Development and Deployment of a Simple Ecommerce Website

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# Introduction

## Short Description of the Task

The goal is to produce a simple yet robust and extendable ecommerce website which includes a frontend/backend part and a database. The website should have the core functionalities of an ecommerce website, such as creating an account, logging in and placing orders. Additional functionalities may be added; however, the focus is on the core functionalities and their stability.

## Definition of Ecommerce

Ecommerce stands for electronic commerce. Commerce refers to the trade of goods and the activities associated with this. [1] Although ecommerce has several definitions [2], in this paper we accept the simplified definition of trading goods through electronic communication and activities related to that. [3] Ecommerce may be business-to-business (B2B), business-to-consumer (B2C) and even consumer-to-consumer (C2C). [3, 4, 1] In our case, we will be focusing on the business-to-consumer model, since this website intends to sell goods to the broad public. As opposed to brick-and-mortar stores, ecommerce sites typically do not have physical premises.

## History of Ecommerce

### Early Attempts

A core concept to cover in the advent of ecommerce is the Electronic Data Interchange (EDI), which allows the automated exchange of documents between businesses. This technology appeared in the middle of the 1970s. Even though the functionalities EDI offered, it did not spread rapidly, more than 20 years past the appearance of the technology, by the late 1990s, less than 1% of the companies in Europe and the United States had adopted this technology, due to its costliness and complexity. [3]

Not long after the beginning of EDI, in the late 1970s, EFT (Electronics Funds Transfer) appeared, which enabled electronic transfers. In case of the United States, these transfers happen under the Automated Clearing House (ACH) system. According to data from 2019, the ACH system handles 24 billion transactions every year. [5] In 1979, Michael Aldrich invented teleshopping, which can be considered as a predecessor of today’s ecommerce. [6, 7]

One of the first attempt of ecommerce as we know today was in 1984, when CompuServe, at that time the main provider of bulletin boards, introduced the Electronic Mall, which offered the goods of more than 100 stores. The service did not become popular. [8]

### New Generation of Ecommerce

In the early 1990s, with the appearance of a graphical user interface, the Internet started to gain traction with the general public. This process led the Internet, once a tool for researchers and engineers, to start growing into a business-oriented technology. A good illustration of this is the fact that in 1997 the commercial (.com) domain took over the educational (.edu) domain in terms of popularity, as the most widely used top-level domain. From an ecommerce perspective, the 1991 lifting of commercial restrictions imposed on the network by NSFNET marked an undoubtably important event, allowing the establishment of non-governmental ISPs. [2]

Once ecommerce began its spread, the next obstacle for further growth was limited internet access and security concerns. With the help of new legislation and agreements the security concerns were (at least partly) addressed. [3] In 1993, the Secure Socket Layer (SSL) protocol was created, which laid the foundation of secure data transfer online. Not long thereafter appeared the first third-party credit card processing companies, which marked a significant event in the development of ecommerce. [8]

In 1995 Amazon appeared in the ecommerce scene as a bookstore, followed by eBay, a hybrid consumer-to-consumer and business-to-consumer trading platform, two months later. The rapid growth of ecommerce can be illustrated by the fact that the market in the United States more than doubled in its value between 1997 and 1998, growing from $2.6 billion revenue to $5.8 billion. An even more startling example is Amazon’s growth in sales from just $16 million in 1996 to $1.6 billion in 1999. Even during the dot-com crash, ecommerce sales still increased. [3]

In the 2010s, ecommerce experienced rapid growth. In 2013, China exceeded the United States in online sales, making it the world’s largest ecommerce market. China experienced a 33.3% growth of expenditure in online sales in 2015, the same year, the United States experienced a 14.6% growth. [6] The role of social media also became more prominent for businesses. The companies started to develop more direct connections with their consumers, to give a personal touch to their products, in an attempt to gain and retain more customers. [7]

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