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SCIENTIFIC ARTICLE

THEME:

Responsive Web Design technologies aimed at developing web applications for mobile devices

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Summary. *Through this document we will try to put in context the different options and technologies that can be taken into account when developing web applications with the ability to adapt effectively to any type of mobile device with a web browser. In addition results of the comparative method applied in previous research between front-end frameworks they are presented. Bibliographic support as there is a study about these tools.*

Keywords

Mobile, web, responsive.

Abstract. Through this document we will try to put in context the different options and technologies that can be taken into account when developing web applications with the ability to adapt effectively to any type of mobile device with a web browser. In addition results of the comparative method applied in previous research between front-end frameworks they are presented. Bibliographic support as there is a study about these tools.

Keywords

Web, responsive, framework.

1. Introduction

El objetivo de este documento es hacer un análisis netamente de herramientas responsive web design orientadas al desarrollo de aplicaciones web para dispositivos móviles destacando los aspectos más relevantes hechos en una investigación previa.

La falta de una robusta bibliografía en nuestro medio acerca de este tipo de tecnologías hace indispensable hoy por hoy tener un sustento bibliográfico que detalle los beneficios de utilizar este tipo de tecnologías coyunturales además de ser una guía para los desarrolladores de software de la región.

Se ha realizado el análisis del framework responsive web design Bootstrap visto desde varios criterios, los cuales fueron tomados como guía de las especificaciones que hace la norma ISO/IEC 9106 la cual indica algunos criterios basados en el proceso de calidad y desempeño de software. Se incluirán un resumen de resultados obtenidos tras haber realizado un análisis comparativo entre los frameworks Bootstrap y Foundation.

Tras constatar que no se han realizado proyectos de investigación y análisis de ningún tipo de estas tecnologías en la Facultad de Ingeniería en Ciencias Aplicadas de la Universidad Técnica del Norte, con excepción de una aplicación realizada por la Srta. Aldáz Sara como trabajo de pregrado. La finalidad de este trabajo es recalcar de una u otra forma los impactos sociales, económicos y ambientales que pueden generarse al utilizar este tipo de herramientas

2. Materials y Methods

Some methods were used to analyze the responsive web design Bootstrap framework, taking into account their main features, such as no need for performance benchmarks, since in this case, not having a measurable variable time can be applied in Bootstrap was not advisable to use this criterion of comparison.

It was decided to use the criteria involved in software quality ISO / IEC 9106 standard that this in turn is based on the ISO 25000 standard, which indicate parameters to be taken into account to analyze these technologies.

Percentages weighting each model quality criteria software McCall recommended weighting criteria suggestively in a balanced manner so as not to alter the results of the comparison.
The following criteria for obtaining analysis results were used:

•Learning
•Quality
• UI Components
• Development Facility

Each of these criteria in turn is broken down into subitems that cause results to be a little more accurate. As tools for collecting information official information of each framework, public use information related to each framework and the survey was used.

The tabulation and analysis of results was adequately performed by statistical calculations in order to give credence to them

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2.1 Subtitle

Then the statistical methods used for processing the data used to reach detailing results.
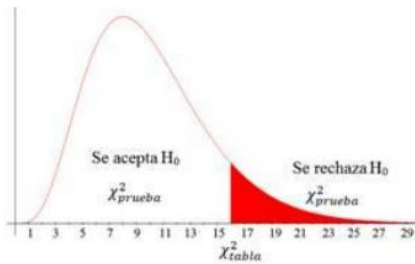
.

Figura. 1. Grados de libertad a 0,005

According to the results of the comparative analysis criteria compared with 4 tables observed frequencies and expected frequencies are generated and these are in (Annex A Section 5). To determine the value of chi square the following statistical formula runs .

$$x^2 = \sum_i \frac{(observada_i - esperada_i)^2}{esperada_i}$$

(1)

The determination of the degrees of freedom (df) , is based on the number of rows (r) and the number of columns (k) with the following expression.

$$gl = (r-1)*(k-1)$$

(2)

According to the table of chi-square distribution (see nnexes A, section 6) , the value is 14,067 with a degree of freedom of 7 and with a value of 0.05 significance .

3. Results

To consider one of the two hypotheses as correct determined that to accept H0 when calculated chi-squared is less chi-square distribution table. And to accept the hypothesis H1 chi-square value should be greater than the chi-square H0.
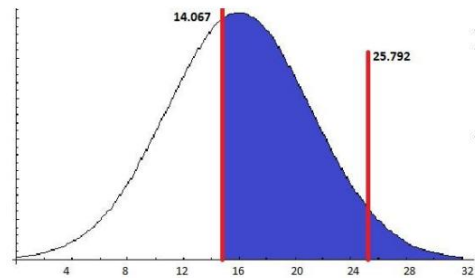

Figura. 2. Tabla de criterio de decisión de dos hipótesis

- Chi cuadrado calculado: 25.792
- Chi cuadrado tabla: 14.067

Main objective of the comparative analysis was raised to contextualize technologies you to publicize the software developer an alternative means our mobile web development, but not get a winner and then make an application with the best framework.

4. Conclusions

After a full comparative analysis has shown the efficiency of a system based on benchmarks that were set at the nature of these tools framework. After a tabulation of results was evident the advantage of a framework over the other and that this analysis has even more truth statistical methods used in this case was decided by chi square to show that the hypothesis at the start of this phase was The correct one

It should be noted that there may be other benchmarks that may cause results to change or invest in other analyzes by other people. The parameters used when making the comparison were chosen correctly, because they were based on the main characteristics possessed by front-end frameworks, the best results the web Bootstrap responsive framework.

The comparative analysis of the degree work was done with the intention to put into context the major advantages and disadvantages compared with Bootstrap has another framework of the same type.

5. Thanks

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