Version Control Systems

* **Christina: Introduction, Thesis Statement, 1ST Generation VCS**

Hi everyone, My name is Christina. Today, I’m joined with my teammates Michael, Travis, and Sarah to talk about the evolution of version control systems. Since our project is to develop a web-based code review tool integrated with Git which is a distributed version control system, we had a lot of practice using VCS and understanding how they work in order to keep track of our progress as a team.

 For those who don’t know what VCS is, it’s essentially a software tool that many programmers use to manage and track their source code. VCS stores different versions of code and is especially helpful when working on projects in a large group. With code being constantly updated from one person to another, VCS aims to track these changes and manage different versions of source code, files, and documents that multiple users work on at once. Funny enough, as our team was working on our project, we were sending files back and forth through our Microsoft teams chat which was really confusing and difficult to keep track of who was sending what, further demonstrating the need and importance of version control.   |

The first-generation VCS provided the foundation for many modern VCS tools that many developers use today. Unlike modern VCS, The first generation VCS were intended for users to track changes for individual files and could only be edited locally by one user at a time. They were built so that all users would log into the same shared Unix host with their own accounts.

SCCS (Source Code Control System) is considered to be one of the first VCS tools created. SCCS consists of two parts: SCCS commands and SCCS files. Some common operations SCCS has are the ability to track file history, check out specific file revisions for editing, reviewing, commenting or compilation, reverting changes, and basic branching and merging of changes. These operations can be done through various basic commands, which is common among many modern VCS. Here is a list of some of the most common SCCS commands.

On the other hand, a SCCS file is a special type of file used in SCCS also called an s-file or a history file. It is created when a file is added for tracking with SCCS. The files have a unique format prefix s., which is controlled by SCCS commands. The purpose of this file type is so that when created, the history file will contain the initial content of the original file as well as some metadata to assist with version tracking. So for instance, a file called test.txt would get a history file created in the ./SCCS/ directory with the name s.test.txt

In an SCCS file, there are 3 components: A delta table, access, and tracking flags, and a body of the text.  instead of creating a separate file for each version of a file, the SCCS file system only stores the changes for each version of a file. These changes are referred to as deltas which are stored in a delta table, where each delta represents a single revision in a file. Each entry in the delta table contains information about who created the delta, when they created it, and why they created it. Control and tracking flags in SCCS files are somewhat self-explanatory. These flags are used to track the various access and tracking options of every SCCS file. Some of the SCCS flag operations include: designating users who may edit the files and locking certain releases of a file from editing. Finally, the SCCS file body contains the text for all the different versions of the file. In other words, portions of the SCCS file body, otherwise known as the control characters indicate the portions of text that correspond to each delta. Altogether, SCCS commands and SCCS files work hand in hand to create a successful working version control system and have set the path for the following generations of VCS tools widely used today. Now I’m going to hand it off to Sarah to talk about how VCS has evolved since the first generation was released.

* **Sarah: 2ndgeneration VCS , lead into 3rd generation**

………

* **Travis: 3rd generation VCS, Conclusion and repeat of thesis**

……….

* **Michael: 4th paragraph demo presentation**

DEMO DEMO DEMO DEMO DEMO DEMO DEMO