Project Title: Genesis (Python Programming)

Group Members: Rodney Folz   DuPont Manual High School
                                                        Louisville, Kentucky
                         AJ Piergiovanni   Lehigh Valley Academy
                                                            Nazareth, Pennsylvania

Python is a high-level, open-source programming emphasizing simplicity and ease-of-use, and is employed by many high-profile companies such as Google, NASA, and Lucasfilm. PyGame is a set of Python modules designed for writing games that allows programmers to use different graphics and audio libraries without changing the way that they write code. However, although PyGame allows for efficient image and sound rendering, it does not natively support many functions necessary for game development, including vector collisions, scrollable viewports, gravity-based physics, or network connections for multiplayer games. If a programming team wanted to include any of the preceding functionality in a game they wished to make, they would be forced to write their own implementation, which could be buggy and would add to the work required to finish the game. Therefore, to provide for a common code base for anyone wishing to create games employing the preceding functionality, this development group designed and wrote a two-dimensional game engine dubbed Genesis that allows intuitive access to vector collisions, scrollable viewports, gravity-based physics, and networked connections. The Genesis engine handles the more low-level aspects of game programming, allowing programmers to focus their energies on the overall feel of the game. Genesis has been rigorously tested and is believed by the developers to be ready for production use.

To demonstrate the capabilities of the Genesis game engine, a proof-of-concept game dubbed *Weathered Stone* was also created. *Weathered Stone* is a two-dimensional platform

shooter where multiple players on two different teams attempt to capture their opponents' flag while simultaneously defending their own. In addition to showcasing the capabilities mentioned above, *Weathered Stone* also features parallax scrolling, in which a scrolling background moves in the opposite direction of the player, simulating the feel of depth and increasing the realism of the game world.