

5607 Elmer Street
Apartment 206
Pittsburgh, PA 15212

March 5, 2014

Mr. Thomas M. Keating
Assistant Teaching Professor
School of Computer Science
Pittsburgh, PA 15289

Dear Mr. Keating,

Included with this letter is our team's proposal for a Chrome extension called Read-irectMe. The proposal aims to give an overview of what the extension will do and our plan for creating and evaluating the product.

The proposal includes an abstract, an introduction, a literature review, a plan for completing the project, a description of the benefits of the project, an outline of our approach and schedule, our evaluation criteria, and our team members' qualifications.

If you would like to contact our group with any questions you may have, please send an email to mstephen@andrew.cmu.edu.

Sincerely,

Margaret Stephenson

enclosure: paper entitled Read-irectMe

RETURN ADDRESS - GIVE NO NAME

INTERNAL ADDRESS

SALUTATION

4X ← 4 SPACES (LINES) FOR SIGNATURE

← PRINTED/TYPED NAME

← INVENTORY OF CONTENTS

LOWER CASE

Project Proposal

Read-irectMe

Submitted to
Thomas M. Keating
Assistant Teaching Professor
School of Computer Science
Carnegie Mellon University

Prepared by
David Bayant
Thomas O'Connor
Anastassia Kornilova
Margaret Stephenson

School of Computer Science
Carnegie Mellon University
March 5, 2013

Abstract

This document is a proposal for a productivity Chrome extension: Read-irectMe. While existing extensions stop the user from visiting certain websites, Read-irectMe will encourage the user to visit more productive websites instead. Often people bookmark interesting articles, instead of reading them later they go on time-waster websites. Using JavaScript and the Chrome extension API, the extension will track websites users visit and suggest they go to a bookmarked page. This proposal goes over the specific approach and schedule for how the team plans to complete this project.

Table of Contents

Introduction	1
Literature Review	1
Plan	2
Benefits	2
Approach	3
Methodology	3
Project Schedule	3
Evaluation	4
Qualifications	4
Sources	5

Introduction

Read-irectMe will be a Chrome extension that encourages the user to spend his or her Internet free time more productively. Often, when browsing the Internet, we come across articles that we don't have time to read at that moment, but wish to read in the future, so we bookmark them. However, when we do have spare time online, we often spend it browsing sites like Facebook or Reddit rather than returning to sites that we bookmarked. Our goal is to build a Chrome extension that stops users from visiting time-wasting sites like Facebook, by bringing them to an intermediate web page and suggesting they visit a bookmarked page instead. We hope that through this project, we will learn about web development and build a product that we will use ourselves.

Literature Review

(3 Best)

In this section, we will go over sources relevant to our concept and over the technologies we plan to use.

- **Chrome Developer Page** ✓

<https://developer.chrome.com/extensions/index>

This site will be a valuable resource for us, because it gives a lot of information about writing Chrome extensions. IT includes a "Getting Started" tutorial (which will be very helpful, as none of us have written a Chrome extension before), and many details on the basic infrastructure of extensions. It also includes a Bookmarks API to interact with the user's bookmarks. The site includes sample extensions, which will be useful for us as we learn our way around the code.

- **A Diary Study of Task Switching and Interruptions**

<http://research.microsoft.com/en-us/um/people/horvitz/taskdiary.pdf>

This is a study about task-switching in a computer centric work environment. Microsoft had several employees keep a diary of what they were doing on their computers. They found that when workers tried to switch momentarily to a distracting activity, they had trouble returning to their original activity. This may be caused by humans' general trouble switching contexts; however, they found that if users were reminded of their previous activity, they had an easier time switching to it. Although our extension does not encourage you to return to our previous work, the concepts are related. If we can better understand how to make people focus, we will be able to write a more effective productivity app.

- **Facebook Addiction Disorder - Twenty-One Helpful Tips**

<http://www.techaddiction.ca/facebook-addiction-disorder.html>

This article discusses what people addicted to Facebook could do to reduce their use. Two of its main suggestions are to time how much time you've spent on Facebook and to

evaluate what you miss out on by spending all your time on Facebook. Our application would help with the second idea because it would remind users of the interesting articles they could read instead of going on a time-waster website. The extension could also keep track of how many times you visit the site and remind you of it on the redirection page.

Plan

Our goal is to build a functional Chrome extension that will help the user be more productive online. Read-irectMe will be available for download from the Chrome Web store. Upon installing the extension, the user will be prompted to pick sites he or she would like to be redirected from. These sites will be called **time-wasters**. When browsing the Internet, if the user sees an interesting but lengthy webpage, he or she can bookmark it in a certain bookmark folder specific for Read-irectMe. When the user tries to navigate to a time-waster site, the extension will redirect the user to an intermediate page, called the **redirection page**. This page will presents two options: the user can navigate to the site he or she originally wanted, or to a site they previously bookmarked for the extension. If we have additional time in the end, we will implement additional features such as time-limits for time-waster sites or suggesting new articles.

Our project will be split into three phases: research, implementation and evaluation. During the research phase of development, we will learn how to write Chrome extensions and learn more about productivity tools. Next, we will implement the actual extension, as specified in the Methodology section. Finally, we will evaluate and improve the extension according to the Extension section.

To stay organized as a team, we will use Git to share our code, and a Google Drive folder to share other types of documents. We will coordinate our meeting times by email and texting. We will meet on an as-needed basis, at minimum once every two weeks, and divide the work into subsections which team members can work on in pairs. The pairs can chose to pair-program in person or two work individually and coordinate later. If particular issues can not be resolved by the pair in charge, the whole group can meet to work them out.

Benefits

The project will benefit users by encouraging them to be more productive. Instead of spending time on time-waster websites, users will be encouraged to read interesting articles. If the users read the articles they bookmarked, then they will have a more engaging and educational online experience.

The team will benefit by learning to build a complete web application. None of us have made a complete side project before. Building Read-irectMe will give us experience working with large amounts of code written by different people. In addition, the team will learn to use the following technologies: Chrome extensions API, Node.js, JavaScript and SQL databases. Finally,

the team will learn about designing user interfaces and encouraging productivity.

Approach

The approach section is split into two parts: the methodology and the schedule. The methodology goes over the technical aspects of the project. The schedule goes over our specific plan for completing this project.

Methodology

Read-irectMe is a chrome extension that will be available to download free of charge. The product will consist of a front-end accessible from the browser and a backend for storing user data.

If the user turns on the extension, it will constantly run while the user browses the web. Google's Chrome Extension API will let us track which web pages are open. Using JavaScript with the API, we can take the user to the redirection page when they try to open a time-waster. Google also provides a Chrome Bookmarks API; it will let us access the user's bookmarks. We can display these bookmarks on the redirection page and help the user unmark them after they finish reading. The webpage will be designed with HTML/CSS. We will experiment with different layouts to find one that is intuitive to use and encourages productivity.

The back-end will store user data which will be loaded when the user opens the extension. A Node.JS server will be used to access SQL database. The database will store each users "bad" sites, bookmarks which have been read, and any other restrictions on bookmarks. By storing this information, the user can use multiple machines and not see bookmarks they have already read. This database structure will make it easy to add other information about users, if we add other features to this extension in the future.

Project Schedule

The project will be split into three phases: learning, building and improving. In the first phase, we will learn the technologies described in the methodology. In the second phase, we will build the basic extension with features discussed in the plan. In the final phase, we will focus on user testing and exploring how to best help people avoid time-wasters. Each of the first two phases should take about two weeks, and the last phase should take the rest of the semester. This schedule should give us sufficient time to deal with bugs or other complications we may run into. For example, the building phase can be extended to take more than two weeks if necessary. Figure 1 shows a detailed breakdown of our schedule.

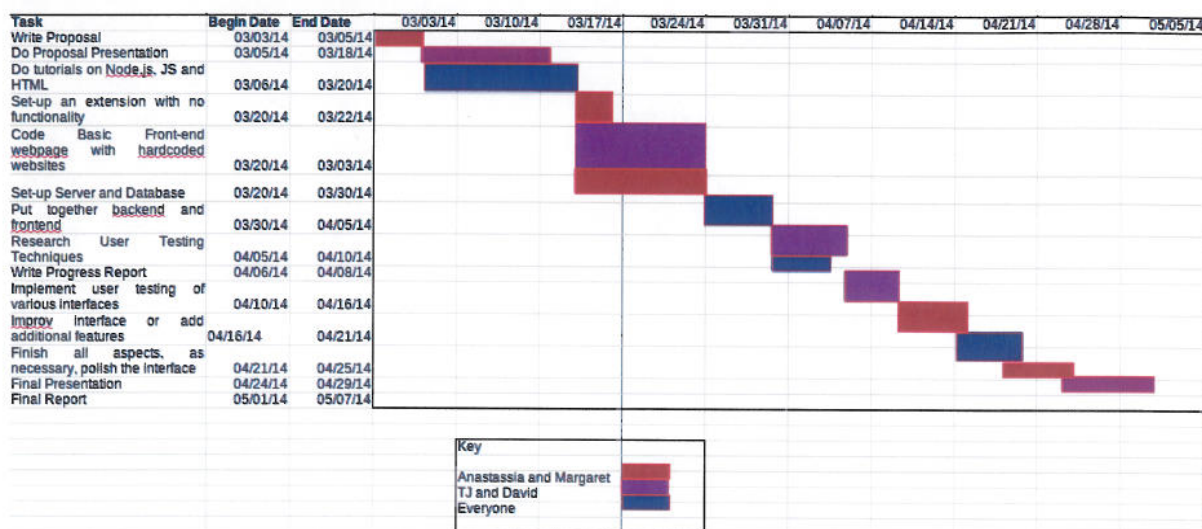


Figure 1. Gantt Chart of Project Schedule

Evaluation

We aim to create an extension with the functionality described in the plan, as well as a intuitive and friendly interface. Users should be able to download the extension and initialize their settings in a simple manner. To evaluate the usability of the extension, we can get out friends and family to use the extension and fill out a survey about their experience. In addition, once we upload the extension to the Chrome web store, we can get feedback from other users online. If we succeed, users will be able to easily use all the functions of the extension.

Another goal is for our extension to actually make a difference in the productivity levels of users. The application would be effective if the users consistently go to bookmarked links over the time-waster websites. We could track from our webpage which link the person clicks. Furthermore, we could guess if the user actually read the article based on whether they unbookmarked it or not. If we wrote a testing extension, we could compare these results to how users without the extension spend their time online. Ultimately, people using the extension would end up reading more interesting articles online.

Qualifications

Although the team lacks experience in the specific technologies discussed, we have the general computer science experience to complete this project. We are all sophomore computer majors who by the end of this semester will have completed a majority of Carnegie Mellon's core computer science classes. Because of these classes we have experience working with data structures and algorithms, but more importantly we have learned to learn new material quickly. In addition, David Bayani has experience with text parsing and natural language processing.

Anastassia Kornilova has briefly worked on web applications. Thomas O'Connor and Margaret Stephenson have not worked on projects outside of classes before. We have all worked on large group projects before, so we have the communication and teamwork skills necessary for this project.

Sources

1. "What are extensions?" <https://developer.chrome.com/extensions/index>
2. Mary Czerwinski, Eric Horvitz and Susan Wilhite, "A Diary Study of Task Switching and Interruptions" (Redmond: Microsoft Research).
3. "Facebook Addiction Disorder - Twenty-One Helpful Tips"
<http://www.techaddiction.ca/facebook-addiction-disorder.html>