

RESEARCH METHODOLOGY

ASSIGNMENT 1

Title of the paper: What Do Developers Want From AI?

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Problem Statement : The problem statement in the attachment revolves around understanding what developers want from AI in their workflows. Specifically, it addresses the need to explore how developers prefer to interact with AI-enhanced tools, ensuring that AI improves their productivity without fundamentally altering their workflows. The focus is on how AI can assist developers in achieving efficiency, maintaining control, and enhancing creativity, particularly by automating simpler tasks and supporting more complex problem-solving. The overarching challenge is to align AI's capabilities with the developers' goals and pain points.

Introduction: Understanding user needs is key to user experience research, though it's sometimes questioned in the context of major technological innovations. The often misattributed quote, "If I had asked people what they wanted, they would have said faster horses," suggests users might not envision groundbreaking innovations like the car. While Henry Ford likely never said this, the quote highlights the importance of focusing on user goals, such as the need for faster transportation. Similarly, if AI is viewed as a major innovation, it's crucial to explore developers' needs and preferences for how AI can best support them.

Efficient chances:

- Developers want AI tools to enhance their efficiency by saving time and energy without altering their existing workflows - **Efficiency Overhaul**
- Developers prioritize efficiency, which encompasses ease of use and maintaining or improving quality, not just speed - **Focus more than Speed**
- AI is expected to handle simple and repetitive tasks, which helps developers to concentrate on complex and creative work - **Automating Simple Tasks**
- By automating repetitive tasks, AI tools can help developers feel more creative and focus on big-picture and long-term goals – **Boost Creativity.**
- Developers prefer to stay in control, using AI as a supportive tool while ensuring that final decisions remain in human hands - **Maintaining Control**
- Developers trust AI suggestions but verify them, reflecting the early stage of AI where human oversight is still crucial - **Trust but Verify Approach**
- While developers currently favor AI for simple tasks, their preferences may evolve with advancements in AI technology, potentially changing the balance between automation and control - **Long-Term Evolution**

The top 10 hindrances to developer productivity at Google:

When compared human efficiency with car example and AI example, we get innovation and efficient solution for better human existence. In order to achieve this, google conducts opinions from their developers and try to remove hindrance based on the survey. This action also align with Google's mission. The hindrances listed by developers are:

- Technical Debts
- Poor or missing documents
- Learning a new framework/tech/infra
- Complicated processes
- Team or organizational reasons
- Flaky tests
- Presubmit tests slow down CL submit time
- Build and Test Cycles that Inhibit Rapid Iterative Development
- Slow Test
- Code review

How AI can help developers (at organizations view point):

- **Developer Pain Points Drive AI Investments:** Google focuses AI investments on addressing developers' pain points, such as learning new platforms and frameworks.
- **Targeted AI Tools:** Google is developing AI tools like DUET AI for chatbot and troubleshooting support, and AI for code review and testing, based on developer feedback.
- **Holistic Approach:** By asking developers what hinders their productivity, Google takes a comprehensive approach to integrating AI into development workflows.
- **Mixed Reactions to AI:** While many developers see the benefits of AI, some are hesitant to adopt it, reflecting a cautious attitude toward new technology.
- **Skepticism and Risk:** There is a need for caution, as research shows that AI tools can lead to insecure code during security-related tasks, emphasizing the importance of understanding developer resistance.
- **Importance of Meeting Developers' Needs:** Google's strategy includes recognizing and addressing developers' concerns and resistance to AI, ensuring AI tools are effective and accepted.

Conclusion:

The evolution of AI is a significant moment in history. These advancements remind us to focus on developers' goals and recognize the value of new technologies, both expected and unexpected. Just as the compiler transformed software engineering, AI in developer tools presents a similar opportunity. As we look to the future, it's crucial to align AI with developers' fundamental goals and understand their resistance. At Google, we are committed to supporting the entire development lifecycle and considering AI's broader implications for product development.