Visualizing Technology Use by Age and Region

Team 32

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# Section One: Introduction

Our team is primarily using the [Technology Use by Age, Sex, and Region dataset](https://open.canada.ca/data/en/dataset/8f0a21d6-9531-4171-a527-e8ec95dfa4e5) provided by the Canadian government. This dataset contains over 60000 samples separated by demographics such as sex, age, and province. To measure the effect Canadians feel technology has on their lives the survey asked what was the main consequence of technology use on their lives from a list of 5 predetermined answers. This large dataset contains a wealth of information but without a proper way to visualize the data, its usefulness is limited.

We would like to supplement our primary dataset with “[Use of Internet services and technologies by age group and household income quartile](https://open.canada.ca/data/en/dataset/75e0a4a2-2bb0-4727-af1f-ff9db913171d)”, which fills out the critical context of how much of the Canadian population even uses particular pieces of technology.

Our motivation behind choosing these datasets is to discover issues and misconceptions in Canadians' use of technology, and call attention to the Digital Divide through the easy exploration of the facts.

To accomplish this we plan to design a data visualization system that allows the user to filter the datasets and see the data on an annotated regional map of Canada. In addition to the mapping view, we would also like to implement graphing and charting features to provide alternate perspectives.

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# Section Two: Proposal

The final dataset we plan to use to supplement our primary dataset is “[Use of Internet services and technologies by age group and household income quartile](https://open.canada.ca/data/en/dataset/75e0a4a2-2bb0-4727-af1f-ff9db913171d)”. We expect challenges with this dataset as it’s less granular than our primary dataset, with all Atlantic provinces being categorized as a single region, however, the shared age group data is extremely valuable for exploration and visualization, and there is only a three-year gap between the two datasets.

Pending assessment, this data may be visualized on top of Google Maps for practicality with the regionalized data, though we may use a simpler graphic or dynamic map if one of sufficient quality can be sourced successfully.

We hope to use this data to allow our users to discover issues and misconceptions in Canadians' use of technology, and call attention to the Digital Divide, the gap left between Canadians with the skills and income necessary to take advantage of the digital age, and those who lack one or both of the aforementioned.

For our full library of data, our goal is to visualize the data with a geographical anchoring, using the backdrop of a map of Canada for navigation of our regionalized data, with the ability to explore the data fully, using a variety of graphs and filtering options to present specific parts or groupings only, such as data divided by age group, as a means of decluttering what would otherwise be a potentially overwhelming experience on the website.

Additionally, we’d offer the ability to filter by survey answers, allowing for the easy exploration and comparison of different regions. We do not have sufficient knowledge of web development at this time to definitively state whether the number of data categories displayed at any particular time will be limited.

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# Section Three: Functionalities

| Display Map | To aid in visualizing the dataset, a map of Canada will be rendered in the user's browser. |
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| Select dataset | Our project intends to integrate two datasets. This function will either or both datasets to be selected. |
| Filter by location | Our primary dataset is divided into 13 distinct geographical areas. 11 Provinces, Atlantic Canada and Canada. This filter option will allow the user to select one or many options. This data would then be displayed on the map. |
| Filter by age | A filter allowing you to view the respondents in the specific groups of 15+(Default), 15-24, 25-54, 55-64, and 65+. A potential enhancement of mixing and matching groups is possible here. |
| Filter by sex | A filter allowing you to view the respondents in the specific groups of Male, Female, and Both Sexes. |
| Filter by response | A filter allowing you to view the respondents in the specific groups of Helps to Communicate, Saves Time, Interferes with other things in life, Helps to be more creative, and Helps to make Informed Decisions. |
| Subfilter for response type | A filter allowing you to view the respondents in the specific groups of Always/Often, Always, Often, Sometimes, Rarely/Never, Rarely, Never, and Don’t know. A potential enhancement of mixing and matching groups is possible here, and in such a case we’d exclude the specific selections of Always/Often and Rarely/Never. |
| Display graphs/charts | The program should be able to display several forms of graphs and charts from the selected data. Box plot, pie chart and bubble chart are our current goals. |
| READ | Our data needs to be read from a database at runtime. With a large number of entries in our primary dataset, this operation will need to be fast to maintain a good feel for the user. This read function will need to be able to retrieve records based on the user's filters. |
| Export | The user should be able to export their selected data in various formats. Ideally, the user would be able to export their raw data as a CSV and receive the filtered subset. Exporting the annotated map and the charts is a goal as well. |