Team 22 - Logger

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Problem Statement

There are multiple browser extensions that track a variety of web data ranging from web requests to time spent on a particular site. However, these extensions inadequately supply a user with a common extension to facilitate all data analytics in one place. Our goal is to provide users with a streamlined universal extension to analyze their time spent on sites, data usage, and general browsing habits, among other things.

Background Information

In recent years, people have found themselves using the Internet more and more for a variety of purposes. As such, there is increasing interest in cataloguing and analyzing web data, whether it be to discover user trends or to improve crucial online services. Many applications have been developed to facilitate this data collection, and while several function well one has to use a plethora of software in order to evaluate and display collected data. Our aim is to create a new rendition of this analytic software that completes a wide range of these required functions all in one place in an intuitive, user-friendly manner.

Environment

The extension itself will be done in JavaScript, with a NoSQL database for storing user information. The backend will be written using Node.js. The extension will run on Chrome but should be easy to port to other browsers.

Functional Requirements

#	Functional Requirement	Hours	Status
1	As a user, I would like to log my time spent on any website I visit.	4	Planned for sprint 1
2	As a user, I would like to track my internet data usage as I visit websites.	4	Planned for sprint 1
3	As a user, I would like to visualize collected data.	7	Planned for sprint 1
4	As a user, I would like to filter out specific websites from logging.	3	Planned for sprint 1
5	As a user, I would like to modify what is logged on all websites.	2	Planned for sprint 1
6	As a user, I would like to modify the tracking for specific websites.	4	Planned for sprint 1
7	As a user, I would like to track the total number of website visits for each website	2	Planned for sprint 1
8	As a user, I would like to manually edit the category of a site.	3	Planned for sprint 1
9	As a user, I would like to monitor browsing from website to website.	6	Planned for sprint 1
10	As a user, I would like my social media accounts to tie into the database.	3	Planned for sprint 1
11	As a user, I would like to visually see a directed graph with my network paths.	10	Planned for sprint 2
12	As a user, I would like the category of website to be automatically determined.	7	Planned for sprint 2
13	As a user, I would like to be notified when I am on a certain website for too long.	3	Planned for sprint 2
14	As a user, I would like to log my usage across all my devices.	7	Planned for sprint 2
15	As a user, I would like to set warnings for when I visit a website outside my specified allotted time block	4	Planned for sprint 2
16	As a user, I would like a list of websites visited that is sortable by collected data	6	Planned for sprint 2
17	As a user, I would like daily, weekly, and monthly usage graphs for each website	5	Planned for sprint 2
18	As a user, I would like a timeline that shows the order I visited websites with timestamps.	5	Planned for sprint 2
19	As a user, I would like a list of most popularly visited websites among all users	7	Planned for sprint 2
20	As a user, I would like to be able to export my data after sorting, filtering, and choosing a file type.	12	Planned for sprint 2

Non-Functional Requirements

Architecture

1. Extension will be completed in JavaScript
2. Database will be completed in NoSQL

Scalability

1. Application should be easily modifiable to add additional options/graphs.
2. Application should be easily modifiable to expand compatible browsers in the future.

Usability

1. Application UI should be easy to navigate and understand.
2. No unnecessary interrupts should disrupt user during use.
3. Application loading times should be reasonably fast.

Security

1. The database storing user information will be kept private to prevent corruption.
2. The database is linked to the user's Google account to ensure higher security.

Use Cases

Case 1: Log my time spent on any website

Action	System Response
1. Browse to a website	2. Start logging visit
3. Browse to a new website	4. Update log to reflect change
5. Exit website	6. Stop logging site

Case 2: Track my internet data usage

Action	System Response
1. Browse to a website	2. Start logging data transfer
3. Exit website	4. Stop logging site

Case 3: Visualize collected data

Action	System Response
1. Click 'Data'	2. Display default visuals

Case 4: Filter websites from logging

Action	System Response
1. Click 'Preferences'	2. Display user preferences
3. Click 'Blacklist websites'	4. Display list of filtered sites
5. Type website URL	6. Prevent website logging

Case 5: Modify what is logged universally

Action	System Response
1. Click 'Preferences'	2. Display user preferences
3. Click 'Logging Preferences'	4. Display user logging preferences
5. Select universal log options	6. Update all logging

Case 6: Modify what is logged specifically

Action	System Response
1. Click 'Preferences'	2. Display user preferences
3. Click 'Logging Preferences'	4. Display user logging preferences
5. Select specific website	6. Display website preferences
7. Select log options	8. Update specific logging

Case 7: Track total number of visits

Action	System Response
1. Browse to a website	2. Increment visit counter

Case 8: Manually edit category of site

Action	System Response
1. Click 'Preferences'	2. Display user preferences
3. Click 'Logging Preferences'	4. Display user logging preferences
5. Select specific website	6. Display website preferences
7. Select edit category	8. Update specific logging

Case 9: Tracking relations between websites

Action	System Response
1. Browse to a website	2. Start logging visit
3. Browse to a new website	4. Update log to reflect change
	5. Log websites' relation

Case 10: Social media integration

Action	System Response
1. Click social media on login	
2. Enter username and password	3. Firebase handles authentication

Case 11: Visual directed graph

Action	System Response
1. Click 'Data'	2. Display default data page
3. Click 'Website Graph'	4. Display user directed graph

Case 12: Automatically set website category

Action	System Response
1. Browse to a website	2. Search database for existing entry
	3. If exists set similar category
	4. If not determine from internal data

Case 13: Notifying a user who has spent too much time on a website

Action	System Response
1. Click 'Preferences'	2. Display preferences page
3. Click 'Usage Warnings'	4. Display usage warnings page
5. Click 'Add new warning'	6. Display warning form
7. Set max time for a website	8. Add to a database
9. Browse to a website	10. Check total usage time
	11. Display popup warning if necessary

Case 14: Log usage across devices

Action	System Response
1. Use website on separate device	2. Log usage

Case 15: Warning for using website outside specified time

Action	System Response
1. Click 'Preferences'	2. Display preferences page
3. Click 'Usage Warnings'	4. Display usage warnings page
5. Click 'Add new warning'	6. Display warning form
7. Set time interval for a website	8. Add to a database
1. Browse to a website	2. Check system time
	3. Display popup warning if necessary

Case 16: View websites list and sort

Action	System Response
1. Click 'Data'	2. Display default data page
3. Click 'Websites'	4. Display sorted list of websites
5. Click column heading	6. Sort list by column ascending
7. Click column heading again	8. Sort list by column descending

Case 17: View daily/weekly/monthly graphs

Action	System Response
1. Click 'Data'	2. Display default data page
3. Click 'Websites'	4. Display list of websites
5. Click a website	6. Display data for that website
7. Scroll to view graphs	

Case 18: View timeline of activity

Action	System Response
1. Click 'Data'	2. Display default data page
3. Click 'Timeline View'	4. Display timeline of internet browsing

Case 19: View most popular websites list

Action	System Response
1. Click 'Data'	2. Display default data page
3. Click 'Popular Websites'	4. Display list of most popular websites

Case 20: Export user data

Action	System Response
1. Click 'Preferences'	2. Display user preferences
3. Click 'Export Data'	4. Display exporting page
5. Click file type	6. Generate exported file of that type
7. Click download	8. Download file