

# GitHub: Impact on Software Development and Society

Software apps are now a crucial part of everyday life. They affect how we connect with others, how businesses run, and how we share information. One of these applications is GitHub. GitHub was founded in 2008 as a platform that uses a software called Git to maintain different versions of an application and track changes made in it. GitHub's biggest success is making software development easier to access, helping new developers around the world to be a part of amazing projects and making the developer community more diverse. GitHub has removed distance barriers in software development by allowing people with an internet connection to work on coding projects from any part of the world. This has allowed developers from underrepresented areas to take part in software development and showcase their skills [1].

The platform provides many resources, like tutorials, documentation, and guides, for users of all skill levels. People can learn new skills and improve their coding abilities so that they can contribute to open-source projects and make a difference. For example, self-taught developers can use GitHub's resources to learn any tech stack and apply their knowledge to real-world projects. This helps them gain confidence and feels rewarding. Additionally, GitHub also helps overcome financial barriers in software development by offering free and low-cost plans for its users. Github lets its users create any amount of repositories for free. For private repositories, GitHub offers budget-friendly plans, making them accessible for individuals and small teams with limited funds [2].

Apart from being useful to individual programmers, GitHub is also important to big tech companies that use it as a hub for development projects. Its version control system tracks changes in the code and makes it possible to go back to previous versions if necessary. The pull request feature on GitHub allows the companies to control what is being merged into their codebase, as pull requests can only be accepted manually by an authorized person after reviewing the new code. GitHub is flexible and supports multiple technologies and tools. It works with many different development tools that make development experience smooth and efficient. Popular continuous integration (CI) tools like Jenkins, Travis CI, and CircleCI easily connect with GitHub, allowing for automatic testing and deployment. This setup ensures that final changes are only made after passing various tests. By doing this the chances of faulty code being pushed into main code are reduced [3]. Additionally, by hosting their projects on GitHub, tech companies gain more

visibility in the developer community, which helps them attract top talent from all around the world [4].

GitHub has single-handedly revolutionized the open-source software movement by providing a user-friendly platform for developers to contribute to open-source projects. It hosts millions of projects across different technologies. This vast collection means that anyone, regardless of their technical background, can find projects to contribute to. Contributing to open source projects can greatly improve job prospects. By showcasing skills and building a public portfolio, developers become more attractive to employers. It also connects them with a global network, leading to job opportunities and referrals [5]. According to a 2020 survey by GitHub, 94% of developers believe open source benefits all software development, and GitHub's platform supports contribution, discovery, and collaboration, creating a vibrant open-source community with projects in many different areas [6].

GitHub (Git) uses a cryptographic algorithm to track commits and manage version control in software projects [3]. Git allows developers to work on projects in their computers and later add them to the central repository created on GitHub. This provides programmer with flexibility and freedom to experiment with their code without hurting the actual codebase. However, there are challenges and controversies facing GitHub. One major concern is the frequency of cyber attacks as well as security flaws experienced in open source projects in this platform. While GitHub has implemented safety measures like bug bounty programs and automated vulnerability scanning, these security threats still concern developers [7].

Despite some issues, GitHub is still a vital tool for software development. It helps developers from all over the world work together on projects, no matter where they are. With tools for version control, issue tracking, and collaboration, GitHub has changed how we create, manage, and share software today [8].

## References:

- [1] GitHub Octoverse, 2020. [Online]. Available: <https://octoverse.github.com>
- [2] "AI-powered impact: GitHub Social Impact's year ahead," GitHub Blog, 2021. [Online]. Available: <https://github.blog>
- [3] "About Git - GitHub Docs," GitHub, [Online]. Available: <https://docs.github.com/en/get-started/using-git/about-git>.
- [4] "A Comprehensive Guide to Version Control with Git and GitHub," DEV Community, [Online]. Available: <https://dev.to/>.
- [5] "Make your first open source contribution in four easy steps," GitHub, [Online]. Available: <https://github.com>.
- [6] "Social Impact at GitHub Universe 2021," GitHub Social Impact, 2021. [Online]. Available: <https://socialimpact.github.com>
- [7] "A Year In, GitHub Measures AI-Based Copilot's Productivity Boost," Visual Studio Magazine, 2021. [Online]. Available: <https://visualstudiomagazine.com>
- [8] "Understanding the social impact of open source technologies," GitHub Blog, 2021. [Online]. Available: <https://github.blog>

