**Mutant Rainbow**

**Concepts Learned:**

* **Functions**: The code uses functions like get\_line\_length(), get\_line\_width(), and move\_turtle(), teaching the importance of breaking code into modular, reusable components.
* **User Input**: The program takes user input to customize the turtle's line length and width, teaching students how to create interactive programs.
* **Randomization**: Using random.choice() and random.randint() introduces randomness in movement and colour selection, adding variability to the program.
* **Loops**: The while True loop runs continuously, reinforcing the concept of infinite loops for ongoing actions.
* **Conditionals**: The use of if-elif-else structures in the input functions and movement logic helps teach decision-making in code.
* **Screen Boundaries**: The inside\_window() function checks whether the turtle is within the window bounds, teaching boundary checking in graphical programs.
* **Turtle Graphics**: Using the turtle module introduces drawing and movement control with visual feedback, reinforcing spatial understanding.

**Key Learning Outcomes:**

* **Function design**: Learn to build reusable, parameterized functions to manage different parts of a program effectively.
* **Interactive input**: Gain experience in designing programs that respond to user input and adjust behaviour accordingly.
* **Randomization in movement and colour**: Understand how to use random values to create dynamic and unpredictable visual outcomes.
* **Iteration with infinite loops**: Learn how to create continuous, ongoing actions using infinite loops in visual programming.
* **Conditional logic**: Apply conditional statements to manage program flow based on user input and turtle movement within screen boundaries.
* **Boundary detection**: Implement logic to ensure objects remain within a defined area, improving control in graphical environments.
* **Turtle module functions**: Practice using turtle commands like pencolor(), forward(), and right() to control movement and drawing visually.