Fróðskaparsetur Føroya

Hagstovan

Bachelor Project Formulation

Create a new modern and responsive user interface for the Faroese statbank

Skapa eitt nýtt nútíðar nýslumarkamót fyri Hagtalsgrunnin

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Introduction

National statistical offices disseminate official statistics in statbanks where it is available to citizens and institutions via web interfaces.

All the statistical offices in the Nordic region and in several other countries around the world use an installation of the statbank application, PX WEB, to disseminate official statistics.

PX Web is lead by Statistics Sweden and developed in cooperation with other national statistical offices, among them Statistics Norway and Statistics Finland.

User research performed in the Faroe Islands shows that many of the mediocre and novice users have a difficult time using the PX Web interface. Similar findings have been found by other statistical offices, which are using the PX Web statbank application. This is therefore a cross-national problem since users in several countries using PX Web are facing the same usability issues.

One of the main challenges for the users across different sectors is to find the right data in the statbank. The user interaction tends to involve many clicks to get data and when the data finally is returned from the application it often is not what user is expecting. This often results in users giving up in finding the right data.

The user journey in the statbank starts by navigating the folder structure and then finding the right table1a. When the user has found a relevant table the user has to choose multiple categories from several statistical variables1b and then click the submit button to display the data1b. If the data is not what the user is expecting the user has to go over this procedure once again.

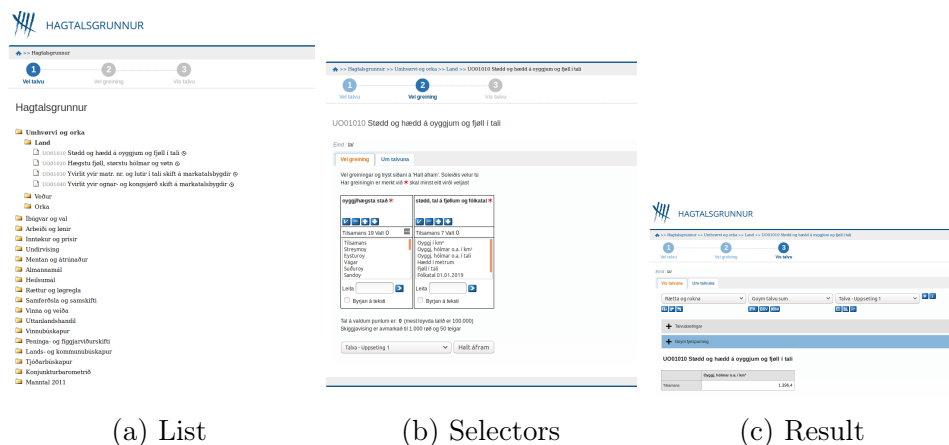(a) List   (b) Selectors   (c) Result

Figure 1: User Interface (Faroese Statbank)

In ISO 9241[1] usability is defined as the effectiveness, efficiency and satisfaction with which specified users achieve specified goals in particular environments. In this case this means users finding the right data in the statbank.

Effectiveness is the accuracy and completeness with which the users can achieve specified data in PX Web. Efficiency is the resources expended such as time or number of clicks in relation to the accuracy and completeness of getting the right data. Satisfaction is the comfort and acceptability of the work system to its users and other people affected by its use.

From a usability perspective it seems that there is a lack of effectiveness and efficiency in the PX Web application. This requires a new approach to get and display the data from the statbank application.

In this thesis I am aiming to improve the effectiveness and efficiency of the application by developing a prototype of a new web interface that exploits and utilizes the API in the PX Web statbank. I aim to establish a direct communication between interface and the API in order to get data, manipulate data and displaying data instantly.

In this approach the user will instantly be shown data when the user has chosen a category from a statistical variable. This differs significantly from current approach where the user has to choose multiple categories in several statistical variables and then click the submit button to get the data.

This new approach reduces the number of clicks and the time used to get data significantly. It will hopefully make user interface more intuitive and easier to use.

If the project is successful the prototype will be presented in the annual PX Web Conference in November where all statistical offices, using the PX Web application, meet to discuss how to improve the application. This means that all statistical offices using PX Web can benefit from this project and implement the interface in their local installation.

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[1] ISO 9241

PXWEB API

The data in PX WEB APIs consists of a metadata part and a data part. Metadata is structured in a hierarchical node tree, where each node contains information about subnodes that are below it in the tree or, if the nodes are at the bottom of the tree structure, the data referenced by the node as well as what dimensions are available for the data at that subnode.

The API enables downloading and usage of data from statistical offices without using a web browser direct over HTTP/HTTPS.

1   Technology

Many technologies have been considered relevant to the project's web interface prototype.

In the end, Javascript has with related advanced Javascript frameworks has been chosen as the main programming language. JavaScript is one of the worlds most used front-end programming language[2] supported and implemented in all modern browsers with the support of new versions of the language. Addition to this, the React[3] library will be used for building the user interface. *React* main maintainer is Facebook.

JavaScript

Advantages regarding this project

Popularity Huge active community of active developers.

Simplicity JavaScript is relatively simple to implement.

Documentation The documentation is very good and the resources to solve problems are numerous.

Network JavaScript is unhindered by network calls to a back-end server and this is considered relevant since data fetching will be returned through API-calls from the statbank.

Speed JavaScript has no need to be compiled on the client side which gives it certain speed advantages to other programming languages.

Browser JavaScript is a scripting language which runs in the browser.

JSON The syntax of JavaScript Object Notation is based on JavaScript object syntax.

Disadvantages regarding this project

Browser Support Client-side scripts can be a little unpredictable depending on the browser.

The disadvantages will be handled by tests.

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[2]Top 10 programming languages used in web development
[3]Reactjs

Other programming languages that where considered.

TypeScript

TypeScript is a strongly typed, object oriented, compiled language.TypeScript is both a language and a set of tools. TypeScript is a typed superset of JavaScript compiled to JavaScript. In other words, TypeScript is JavaScript plus some additional features[4].

Disadvantages regarding this project

Popularity The community of developers is smaller than in JavaScript.

Step learning cure Learning curve is steeper than JavaScript with new syntax of typescript and strict typing.

False security It can provide false security in that it checks static type errors, but runtime errors can still occur.

ASP.NET

ASP.net is a framework for running web applications on the server. Applications that run on the server are used for processing data that you don't want to user to have access to.

Disadvantages regarding this project

Server side This project is a client side project, while ASP.NET is used for server side applications.

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[4]What is TypeScript