

# Applied research document

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# 1. Problem definition

For a web shop system, you need to have a fast backend to respond to the requests of the client because the client will judge the website in the first 3 seconds, therefore the web shop needs the best performing back end for Object-oriented programming.

## 2. Main question

What is good backend framework for a web shop?

## 3. Sub questions

1. What are popular backend frameworks for web shops?
2. How to develop e-commerce with the lowest cost?
3. What is the best performance backend frameworks?

## 4. Methods

For “What are popular backend frameworks for web shops?” it will suitable to start with the **available product analysis methodology** because searching for what the others have already done and starting from where they finished will narrow the search parameter and help with getting answers about the topic with low cost. After that to triangulate the results by using **Community research methodology** using community knowledge and searching for the question answers through the popular community platforms like Stack Overflow.

For “How to develop an e-commerce with the lowest cost?”, it will be applicable to start with a **Data analytics methodology** to collect quantitative information about the operational cost and development cost, and after that apply analysis tools to visualize the results.

For “What is the best performance backend frameworks?”, it will be reasonable to start with **the a Data analytics methodology**. The next stage is using a **requirements prioritization methodology** to prioritize which metric is important for the stakeholders.

## 5. Results

For “What are popular backend frameworks for web shops?”, below there are list of the most popular frameworks and how popular there are by percentage.

1. Express.js 23%
2. ASP.NET 20%
3. Spring 16%
4. Django 13%
5. Laravel 11%
6. Ruby on Rails 8%

(“The Most Popular Backend Frameworks For Teams 2022”).

“An ecommerce framework refers to the type of software you’re using to build your e-commerce store” (“10 Best Ecommerce Frameworks”). One of the most used e-commerce framework is Shopify which uses Ruby on Rails as the backend framework (“14 of the Best eCommerce Platforms Compared & Rated for 2022”).

For “How to develop an e-commerce with the lowest cost?”. Developing a customize website can cost based on the size of the website and where it gets developed like in Asia the average of developing a simple website is 500\$ to 3,000\$, comparing to Europe which is 1k to 6,5k (Oksana Zabolotna, 2022).

Below you can see the prices by website size per region.

Region/Website size	USA	Asia	Europa
Simple website	\$2k–\$25k	\$500–\$3,000	\$1k–\$6,5k
Medium website	\$26k–\$52k	\$4,000–\$8,000k	\$9,5k–\$20k
Large custom design website	\$53k–\$1mln+	\$10k–1mln+	\$25k–\$1mln+

(Oksana Zabolotna, 2022)

Based on the proven data developing in Asia can be low-cost compared to Europa.

For “What is the best performance backend frameworks?”, It’s important for businesses to have fast e-commerce.

Below you can see the latency for the selective frameworks.

Framework	Latency average
Express-mysql	16.1ms
Asp.net core	1.4ms
Spring-jpa	4.1ms
Django	3.8ms
Laravel-roadrunner	37.3ms
Ruby on Rails	N/A

(Web Framework Benchmarks)

Based on the results of the latency, Asp.net core has the lowest latency average which makes it one of the fastest frameworks among the selective frameworks.

## 6.Conclusion & recommendations

In conclusion choosing the best framework for website won’t be easy based on the requirement as this moment but based on the requirement, the recommendations will be in the next paragraph.

Based on the answers of the sub-questions the recommendations will be. The good backend framework will be Asp.net because of the low latency average and one of the most popular which will help lowest the cost of running the backend for the website which is one of the priorities in the project. Regarding developing the application it will be to develop the application in Asia to lower the cost of developing the website.

At present, the developer is a student at Fontys university of applied science, which is in the Netherlands, therefore the developer will have to follow the university’s guidance. The university’s guidance is developing the application using spring boot for the backend framework and developing the application in the Netherlands.

## References

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