Abstract

Bacon ipsum dolor sit amet tri-tip jerky fatback beef ribs ribeye frankfurter sausage. Pastrami hamburger boudin beef chuck salami. Filet mignon salami t-bone swine, fatback tongue tenderloin shank ribeye tail pork chop beef pork andouille ham hock. Pig turducken cow rump tail strip steak capicola meatball pastrami. Drumstick tenderloin short ribs beef ribs corned beef cow.

Strip steak sausage corned beef frankfurter tri-tip filet mignon hamburger pork. Drumstick jowl tenderloin ham frankfurter, doner bresaola turducken beef ribs filet mignon kielbasa prosciutto pork chop. Ground round flank hamburger pork chop drumstick, ham hock short ribs pancetta. Turkey sausage biltong, shoulder jowl short ribs strip steak tenderloin ham hock tongue pancetta fatback andouille bacon spare ribs. Turkey ribeye pig filet mignon bacon. Brisket shankle cow, short loin tri-tip tongue kielbasa doner shoulder salami ball tip.

Flank andouille jowl, tongue turducken fatback sausage filet mignon biltong ham frankfurter shoulder. Pork loin fatback prosciutto turducken cow pancetta bacon salami. Boudin hamburger shank jowl pancetta tri-tip venison biltong short loin tongue. Pork chop pig strip steak, biltong shank hamburger fatback.

Jerky ribeye ham hock capicola tenderloin fatback prosciutto tongue leberkas tail pork, filet mignon pastrami venison chicken. Meatloaf kielbasa swine salami. Pancetta rump jowl sausage. Pork loin pancetta fatback sausage ball tip ground round. Shankle chicken frankfurter ground round. Kielbasa flank prosciutto short loin tail sirloin filet mignon jerky ground round.

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Populärvetenskaplig beskrivning

Contents

1 Introduction

Web development is a field that rapidly evolves, and web developers continuously need to keep themselves updated of new techniques and trends regarding the subject. The visual design and functionality of websites has gone through a great change since the early beginning of webpages, and the number of users on the Internet has increased immensely. Most companies, or organizations today, have a website, and various types of Internet services provide a platform for online purchases. Website browsing is an essential part of the contemporary lifestyle, which stresses the need for efficient and proficient techniques concerning web development.

There are an enormous number of websites on the Internet which suggests the need of measurements to attract visitors. It is probably not enough to develop a website and promote it through various marketing channels in order for it to become successful. Websites should preferably be easy to use, visually pleasant and more depending on the indented audience. Furthermore, people today largely use other devices than desktop computers to browse on websites, such as smartphones and tablets, which introduces new challenges regarding web development.

1.1 Reading Instructions

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1.2 Background

When developing websites and web applications today, one of the challenges is that the result not only works, and is useful on a computer, but attention must also be given to the fact that users also extensively browse websites on mobile phones. With the introduction of smartphones such as “iPhone”, which contains a built in web browser, mobile browsing of websites increased, and web developers started talking mobile webpages. Mobile webpages are designed for, and easy to use when browsing from a mobile device. This mobile design pattern includes a reduction of the data on a desktop based website in order for users to more clearly understand and navigate through the information. However, a great deal of websites are not available in a mobile format, when users browse to these webpages that on a mobile device they often need to zoom in and out in order to click on links, read text or get an overview because most web elements are too small when not customized for the mobile format.

There exist different techniques for developing website adapted for mobile devices. One way to express a desktop website in a mobile browser is to create a new webpage and design it according to the size of mobile phone screens.

Another way to achieve a mobile suitable website based on a desktop website is to use the principles of responsive design. Unlike the solution mentioned where there exist two different websites for desktops and mobile devices respectively, responsive design aims to enhance the desktop site with mobile functionality. Responsive design function in such a way that the desktop webpage automatically changes layout and design (in accordance with the intended layout of the mobile webpage) when browsed from a mobile device.

According to "StatCounter Global Stats", Internet access through mobile devices has gone from 0.7% in January 2009, to 8.5% in January 2012 (cite). The use of mobile devices as a mean for internet browsing has increased rapidly, which might be an indication that effort should be put into the development of mobile webpages. However, mobile web development can be quite difficult in terms of information presentation. The substantial reduction in screen size when going from a desktop to a mobile device complicates the process of providing a comprehensive overview of all the information on a website.

1.3 Problem Description

In the field of mobile web development the issue regarding presentation of information often arises. The information presented could ideally be structured in a way that enhances the experience of the visiting users. Hence, the layout and structure of a website's information can be crucial to its success. This issue can clearly aggravate in relation to the amount of information presented.

Another problem that is in direct relation to the layout of information is how to display hierarchal information. Information structured in a hierarchal manner on a website takes shape in such a way that all information available on the site cannot be viewed at once, and in order to view certain information navigation through the hierarchy is necessary, i.e. clicking on certain web elements, such as links or buttons, in a relatively predetermined order. One of the essential parts of this issue is the configuration and design of the navigation through the hierarchy because if it is overcomplicated to find certain information, users will probably be frustrated and annoyed.

It can be an even greater issue to present hierarchal information on mobile websites in comparison to a desktop websites. Websites presented on a computer screen can display more content at once and provide a more comprehensive overview of the information than on a mobile device. Furthermore, the complexity of the information presentation is enlarged by the fact that mobile browsing is performed with the help of users' fingers, unlike computers that are being controlled by a mouse. In addition, users' fingers, in many cases, relatively large in relation to size of the screen on a mobile phone. Therefore, solutions to the problem where as much information as possible is being presented on the phone's reasonably small screen, will probably fail in a user experience point of view. The challenge lies in finding ways to present hierarchal information with

its belonging navigation structure that are efficient and intuitive, and which does not affect the user experience in a negative way.

The problem that this thesis aims to analyze is the presentation of websites containing hierarchal information with a navigational structure in a mobile interface. A user experience point of view will form the basis for the analysis.

1.4 Purpose and Goal

TODO

1.5 Limitations

The concept of mobile devices will in this thesis only cover the mobile phone. Another system that can be categorized as a mobile device is the "Tablet", such as the "iPad". An investigation on the presentation of websites with hierarchal information on tablets could be of interest as well, but the screen size of tablets does not differ as much from on a desktop computer in comparison with the mobile phone. Furthermore, it is usually not as a significant problem in the development of these types of websites on tablets.

This thesis will also be limited in the number of investigated solutions. There exist a variety of solutions to the problem that this thesis aims to analyze, but due to a limited time span the maximum number of investigated solutions will be 2 or 3.

1.6 Method

TODO

2 Introduction to Mobile Web Browsing

Web browsing, both on desktops and mobile phones involves searching for, and viewing web pages that are part of web sites such as "www.bbc.com". Web browsers, like "Firefox" or "Safari" read web pages and display them to viewing users. How a certain web page is displayed depends on instructions in the underlying HTML (Hypertext Markup Language) code. The HTML code, which in turn is comprised of HTML tags, can provide various types of functionality to a web page, for instance audio playback, video streaming and pictures. However, in order for web pages to appear professional in form of design, and possess more advanced functionality like drop-down menus or sliding images CSS (Cascading Style Sheets) and JavaScript should be used. CSS is code that defines how HTML-tags and HTML-elements are styled and JavaScript is a language that allows web developers to manipulate both CSS- and HTML-code before and after a web page has been loaded.

2.1 Mobile Web Pages

Mobile web pages are designed for small mobile phone screens with imprecise input in the form of human fingers, in contrast to desktop-friendly web pages which are designed for computer screens and precise input with a mouse. The huge difference in screen size has enforced web developers to find new ways of approaching the design of web pages if they are intended for mobile phones.

2.2 Mobile Adaptation of Web Pages

The reduced screen size and different input on mobile phones compared to desktop computers affects not only the design and display features of web pages, but these factors also affect user interaction. In Gupta et al they describe two main transformations, regarding how a mobile web page is displayed when a user view it from a mobile browser: a linear approach and direct migration. (ref: http://ijcsi.org/papers/IJCSI-8-2-609-613.pdf) With direct migration, the web page will appear in the same way in the mobile phone's browser as it does on a desktop computer; no transformation to the desktop web page is performed. Consequently, text, images, links and other web elements will be very small on the screen. Because the elements will substantially small, text will be hard to read, images hard to interpret and it will be difficult to click on links since human fingers will be relatively larger than the links themselves. Action taken by users will most certainly be to zoom in on the page in order to interact with it. This can cause feelings of frustration during interaction (HITTA KÄLLA), and feelings of aversion towards the page. In summary, mobile web pages should be adapted to the features and specifics of mobile phones in order for them to be more easy and pleasant to view and interact with. With the linear approach the page is transformed (redesigned), to match the reduced screen size of mobile

phones in such a way that web page areas (areas with different web elements such as text or images) are presented after each other in a long linear list. The linear list is displayed as a single column to fit easily inside small screen of the mobile phone. With this approach it is not required that users scroll horizontally or zoom in and out to access the available information. Instead they only need to either to scroll down vertically, or click on links which suits the way that people interact with their mobile phones.

2.2.1 Difficulties

Incentives to adapt mobile web pages to the features of mobile phones exist, but the adaptation can be rather challenging. The reduction in screen size is extensive and introduces limitations on how much information that can be displayed at once. A lot of web pages have rich content that do not fit all at once on a mobile device, and as Gupta et al (ref: http://ijcsi.org/papers/IJCSI-8-2-609-613.pdf) mentions an analysis have to be made according to the specifications of the devices. Decisions on how the desktop-based web page content shall be prioritized and presented on a mobile device have to be made, and the design process that follows can be complicated. Seeholzer and Salem, Jr (ref: http://crl.acrl.org/content/72/1/9.full.pdf+html) indicated through user study related to mobile websites that the design process of websites presented on a mobile device can be a difficult task. The reason was the risks of achieving mobile websites with pared-down features. Some of the participants the study stated that when they access pared-down mobile websites they did not feel that they were on the internet, and that they looked for a more dynamic experience. It is obvious that the amount of information presented on the reduced screen of a mobile device will be significantly smaller, but what might not be as clear is the decrease in the functionality or dynamic features which can be of importance.

3 Mobile Information Architecture

The success rate of mobile websites does not solely depend on how it is designed and it's layout, a great deal is determined on the content of the site and how structured and organized, which in other words can be referred to as the websites' information architecture (ref mobile design and development). Information architecture can affect both the appearance of websites, as well as their usability, why it is an important part of the development process.

3.1 Definition of Information Architecture

Bryan Fling describes, in "Mobile Design and Development", the definition of information architecture with the help of the following outline:

• The structural design of shared information environments • The combination of organizations, labeling, search, and navigation systems within websites and intranets • The art and science of shaping information products and experiences to support usability and findability • An emerging discipline and community of practice focused on bringing principles of design and architecture to the digital landscape

4 Mobile Web Design and Development

The user-experience of mobile browsing can be enhanced through structured and planned design. However, finding a perfect solution for the design of a website, which is transformed in accordance with mobile device features, can be a complex undertaking. There are various factors that the design and planning process need to take into account, such as the layout of web elements, number of links, image sizes etc. During the course, and before the development of these types of websites, decisions, which deal with details regarding the implementation, have to be made as well. In summary, a strategy that involves the design and implementation details, in addition to user experience aspects is preferable when working with mobile adapted websites.

References