Rajiv Gandhi University of Knowledge Technologies

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A
Intern Report
on
Development of Chrome Extensions

Submitted By: -

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Under the guidance of

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This project report has been submitted in fulfilment of the requirements for the Degree of Bachelor of Technology in software Engineering.

May - 2023

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CERTIFICATE

This is to certify that report entitled "**Development of Chrome Extensions**" Submitted by E. Eswar Prasad (R170243) in partial fulfilment of the requirements of the award of bachelor of technology in computer science engineering is a bona fide work carried by them under the supervision and guidance.

The report has been not submitted previously in part or full to this or any other university or institute for the award of any degree or diploma.

GUIDE	**HEAD OF THE DEPARTMENT**
Mr. A.Mahendra	Mr. N. Satyanandram
Assistant Professor	HOD OF CSE

Submitted for the practical examination held on…….

Internal Examiner **External Examiner**

ACKNOWLEDGEMENT

The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of the people who made it possible and who's constant guidance and encouragement crown all the efforts success.

We are extremely grateful for the confidence bestowed in us and entrusting our project entitled "**Development of Chrome Extensions**". At this juncture we feel deeply honoured in expressing our sincere thanks to the **GSTECH Technology Pvt Ltd** team for the constant support to complete the projects tasks at right time with the great knowledge.

We would like to express my sincere gratitude to **Mr. A.Mahendra,** my project guide for valuable suggestions and keen interest throughout the progress of our project.

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At the outset, we would like to thank **Rajiv Gandhi University of Knowledge Technologies (RGUKT),** for providing all the necessary resources and support for the successful completion of my course work.

DECLARATION

We hereby declare that this report entitled "**Development of Chrome Extensions**" Submitted by us under the guidance and supervision of **Mr. A.Mahendra**, is a bonafide work. We also declare that it has not been of Submitted previously in part or in full to this University or other institution for the award of any degree or diploma.

Date: - 04-05-2023 E. Eswar Prasad (R170243)

Place: - RK Valley

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ABSTRACT

I had worked in **GSTECH Technology Pvt Ltd as a Software Developer Intern.** During my internship period, I had developed several Chrome Extensions and Web Applications using the MERN stack. My notable projects include Spending tracker for Amazon & Flipkart, Spending Calculator Swiggy™ and Zomato™ extensions.

Utilizing technologies such as HTML, CSS, JavaScript and React.js. I had designed and developed applications that provided users with enhanced functionality and improved user experience. Working collaboratively with a team of developers, I gained valuable experience in web development and communication skills.

My contributions to the development process at GSTECH Technology allowed the company to provide innovative solutions to their users while keeping up with current technologies. Overall, my experience at GSTECH Technology helped me develop my skills in web development using the MERN stack, and I gained practical
experience in developing Chrome extensions and web applications that meet user needs.

INTRODUCTION

Chrome extensions are one of the most-loved and most-used features of the Chrome browser. Extensions can solve a myriad of use cases for a diverse set of users, and in one form or another they are becoming a staple feature of most major browsers.

There's a thriving extension developer community, with hundreds of thousands of published extensions; a strong user base, and millions of extensions downloaded every day. We're going to continue improving and extending this vibrant ecosystem.

Extensions are software programs built on web technologies (such as HTML, CSS, and JavaScript) that enable users to customize the Chrome browsing experience.

And since Google Chrome has around 71% share of browser usage, it's no surprise that many of the most useful browser extensions out there have been built with Google Chrome in mind.

The Chrome extensions platform continues to evolve. The specific course we're steering focuses on improvements to security, performance, and privacy — while preserving or extending the capability of extensions and keeping a webby developer experience.

A browser extension adds extra functionality or features to your Chrome browser. They can make the browser easier for you to use or let you personalize things. Here are some examples of what Chrome browser extensions can do:

- Modify the user interface
- Block ads
- Translate text into a foreign language
- Bookmark pages
- Record your screen
- Manage your password vault
- Block cookies and analytics
- Check your spelling and grammar
- Convert HTML text to a PDF file
- Shorten links

PURPOSE

The extensive library of open source, often-free, and always handy extensions available through Chrome's marketplace makes Google Chrome one of the most versatile and well-beloved web browsers among web developers.

Downloadable in an instant, Chrome extensions serve to build up a custom web browsing UX for each Google account holder. For work, play, or a mix of both, Google Chrome extensions help millions daily to streamline their lives.

Web development is not an easy field to work in. Even with decades of experience in the business – or perhaps having grown up a native coder – we could all use some help from time to time. That's where our list of the 16 best Chrome extensions for web developers comes in.

Whether the extension makes a proposal of using a super simple function such as screen-shotting, something niche like a Lorem Ipsum placeholder text generator, or service much more complex such as Netscape cookies or exporting them in JSON, these Chrome extensions for web developers have got you covered.

OVERALL DESCRIPTION

Chrome extensions are one of the most-loved and most-used features of the Chrome browser. Extensions can solve a myriad of use cases for a diverse set of users, and in one form or another they are becoming a staple feature of most major browsers.

There's a thriving extension developer community, with hundreds of thousands of published extensions; a strong user base, and millions of extensions downloaded every day. We're going to continue improving and extending this vibrant ecosystem.

MANIFEST:

An extension manifest gives the browser information about the extension, such as the most important files and the capabilities the extension might use.

- "name": The name of the extension as it will appear in the Chrome Web Store and in the browser's user interface.

- "version": The version number of the extension, which is used for updating the extension.

- "description": A short description of the extension that appears in the Chrome Web Store and in the browser's user interface.

- "icons": A set of icons that represent the extension at different sizes, including 16x16, 48x48, and 128x128 pixels.

- "permissions": A list of permissions that the extension requires to function properly, such as the ability to access the user's browsing history, tabs, or cookies.

- "content_scripts": A list of scripts that are injected into web pages and can modify the content of the page, listen for events, and communicate with other scripts in the extension.

- "background": A script that runs in the background of the browser and can interact with the browser's APIs.

- "browser_action" or "page action": These properties define the extension's user interface, including the placement of the extension's icon in the browser's toolbar and the behaviour of the extension's popup window.

In addition to these properties, the manifest.json file can also define a range of other properties that are used to configure the extension's behaviour, including the default settings, the supported languages, and more.

```
{
 "manifest_version": 3,
 "name": "Hello Extensions",
 "description": "Base Level Extension",
 "version": "1.0",
 "action": {
  "default_popup": "hello.html",
  "default_icon": "hello_extensions.png"
 }
}
```

POPUP:

The popup.js file is used to create and manage the extension's popup window, which appears when the user clicks on the extension's icon in the browser's toolbar.

Developers use popup.js to create the UI for the popup window and to handle user interactions. For example, a developer might use popup.js to display a form for the user to input data, or to send messages to background.js to trigger other actions in the extension.

It can be created using **React Js** or by using **HTML and CSS**

```
<html>
 <body>
  <h1>Hello Extensions</h1>
 </body>
</html>
```

CONTENT SCRIPT:

The content.js file is used to interact with the content of web pages. This file is loaded into the context of each web page that the user visits and can manipulate the page's DOM, listen for events, and communicate with other scripts in the extension.

Developers typically use content.js to add new functionality to web pages or to automate tasks. For example, a developer might use content.js to add a button to a web page that triggers a specific action in the extension, or to monitor the contents of a page and display a notification when certain conditions are met.

SERVICE WORKER:

Like their web page counterparts, extension service workers listen for and respond to events in order to enhance the user's experience. For web service workers this typically means managing cache, preloading resources, and enabling offline web pages. As such, extension service

workers tend to focus on reacting to browser events exposed by extensions APIs.

The background.js file is a special script that runs in the background of the browser and can interact with the browser's APIs. This file is loaded when the extension is first installed and remains active for as long as the browser is open.

Developers typically use background.js to implement long-running tasks, such as monitoring for events or handling user input. For example, a developer might use background.js to listen for incoming messages from other scripts in the extension, or to update the extension's icon badge based on the number of unread messages.

SYSTEM REQUIREMENTS

❖ SOFTWARE COMPONENTS

- Any Operating System (Windows or Linux)
- Visual Studio Code
- Chrome Browser Latest Version
- Technologies: - HTML, CSS, JavaScript, React Js, Typescript

❖ Hardware Components:

- Processor – Core i5
- Hard Disk – 512 GB
- RAM – 4GB
- Internet Connection: 1.1GHz

TOOLS AND TECHNOLOGIES USED

1. HTML: (Hyper Text Markup Language)

HTML refers to the Hyper Text Markup Language. HTML is used to create webpages. It uses many tags to make a webpage. So, it is a tag-based language. The tags of HTML are surrounded by angular bracket. It can be using wide range of colors, objects and layouts. Very useful for beginners in web designing field.

Advantages of HTML:

1) First advantage is widely used.
2) Every browser supports HTML language.
3) Easy to learn and use.
4) It is by default in every window so you don't need to purchase extra software.

2. CSS

CSS is a style sheet language used for describing the look and formatting of a document written in a markup language. While most often used to style web pages and interfaces written in HTML and XHTML, the language can be applied to any kind of XML document. One of the favoured features is its ability to allow the sorting of document content written in markup languages (like HTML) from document presentation written in CSS.

3. JavaScript

JavaScript is high-level, interpreted, dynamically typed, or untyped programming language initially implemented within web browsers. It enables client-side scripts to interact with the users, control the browser, communicates asynchronously, and alter the web pages Document Object Model (DOM).

4. REACT JS

React is a JavaScript library created by Facebook. It's the most popular library for building single-page applications and interactive user interfaces. Interestingly enough, oftentimes React is referred to as a framework. It can be used with different libraries and tools, such as Material UI, Redux, or Create React App. Doing so can allow the library to spread the wings even more.

5. GITLAB

GitLab is a web-based Git repository manager that provides version control, continuous integration, and continuous deployment services. It is designed to help

teams collaborate on software development projects and manage code, issue tracking, and CI/CD pipelines in a single platform.

6. CHROME API'S:

1.Tab and Window Management: Chrome APIs allow developers to manage tabs and windows in the Chrome browser. Developers can create, move, and close tabs, and manipulate the content of a tab, such as loading a new URL or injecting JavaScript.

```
chrome.tabs.create({ url: 'https://www.example.com' });
```

2.User Interface: Chrome APIs provide developers with tools to create custom user interfaces for their extensions, such as popup windows, notification bars, and context menus.

```
chrome.browserAction.onClicked.addListener(function(tab) {
  chrome.windows.create({ url: 'popup.html', type: 'popup' });
});
```

3.Storage: Chrome APIs offer several storage options for Chrome extensions, including local storage, session storage, and sync storage. These storage options allow developers to store data, settings, and preferences for their extensions.

```
chrome.storage.sync.set({ key: 'value' }, function() {
console.log('Value is set to ' + value);
});
```

4.Networking: Chrome APIs provide tools for communicating with external servers and APIs. Developers can use the Chrome APIs to make HTTP requests, send and receive data, and handle responses.

```
chrome.runtime.sendMessage({ message: 'Hello, world!' }, function(response) {
  console.log('Received response: ' + response);
});
```

5.WebRequest: Chrome APIs allow developers to monitor and intercept web requests made by the browser. This can be useful for adding custom functionality, such as blocking ads or redirecting URLs.

```
chrome.webRequest.onBeforeRequest.addListener(function(details) {
  return { redirectUrl: 'https://www.example.com' };
}, { urls: ['*://www.google.com/*'] }, ['blocking']);
```

6. Notifications: Chrome APIs provide developers with tools to create and manage notifications for their extensions. Developers can use the APIs to create pop-up notifications, desktop notifications, and notifications that appear in the Chrome browser.

```
chrome.notifications.create('notification-id', {
  type: 'basic',
  iconUrl: 'icon.png',
  title: 'Notification Title',
  message: 'Notification Message'
}, function() {
  console.log('Notification created');
});
```

7.Identity: Chrome APIs offer authentication and authorization options for extensions, including user authentication and OAuth2 authentication.

```
chrome.identity.getAuthToken({ interactive: true }, function(token) {
  console.log('Access token:', token);
});
```

8.Content Scripts: Chrome APIs allow developers to inject JavaScript and CSS into web pages, enabling them to modify the content and behavior of web pages.

```
chrome.tabs.executeScript(null, { file: 'content.js' }, function() {
  console.log('Content script injected');
});
```

Overall, the Chrome APIs offer a wide range of functionalities that can be used to create powerful and feature-rich Chrome extensions. By utilizing these APIs, developers can build extensions that offer unique and innovative functionality to enhance the browsing experience for millions of users

SPENDING CALCULATOR FOR AMAZON™ and FLIPKART™

The Spending tracker for Amazon and Flipkart chrome extension helps users keep track of their spending on two of the most popular e-commerce platforms. The extension calculates the rear-wise total amount spent on orders made through Amazon™ and Flipkart™, allowing users to track their spending over time and make more informed purchasing decisions.

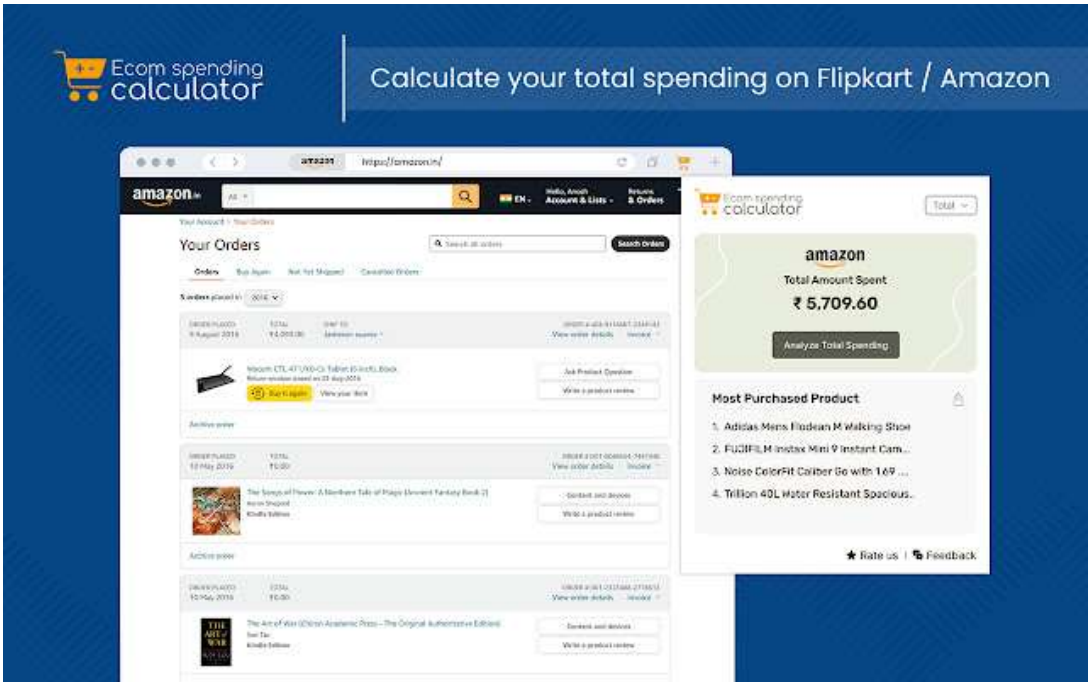
Key Features:

Here are the key features of the expense tracker for Amazon™ and Flipkart™

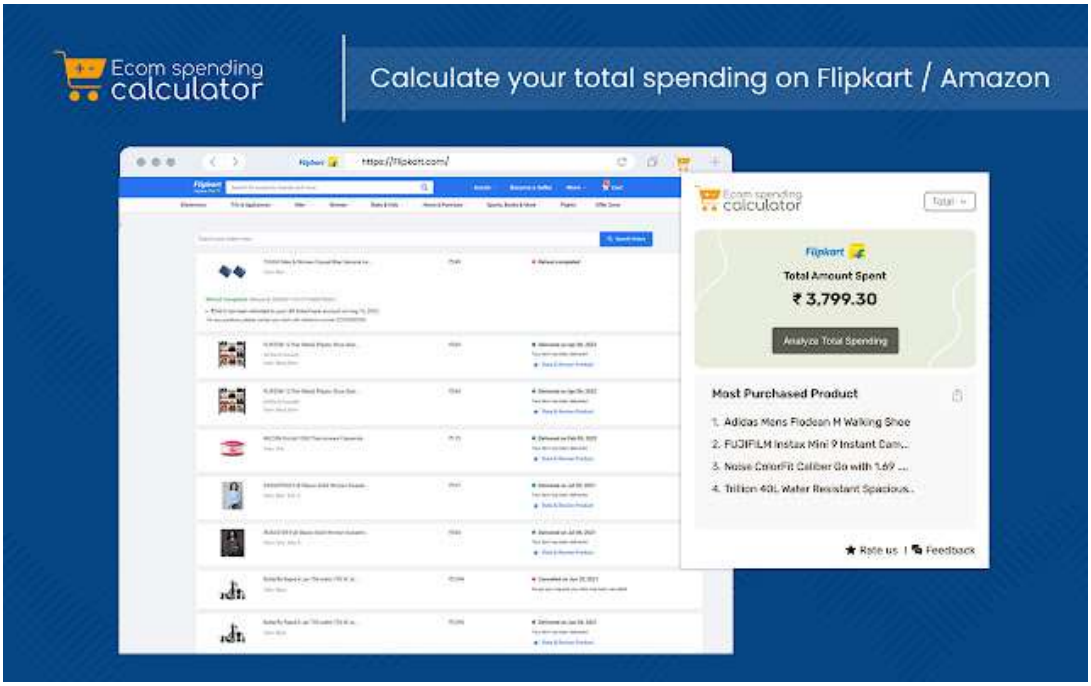
- Calculates total spending: The extension calculates the total amount spent on orders made through Amazon and Flipkart.
- Year-wise spent amount: It calculates the total spent amount year-wise, allowing users to track their spending over time
- Recalculating spending: Users can recalculate their total spending for up to latest order
- Helps track spending: The purpose of the extension is to help users keep track of their spending on Amazon and Flipkart.
- Saves time: By automatically calculating spending, the extension saves users time and effort that would otherwise be spent manually tracking their spending habits.

How to use Spending tracker for Amazon & Flipkart?

- Install the extension and pin it to your chrome browser
- Visit the Amazon & Flipkart website and login to your account
- Go to orders section
- Now click on extension icon and tap on Find Total Spending
- You can also recalculate total spending by clicking on “Re-Analyze” option.



AMAZON



FLIPKART

SPENDING CALCULATOR FOR SWIGGY™ and ZOMATO™

The Spending tracker for Swiggy and Zomato chrome extension helps users keep track of their spending on two of the most popular Online food ordering platforms. The extension calculates the rear-wise total amount spent on orders made through Swiggy™ and Zomato™, allowing users to track their spending over time and make more informed purchasing decisions.

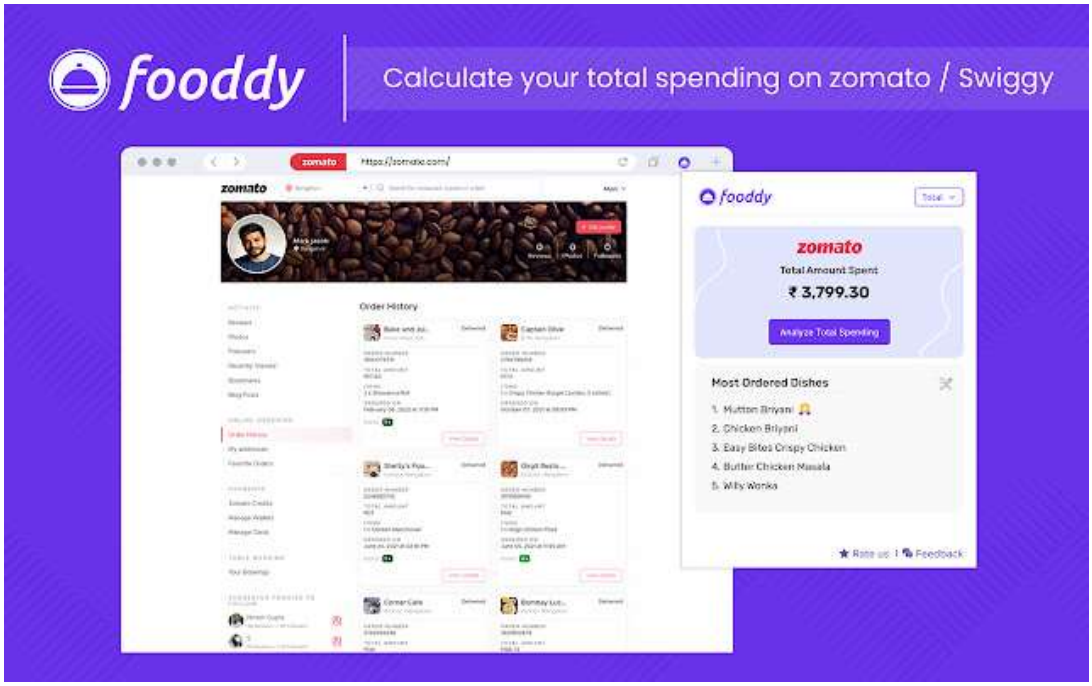
Key Features:

Here are the key features of the expense tracker for Swiggy and Zomato™

- Calculates total spending: The extension calculates the total amount spent on orders made through Swiggy and Zomato.
- Year-wise spent amount: It calculates the total spent amount year-wise, allowing users to track their spending over time
- Recalculating spending: Users can recalculate their total spending for up to latest order
- Helps track spending: The purpose of the extension is to help users keep track of their spending on Swiggy and Zomato.
- Saves time: By automatically calculating spending, the extension saves users time and effort that would otherwise be spent manually tracking their spending habits.
- Shows top 5 most spent food orders: By this we can get to know about the mostly ordered items of all time.

How to use Spending tracker for Amazon & Flipkart?

- Install the extension and pin it to your chrome browser
- Visit the Swiggy and Zomato website and login to your account
- Now click on extension icon and tap on Find Total Spending
- You can also recalculate total spending by clicking on “Re-Analyze” option.



ZOMATO

SWIGGY

WEBPAGE TO PDF CONVERTER

Convert or save web pages to PDF with ease. If you're looking for an easy way to save and share web content, the Webpage to PDF Converter extension is just what you need. With just a few clicks, you can turn any webpage into a high-quality PDF file that's easy to read and share. This PDF converter is fast and reliable, making it the perfect tool for anyone who wants to save online content as a PDF file for later use or share it with others.

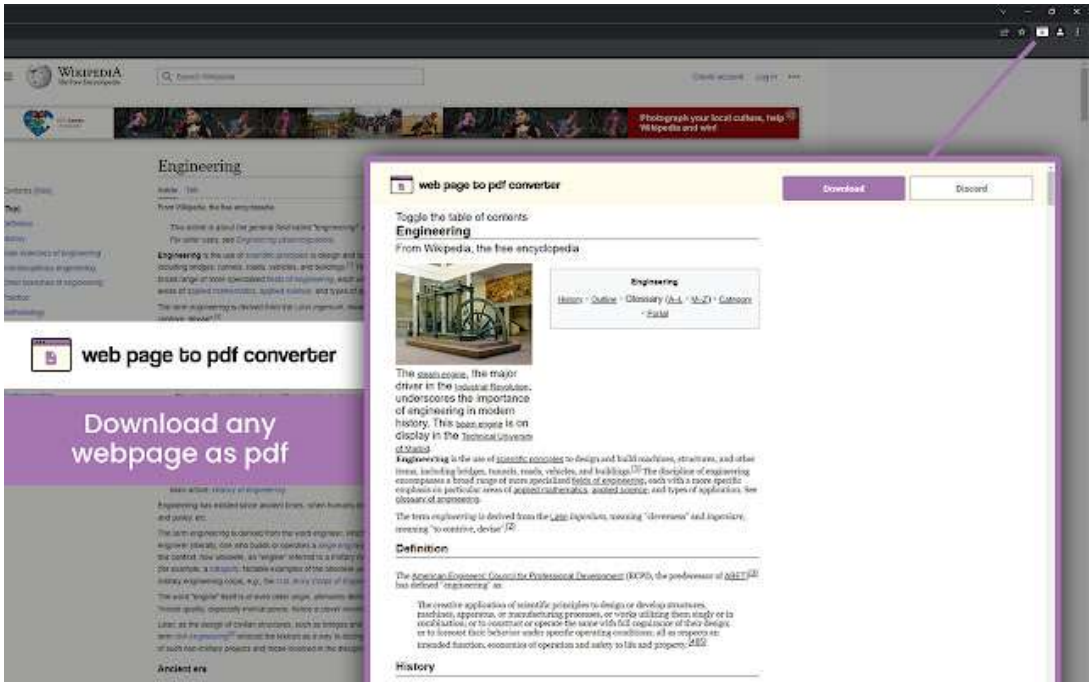
Key Features:

Here are the key features of the expense tracker for Web Page To PDF Converter:

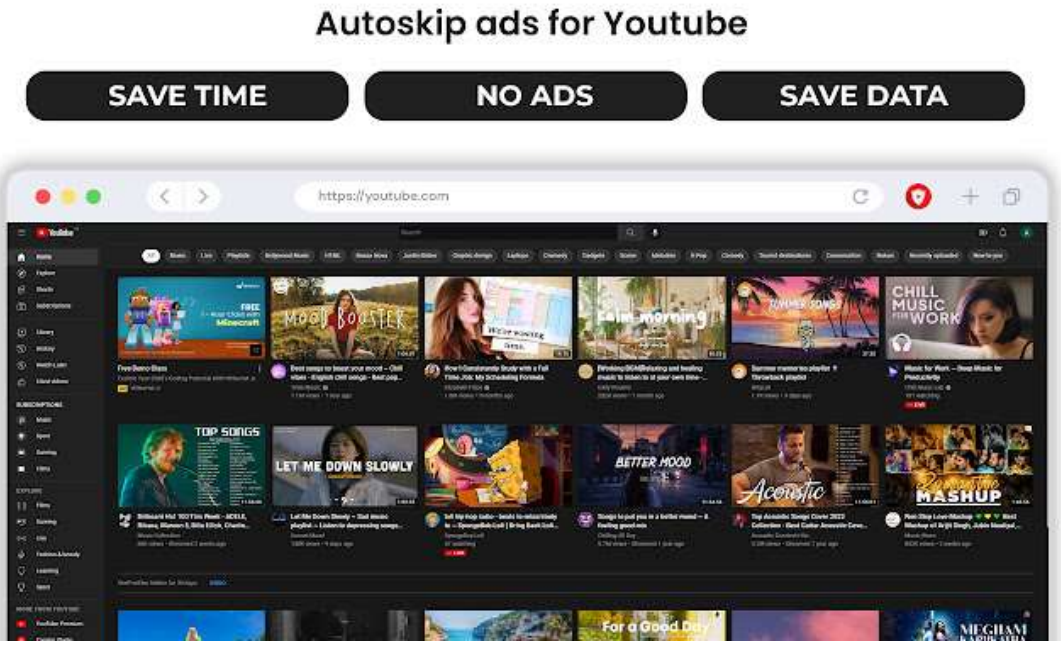
- Easy-to-use: Our webpage to PDF converter is designed to be simple and user-friendly, making it easy for anyone to use, regardless of technical expertise.
- Fast and reliable: The conversion process is quick and efficient, and the resulting PDF files are of high quality.
- Multiple webpage support: Our converter can convert multiple webpages into a single PDF document.
- Browser integration: The tool integrates seamlessly with your browser, allowing you to convert webpages to PDFs directly from your browser.

How to use Spending tracker for WebPage to PDF Converter?

- Install our webpage to PDF converter on your browser
- Open the webpage you want to convert to PDF
- Click on the extension icon in your browser and click “Download” button to save webpage as PDF file on your device



WEBPAGE TO PDF CONVERTER



ADBLOCK FOR VIDEOS

ADBLOCK FOR VIDEOS

Block annoying ads with our free adblocker extension. Say goodbye to pop-ups, banners, and more for a seamless browsing experience.

Take control of your browsing experience with Web Adblocker, the ultimate ad blocker. Remove annoying pop-ups and video ads on your favourite sites, including Google and YouTube and enjoy faster browsing. Web Adblocker also ensures a clean browsing experience and increased page loading speed.

Key Features:

Here are the key features of the expense tracker for ADBLOCK FOR VIDEOS:

- Blocks Ads Everywhere: Web Adblocker blocks ads on popular websites, including YouTube, and Google, giving you a cleaner browsing experience. It also prevents ads from appearing in pop-ups and autoplay videos.
- Customizable Settings: Web AdBlock provides customizable settings, allowing you to whitelist desired websites.
- Fast and Lightweight: It is designed to be fast and lightweight, so it doesn't slow down your browsing experience. It uses minimal system resources and doesn't affect the performance of your computer.
- Free and Open-Source: It is completely free to use and open-source, so you can trust that it is safe and secure. It is constantly being updated to ensure that it provides the best ad-blocking experience possible.
- Easy to Use: Web Adblocker is easy to install and use. Once installed, it automatically blocks ads on popular websites, and you can adjust settings or whitelist certain websites with just a few clicks. Its user-friendly interface makes it accessible for users of all skill levels.

CONCLUSION

To conclude, my long-term internship experience in developing chrome extensions, I had gained hands-on experience on how extensions actually work and these can be used to improve the capabilities of a computer. It adds further functionates to the browser. By developing Spending Calculator for Amazon and Flipkart, I had learnt how Asynchronous JavaScript can make work easier and while developing Webpage to PDF Converter a productivity tool which can be used to convert any webpage to pdf, I had learnt making a user-friendly product.

My experience at GSTECH Technology allowed me to gain valuable skills in web development and to utilize the latest technologies to develop innovative solutions for users.

This experience has given me practical experience in web development and helped me develop the necessary skills to provide innovative solutions that meet user needs.

Furthermore, during my internship period, I had the opportunity to work on various projects and collaborate with different teams. I gained a deeper understanding of the software development lifecycle, from ideation to deployment, and honed my skills in project management, communication, and problem-solving.

Overall, this internship has provided me with a solid foundation for my future career in software development, and I am grateful for the valuable experience and knowledge I have gained during this period.

REFERENCES

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2) https://developer.chrome.com/
3) https://www.w3schools.com/js/