**Probability and Applied Stats**

**GitHub’s Uses and Features**

When it comes to coding there are a plethora of different roads one can take on their way to achieving the goal they have set out to complete. Plenty of different programming languages, IDE softwares, and other tools are at the hands of any programmer to assist them. However, when coding with a team there are few platforms better for sharing your work with others than GitHub, where users are able to view and edit one anothers code in a repository. This shared code space is visible to specific people given access to it or the entire internet if set to public in settings. This makes communication on projects easier through methods like pull requests that allow the user to let others know that they have completed work or made changes to the code. Now the new changes are ready to be reviewed by the owner of the repository before being merged into the main project. This makes it so others cannot make unwanted changes to someone's program without their approval first. When a pull request is made the member making the request is able to specify what branch of the depository they intended it for as well as making a note of what work was done. Another benefit to GitHub is that it keeps track of all changes made to the code, making it easy to go back to older versions if necessary, as well as figure out who made what changes and why. It is also very easy for users to commit changes from their code to their GitHub repository. After connecting their code to their repository all of the programmers work and changes are saved while they make them. Then, the user can push and commit their code to their GitHub repository straight from their IDE of choice. A tool the program offers that assists in the communication of members is the addition of README files which give the users the ability to explain their programs making it a more seamless transition for programmers who are new to the repository. While communication is an undeniable benefit to GitHub, it is not the sole reason that so many different coders use it to store their work. The key word there is store, GitHub is one of the safest ways for coders to keep track of their work and keep it safe. As everybody knows things happen, technology malfunctions, accidents occur often, and files are not always safe on computers. Flash drives are an excellent backup in terms of keeping track of files however how can someone be sure not to lose such a small item like a flash drive. Once code is put into a GitHub repository the only way to lose said code is if it is intentionally deleted by the owner of the repository. It is one of the safest ways to store all of your work in case something were to happen to the device where it was previously stored. As long as you have access to your GitHub account which is setup with email and password, your code will forever be safe in your repository. Code is not the only type of files that can be stored either, while it is mainly used for storing code, all types of files could be stored in a repository to keep them safe or share with others. GitHub provides a secure place for any files to be backed up to your account which removes the need for any physical storage accessories like hard drives and flash drives. While there are plenty of reasons to use GitHub, like anything in life there are some negatives that come along with all of the pros. One obvious con that stands out is that while someone can create a Github account for free there are additions to the software that must be paid for. For example if a company needed more extensive security they would have to spend the extra money for GitHubs premium plan. Another limitation is that the software is not the easiest to navigate and figure out for first time users who are not experienced with git, which obviously is what GitHub revolves around. This leads to a larger learning curve for newer users. At the end of the day, once users get past the initial struggles GitHub becomes a great source for programmers to store and share their code with others. The ability to manage and keep track of changes made, push code straight from an IDE, and safely store files makes GitHub an essential tool for programmers everywhere to learn.