

Technical Report - **Product specification**

KeyUsageProfiler

Course: IES - Introdução à Engenharia de Software

Date: Aveiro, 03-11-23

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Project abstract: Monitoring of key stroke presses and gathering of statistics around them

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1 Introduction

KeyUsageProfiler is a web-application that allows a user to build teams and gather statistics about their team's keyboard usage. KeyUsageProfiler aims to simplify the supervision of various developers in a software development context by using a keylogger that sends to the team leader not only the key inputs of each member but also notifications about the inactivity of his members.

In the following chapter we'll go into more depth into the development of the product specification by analyzing use cases, creating personas and main scenarios, and developing user stories. According to these requirements an architecture will also be chosen. The product will be implemented following collaborative agile work practices and using GitHub as a code repository and project management system.

2 Product concept

Vision statement

Our project focuses on developing a keylogger that tracks the inputs of various keyboards and stores usage data for each user. This data is given to the user through a webpage according to the user's authorization. If the user is a team leader, he will have access to all the team members' information. However, each team member will only have access to self-related data and a leaderboards table if the team leader decides so.

This system was idealized mainly to help users obtain statistics about their typing data, which can be done as a self-evaluation, comparison between peers or as a monitorization tool for a manager in a company. The last one is more business oriented, allowing a visualization of workers' performance.

Use-cases

Actors:

1. Registered User
2. Team Member
3. Team Leader

Use Cases for Registered User:

1. **Create Team:** A Registered User can create a new team.
2. **Join Team:** A Registered User can join an existing team.
3. **Login:** A Registered User can log into their account.

Use Cases for Team Member:

4. **Login:** A Team Member can log into their account.
5. **View User Profile:** A Team Member can view their own user profile.
6. **Leave Team:** A Team Member can leave the team they are a part of.
7. **View Team Leaderboard:** A Team Member can view the leaderboard of their team.

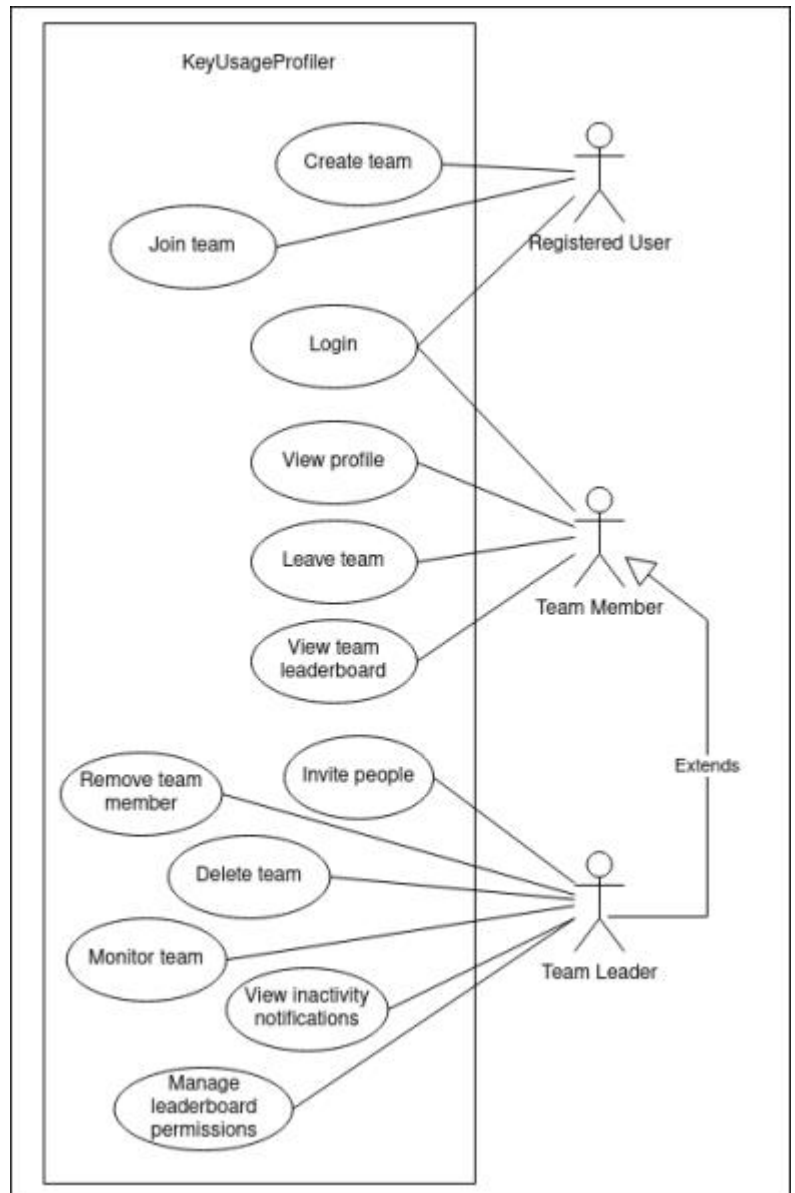


Image 1 - Use Case Diagram

Use Cases for Team Leader (Extends Team Member):

8. **Invite People:** A Team Leader can invite other users to join their team.
9. **Remove Team Member:** A Team Leader can remove a team member from the team.
10. **Delete Team:** A Team Leader can delete the entire team.
11. **Monitor Team:** A Team Leader can monitor the team's activities and performance.
12. **View Inactivity Notifications:** A Team Leader can receive and then view notifications based on Team Member's lack of activity.
13. **Manage Team Leaderboard Permissions:** A Team Leader can manage permissions related to the team leaderboard.

Personas

There have been defined two main actors for this system: **Team Leader** and **Team Member**.

Edward (Team Leader) – a 51-year-old, male, development team leader and SCRUM master.

- **Actor:** Team Leader
- **Motivation:** Wants to get a general and detailed view of the developers' performance in his team.
- **Requires** a service that gathers and presents relevant information about his overall team and each member when it comes to coding time per workday.



Emily (Team Member) – a 23-year-old, female, university student

- **Actor:** Team Member
- **Motivation:** Wants to compare her typing skills with her friends and compete with them.
- **Requires** a service that collects the typing data while she writes her essays and summarizes it while also allowing for a competitive view between the people in her friends group.



Scenarios

Monitoring team member's productivity

Edward has been noticing a decline in productivity in his team members and wants to monitor their productivity. So, in KeyUsageProfiler, he creates an account and subsequently a team, and invites his colleagues to the team to **see keypress statistics while at working hours**. He can also have a **more detailed view by checking certain patterns** (team member might be gaming at work) and **be notified of user's inactivity**.

Competing with peers

Emily is focusing on **competing with her friends to see who has the fastest typing speed**. To do that, she **receives an invite link for a team** in KeyUsageProfiler from one of her friends. Then she will install the program and run it with her credentials. After that, she will regularly **check the leaderboards** to see who is on top.

Distributing workers in a project

Edward divided the team and distributed the tasks for the day. To guarantee that each group progresses at the desired rate he **watches each group's statistics separately**. Then he can allocate new members to the group that's underperforming.

Helping team member's setup an environment

Edward is responsible for assuring that new members of a team can set up their environment to start development. With that in mind he checks for **team members that use the same IDE** as the new member and asks those members to help the newcomers with the setup process.

Product requirements (User stories)

We identified 3 agile epics that encapsulate sets of related user stories - **user authentication**, **team management** and **statistics gathering and presentation**.

User authentication:

User Story 1: [User login](#)

As a registered user

I want to log into my account on the website

So that I can see my user profile and the team I belong to

User Story 2: [User Registration](#)

As an unregistered user

I want to create an account in the website

So that I can access the website features

Team Management:

User story 1: [Create Team](#)

As a registered user

I want to access the homepage

So that I can create a new team

User story 2: [Invite Team Members](#)

As a Team Leader

I want to create invite links

So that I can assign different people to a team

User story 3: [Become part of a Team](#)

As a registered user

I want to accept an invite link

So that I can become part of the corresponding team

User story 4: [Remove team member from team](#)

As a Team leader

I want to access a team management menu

So that I can remove a team member from the team

User story 5: [Leave current Team](#)

As a team member

I want to exit my current team

So that I can join another team or create my own

User Story 6: [Delete Team](#)

As a Team Leader

I want to delete my team

So that I can join another team or create another one

Statistics gathering and presentation:

User story 1: [Key Heatmap](#)

As a Team Leader

I want to select a development team member

So that I can monitor the developer's performance by tracking the average key presses and visualizing it with a heatmap

User story 2: [User Profile Statistics](#)

As a Team Member

I want to go to my profile page

So that I can view how much time I spent typing, my average type speed and my peak typing time

User story 3: [Activity Analysis](#)

As a Team Leader

I want to see if a team member is gaming or coding

So that I can analyze if my team members are working or not

User story 4: [Live Virtual Keyboard](#)

As a Team Leader

I want to access a live representation of what a Team Member is typing

So that I can monitor the developer's real time activity on the keyboard

User story 5: [Estimation of IDE or editor](#)

As a Team Leader

I want to identify what editor are my Team Member's using when they are coding

So that I can know the IDEs used by my team

User story 6: [Leaderboards](#)

As a Team Leader

I want to access a dedicated leaderboard page,

So that I can conveniently track and compare team members' average typing speed and other useful statistics

User story 7: [Leaderboard Permissions](#)

As a Team Leader

I want to access the leaderboard settings

So that I can limit leaderboard visibility by team members

User story 8: [Homepage Members Selection](#)

As a Team Leader

I want to select multiple team members

So that I can monitor their information as a group

User story 9: [Reset Team Statistics](#)

As a Team Leader

I want to reset the key stroke statistics of my team members

So that I can re-evaluate performance in a new agile sprint

User story 10: [Reset Statistics Periodically](#)

As a Team Leader

I want to reset the key stroke statistics of my team members periodically

So that I can evaluate performance in each agile sprint

User story 11: [Inactivity Notification](#)

As a Team Leader

I want to be notified when team members are inactive

So that I can keep my team productive during work hours.