



Segfaulters: Lightning Talk

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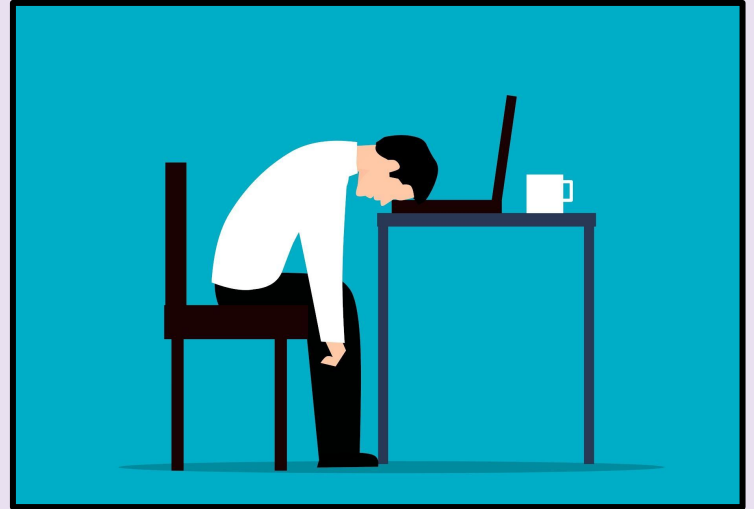
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01 Problem Intro

What problem are we trying to solve?



Problem Intro

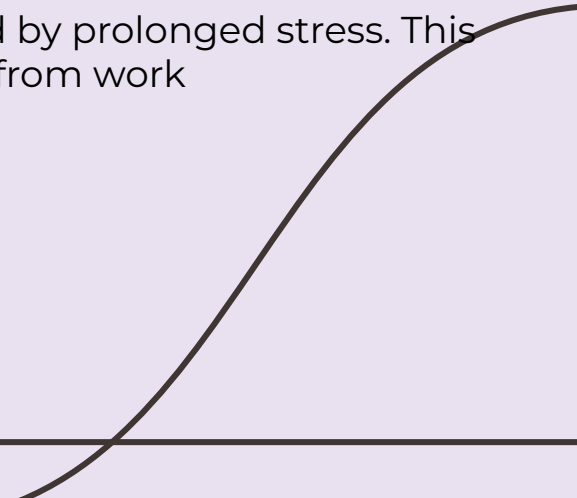
Software engineering demands consistent focus and problems solving over long periods and under tight deadlines. These prolonged work cycles and constant push for efficiency can lead to burnout and a diminished attention span.

“The [Software Engineering] field, and the more general IT sector, are not immune from the effects of burnout ... Reports highlighted that over 80% of the surveyed developers experienced, or are currently experiencing, some form of burnout in the workplace.”

- Information and Software Technology Journal

Burnout: A state of emotional, physical, and mental exhaustion caused by prolonged stress. This results in decreased productivity, lack of motivation, and detachment from work

But why does it matter?

- Impacts project quality and innovation
 - Leads to lower job satisfaction
 - Undermines team dynamics and collaboration
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Our Motivation

How can we design a tool that prioritizes mental well-being and sustained focus in software development?





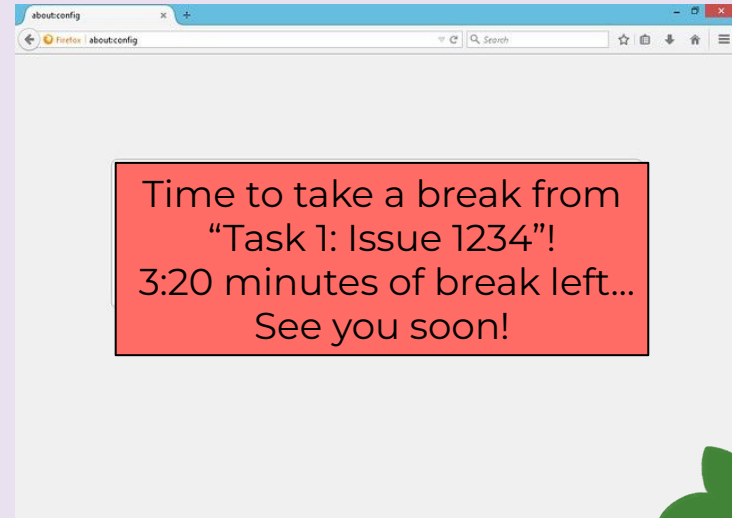
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Solution

How does our solution
address the problem?

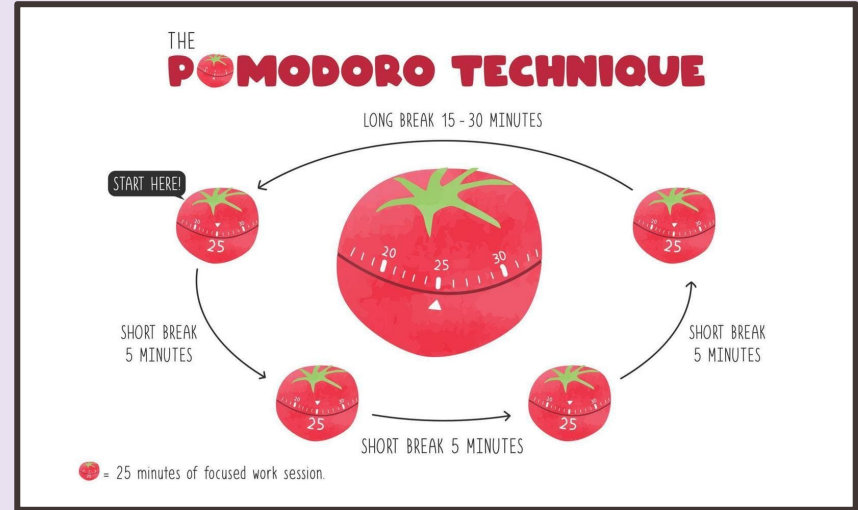
The PomBot!

- Chrome extension that helps you keep track of your work times and breaks
- Keeps developers accountable and reduces fatigue
- Forces developers to take a needed brain break
- Will remind the user when to take a break and when to focus on working
- A user can set how many Pomodoros they want to complete and the tasks they want to complete



How does our solution address the problem?

- Pomodoro Technique:
 - Choose a task
 - For a 25 minute interval, work on the chosen task without distraction
 - Take a 5 minute break
 - Repeat!
- A NIH study showed that “taking pre-determined, systematic breaks during a [work] session had mood benefits and appeared to have efficiency benefits (i.e., similar task completion in shorter time)”
- SE can break large tasks into manageable chunks of work that also foster the productivity necessary in rapid software development life cycles





03

Relevant Work

What are some examples
that are related to our
work?

Relevant Research

Paper 1: Understanding effort regulation: Comparing 'Pomodoro' breaks and self-regulated breaks (2023)

- Studied the effects of taking self-regulated breaks on mental effort and task completion
- “Taking pre-determined, systematic breaks during a study session had mood benefits and appeared to have efficiency benefits (i.e., similar task completion in shorter time) over taking self-regulated breaks.”

Paper 2: Attention and Concentration for Software Developers (2023)

- Study used EEG to measure software developers' attention in agile development
- Determine a relationship between meeting environment and a developer's attention during meetings

What are some examples that are related to our work?

TimeCamp



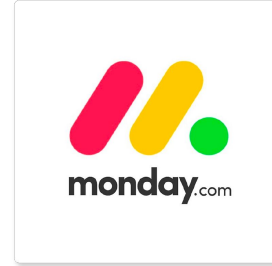
- Efficiently monitor their work hours
- Automatic time tracking reporting, and attendance management

TogglTrack



- Background time tracking for apps/websites
- Integrate calendars and external developer tools like Jira

monday.com



- Cloud-based platform for project management and task tracking
- Custom workflows with notification system



04

SE Improvement

How is our project relevant to improving Software Engineering?

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Promotes Better Time Management

Breaks tasks into manageable intervals using the Pomodoro Technique

Effect: Reduces procrastination and improves focus

Leads to structured work cycles and higher task completion rates, which is important in rapid development environments



Reduces Developer Burnout

Encourages regular breaks and limits overworking

Effect: Maintains mental health and prevents exhaustion

Improves overall job satisfaction and reduces turnover



Enhances Productivity

Supports distraction-blocking and visible timers for uninterrupted workflow

Effect: developer can have a supported flow state with needed breaks

Leads to higher quality and faster completion of deliverables



Encourages Sustainable Work Practices

Offers customizable schedules to fit individuals practices and has option to be integrated into a work env.

Effect: Fosters long-term, sustainable productivity habits

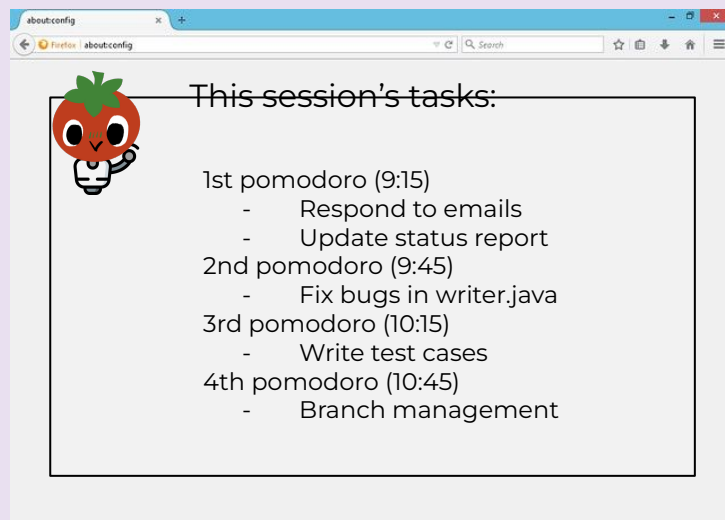
Improves team efficiency and software project outcomes

The Importance of Task Management

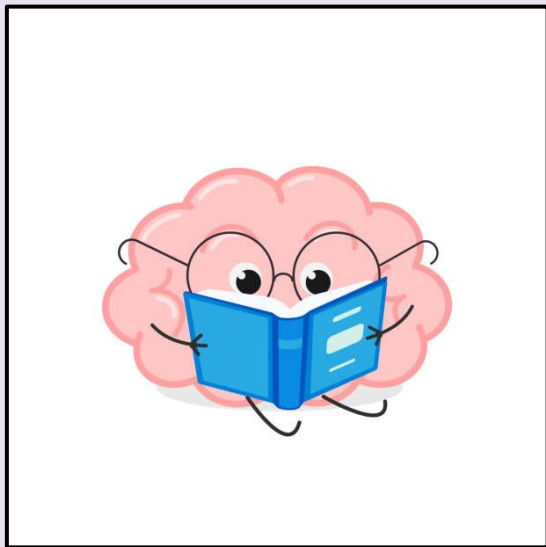
Many software engineers thrive in "The Zone" or flow state, where they are fully immersed and performing at their best. How can the Pomodoro bot assist those who excel in an undistracted environment?

While flow state has its benefits, breaking work into sections helps clarify tasks and promotes healthy work habits.

Dmytro Rohov, a seasoned software engineer, shares how the Pomodoro method helps his workflow: "This structure allows me to maintain a sustainable workflow of having a solid structure... When you have a solid plan and understand the steps, you can introduce breaks"



Flowstate : Task segmentation :: Spontaneity : Habit

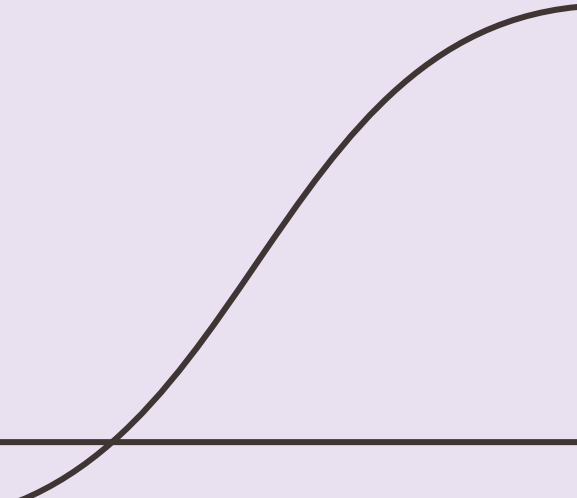


05

Class Tools

What lessons did we use from class in our project?

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- **Project Management Methodology**
 - Waterfall model
 - Sequential design dividing the project into phases, requirements, design implementation, testing, etc.
 - **Requirements Elicitation and Documentation**
 - Surveys
 - Interviews
 - Use case diagrams to gather and define stakeholder needs
 - **System Design**
 - UI Design: Usability Heuristics
 - High level design: 2-layer Client-Server Architecture
 - Low level Design: Creation family pattern
 - **Testing and Debugging**
 - Integration testing, UI testing, writing Black Box tests
- 

Future Work

- Add the possibility to have Pomodoro sessions that are premade so a user doesn't have to configure session settings every session
- Expand this project beyond a Chrome Extension (Desktop Application)
- Expand the scope of this project (it can help anyone, not just software developers!)
- Explore possibilities of having this integrate with company specific software (having the PomBot in Teams meetings, etc.)
- Implement the project and deploy it for testing for feedback on first iteration of the project



References



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