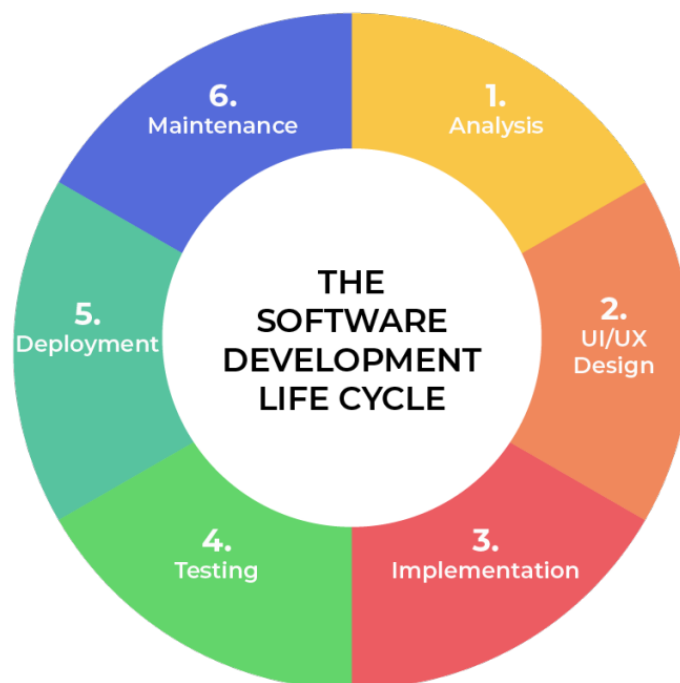
Figure 1.1: SDLC Phases

Comparison of SDLC Models

Model	Advantages	Disadvantages	Suitability
Waterfall Model	Simple and easy to understand and use	Inflexible, difficult to make changes once the process is underway	Suitable for small projects with well-defined requirements

Model	Advantages	Disadvantages	Suitability
Agile Model	Flexible and adaptive to changes, promotes collaboration and customer feedback	Can be difficult to predict effort required and can lead to scope creep	Suitable for projects with dynamic requirements
Scrum Model	Iterative approach promotes continuous improvement, increases team accountability	Requires experienced team members, can be difficult to implement for complex projects	Suitable for complex projects requiring frequent changes
Kanban Model	Visual workflow management, promotes continuous delivery	Lack of time frames can lead to lack of urgency	Suitable for projects needing continuous delivery and improvement

Table 1.1: Comparison of SDLC Models

Agile Methodology

The Agile methodology emphasizes flexibility, collaboration, customer feedback, and rapid releases. It supports adaptive planning and continuous improvement, making it ideal for dynamic and complex projects. Agile encourages iterative development cycles (sprints) that allow teams to adapt quickly to changing requirements and deliver functional software incrementally.

Scrum Framework

The Scrum framework, a subset of Agile, manages complex product development through iterative cycles known as sprints, which typically last 2-4 weeks. Key roles in Scrum include the Product Owner (responsible for project vision and backlog prioritization), the Scrum Master (facilitates the process and resolves issues), and the Development

Team (completes the work). Scrum ceremonies such as sprint planning, daily stand-ups, sprint reviews, and retrospectives ensure ongoing progress and improvement.
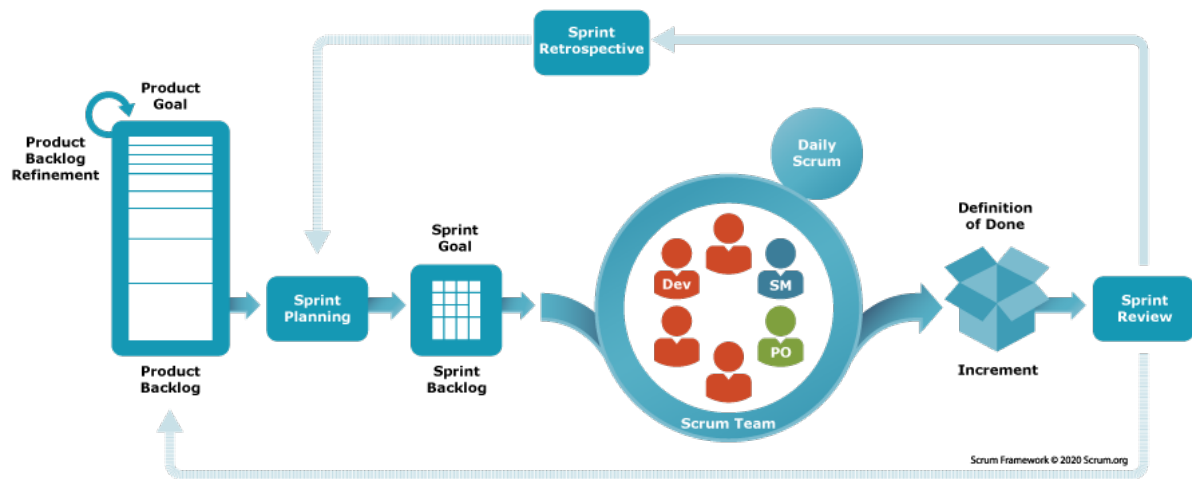
Figure 1.2: Scrum Framework

Scrum Tools

To support the Scrum framework, the following tools were utilized:

- **GitHub:** For version control and collaborative code management, allowing team members to work on code simultaneously, track changes, and manage issues.

- **Google Meet:** For virtual meetings including daily stand-ups, sprint planning, reviews, and retrospectives, ensuring remote team members can collaborate effectively.

- **Notion:** An all-in-one workspace for project management, documentation, and collaboration, helping organize tasks, track progress, and maintain a shared knowledge base.

1.5.5 Timeline

Scrum Team

- Product Owner: Mr. Ayoub Nejem (CEO)

- Scrum Master: Mr. Sami Kammoun (Co-Founder and CTO)

Product Backlog

Sprint	User Story	ID	Task
1	1.1	1.1.1	As a shop visitor, I want to access the shop landing page
		1.1.2	As a shop visitor, I want to load additional products
		1.1.3	As a shop visitor, I want to follow social media links
		1.1.4	As a shop visitor, I want to reach out to the support team
		1.1.5	As a shop visitor, I want to search for specific products
		1.1.6	As a shop visitor, I want to complete the checkout form
		1.1.7	As a shop visitor, I want to add items to the cart
		1.1.8	As a shop visitor, I want to purchase items
		1.1.9	As a shop visitor, I want to accept or decline offers
2	2.2	2.2.1	As a shop admin, I want to display all upsells and cross-sells
		2.2.2	As a shop admin, I want to perform search operations
		2.2.3	As a shop admin, I want to edit upsell and cross-sell details
		2.2.4	As a shop admin, I want to delete upsell and cross-sell entries
		2.2.5	As a shop admin, I want to view previews
3	3.3	3.3.1	As a shop admin, I want to display all orders
		3.3.2	As a shop admin, I want to view order details

Sprint	User Story	ID	Task
		3.3.3	As a shop admin, I want to add or edit orders
		3.3.4	As a shop admin, I want to filter orders by status, product, or delivery company
		3.3.5	As a shop admin, I want to perform search operations
4	4.4	4.4.1	As a shop admin, I want to enter various cost parameters
		4.4.2	As a shop admin, I want to calculate key financial metrics
		4.4.3	As a shop admin, I want to view all budgets
		4.4.4	As a shop admin, I want to select specific budgets
		4.4.5	As a shop admin, I want to edit budget information
		4.4.6	As a shop admin, I want to view total balance, revenue, and expenses
5	5.5	5.5.1	As a shop admin, I want to view different types of statistics
		5.5.2	As a shop admin, I want to filter statistical data
6	6.6	6.6.1	As a shop admin, I want to customize notification sounds
		6.6.2	As a shop admin, I want to receive real-time notifications

Table 1.2: Product Backlog

Gantt Chart

A Gantt chart visually represents the project schedule, showing the start and end dates of various project elements, and helps track the project's timeline and progress.
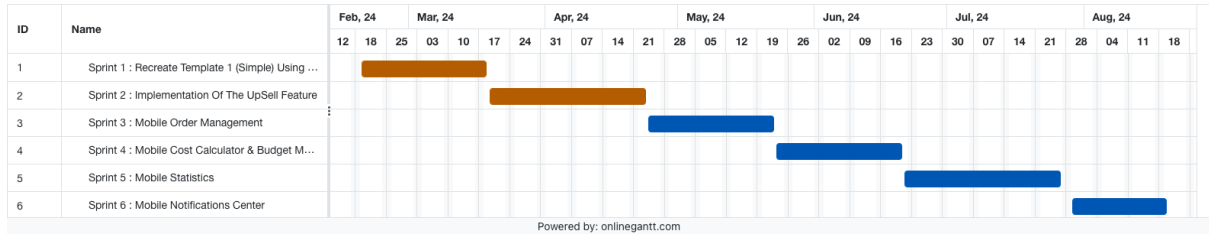
ID	Name	Feb, 24			Mar, 24				Apr, 24				May, 24				Jun, 24				Jul, 24				Aug, 24			
		12	18	25	03	10	17	24	31	07	14	21	28	05	12	19	26	02	09	16	23	30	07	14	21	28	04	11	18
1	Sprint 1 : Recreate Template 1 (Simple) Using …																												
2	Sprint 2 : Implementation Of The UpSell Feature																												
3	Sprint 3 : Mobile Order Management																												
4	Sprint 4 : Mobile Cost Calculator & Budget M…																												
5	Sprint 5 : Mobile Statistics																												
6	Sprint 6 : Mobile Notifications Center																												

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Figure 1.3: Gantt Chart

1.6 Conclusion

In summary, this chapter outlined the scope of the project, detailing the host company, identified problems, and proposed solutions. The project aimed to optimize Converty's platform performance, add crucial features, and enhance the mobile app experience. The detailed management plan and timeline were presented to ensure effective project execution. By addressing the identified issues, the project aims to significantly improve Converty's functionality and user experience.