Indian Institute of Information Technology, Allahabad

Software Engineering

Software Requirement Specification

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1.1 INTRODUCTION :

CATEGORY :-
Browser Plugin

"Web Monitor" is basically a plugin for a browser where we can monitor the online activity of an individual especially during his/her working hours.

1.1 Purpose :

The purpose of developing this "Web Monitor" is to keep track of the activities a user is performing on his/her web browser during his/her working hours.

1.2 Scope :

It will provide benefits to companies by tracking an employee specially when he/she is using the facility of 'Work from home' and also to teachers by tracking students' activities on a web browser when they are attending schools/colleges online during classroom hours and when they are giving online exams. It will also be benificial to common users who are trying to minimize non-productive browsing.

1.3 Definitions, Acronyms, and Abbreviations:

SRS: Software Requirement Specification
AFK: Away from keyboard

Definitions :

Plugin : Plug-in, also called add-on or extension, computer software that adds new functions to a host program without altering the host program itself. Widely used in digital audio, video, and Web browsing, plug-ins enable programmers to update a host program while keeping the user within the program's environment.

1.4 References :

IEEE SRS FORMAT

https://www.britannica.com/technology/plug-in

1.5 Overview:

The rest of this SRS is organized as follows: Section 2 gives an overall description of the product . It gives what level of proficiency is expected of the user, some general constraints while making the product and some assumptions and dependencies that are assumed. Section 3 gives specific requirements which the product is expected to deliver. Functional requirements are given by various use cases. Some performance requirements, design constraints and non-functional requirements are also given.

Existing System

Present systems involve manual checking of all the websites visited and their timings through browser history by repeatedly asking to share browser history or the second option is to share one's own tracked history to the checker for which applications and plugins are available.

This manual system has the following disadvantages.

- ➔ It's a limited system and non user-friendly.
- ➔ Asking the history of the other person and manually checking it takes a lot of time and energy.
- ➔ Either by checking history manually or sharing own tracked browsing to the checker, there is a great possibility of cheating which the checker can not avoid.
- ➔ It’s annoying for the checker as well as to the person who is being tracked.
- ➔ Limited sharing is possible if data is shared manually.
- ➔ The above point will become crucial while conducting an online exam where the teacher is supposed to track hundreds of students.

Proposed System

As our “Web Monitor” is the tool aiming to completely stop useless stuff. There are obviously many advantages of “Web Monitor” to the teacher, educational institution as well as companies etc.

The Plugin after careful analysis has been identified to be presented with following modules:

- ➔ **Authentication**: Tracker can not track data of any random person. One will need to give permission for that
- ➔ **Monitor activities**: Monitor the activities, websites visited, time spent on each website, total time online.
- ➔ **Idle time**: Calculate Idle time by calculating AFK time.

➔ **Administration access**: Administration would be able to keep an eye on students/employees.

2. Overall Description:

2.1 Product Perspective:

"Web Monitor" is aimed to effectively monitor the activities of an individual while he/she is working online either it be a student attending online classes or a person doing his company work, it will help the teacher/manager to monitor their activities.Overall, this application will reduce the trouble of managers/teachers and everyone who want to monitor their employees/students whether they are doing their work effectively or not.

2.2 Product Functions:

"Web Monitor" supports the following use cases :

Use cases	**Description of use cases**
Application :	
1. Access	In order to function properly, it requires some specific permissions by the user.
2. Functions	Executes all instructions and output results expected to the users.

Student/Employee:	

1. Download Plugin	Allows student/employee to download the plugin.
2. Add Plugin to their browser	Students need to add the plugin to their browsers.
3. View Total Online Time	Student/Employee can view the total online time of any student/employee he wishes to.
4. Switch Mode	Student/employee can switch mode between light and dark.
3. View Websites Visited during working hours	Student/employee can view the websites visited by any of the student/employee during work hours/online class(or exam).
4. View No. of times a website is visited	Student/employee can view the how many times they have surffed each websites in the list.
5. View Percentage of time spent on each website visited	Student/employee can view the percentage of total time time spent on each website in the list.
6. View AFK time	Student/employee can view the time spent in the AFK state.

7. Give feedback	Student/employee can give their feedback based on their experience of using the product which the developer can read.
8. Set notifications	Student/employee can set notifications if set limit of tracking has reached .
9. Backup and restore data	Student/employee can backup the data and will be able to restore it when they want.
10. Set inactivity time limit to stop tracking	Student/employee can set limits for inactivity after which tracking will stop.
11. Clear data	Student/employee can clear the data stored by the product when they want.
12. Limit access time of a website	Users can set a limit on time to access a website. If the set limit is exceeded, access is blocked and tracking stops.
13. Ignore a site	User can ignore a particular website i.e, no need of tracking that website if he/she feels.

Developer:	

1. Give Access	Give Access to the Student/Employee.
2. Read and reply to users' views	Developer can read the reviews and reply to them.

2.3 User Characteristics :

The user should be familiar with the basics of plugin and browsing.

2.4 Principal Actors :

The two principal actors in "Web Monitor" are "Admin" and "Users".

2.5 General Constraints:

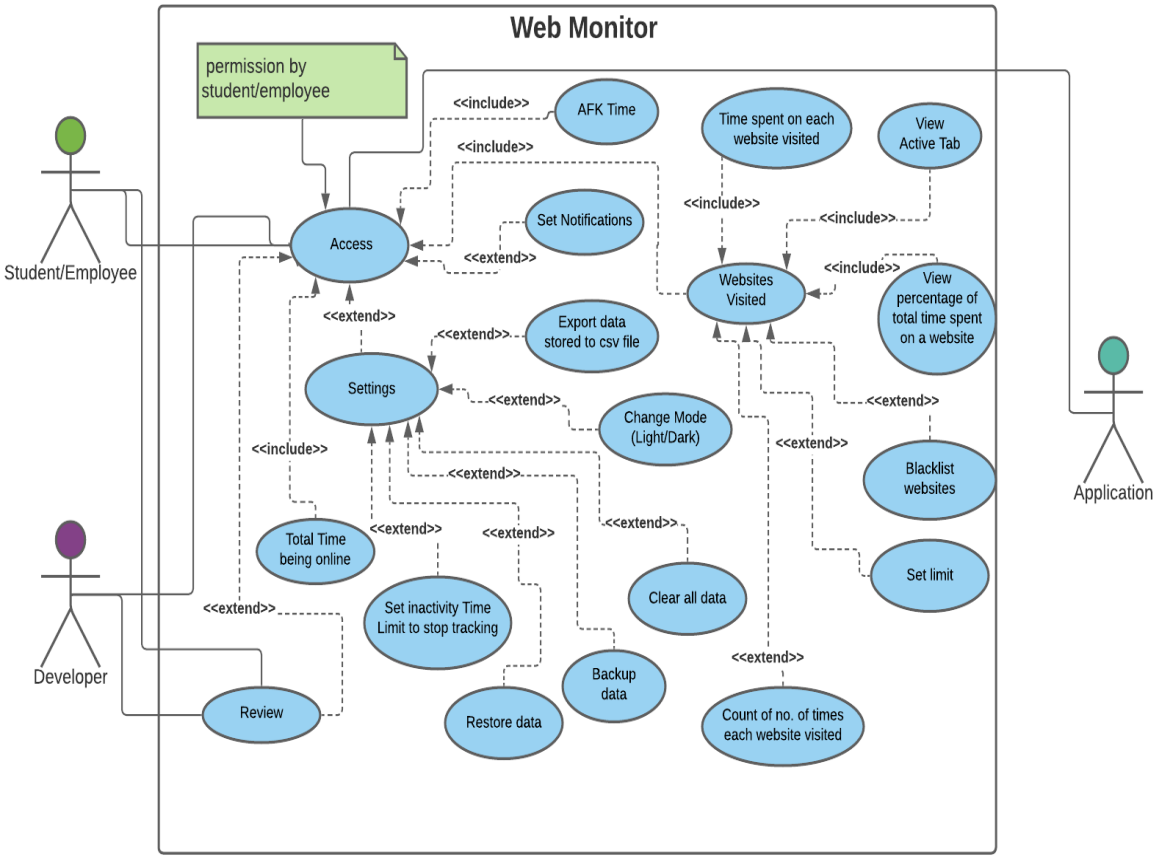
Working of "Web Monitor" requires Internet connection.

"Web Monitor" is a single-user Application. Every student/employee must have this plugin added to their web browser.

2.6 Assumptions and Dependencies:

a. Working of "Web Monitor" is dependent on the availability of Chrome browser on user's PC.
b. Working of "Web Monitor" is also dependent on the fact that students/employees have added this plugin in their web browser.

APPENDIX A: USE CASE DIAGRAM



3. Specific Requirements

3.1 Functional Requirements:

We describe the functional requirements by giving various use cases.

Use Case 1:

Name: Give access to history

Summary: Allows user(company/faculty) to access history.

Actors: Students/Employee

Pre-conditions:

• Internet connectivity.

Main success scenario:

• User clicks on the get permission button.

Extension:

Deny permission.

Post-condition:

User can now access the browser history.

Use Case 2:

Name: Using Storage

Summary: Allows application to store the data collected in chromeAPI localstorage.

Actors: Application

Pre-conditions:

• Internet connectivity.

Main success scenario:

• Permissions set.

Extension:

Optional permission.

Post-condition:

Application can get data from storage and process it to view to the users.

Use Case 3:

Name: View Total Online Time.

Summary: View students/employees total online time.

Pre-conditions:

• Internet Connectivity.

Main success scenario:

• User clicks on Total Time Online page tab.

• User can view all data shown there.

Extension:

• Tab fails to open due to loss of internet connectivity. An error message is thrown which indicates the same.

Post-condition

Admin can now see the total online time.

Use Case 4:

Name: View Websites Visited

Summary: Allows teachers/managers to view the websites which the students/employees visited during online class/work hours.

Actors: Faculty/Manager

Pre-conditions:

• Internet connectivity.

Main success scenario:

• Admin clicks on Websites Visited tab.

Extension:

• Tab fails to open due to loss of internet connectivity. An error message is thrown which indicates the same.

Post-condition:

Faculty/Manager can now see the websites visited.

Use Case 5:

Name: View amount of time spent on a site:

Summary: Allows teachers/managers to view about time spent by a student/employee on a particular page

Actors: Faculty/Manager

Pre - Conditions:

- Internet connectivity.

Main Success scenario:

- Admin clicks on Time spent on a page tab.

Extension:

- Tab fails to open due to loss of internet connectivity. An error message is thrown which indicates the same.

Post condition:

Faculty/Manager can now see the amount of time spent on a page.

Use Case 6:

Name: View AFK time

Summary: Allows teachers/managers to view about AFK time spent by a student/employee

Actors:Faculty/Manager

Pre - Conditions:

- Internet connectivity.
- Admin must upload a sample paper

Main Success scenario:

- Admin clicks on AFK Time Spent page tab.

Extension:

- Tab fails to open due to loss of internet connectivity. An error message is thrown which indicates the same.

Post condition:

Faculty/Manager can now see the AFK time spent.

Use Case 7:

Name:Download and add the product

Summary: Allows them to download plugins

Actors: Student/Employee

Pre-conditions:

• Internet connectivity,web browser logged in by organisation provided ids.

Main success scenario:

• Student/employee can download plugins.

Extension:

Deny permission.

Post-condition:

Student/employee can now download and add the plugin

Use Case 8:

Name: Access to track specific websites

Summary: Give access to track specific websites

Actors: Student/Employee

Pre-conditions:

• Internet connectivity.

Post-condition:

Student/Employee can five give access to track specific websites

Use Case 9:

Name : Backup data

Summary: backup the data

Actors : Student

Pre-Conditions :

- Internet connectivity.
- Database access given

Post Condition :

Student can backup data

Use Case 10:

Name : Switch Mode
Summary: Can view the interface in light or dark mode.
Actors : Student/Employee
Pre-Conditions :

- Internet connectivity.
- Extension added to the website.

Post Condition :

Students/employee will be experiencing the two modes .

Use Case 11:

Name : View percentage of total time spent on a website
Summary: Can View percentage of total time spent on a website
Actors : Student/Employee
Pre-Conditions :

- Internet connectivity.
- Extension added to the website.

Post Condition :

Students/employee can View percentage of total time spent on a website

Use Case 12:

Name : View active tab
Summary: Can View active tab
Actors : Student/Employee

Pre-Conditions :

- Internet connectivity.
- Extension added to the website.

Post Condition :

Students/employee can View active tab.

Use Case 13:

Name : Setting
Summary: Can change setting
Actors : Student/Employee
Pre-Conditions :

- Internet connectivity.
- Extension added to the website.

Post Condition :

Students/employee can change setting.

Use Case 14:

Name : Set inactivity Time Limit to stop tracking
Summary: Can Set inactivity Time Limit to stop tracking
Actors : Student/Employee
Pre-Conditions :

- Internet connectivity.
- Extension added to the website.

Post Condition :

Students/employee can Set inactivity Time Limit to stop tracking

Use Case 15:

Name : Export data stored to csv file

Summary: Can export data stored to csv file

Actors : Student/Employee

Pre-Conditions :

- Internet connectivity.
- Extension added to the website.

Post Condition :

Students/employee can export data stored to csv file

Use Case 16:

Name : Clear all data

Summary: Can Clear all data

Actors : Student/Employee

Pre-Conditions :

- Internet connectivity.
- Extension added to the website.

Post Condition :

Students/employee can clear all data

Use Case 17:

Name : Set Notification

Summary: notify the user

Actors : Student/Employee

Pre-Conditions :

- Internet connectivity.

- Extension added to the website.

Post Condition :

Students/employee can be notified

Use Case 18:

Name : Blacklist website
Summary: Can block specific website

Actors : Student/Employee
Pre-Conditions :

- Internet connectivity.
- Extension added to the website.

Post Condition :

Students/employees can block some specific websites.

Use Case 19:

Name : Restore data
Summary: restore the data
Actors : Student/employee
Pre-Conditions :

- Internet connectivity.
- Database access given

Post Condition :

Student can restore data.

Use Case 20:

Name : Count of number of times each website visited

Summary: Can have count of number of times each website visited

Actors : Student/Employee

Pre-Conditions :

- Internet connectivity.
- Extension added to the website.

Post Condition :

Students/employee can have count of number of times each website visited

Use Case 21:

Name : Feedback

Summary: User can give his/her feedback to the developer

Actors : Student/Employee

Pre-Conditions :

- Internet connectivity.
- Extension added to the website.

Post Condition :

Students/employee can give feedback to the developer

3.2 Non-Functional Requirements:

- ❏ For the system to work properly , the plugin must be installed in the web browser of the target audience.
- ❏ Secure access of the confidential data of students/employees to the users i.e faculties/companies.
- ❏ Better component design to take maximum efficiency .

- ❏ Data of the target audiences stored on the local server/cloud is accessible only to the user.
- ❏ No inconsistency with the data being stored.
- ❏ No issue to the users and the target audiences is ensured.

3.3 Hardware Requirements :

- Requires minimum 4gb ram for smooth functionality of the plugin.
- Processor : Intel Core i3 and above

3.4 Software Requirements :

Client : Google Chrome

DevelopmentTools : Microsoft Visual Studio

Markup language : HTML

Styling Language : CSS

Scripting Language : Javascript

3.5 Deployment

Operating system server : Windows 8 and above, UNIX, Linux.

3.6 Design Constraints :

- **Security:** The data storage must be encrypted so that valuable information of the organisation's elements remain secured.
- **Fault Tolerance:** Data should not become corrupted in case of system crash or power failure.