

Research Plan

Responsive Design



Fontys

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Problem Description

Web applications have become an essential tool in today's digital world, and users expect a seamless experience across different devices. Responsive web design is critical to ensure the application's usability and accessibility across devices. However, developers often struggle to create responsive designs, particularly using CSS.

Therefore, the problem is to understand how to create a responsive web application design using CSS to enhance user experience across different devices.

Research Questions

Main Research Question:






How can web developers make their web application design responsive via CSS?

Sub-questions:

1. What is responsive design, and why is it important?
2. What are the fundamental concepts and principles of responsive web design?
3. How can CSS frameworks be used to create responsive web designs?
4. What are the best practices for using media queries to create responsive web designs?
5. What are the common mistakes to avoid when creating responsive web designs?
6. How can the performance of responsive designs be optimized?

Research Methods

Methods

					
Library	Field	Lab	Showroom	Workshop	Extra
Available product analysis	Document analysis	A/B testing	Benchmark test	Brainstorm	Joker
Best good and bad practices	Domain modelling	Component test	Ethical check	Business case exploration	
Community research	Explore user requirements	Computer simulation	Guideline conformity analysis	Code review	
Competitive analysis	Focus group	Data analytics	Peer review	Decomposition	
Design pattern research	Interview	Hardware validation	Pitch	Gap analysis	
Expert interview	Observation	Non-functional test	Product review	IT architecture sketching	
Literature study	Problem analysis	Security test	Static program analysis	Multi-criteria decision making	
SWOT analysis	Stakeholder analysis	System test		Prototyping	
	Survey	Unit test		Requirements prioritization	
	Task analysis	Usability testing		Root cause analysis	

The entire research process will be conducted following the guidelines of the DOT research framework. This framework will provide the necessary support to deal with the research related to an ICT project.

The chosen strategies for this research are:



Literature review: A literature review will be conducted to explore the basic concepts and principles of responsive web design.



Prototyping: A prototype will be developed to explore the use of media queries to create responsive web designs.

Expected Deliverables

The research will deliver a set of basic principles and techniques for creating responsive web application designs using CSS. The research findings will be presented in a written report, including examples and tutorials to guide a developer in implementing responsive design. Additionally, a set of guidelines and best practices will be created for creating responsive web designs that are optimized for user experience and performance. Overall, the research aims to provide practical guidance on how to create effective and responsive web designs.

- Technical report

Time Estimation

The expected time frame for conducting this research is 3 weeks (1 sprint).