UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF GRADUATE STUDIES AND ACADEMIC ADVANCEMENT

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Adaptive and Responsive Web Design

Comparative Study

by

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A Thesis

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Abstract

Majority of websites have built just for computer screens size with width 960px or 1024px, but based on statistics the number of mobile browser users have overtaken the desktop browser users since 2015.

Therefore the mobile users have to zoom in and out and scrolling right and left to see the whole website content and that get the users frustrated for doing this every time they want to explore website, So the developers and the designers have worked together to solve this issue by designing more compatible and more flexible website with the various screens size.

So by using media query which takes the CSS media attribute and extends it with conditions such as one style for a wide screen and one for a narrow one, without resorting to JavaScript, many techniques have appeared such as adaptive web design which build many portion of website to fit to difference resolutions and the second one is called responsive web design which has ability to develop website with a single URL and single code file to fit to difference screen size, based on what we call media query, the developers and designers used to build website with responsive web design in recent years, but most developers and designers neglect adaptive design which is still might suit considerable portion of websites.

This thesis provide clear understanding of these techniques and how to apply them using note book editor, then a comparison between the techniques is demonstrated. To point out advantage and disadvantage of each techniques as well as the recommendations to select an appropriate one for developing website Finally the research illustrates the differences between them and how to use each of them according to the project.

المستخلص

معظم صقحات الويب قد صممت منذ البدء من أجل شاشات الكمبيوتر ذات العرض 960 بكسل و 1024 بكسل، تبعا لذلك أصبح مستخدموا الأجهزة الذكية يتحتم عليهم أن يقوموا بعملية تكبير (zoom in) وتصغير (zoom out) وإزاحة صفحات الويب يمنى ويسرى في حالة الشاشات صغيرة الحجم من أجل رؤية جميع محتويات الصفحة وذلك قد اثر سلبا في استياء مستخدموا الاجهزة الذكية عند تكرار هذه العملية في كل مرة.

لذلك وبإستخدام الميديا كويري التي تأخذ خصائص (Cascading Style Sheets) وتضيف لذلك شروط مثل تطبيف جزء معين للشاشات الكبيره وجزء اخر للشاشات الصغيرة وهكذا من دون الحوجه لاستخدام الجافا اسكربت , ظهرت بعض التقنيات مثل تقنية التصميم المتوائم وهذه التقنية تجعل من الموقع الواحد عدة إصدارات إي إصدارة مخصصة لفئة محددة من الشاشات سواء كانت ذات الحجم الصغير او الكبير او المتوسط، أما التقنية الاخرى تسمى بالتصميم المتجاوب والتي تمكن المصممين من تصميم موقع داعم لجميع احجام الشاشات المختلفة برابط واحد واصدارة واحدة ، معظم المصممين إعتادوا على أن يصمموا بهذه التقنية ولكن هناك جزء ليس باليسير يحبذ استخدام التصميم المتوائم لتصميم جزء كبير من الصفحات والمواقع.

هذا البحث يسعى الى تقديم فهم واضح لكل من التقنيتين ويطبق كل منهما بإعطاء مثال لكل منهما بإستخدام معالج النصوص (note book editor) ليوضح محاسن كل من التقنيتين وإعطاء وصايا لإختيار التقنية المناسبة، واخيراً يقوم البحث بتوضيح الفروقات بينهما وكيفية تطبيق كل منهما في المشروع المناسب لها.

1.1   Introduction

Web design is an increasingly important branch of computer science and information technology that introduce the content of page with a nice way so that to be compatible with computer screens and resolutions and this field specifically be very important in this era, era of Smartphone's explosion so the designers and developers realize that they have to work together in order to find way to make the website more flexible with the Variety and heterogeneous devices and that happened when the statistics proved that the mobile browser users have overtaken the computer browser users since 2015.

Designer's presents an opportunity to expose some of the fundamentals of web design, firstly they present adaptive web design but it has been faced some challenges so in recent few years the web designers present a new technique in web design so that to make website more friendly and popular for human and the stream of various device and resolutions as we said.

Web design has been an emerging research issue due to the variety of Smartphone's and resolutions. With the advent of many web design technique in the recent few years and its extensive use in wide variety of website, has lead to the popularity of two methods one of them build for every single resolution a separate website to make it more compatible with difference screen this technique called Adaptive web design.

Another technique based on creating only one for difference resolutions which is known as Responsive web design.

1.2 Problem statement

Recently, responsive web design has become the dominant method for developing websites in addition to that developer and designers are employing the common software packages to design all type of websites as responsive, therefore most website developer neglect adaptive technique.

This thesis claim that adaptive technique is still useful for developing considerable portion of websites, therefore the research question are broken down into three sub questions as follows.

a.   What are responsive and adaptive web design techniques?

b.   How can Responsive and Adaptive web design techniques be applied?

c.   What are the recommendations for selecting an appropriate technique?

1.3   Research Objectives

The aim of this thesis is to give a fulfill understanding about adaptive and responsive web design techniques. Therefore the objectives of this thesis are:

a. To provide clear understanding of adaptive and responsive techniques using note book editor.

b. To apply examples of the responsive and adaptive websites.

c. To compare between the two techniques.

1.4   Methodology

This thesis aim to present a clear understanding for developers and designers about adaptive and responsive web design also provide a sample for each one and we use note book editor to simplify the rules and syntax of these two techniques and illustrate the differences between them.

Finally we provide a comparative study using different criteria such as performance, maintenance, SEO (Search Engine Optimization) Ranking, less work, flexibility and sustainability.

1.5   Research Organization

The research organized as follows:

a. Chapter Two provide a background about web design before the appearance of Smartphone's technology.

b. Chapter Three provide clear understanding and basic information about adaptive and responsive web design.

c. Chapter Four demonstrate the applications of both adaptive and responsive web design using note book editor.

d. Chapter Five provide a comparison study results between Responsive and Adaptive web design and show similarities and differences between them.

e. Chapter Six conclusions the thesis and present a recommendations and future studies.